

**PRELIMINARY REPORT**

for

**BOREHAM CONSULTING ENGINEERS LTD**

on behalf of

**JELSON LIMITED**

on

**A GROUND INVESTIGATION**

for

**A PROPOSED RESIDENTIAL DEVELOPMENT**

at

**HALLAM FIELDS  
BIRSTALL  
LEICESTERSHIRE**

Nicholls Colton Geotechnical  
Consulting, Inspecting and Testing Engineers  
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LR: G04003

DATE: December 2003

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# **PRELIMINARY REPORT ON A PROPOSED DEVELOPMENT AT HALLAM FIELDS, BIRSTALL, LEICESTERSHIRE.**

## **1. Introduction**

- 1.1 This preliminary report has been prepared on instructions given by Boreham Consulting Engineers Ltd, Regent House, Hubert Road, Brentwood, Essex, CM14 4JE on behalf of their clients Jelson Limited, 370 Loughborough Road, Leicester, LE4 5PR in a letter dated 21<sup>st</sup> August 2003.
- 1.2 It is proposed that approximately 900 residential properties with associated infrastructure be developed at the site.
- 1.3 The purpose of this ground investigation was to obtain preliminary data regarding the ground and groundwater conditions at the site, so that suitable methods of design and construction can be adopted.
- 1.4 The site is located West of the A6 directly north of Birstall, Leicestershire (approximate National Grid Reference SK 587 103) as shown on the appended site location plan (Nicholls Colton Geotechnical Drawing No. G04003/01).
- 1.5 This preliminary investigation has been undertaken on the specific instructions of Boreham Consulting Engineers Ltd on behalf of their clients Jelson Ltd and no reliance should be made by third parties as to its adequacy or completeness in relation to future development requirements of the area under consideration. Similarly, Nicholls Colton Geotechnical and Nicholls Colton and Partners Ltd will accept no liability in relation to the use of data contained in this report by third parties.

## **2. Site Description**

- 2.1 The area of the site under investigation predominantly consists of four arable fields separated by hedgerow, which together form a large rectangular shape.
- 2.2 A small pond is located in the centre of the site, within a line of hedgerow.
- 2.3 The site slopes down in a south-east direction with an approximate fall of some 25m. At the time of the site works the ground was uneven, having been ploughed.
- 2.4 A water pipe (1.5 inch asbestos cement) is known to cross the site in an east-west direction. There are no other known services upon the site.
- 2.5 Access to the site was gained from the A6 via a farm gate on the east side of the site.

### 3. **Site Work**

- 3.1 Eight 150mm diameter boreholes (BH's 1 to 8) were put down by light cable percussion methods to depths of 8.00m below existing ground level. Water monitoring pipes were installed in all of the boreholes to full depth.
- 3.2 Fifty trial pits (TP's 1 to 50) were excavated by mechanical excavator to depths of between 1.60m and 3.30m (although predominantly to 3.00m) below existing ground level. All trial pits were backfilled with arisings upon completion.
- 3.3 In addition, three soakaway pits (SK's 1, 2 and 3) were excavated by mechanical excavator to depths of between 2.10m and 2.20m below existing ground level. These pits were backfilled with 20mm (nominal size) gravel over the proposed tested zone (1.00m to full depth) with a monitoring / filling pipe installed to full depth. These pits were then backfilled with arisings to ground level.
- 3.3 The Borehole, trial pit and soakaway pit logs are included in this report as Appendices A, B and C respectively.
- 3.4 The positions of the exploratory holes (including soakaway test pits) are shown on the appended exploratory hole location plan (Nicholls Colton Geotechnical Drawing No. G04003/02) based on a drawing supplied by Boreham Consulting Engineers Ltd.
- 3.5 Open tube samples (105mm nominal diameter) were recovered from the cohesive strata revealed within the cable percussion boreholes. Fragmentary disturbed samples were recovered from all materials revealed within the boreholes and machine excavated trial pits.
- 3.6 The samples were taken to Nicholls Colton Testing's laboratory for examination and testing.
- 3.7 The fieldwork (excluding soakaway testing) was carried out between 17<sup>th</sup> October and 8<sup>th</sup> November 2003.
- 3.8 This investigation has been carried out in general accordance with BS 5930: 1999.

### 4. **In Situ Testing**

- 4.1 Standard Penetration Tests (SPT's) were carried out within the natural granular and cohesive materials revealed in the boreholes. The tests were carried out in accordance with BS 1377: Part 9: 1990 and the results are included on the appended cable percussion borehole logs (Appendix A).
- 4.2 Hand shear vane tests were performed where practicable in cohesive strata within the trial pits. The results are included on the trial pit logs (Appendix B).

- 4.3 Mexicone tests (CBR equivalent) were undertaken within the majority of the trial pits at anticipated approximate road formation level. The results are included on the trial pit logs (Appendix B).
- 4.4 As described in section 3.3 three soakaway pits were constructed, in order to determine the drainage characteristics of the soils at the site. These pits were filled (to 1.00m below ground level) with potable water. The water level was then measured until the pit was empty. This process was undertaken three times per pit. It was not possible to complete the test for SK3 as the water from the first stage did not drain away.
- 4.5 The results of the soakaway testing are presented in Appendix D.
- 4.6 The soakaway testing was carried out from 22<sup>nd</sup> to 27<sup>th</sup> November 2003.

## 5. **Laboratory Testing**

- 5.1 The laboratory testing schedule was prepared by Nicholls Colton Geotechnical, based on quantities determined by Boreham Consulting Engineers Ltd.
- 5.2 Included in this report is information taken from the results of tests undertaken in Nicholls Colton Testing's laboratory at 7 - 11 Harding Street, Leicester. This is UKAS accredited testing laboratory No. 0320. The results of the laboratory tests in this report do not include all data required by the documented test procedure. However, all such data has been recorded and will be stored for six years from the date of test. This data will be issued on the client's instructions.

The following accredited test procedures were carried out:

- Natural Moisture Content
- Liquid Limit
- Plastic Limit
- Plasticity Index
- Undrained Triaxial Compression Strength (Single-stage)
- Soil Sulphate Content
- pH value
- California Bearing Ratio
- Particle Size Distribution

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

- 5.3 The geotechnical laboratory tests were carried out during the period 16<sup>th</sup> October to 14<sup>th</sup> November 2003.
- 5.4 The geotechnical laboratory testing has been carried out in accordance with BS 1377: 1990 using calibrated equipment specified within the British Standard.

- 5.5 The geotechnical laboratory test results are included in this report as Appendix E.
- 5.6 In addition to the laboratory testing outlined above a series of soil samples was tested for the presence of contaminants as listed below. This testing was undertaken at UKAS accredited testing laboratory No. 1510 (City Analytical Services, 80 Lockhurst Lane, Coventry, CV6 5PZ):
- 5.7 Concentrations of the following contaminants (based on a suite specified by Boreham Consulting Engineers Ltd) were determined using selected soil samples obtained from the site (all values total unless otherwise stated):
- Arsenic
  - Boron (water soluble)
  - Cadmium
  - Chromium
  - Copper
  - Cyanide
  - Lead
  - Mercury
  - Nickel
  - pH Value
  - Phenols
  - Polyaromatic Hydrocarbons
  - Selenium
  - Sulphate
  - Sulphide
  - Sulphur (elemental)
  - Zinc
- 5.8 The contamination testing outlined above was carried out in the period 13<sup>th</sup> to 22<sup>nd</sup> October 2003.
- 5.9 The contamination test results are included in this report as Appendix F.

**6. General Geology and Revealed Strata**

- 6.1 Geological sources (including the Geological Survey of Great Britain (England and Wales) sheet no. 156) indicate the site to lie in an area where Glacial Deposits of Pleistocene Age overlie Mercia Mudstone Deposits of Triassic Age.

The exploratory holes revealed a general downwards strata succession of:

TOPSOIL

- GLACIAL DEPOSITS
- Slightly gravelly CLAY
  - Slightly silty slightly gravelly SAND
  - SILT

**7. Groundwater**

- 7.1 Groundwater was encountered in only two of the excavations. A slight seepage was observed in BH6 from 4.50m which rose to 4.30m after 20 minutes. A slight seepage was also observed in TP 4, coming from a pocket of sand within the pit. No other groundwater seepages were encountered.

- 7.2 No long term monitoring of groundwater levels has been undertaken as part of this investigation.
- 7.3 It should be noted that groundwater levels may differ at times from those reported due to seasonal variations or other effects.

## **ENGINEERING ASSESSMENT AND RECOMMENDATIONS**

### **8. Introduction**

- 8.1 It is understood that Jelson Limited propose to construct approximately 900 houses with associated infrastructure at the site. It has been assumed that this development will generally comprise two storey structures.

### **9. Soil Profile**

#### **9.1 Topsoil**

- 9.1.1 Topsoil was revealed in all of the exploratory holes put down at the site to depths of between 0.10m and 0.60m (although generally to about 0.30m) below existing ground level.

#### **9.2 Glacial Deposits**

- 9.2.1 Underlying the topsoil Glacial Deposits were encountered in all locations. These natural soils were encountered as generally stiff slightly gravelly clays and slightly gravelly sands.
- 9.2.2 The granular deposits were generally seen in the south eastern corner of the site although localised pockets were encountered across the site.
- 9.2.3 A localised pocket of non cohesive silt was encountered in TP 27 extending between 0.60m and 2.80m below existing ground level.
- 9.2.4 The granular deposits are considered to be generally of medium dense relative density. This was assessed visually from the ease of excavation and the stability of the pits.
- 9.2.5 The cohesive deposits are typically of stiff or very stiff consistency. They are considered to be of generally medium compressibility.

9.2.6 Seven plasticity index tests undertaken in the cohesive deposits indicate them to be of Low and Intermediate Plasticity (i.e. CL and CI soils) after the classification system of BS 5930: 1999, and to be of low and medium swelling/shrinkage potential in accordance with NHBC Standards Chapter 4.2: 1999.

9.2.7 The full depth of the Glacial Deposits was not proven in any of the excavations undertaken.

## 10. **Excavations**

10.1 Based on the ground conditions revealed during the fieldwork it is anticipated that shallow excavations (less than say 3.00m) should generally be readily achieved adopting standard excavation plant.

10.2 Random and potentially severe falls should be anticipated from the faces of near vertically sided unsupported excavations carried out in the natural granular strata at the site. It is recommended that where personnel are required to enter excavations in such materials, continuous support should be provided to the full depth of the excavation. A reduction in the degree of support required (to intermittent support) may be justifiable in the stiff clays.

10.3 Battering of excavation faces to a safe angle as detailed in BS 8000: Part 1:1989 may prove to be a viable alternative to support methods.

10.4 All battering or support systems provided should be continually assessed by fully trained and experienced personnel.

10.5 Based on the limited groundwater observations recorded during the fieldwork, it is anticipated that excavations for foundation and drainage systems will generally remain dry.

## 11. **Foundations**

11.1 It is proposed to construct approximately 900 houses (assumed to be two storey) at the site.

11.2 The exploratory holes have revealed depths of up to 0.60m of topsoil across the site which is underlain by stiff clays and medium dense sands. It is considered that these deposits should provide foundations with adequate support. It is therefore anticipated that traditional strip or trench fill foundations will prove suitable for new buildings at the site.

- 11.3 As a guide, for 0.60 metre wide strip/trench fill footings, bearing on the underlying natural stiff cohesive soils at a minimum depth of 0.90 metre below finished ground level, an allowable net bearing pressure of at least 125 kN/m<sup>2</sup> is considered appropriate.
- 11.4 Deepening of footings below the minimum of 0.90 metre will be required for plots within influencing distance of any trees or vegetation, in accordance with NHBC Standards Chapter 4.2: 1999 'Building near trees'. For the purposes of using that document, and based upon the data obtained during the current investigation, it is recommended that the soils be classified as being of medium swelling/shrinkage potential.
- 11.5 Where footings are to bear on the natural granular soils (south eastern corner of site) a minimum depth of 0.75m can be adopted. An allowable net bearing pressure of about 125 kN/m<sup>2</sup> would be appropriate, although it should be noted that in BH5, a loose sand was encountered. Foundations in this area should be deepened (to about 2.00m) and/or widened to minimise the potential for excessive settlements.
- 11.6 Where footings are to bear either in whole or in part on granular soils, it is recommended that these incorporate nominal mesh reinforcement, in order to minimise the potential for differential movements.
- 11.7 The above values incorporate a factor of safety of 3 against shear failure and total settlements are not expected to exceed 20mm, thereby keeping differential settlements within acceptable limits.

## 12. **Ground Floor Slabs**

- 12.1 Following removal of all topsoil from below the proposed slab a ground bearing slab may be adopted, providing that the thickness of imported granular fill required to achieve slab formation level is less than 600mm.
- 12.2 Where plots are within influencing distance of trees, it may be necessary to construct ground floor slabs as suspended slabs, in accordance with NHBC standards.
- 12.3 The BRE report 'Radon: guidance on protective measures for new dwellings' 1999 indicates that no radon protection will be required at the site. Furthermore, it specifies that a confirmatory report from the British Geological Society will not be required.

## 13. **Concrete Classification**

- 13.1 The guidelines given in BRE Special Digest 1, Part 1:2001 are based upon a site classification relating to its previous usage. This site has been determined to be a greenfield site (natural soils) for the purpose of concrete classification.

- 13.2 The results of water soluble sulphate tests lie in the range <0.10 to 0.10 g/l as SO<sub>4</sub>, and the pH values of soil samples lie within the range 7.1 to 8.4.
- 13.3 On the basis of the above it is considered appropriate to adopt a Basic Design Sulphate Class of DS-1, together with an Aggressive Chemical Environment for Concrete (ACEC) of AC-1s.
14. **Road Construction**
- 14.1 Natural stiff clays and medium dense sands are generally present at the anticipated formation level (understood to be 0.50m to 0.60m below existing ground level).
- 14.2 On the basis of the insitu (mexicone) testing and laboratory test results obtained (see Appendices B and E respectively), it is considered appropriate to adopt a design CBR value of 5% at the proposed formation level at the site.
- 14.3 The approval of the local authority Highway Department should be sought in respect of the above.
15. **Drainage**
- 15.1 As described in section 4.4 three soakaway tests were undertaken in order to determine the drainage characteristics of the soils at the site. These tests were carried out in accordance with BRE Digest 365:1991. The results of these tests are presented in Appendix D.
- 15.2 Pits SK 1 and 2 were constructed within the granular deposits encountered in the south-eastern third of the site, whilst SK 3 was constructed within the cohesive deposits encountered in the remaining north-western area. The approximated extent of the clay/sand is shown on the attached plan.
- 15.3 The positions of the soakaway pits are shown on the Exploratory Hole location plan (G04003/02).
- 15.4 Soakaway pits SK 1 and 2, located in the granular soils had infiltration rates of  $1.23 \times 10^{-6}$  m/s and  $1.14 \times 10^{-5}$  m/s respectively. These are considered to be 'good' infiltration rates which will be suitable to adopt a soakaway, based on BRE Digest 365:1991.
- 15.5 Soakaway pit SK 3 located in the clay had an infiltration rate of  $7.11 \times 10^{-8}$  m/s. This is considered to be 'practically impervious' and hence will be unsuitable to adopt a soakaway, based on BRE Digest 365:1991.

- 15.6 It should be appreciated that despite the tests in the granular soils indicating good infiltration rates it is possible that the water table at the site may be higher in the wetter winter months. This may affect the suitability of soakaways at the site.
- 16. Contamination Assessment**
- 16.1 Ten soil samples were initially tested to determine the presence, if any, of various potential contaminants. The locations and the quantities of contamination testing were specified by Boreham Consulting Engineers Ltd.
- 16.2 The DEFRA and Environment Agency Contaminated Land Exposure Assessment (CLEA) Model, together with a series of supporting Contaminated Land Reports (CLR) and associated documents provides guidance on the assessment of potentially contaminated sites.
- 16.3 These documents contain Soil Guideline Values (SGV's). Exceedance of an SGV implies that an unacceptable human health risk may be present, and therefore either further site specific risk assessment is required, or intervention (remedial) works are necessary. The CLEA Model includes only selected contaminants at present and therefore the SGV's are only available for: arsenic, cadmium, chromium, lead, mercury, nickel and selenium.
- 16.4 SGV's are set according to the proposed end use of the land. For the purposes of this report, 'residential housing with plant uptake' land use figures have been adopted.
- 16.5 The results indicate that the near surface soils present at the site are not contaminated. All of the potential contaminants were recorded at levels below the appropriate 'SGV's. For those contaminants not covered by the published SGV's, it is considered by inspection that these are not present at levels that might be of concern. This is consistent with the greenfield nature of the site.
- 16.6 It should be noted that the above is based on limited number of tests and test locations. The local Environmental Health Authority and/or the NHBC may require further confirmatory evidence of the contamination status of the site.
- 16.7 It is recommended that the results of the testing be submitted to the local Environmental Health Department to ensure any specific guidelines, requirements or comments which they may have are addressed.

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B.Eng.  
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NICHOLLS COLTON GEOTECHNICAL

A. Warwick  
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**APPENDIX A**

**BOREHOLE LOGS - CABLE PERCUSSION**

LR: G04003

# BOREHOLE RECORD

(Cable Percussion)

Borehole Number

## BH1

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Boring diameter:  
150 mm to 8.00m

Casing diameter:  
150 mm to 3.00m

Logged by: RF

Scale: 1:50

LR:G04003

Ground Level:

Date: 17/09/2003

Location: -

Sheet 1 of 1

Samples & Tests			Water	Level (mAOD)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	SPT N						
0.00-0.20	D 1				0.20	Mixed very stiff brown slightly gravelly CLAY with some rootlets and TOPSOIL.		
0.20-0.90	D 2							
0.90-1.15	D 3				0.90	Very stiff orange brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded chalk, quartz, siltstone and flint.		
1.20-1.65	U 4	(25)						
1.70	S	N=15			1.65	Very stiff brown slightly sandy slightly gravelly CLAY. Gravel is fine to medium sub-angular to sub-rounded chalk and siltstone.		
1.70	D 5				1.90			
1.70-2.15	D 7							
2.15	B 8				2.15	Brown silty fine SAND.		
2.50-2.95	U 9	(35)						
3.00	D 10							
3.00-3.50	D 11							
3.50-3.95	U 12	(50)				Stiff and very stiff dark grey brown slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded chalk, quartz, siltstone and flint.		
4.00-4.50	D 14							
4.50-4.75	U 15	(50)						
4.80	D 16							
4.80-5.50	D 17					. . . occasional angular flint cobbles below 4.80m		
5.50-5.95	U 18	(50)			5.50			
6.00	D 19				6.00	Stiff red boulder CLAY (description taken from driller's daily log)		
6.00-7.00	B 20							
7.00	S	50/170mm			7.00	Very soft fine sandy slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded siltstone and quartz.		
7.00-7.30	D 22							
7.30-8.00	D 23					Stiff orange brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded quartz siltstone and mudstone.		
					8.00	<i>End of Borehole at 8.00 m</i>		

**Remarks and Water Observations**

1. Hand dug starter pit to 1.20m.
2. No groundwater seepages were encountered during boring operations.
3. Water monitoring well installed to 8.00m.

NICHOLLS COLTON AND PARTNERS LTD.

Tel: 0116 - 2536333

# BOREHOLE RECORD

(Cable Percussion)

Borehole Number

## BH2

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Boring diameter:  
150 mm to 8.00m

Casing diameter:

Logged by: RF

Scale: 1:50

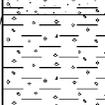
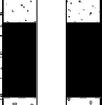
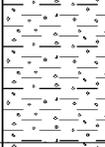
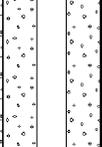
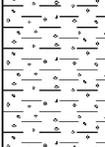
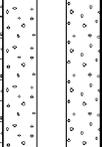
LR:G04003

Ground Level:

Date: 22/09/2003

Location: -

Sheet 1 of 1

Samples & Tests			Water	Level (mAOD)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	SPT N						
0.20-0.45	D 1				0.20	TOPSOIL.		
0.45-1.15	D 2				0.45	Very stiff slightly sandy CLAY with occasional gravel and rootlets. Gravel is fine to coarse angular to sub-angular flint.		
1.20-1.60	U 3	(18)				Stiff grey and brown slightly gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded chalk, siltstone, flint and mudstone.		
1.65	D 4							
1.70-1.95	D 5							
2.00-2.45	U 6	(25)			2.00	Stiff dark grey slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded chalk, siltstone, flint and mudstone.		
2.50	D 7							
2.50-2.95	D 8							
3.00-3.35	U 9	(32)						
3.40	D 10							
3.45-4.00	D 11							
4.00-4.45	U 12	(35)						
4.50	D 13							
4.50-5.00	D 14							
5.00-5.45	U 15	(36)						
5.50	D 16							
5.50-6.50	D 17					... becoming very stiff below 5.50m.		
6.50-6.95	U 18	(50)						
7.00	D 19							
7.00-8.00	D 20							
					8.00	End of Borehole at 8.00 m		

**Remarks and Water Observations**

1. Hand dug starter pit to 1.20m.
2. No groundwater seepages were encountered during boring operations.
3. Water monitoring well installed to 8.00m.

# BOREHOLE RECORD

(Cable Percussion)

Borehole  
Number

## BH3

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Boring diameter:  
150 mm to 8.00m

Casing diameter:

Logged by: RF

Scale: 1:50

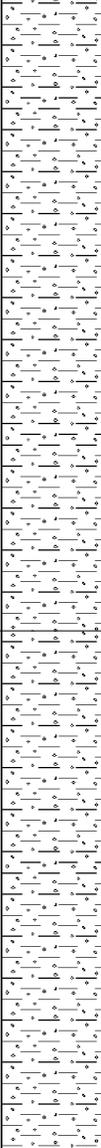
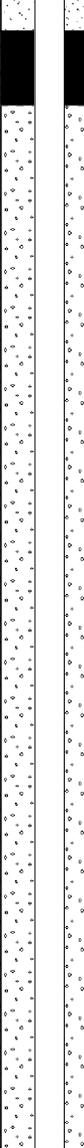
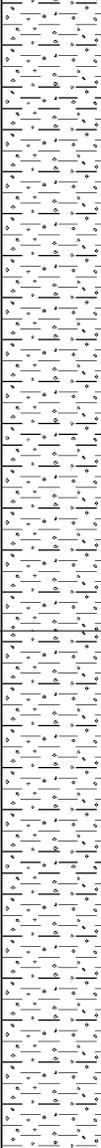
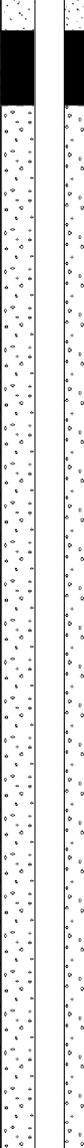
LR: G04003

Ground Level:

Date: 19/09/2003

Location: -

Sheet 1 of 1

Samples & Tests			Water	Level (mAOD)	Depth (m)	Description	Legend	Installation				
Depth (m)	Type	SPT N										
0.00-0.25	D 1				0.25	TOPSOIL.  Very stiff grey and brown slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.						
0.25-1.15	D 2											
1.20-1.50	U 3	(25)			4.50	Very stiff brown slightly gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded siltstone and mudstone. ... a sandstone cobble was encountered between 4.50m and 5.00m						
1.55	D 4											
1.60-1.95	B 5											
2.00-2.35	U 6	(50)										
2.40	D 7											
2.45-2.95	D 8											
3.00-3.35	U 9	(45)										
3.40	D 10											
3.45-3.95	D 11											
4.00-4.45	U 12	(50)										
4.50	D 13				8.00	... becoming dark grey below 3.40m						
4.50-5.00	D 14											
5.00-5.45	U 15	(50)										
5.50-6.50	D 16											
6.50-6.85	U 17	(50)										
6.90	D 18											
6.95-8.00	D 19											
End of Borehole at 8.00 m												

**Remarks and Water Observations**

1. Hand dug starter pit to 1.20m.
2. No groundwater seepages were encountered during boring operations.
3. Water monitoring well installed to 8.00m.

# BOREHOLE RECORD

(Cable Percussion)

Borehole Number

## BH4

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Boring diameter:  
150 mm to 8.00m

Casing diameter:

Logged by: RF

Scale: 1:50

LR: G04003

Ground Level:

Date: 22/09/2003

Location: -

Sheet 1 of 1

Samples & Tests			Water	Level (mAOD)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	SPT N						
0.00-0.20	D 1				0.20	Mixed hard brown slightly gravelly CLAY and TOPSOIL.		
0.20-1.15	D 2					Very stiff red brown and grey slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded chalk, siltstone, quartz and flint.		
1.20	UD 3	(50)				. . . becoming stiff from 1.30m		
1.30-1.45	D 4				1.45			
1.50-1.85	D 5							
1.85-2.00	D 6				1.85	Orange brown silty fine SAND with partings of very soft clay		
2.00-2.40	U 7	(50)						
2.45	D 8				2.40	Stiff red brown slightly gravelly CLAY with occasional partings of silty sand. Gravel is fine to medium sub-angular to sub-rounded siltstone and mudstone.		
2.50-3.00	D 9							
3.00-3.45	U 10	(35)						
3.50	D 11							
3.50-4.00	D 12					Very stiff brown slightly gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded siltstone, chalk, quartz and mudstone.		
4.00-4.45	U 13	(42)						
4.50	D 14							
4.50-5.00	D 15							
5.00-5.30	U 16	(50)						
5.35	D 17				5.30	Orange brown silty fine SAND with occasional partings of soft brown clay and some fragments of weak orange brown siltstone.		
5.40-6.50	B 18							
6.50	S	N=37						
6.50	D 19							
6.50-6.95	D 20							
7.00-8.00	D 21							
					8.00	<i>End of Borehole at 8.00 m</i>		

**Remarks and Water Observations**

1. Hand dug starter pit to 1.20m.
2. No groundwater seepages were encountered during boring operations.
3. Water monitoring well installed to 8.00m.

# BOREHOLE RECORD

(Cable Percussion)

Borehole  
Number

## BH5

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Boring diameter:  
150 mm to 8.00m

Casing diameter:

Logged by: RF

Scale: 1:50

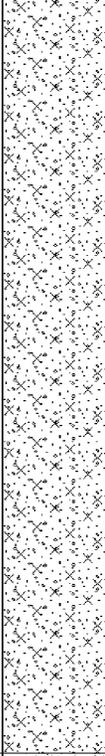
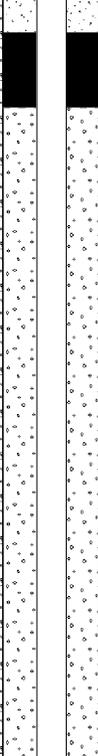
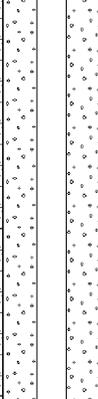
LR: G04003

Ground Level:

Date: 18/09/2003

Location: -

Sheet 1 of 1

Samples & Tests			Water	Level (mAOD)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	SPT N						
0.25-1.15	D 1				0.25	TOPSOIL.		
1.20-1.65	D 3	N=6				Loose orange slightly silty slightly gravelly fine SAND. Gravel is fine to coarse sub-angular to sub-rounded siltstone and quartz.  ... becoming medium dense below 4.00m		
1.20-1.65	D 3							
1.70-1.95	B 4							
2.00-2.45	D 6	N=9						
2.50-2.95	B 7							
3.00-3.45	D 9	N=8						
3.50-4.00	B 10							
4.00-4.45	D 12	N=14						
4.50-5.00	B 13							
5.00-5.45	D 15	N=26						
5.50-6.50	D 16				5.30	Stiff friable red brown slightly sandy CLAY with many partings of grey silt and occasional siltstone lithorelicts.		
6.50-6.95	U 17	(35)				... becoming very stiff below 7.00m with occasional siltstone lithorelicts		
7.00-8.00	D 19							
					8.00	End of Borehole at 8.00 m		

**Remarks and Water Observations**

1. Hand dug starter pit to 1.20m.
2. No groundwater seepages were encountered during boring operations.
3. Water monitoring well installed to 8.00m.

# BOREHOLE RECORD

(Cable Percussion)

Borehole  
Number

## BH6

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Boring diameter:  
150 mm to 8.00m

Casing diameter:  
150 mm to 6.00m

Logged by: RF

Scale: 1:50

LR: G04003

Ground Level:

Date: 19/09/2003

Location: -

Sheet 1 of 1

Samples & Tests			Water	Level (mAOD)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	SPT N						
0.20-1.15	D 1				0.20	TOPSOIL. Very stiff grey and brown slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded chalk siltstone and flint.		
1.20-1.65	U 2	(19)						
1.70	D 3					. . . becoming stiff below 1.70m		
1.70-1.95	D 4							
2.00-2.45	U 5	(25)						
2.50	D 6							
2.70-3.00	D 7				2.70	Firm and stiff grey brown CLAY		
3.00-3.45	U 8	(20)						
3.50	D 9							
3.60-3.95	D 10				3.60	Stiff brown slightly gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded siltstone, chalk, flint and mudstone.		
4.00-4.45	U 11	(35)				. . . becoming very stiff below 4.50m		
4.50	D 12		▼ ▽					
4.50-5.00	D 13							
5.00	S	N=35						
5.00	D 14							
5.00-5.45	D 15							
5.80-6.45	D 16				5.80	Very stiff red brown slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded siltstone and mudstone.		
6.50-6.95	U 17	(50)						
7.00	D 18							
7.00-8.00	D 19				8.00	<i>End of Borehole at 8.00 m</i>		

**Remarks and Water Observations**

1. Hand dug starter pit to 1.20m.
2. Groundwater seepage observed from 4.50m, rose to 4.30m after 20 minutes, sealed with casing.
3. Water monitoring well installed to 8.00m.

# BOREHOLE RECORD

(Cable Percussion)

Borehole  
Number

## BH7

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Boring diameter:  
150 mm to 8.00m

Casing diameter:

Logged by: RF

Scale: 1:50

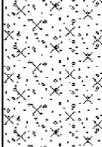
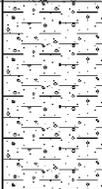
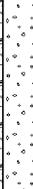
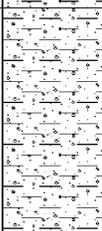
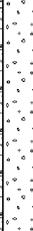
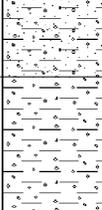
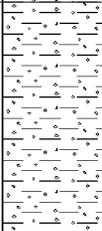
LR: G04003

Ground Level:

Date: 18/09/2003

Location: -

Sheet 1 of 1

Samples & Tests			Water	Level (mAOD)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	SPT N						
0.00-0.20	D 1				0.20	TOPSOIL.		
0.20-1.15	D 2					Brown slightly silty slightly gravelly SAND. Gravel is fine to coarse angular to sub-rounded flint quartz and siltstone.		
1.20	S	N=8			1.20	Firm and stiff orange brown sandy slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint and siltstone.		
1.20-1.65	D 4							
1.70-1.95	D 5							
2.00-2.45	U 6	(9)						
2.50	D 7				2.50	Soft brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint, siltstone, quartz and chalk.		
2.50-2.95	D 8							
3.00-3.45	U 9	(14)						
3.50	D 10							
3.50-4.00	B 11							
4.00-4.45	U 12	(22)				. . . becoming firm below 4.00m		
4.50	D 13				4.50	Soft brown CLAY with occasional fine to medium angular to sub-rounded chalk, siltstone and flint gravel.		
4.50-5.00	D 14							
5.00-5.35	U 15	(25)						
5.40	D 16				5.40	Firm brown CLAY with occasional fine to medium sub-angular to sub-rounded chalk siltstone and flint gravel.		
5.45-6.45	D 17							
6.50-6.95	U 18	(26)						
7.00	D 19					. . . becoming soft below 7.00m		
7.00-8.00	D 20							
					8.00	<i>End of Borehole at 8.00 m</i>		

**Remarks and Water Observations**

1. Hand dug starter pit to 1.20m.
2. No groundwater seepages were encountered during boring operations.
3. Water monitoring well installed to 8.00m.

# BOREHOLE RECORD

(Cable Percussion)

Borehole Number

## BH8

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Boring diameter:  
150 mm to 8.00m

Casing diameter:

Logged by: RF

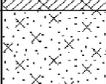
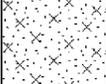
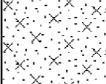
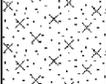
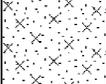
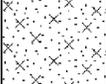
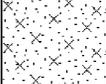
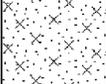
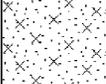
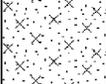
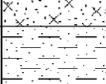
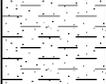
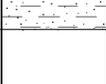
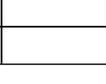
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LR: G04003      Ground Level:

Date: 17/09/2003

Location: -

Sheet 1 of 1

Samples & Tests			Water	Level (mAOD)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	SPT N						
0.00-0.60	D 1				0.60	TOPSOIL.		
0.60-1.15	D 2					Loose orange red brown silty fine SAND  ... becoming medium dense below 2.00m  ... becoming loose below 3.00m  ... becoming medium dense below 4.00m		
1.20	S	N=8						
1.20-1.65	D 4							
1.70-2.00	D 5							
2.00	S	N=11						
2.00-2.45	D 7							
2.50-3.00	B 8							
3.00	S	N=9						
3.00-3.45	D 10							
3.50-4.00	B 11							
4.00	S	N=16						
4.00-4.45	D 13							
4.50-5.00	B 14							
5.00-5.45	D 16							
5.50-6.30	D 17							
6.30-6.50	D 18				6.30	Stiff friable red brown slightly sandy CLAY with many grey green silt and fine sand partings  ... with occasional bands of siltstone below 7.00m.		
6.50	S	N=26						
6.50-6.95	D 20							
7.00-8.00	D 21				8.00			
						End of Borehole at 8.00 m		

**Remarks and Water Observations**

1. Hand dug starter pit to 1.20m.
2. No groundwater seepages were encountered during boring operations.
3. Water monitoring well installed to 8.00m.

**APPENDIX B**

**TRIAL PIT LOGS**

LR: G04003

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Method of excavation  
Mechanical Excavator

Dimensions  
0.70m x 2.50m

Logged by: JP  
Scale: 1:25

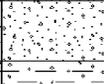
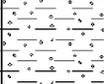
LR:G04003

Ground Level:

Date: 02/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
						TOPSOIL.		
0.50-0.60	B 1				0.30 0.50	Medium dense* brown silty fine SAND with occasional fine to coarse angular to sub-rounded flint, chalk and siltstone gravel.		
1.20-1.30	D 2					Very stiff light brown and grey slightly gravelly CLAY with some cobbles and occasional boulders and pockets of fine sand. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
						. . . becoming dark grey and brown below 2.00m.		
2.60-2.70	D 3							
					3.00	----- End of Trial Pit 3.00 m		

**Remarks and Water Observations**

- 1.\* - Denotes relative density assessed visually from the stability of pit walls, and ease of excavation.
- 2.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 11%.
- 3.Attempted Hand Shear Vane (HSV) test at 1.00m but the ground was too hard for the test.
- 4.No groundwater seepages were observed.
- 5.Trial pit walls did not collapse.
- 6.Trial pit was backfilled with arisings upon completion.

**NICHOLLS COLTON AND PARTNERS LTD.**  
**Tel: 0116 - 2536333**

# TRIAL PIT RECORD

Trial Pit  
 Number  
**TP 2**

Site  
 Hallam Fields, Birstall, Leicestershire.

Client  
 Jelson Limited.

Method of excavation  
 Mechanical Excavator

Dimensions  
 0.70m x 2.50m

Logged by: JP  
 Scale: 1:25

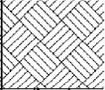
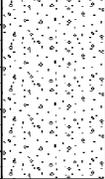
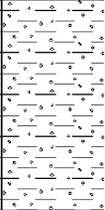
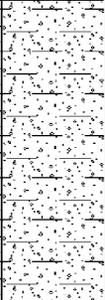
LR:G04003

Ground Level:

Date: 02/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
						TOPSOIL.		
0.50-0.60	B 1				0.30	Medium dense* brown silty fine SAND with occasional fine to coarse angular to sub-rounded flint, chalk and siltstone gravel.		
1.00-1.10	D 2				0.90	Very stiff light brown and grey slightly gravelly CLAY with some cobbles, pockets of fine sand and occasional boulders. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
					1.60	Medium dense* brown slightly clayey slightly gravelly fine to coarse SAND with some cobbles and boulders. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
2.60	D 3				2.60	<i>End of Trial Pit 2.60 m</i>		

**Remarks and Water Observations**

- 1.\* - Denotes relative density assessed visually from the stability of pit walls, and ease of excavation.
- 2.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of >14%.
- 3.Attempted Hand Shear Vane (HSV) test at 1.00m but the ground was too hard for the test.
- 4.Trial pit terminated because large siltstone boulder which could not be penetrated was encountered at 2.60m.
- 5.No groundwater seepages were observed.
- 6.Trial pit walls did not collapse.
- 7.Trial pit was backfilled with arisings upon completion.

# TRIAL PIT RECORD

Trial Pit Number  
**TP 3**

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Method of excavation  
Mechanical Excavator

Dimensions  
0.70m x 2.50m

Logged by: JP  
Scale: 1:25

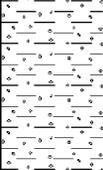
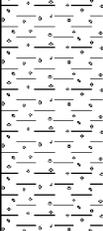
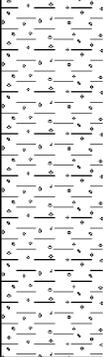
LR:G04003

Ground Level:

Date: 02/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
0.10-0.20	J 1				0.25	TOPSOIL.		
					0.40	Stiff brown CLAY.		
0.50-0.60	J 2 B 3					Very stiff brown slightly gravelly CLAY with occasional cobbles. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
1.00 1.00-1.10	HSV D 4	150 kPa			1.00	Very stiff dark grey and brown slightly gravelly CLAY with occasional boulders. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
2.00-2.10	D 5				1.80	Very stiff dark grey and greenish grey slightly gravelly CLAY with occasional cobbles. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
2.80-2.90	D 6				3.00	... occasional pockets of gypsum crystals below 2.50m.		
						<i>End of Trial Pit 3.00 m</i>		

**Remarks and Water Observations**

- 1.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of >14%.
- 2.Set of three hand shear vane (HSV) tests at 1.00m gave average apparent undrained shear strength of >150kPa.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

**NICHOLLS COLTON AND PARTNERS LTD.**  
**Tel: 0116 - 2536333**

# TRIAL PIT RECORD

Trial Pit  
 Number  
**TP 4**

Site  
 Hallam Fields, Birstall, Leicestershire.

Client  
 Jelson Limited.

Method of excavation  
 Mechanical Excavator

Dimensions  
 0.70m x 2.50m

Logged by: JP  
 Scale: 1:25

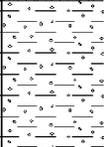
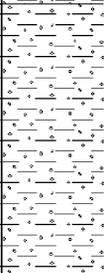
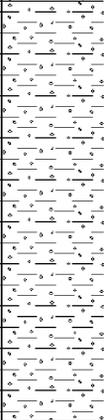
LR:G04003

Ground Level:

Date: 07/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
0.50-0.60	B 1	127 kPa	▼		0.30	TOPSOIL.		
					0.80	Stiff brown slightly gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded chalk and flint.		
1.00 1.10-1.20	HSV D 2				1.70	Stiff brown and blue grey slightly gravelly CLAY with occasional cobbles. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.  ... encountered large pocket of gravelly sand from 1.30 to 2.30m .		
1.60-1.70	D 3				1.70	Very stiff blue grey and greenish grey slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
2.80-2.90	D 4			3.10	End of Trial Pit 3.10 m			

**Remarks and Water Observations**

- 1.\* - Denotes relative density assessed visually from the stability of pit walls, and ease of excavation.
- 2.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 10%.
- 3.Set of three Hand Shear Vane (HSV) tests at 1.10m gave average apparent undrained shear strength of 127kPa.
- 4.Slight groundwater seepage encountered at 2.30m, (base of pocket of sand) with some sand 'running' into the pit.
- 5.Trial pit walls did not collapse in the clay but was slight collapse in the pocket of sand.
- 6.Trial pit was backfilled with arisings upon completion.

# TRIAL PIT RECORD

Trial Pit Number  
**TP 5**

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Method of excavation  
Mechanical Excavator

Dimensions  
0.70m x 2.50m

Logged by: JP  
Scale: 1:25

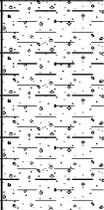
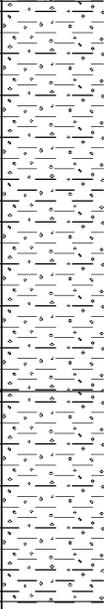
LR:G04003

Ground Level:

Date: 07/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
0.50-0.60	B 1	123 kPa			0.30	TOPSOIL.		
1.00-1.10	D 2		1.00	Stiff brown slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.				
1.10	HSV		2.30	Firm and stiff blue grey and brown slightly gravelly CLAY with some pockets of fine light brown sand and occasional cobbles. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.				
2.70-2.80	D 3		3.00	Very stiff dark grey slightly gravelly CLAY with some cobbles and occasional boulders. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.				
						End of Trial Pit 3.00 m		

**Remarks and Water Observations**

- 1.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 12%.
- 2.Set of three Hand Shear Vane (HSV) tests at 1.10m gave average apparent undrained shear strength of 123kPa.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

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Tel: 0116 - 2536333

# TRIAL PIT RECORD

Trial Pit  
Number  
**TP 6**

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Method of excavation  
Mechanical Excavator

Dimensions  
0.70m x 2.50m

Logged by: JP  
Scale: 1:25

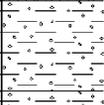
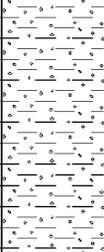
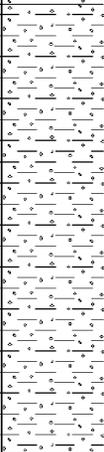
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Ground Level:

Date: 07/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
						TOPSOIL.		
0.50-0.60	B 1				0.30	Stiff brown slightly gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded chalk and flint.		
					0.60			
1.00 1.00-1.10	HSV D 2	136 kPa				Stiff blue grey and brown slightly gravelly locally gravelly CLAY with occasional cobbles and pockets of orange brown fine to medium sand. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
1.60-1.70	D 3				1.50	Stiff dark grey and brown slightly gravelly CLAY with occasional cobbles, boulders and pockets of sand and gravel. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
2.90-3.00	D 4				3.00	End of Trial Pit 3.00 m		

**Remarks and Water Observations**

- 1.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 8%.
- 2.Land drain encountered at 0.80m below ground level running in an East- West direction.
- 3.Set of three Hand Shear Vane (HSV) tests at 1.10m gave average apparent undrained shear strength of 136kPa.
- 4.No groundwater seepages were observed.
- 5.Trial pit walls did not collapse.
- 6.Trial pit was backfilled with arisings upon completion.

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# TRIAL PIT RECORD

**Trial Pit  
 Number  
 TP 7**

Site  
 Hallam Fields, Birstall, Leicestershire.

Client  
 Jelson Limited.

Method of excavation  
 Mechanical Excavator

Dimensions  
 0.70m x 2.50m

Logged by: JP  
 Scale: 1:25

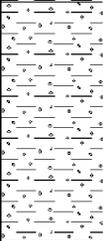
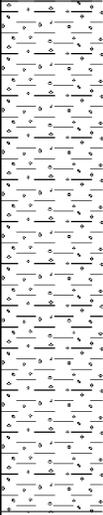
LR:G04003

Ground Level:

Date: 02/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
0.50-0.60	B 1				0.25	TOPSOIL.		
					0.50	Firm brown CLAY.		
1.00 1.00-1.10	HSV D 2	150 kPa			1.30	Stiff light brown and grey slightly gravelly CLAY with occasional cobbles and pockets of orange brown fine sand. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone. ... becoming dark grey and brown below 0.90m.		
						Very stiff dark grey and brown slightly gravelly CLAY with occasional cobbles. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.  ... becoming predominantly stiff below 2.20m with occasional boulders.		
2.80-2.90	D 3				3.00	End of Trial Pit 3.00 m		

**Remarks and Water Observations**

- 1.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 10%.
- 2.Set of three Hand Shear Vane (HSV) tests at 1.00m gave average apparent undrained shear strength of >150kPa.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

# TRIAL PIT RECORD

Trial Pit Number  
**TP 8**

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Method of excavation  
Mechanical Excavator

Dimensions  
0.70m x 2.50m

Logged by: JP  
Scale: 1:25

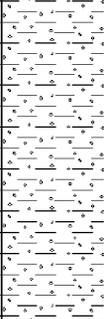
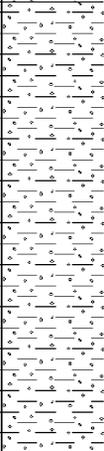
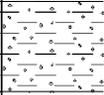
LR: G04003

Ground Level:

Date: 01/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
0.50-0.60	B 1				0.10	TOPSOIL and clay mix.		
1.00	HSV	150 kPa				Very stiff brown and grey gravelly CLAY with occasional cobbles. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
1.30-1.40	D 2				1.20	Very stiff grey and brown slightly gravelly CLAY with some cobbles. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
2.00-2.10	D 3							
2.90-3.00	D 4				2.70 3.00	Very stiff dark grey slightly gravelly CLAY with some cobbles. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone. <i>End of Trial Pit 3.00 m</i>		

**Remarks and Water Observations**

1. Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of >14%.
2. Set of three Hand Shear Vane (HSV) tests at 1.00m gave average apparent undrained shear strength of >150kPa.
3. No groundwater seepages were observed.
4. Trial pit walls did not collapse.
5. Trial pit was backfilled with arisings upon completion.

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Method of excavation  
Mechanical Excavator

Dimensions  
0.70m x 2.50m

Logged by: JP  
Scale: 1:25

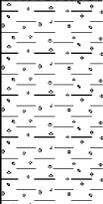
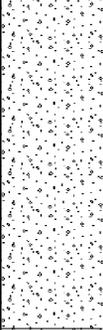
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Ground Level:

Date: 07/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
					0.25	TOPSOIL.		
0.50-0.60	D 1					Stiff fissured red brown slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
1.00-1.10	D 2					. . . no fissures below 0.80m		
2.00-2.10	D 3				1.90	. . . with occasional pockets of orange brown fine to medium sand below 1.60m.		
					3.00	Medium dense* light brown slightly gravelly fine to coarse SAND.		
						<i>End of Trial Pit 3.00 m</i>		

**Remarks and Water Observations**

- 1.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of >14%.
- 2.Attempted Hand Shear Vane (HSV) test at 1.00m but the ground was too hard for the test.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

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**Tel: 0116 - 2536333**

# TRIAL PIT RECORD

**Trial Pit  
 Number**  
**TP10**

Site  
 Hallam Fields, Birstall, Leicestershire.

Client  
 Jelson Limited.

Method of excavation  
 Mechanical Excavator

Dimensions  
 0.70m x 2.50m

Logged by: JP  
 Scale: 1:25

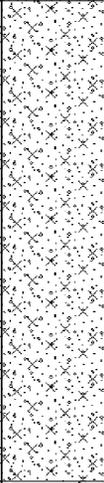
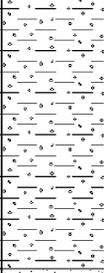
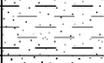
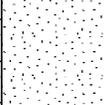
LR:G04003

Ground Level:

Date: 01/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
0.10-0.20	J 1				0.30	TOPSOIL.		
0.40-0.50	J 2					Medium dense* brown silty fine SAND with occasional fine to coarse angular to sub-rounded flint, chalk and siltstone gravel.		
0.50-0.60	B 3							
2.10-2.20	D 4				1.90	Firm red brown occasionally light grey CLAY with occasional fine to coarse angular to sub-rounded flint, chalk and siltstone gravel. . . . becoming stiff below 2.10m.		
					2.80	Soft red brown sandy CLAY.		
3.20-3.30	D 5				3.00	Medium dense* orange brown fine to medium SAND.		
					3.40	<i>End of Trial Pit 3.40 m</i>		

**Remarks and Water Observations**

- 1.\* - Denotes relative density assessed visually from the stability of pit walls, and ease of excavation.
- 2.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of >14%.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

# TRIAL PIT RECORD

**Trial Pit Number**  
**TP11**

Site  
 Hallam Fields, Birstall, Leicestershire.

Client  
 Jelson Limited.

Method of excavation  
 Mechanical Excavator

Dimensions  
 0.70m x 2.50m

Logged by: JP  
 Scale: 1:25

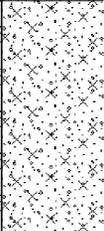
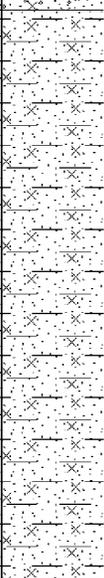
LR:G04003

Ground Level:

Date: 07/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
					0.30	TOPSOIL.		
0.50-0.60	B 1					Medium dense* orange brown slightly silty slightly gravelly fine to medium SAND. Gravel is fine to coarse angular to sub-rounded quartz and flint.		
1.10-1.20	D 2				1.10	Medium dense* red brown slightly clayey slightly silty fine SAND.		
2.60-2.70	D 3							
					3.00	----- End of Trial Pit 3.00 m		

**Remarks and Water Observations**

- 1.\* - Denotes relative density assessed visually from the stability of pit walls, and ease of excavation.
- 2.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of >14%.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Method of excavation  
Mechanical Excavator

Dimensions  
0.70m x 4.00m

Logged by: JP  
Scale: 1:25

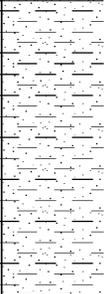
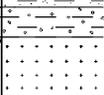
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Ground Level:

Date: 07/10/2003

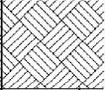
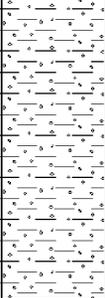
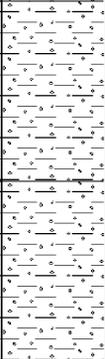
Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
					0.30	TOPSOIL.		
0.50-0.60	B 1					Very stiff fissured brown locally sandy CLAY with occasional fine to coarse angular to sub-rounded flint, chalk and siltstone gravel.		
1.00-1.10	D 2							
1.50-1.60	D 3				1.30 1.40 1.60	Very stiff brown slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
						Medium strong light brown fine to medium grained SANDSTONE with bands of siltstone. <i>End of Trial Pit 1.60 m</i>		

**Remarks and Water Observations**

- 1.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of >14%.
- 2.Attempted Hand Shear Vane (HSV) test at 1.00m but the ground was too hard for the test.
- 3.Could not penetrate deeper than 1.60m below ground level, extended the pit to 4.00m long but still could not penetrate- Trial Pit terminated .
- 4.No groundwater seepages were observed.
- 5.Trial pit walls did not collapse.
- 6.Trial pit was backfilled with arisings upon completion.

NICHOLLS COLTON AND PARTNERS LTD. Tel: 0116 - 2536333				TRIAL PIT RECORD				Trial Pit Number <b>TP13</b>	
Site Hallam Fields, Birstall, Leicestershire.				Method of excavation Mechanical Excavator		Dimensions 0.70m x 2.50m		Logged by: JP	
Client Jelson Limited.				Date: 07/10/2003		Location: 0E 0N		Scale: 1:25	
LR:G04003		Ground Level:		Date: 07/10/2003		Location: 0E 0N		Sheet 1 of 1	
Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation	
Depth (m)	Type	Result							
						TOPSOIL.			
0.50-0.60	B 1				0.30	Very stiff light brown slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.			
1.00-1.10	D 2				1.30	Very stiff brown slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.			
2.00-2.10	D 3				1.90	Very stiff fissured red brown slightly gravelly CLAY with occasional cobbles.			
					2.50	<i>End of Trial Pit 2.50 m</i>			

**Remarks and Water Observations**

1. Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of >14%.
2. Attempted Hand Shear Vane (HSV) test at 1.00m but the ground was too hard for the test.
3. Digging was very slow and finally terminated at 2.50m below ground level when the mechanical excavator could not penetrate any further.
4. No groundwater seepages were observed.
5. Trial pit walls did not collapse.
6. Trial pit was backfilled with arisings upon completion.

# TRIAL PIT RECORD

Trial Pit  
 Number  
**TP14**

Site  
 Hallam Fields, Birstall, Leicestershire.

Client  
 Jelson Limited.

Method of excavation  
 Mechanical Excavator

Dimensions  
 0.70m x 2.50m

Logged by: JP  
 Scale: 1:25

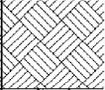
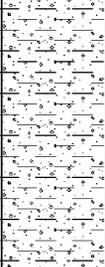
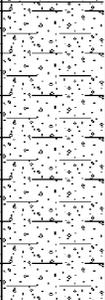
LR:G04003

Ground Level:

Date: 02/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
0.50-0.60	B 1				0.30	TOPSOIL.  Very stiff light brown slightly gravelly CLAY with some pockets of brown fine to medium sand. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.  . . . becoming sandy below 0.90m.		
1.50-1.60	B 2				1.20	Medium dense* brown slightly clayey slightly gravelly fine to medium SAND locally graded to sandstone with occasional lumps of firm brown clay. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
2.70-2.80	D 3				2.20	Very stiff dark grey slightly gravelly CLAY with occasional cobbles. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
					3.00	----- <i>End of Trial Pit 3.00 m</i>		

**Remarks and Water Observations**

- 1.\* - Denotes relative density assessed visually from the stability of pit walls, and ease of excavation.
- 2.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 10%.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

**NICHOLLS COLTON AND PARTNERS LTD.**  
**Tel: 0116 - 2536333**

# TRIAL PIT RECORD

**Trial Pit Number**  
**TP15**

**Site**  
Hallam Fields, Birstall, Leicestershire.

**Client**  
Jelson Limited.

**Method of excavation**  
Mechanical Excavator

**Dimensions**  
0.70m x 2.50m

**Logged by:** JP  
**Scale:** 1:25

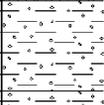
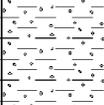
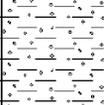
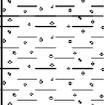
**LR:** G04003

**Ground Level:**

**Date:** 07/10/2003

**Location:** 0E 0N

**Sheet 1 of 1**

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
0.50-0.60	B 1				0.30	TOPSOIL.		
					0.60	Very stiff brown slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
1.00 1.00-1.10	HSV D 2	150 kPa			1.40	Very stiff grey and brown slightly gravelly CLAY with occasional cobbles and pockets of orange brown fine to medium sand. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone		
						Very stiff dark grey and brown slightly gravelly CLAY with occasional cobbles. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
2.90-3.00	D 3				3.00	----- End of Trial Pit 3.00 m		

**Remarks and Water Observations**

1. Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 10%.
2. Set of three Hand Shear Vane (HSV) tests at 1.00m gave average apparent undrained shear strength of >150kPa.
3. Land drain encountered at 1.00m below ground level running in a North- South direction.
4. No groundwater seepages were observed.
5. Trial pit walls did not collapse.
6. Trial pit was backfilled with arisings upon completion.

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# TRIAL PIT RECORD

**Trial Pit  
 Number**  
**TP16**

Site  
 Hallam Fields, Birstall, Leicestershire.

Client  
 Jelson Limited.

Method of excavation  
 Mechanical Excavator

Dimensions  
 0.70m x 2.50m

Logged by: JP  
 Scale: 1:25

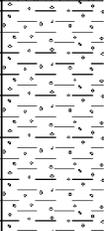
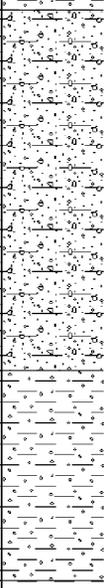
LR:G04003

Ground Level:

Date: 07/10/1930

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
					0.30	TOPSOIL.		
0.50-0.60	B 1					Stiff light brown slightly gravelly locally gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
1.10-1.20	D 2				1.10	Medium dense* light brown slightly clayey slightly gravelly slightly cobbly fine to coarse SAND with occasional boulders. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
2.70-2.80	D 3				2.30	Stiff dark grey slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
					3.00	<i>End of Trial Pit 3.00 m</i>		

**Remarks and Water Observations**

- 1.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 11%.
- 2.Attempted Hand Shear Vane (HSV) test at 1.00m but the ground was too hard for the test.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

# TRIAL PIT RECORD

Trial Pit  
Number  
**TP17**

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Method of excavation  
Mechanical Excavator

Dimensions  
0.70m x 2.50m

Logged by: JP  
Scale: 1:25

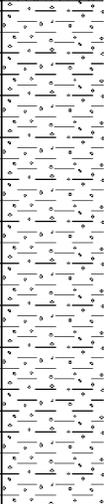
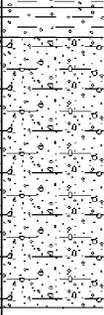
LR:G04003

Ground Level:

Date: 07/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
0.50-0.60	B 1				0.30	TOPSOIL.		
1.20 1.20-1.30	HSV D 2	123 kPa				Stiff brown slightly gravelly CLAY with occasional cobbles and pockets of orange brown fine to medium sand. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.  ... becoming brown and light grey below 0.80m.		
2.60-2.70	D 3				2.00 2.10	Stiff dark grey slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
					3.00	Medium dense* slightly clayey slightly gravelly slightly cobbly fine to coarse SAND with occasional boulders. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
						End of Trial Pit 3.00 m		

**Remarks and Water Observations**

- 1.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 8.7%.
- 2.Set of three Hand Shear Vane (HSV) tests at 1.20m gave average apparent undrained shear strength of 123kPa.
- 3.\*- Denotes relative density assessed visually from the stability of the pit walls, and ease of excavation.
- 4.No groundwater seepages were observed.
- 5.Trial pit walls did not collapse.
- 6.Trial pit was backfilled with arisings upon completion.

# TRIAL PIT RECORD

Trial Pit Number  
**TP18**

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Method of excavation  
Mechanical Excavator

Dimensions  
0.70m x 2.50m

Logged by: JP  
Scale: 1:25

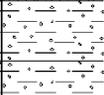
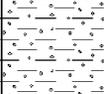
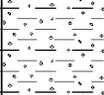
LR:G04003

Ground Level:

Date: 07/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
						TOPSOIL.		
0.50-0.60	B 1				0.30	Stiff light brown slightly gravelly CLAY with some cobbles. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
					0.50			
0.90 1.00-1.10	HSV D 2	150 kPa				Stiff and very stiff light brown and grey slightly gravelly CLAY with some cobbles. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
					1.40			
						Stiff and very stiff dark grey and brown slightly gravelly CLAY with some cobbles and occasional boulders and pockets of orange brown fine to medium sand. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
					2.60			
2.80-2.90	D 3					Stiff dark grey slightly gravelly CLAY with some cobbles. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
					3.00			
						<i>End of Trial Pit 3.00 m</i>		

**Remarks and Water Observations**

- 1.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 9.0%.
- 2.Set of three Hand Shear Vane (HSV) tests at 0.90m gave average apparent undrained shear strength of >150kPa.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Method of excavation  
Mechanical Excavator

Dimensions  
0.70m x 2.50m

Logged by: JP  
Scale: 1:25

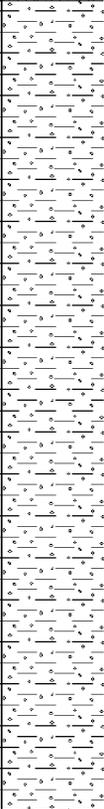
LR:G04003

Ground Level:

Date: 07/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
0.50-0.60	B 1				0.30	TOPSOIL.		
1.00 1.00-1.10	HSV D 2	150 kPa				Stiff brown and grey slightly gravelly CLAY with occasional pockets of orange brown fine to medium sand. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.  ... becoming very stiff below 0.90m.  ... becoming dark grey and brown with occasional cobbles 1.40m below.		
2.80-2.90	D 3				3.00	----- End of Trial Pit 3.00 m		

**Remarks and Water Observations**

- 1.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 9.0%.
- 2.Set of three Hand Shear Vane (HSV) tests at 1.00m gave average apparent undrained shear strength of >150kPa.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

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# TRIAL PIT RECORD

Trial Pit  
Number  
**TP20**

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Method of excavation  
Mechanical Excavator

Dimensions  
0.70m x 2.50m

Logged by: JP  
Scale: 1:25

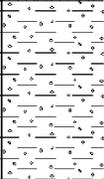
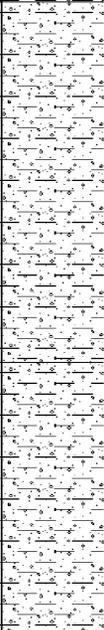
LR:G04003

Ground Level:

Date: 08/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
0.50-0.60	B 1				0.30	TOPSOIL.		
1.00 1.00-1.10	HSV D 2	139 kPa			0.90	Stiff and very stiff brown fissured slightly gravelly CLAY. Gravel is fine to coarse angular to sub- rounded flint, chalk and siltstone.		
2.50-2.60	D 3				2.10	Stiff locally very stiff brown and grey slightly gravelly CLAY with occasional cobbles, boulders and pockets of orange brown fine to medium sand. Gravel is fine to coarse angular to sub- rounded flint, chal and siltstone.		
					3.00	<i>End of Trial Pit 3.00 m</i>		

**Remarks and Water Observations**

- 1.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 7%.
- 2.Set of three Hand Shear Vane (HSV) tests at 1.00m gave average apparent undrained shear strength of 139kPa.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

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# TRIAL PIT RECORD

Trial Pit  
Number  
**TP21**

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Method of excavation  
Mechanical Excavator

Dimensions  
0.70m x 2.50m

Logged by: JP  
Scale: 1:25

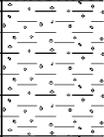
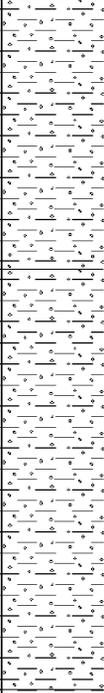
LR:G04003

Ground Level:

Date: 08/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
0.50-0.60	B 1				0.25	TOPSOIL.		
1.00 1.00-1.10	HSV D 2	148 kPa			0.70	Stiff brown slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
2.20-2.30	D 3				1.60	Stiff and very stiff brown and grey slightly gravelly CLAY with occasional cobbles, boulders and pockets of orange brown fine to medium sand.		
					3.00	Stiff and very stiff dark grey and brown slightly gravelly CLAY with occasional cobbles and boulders.		
						End of Trial Pit 3.00 m		

**Remarks and Water Observations**

- 1.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 8.0%.
- 2.Set of three Hand Shear Vane (HSV) tests at 1.00m gave average apparent undrained shear strength of 148kPa.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Method of excavation  
Mechanical Excavator

Dimensions  
0.70m x 2.50m

Logged by: JP  
Scale: 1:25

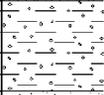
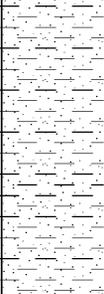
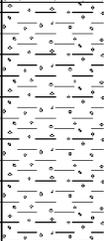
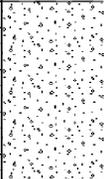
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Ground Level:

Date: 08/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
						TOPSOIL.		
0.50-0.60	B 1				0.30	Stiff brown slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
1.00-1.10	D 2				0.60	Mixed stiff brown slightly gravelly CLAY and brown slightly gravelly fine to coarse SAND. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
					1.60	Stiff brown and grey slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
2.50-2.60	D 3				2.40	Medium dense brown gravelly fine to coarse SAND with occasional cobbles.		
					3.00	<i>End of Trial Pit 3.00 m</i>		

**Remarks and Water Observations**

1. Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 10%.
2. No groundwater seepages were observed.
3. Trial pit walls did not collapse.
4. Trial pit was backfilled with arisings upon completion.

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# TRIAL PIT RECORD

**Trial Pit  
 Number**  
**TP23**

Site  
 Hallam Fields, Birstall, Leicestershire.

Client  
 Jelson Limited.

Method of excavation  
 Mechanical Excavator

Dimensions  
 0.70m x 2.50m

Logged by: JP  
 Scale: 1:25

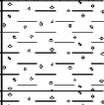
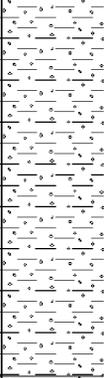
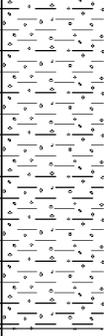
LR:G04003

Ground Level:

Date: 02/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
0.10-0.20	J 1				0.30	TOPSOIL.		
0.50-0.60	J 2 B 3				0.60	Very stiff light brown slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
1.00 1.00-1.10	HSV D 4	127 kPa				Very stiff brown and grey slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
2.20-2.30	D 5				1.90	Very stiff dark grey and brown slightly gravelly CLAY with occasional cobbles. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
					3.00	----- End of Trial Pit 3.00 m		

**Remarks and Water Observations**

1. Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 10%.
2. Set of three Hand Shear Vane (HSV) tests at 1.00m gave average apparent undrained shear strength of 127kPa.
3. No groundwater seepages were observed.
4. Trial pit walls did not collapse.
5. Trial pit was backfilled with arisings upon completion.

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Method of excavation  
Mechanical Excavator

Dimensions  
0.70m x 2.50m

Logged by: JP  
Scale: 1:25

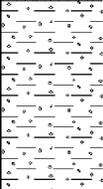
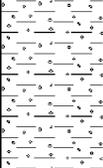
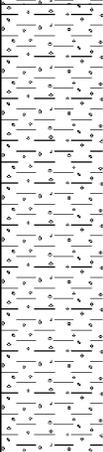
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Ground Level:

Date: 02/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
					0.30	TOPSOIL.		
0.50-0.60	B 1					Very stiff brown slightly gravelly CLAY with occasional cobbles. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
1.00	HSV	150 kPa				. . . becoming brown and grey below 1.10m		
1.20-1.30	D 2				1.50	Very stiff red brown and grey slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded siltstone.		
2.00-2.10	D 3				3.00	<i>End of Trial Pit 3.00 m</i>		

**Remarks and Water Observations**

- 1.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 11%.
- 2.Set of three Hand Shear Vane (HSV) tests at 1.10m gave average apparent undrained shear strength of >150kPa.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

# TRIAL PIT RECORD

Trial Pit  
 Number  
**TP25**

Site  
 Hallam Fields, Birstall, Leicestershire.

Client  
 Jelson Limited.

Method of excavation  
 Mechanical Excavator

Dimensions  
 0.70m x 2.50m

Logged by: JP  
 Scale: 1:25

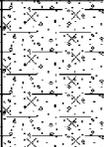
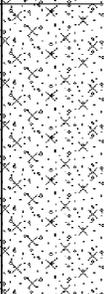
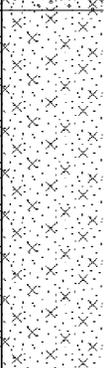
LR:G04003

Ground Level:

Date: 02/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
						TOPSOIL.		
0.50-0.60	B 1				0.30	Medium dense* brown slightly clayey slightly silty fine SAND with occasional fine to coarse angular to sub-rounded flint, chalk and siltstone gravel.		
1.00-1.10	D 2				0.80	Medium dense* brown silty fine to medium SAND with occasional fine to coarse angular to sub-rounded flint, chalk and siltstone gravel.		
2.60-2.70	D 3				1.80	Medium dense* orange brown silty fine SAND.		
					3.00	<i>End of Trial Pit 3.00 m</i>		

**Remarks and Water Observations**

- 1.\* - Denotes relative density assessed visually from the stability of pit walls, and ease of excavation.
- 2.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 14%.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

**NICHOLLS COLTON AND PARTNERS LTD.**  
**Tel: 0116 - 2536333**

# TRIAL PIT RECORD

**Trial Pit  
 Number**  
**TP26**

Site  
 Hallam Fields, Birstall, Leicestershire.

Client  
 Jelson Limited.

Method of excavation  
 Mechanical Excavator

Dimensions  
 0.70m x 2.50m

Logged by: JP  
 Scale: 1:25

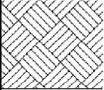
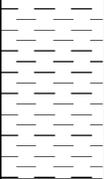
LR:G04003

Ground Level:

Date: 02/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
0.50-0.60	B 1				0.30	TOPSOIL.		
					0.90	Very stiff red brown fissured CLAY with occasional cobbles.		
1.10-1.20	D 2					Medium dense* orange brown fine SAND with occasional fine to coarse angular to sub-rounded siltstone and quartz gravel and cobbles.		
2.80-2.90	D 3				3.00	----- <i>End of Trial Pit 3.00 m</i>		

**Remarks and Water Observations**

- 1.\* - Denotes relative density assessed visually from the stability of pit walls, and ease of excavation.
- 2.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of >14%.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Method of excavation  
Mechanical Excavator

Dimensions  
0.70m x 2.50m

Logged by: JP  
Scale: 1:25

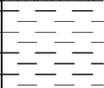
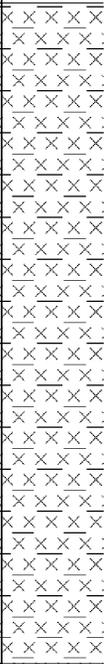
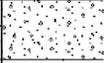
LR:G04003

Ground Level:

Date: 02/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
						TOPSOIL.		
0.50-0.60	B 1				0.30	Very stiff red brown fissured CLAY.		
0.80-0.90	D 2				0.60	Medium dense* red brown locally clayey SILT with occasional partings of firm red brown clay.		
2.80-2.90	D 3				2.80 3.00	Medium dense* orange brown fine to medium SAND with occasional fine to coarse angular to sub-angular siltstone gravel. <i>End of Trial Pit 3.00 m</i>		

**Remarks and Water Observations**

- 1.\* - Denotes relative density assessed visually from the stability of pit walls, and ease of excavation.
- 2.Set of three Mexi Probe tests undertaken at 0.50m at the Southern end of the pit gave average apparent CBR value of >14% and three taken at the Northern end of the pit gave average apparent CBR value of 6%.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

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**Tel: 0116 - 2536333**

# TRIAL PIT RECORD

**Trial Pit  
 Number**  
**TP28**

Site  
 Hallam Fields, Birstall, Leicestershire.

Client  
 Jelson Limited.

Method of excavation  
 Mechanical Excavator

Dimensions  
 0.70m x 2.50m

Logged by: JP  
 Scale: 1:25

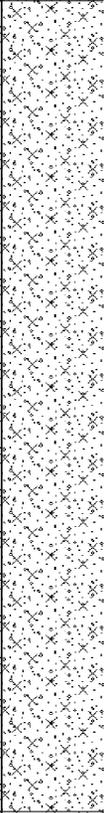
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Ground Level:

Date: 07/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
					0.30	TOPSOIL.		
0.50-0.60	B 1					Loose* orange brown slightly silty slightly gravelly fine to medium SAND. Gravel is fine to coarse angular to sub-rounded quartz and siltstone.		
1.20-1.30	D 2							
						. . . becoming occasionally gravelly below 2.00m.		
2.80-2.90	D 3				3.00	----- End of Trial Pit 3.00 m		

**Remarks and Water Observations**

- 1.\* - Denotes relative density assessed visually from the stability of pit walls, and ease of excavation.
- 2.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 2%.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

# TRIAL PIT RECORD

Trial Pit Number  
**TP29**

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Method of excavation  
Mechanical Excavator

Dimensions  
0.70m x 2.50m

Logged by: JP  
Scale: 1:25

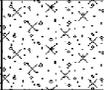
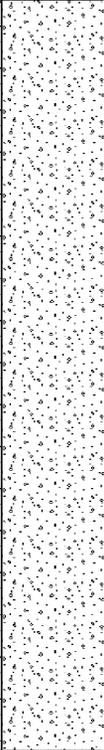
LR:G04003

Ground Level:

Date: 07/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
						TOPSOIL.		
0.50-0.60	B 1				0.20 0.50	Medium dense* brown slightly silty slightly gravelly fine to medium SAND. Gravel is fine to coarse angular to sub-rounded quartz and siltstone.		
1.20-1.30	D 2					Medium dense* orange brown fine to medium SAND with occasional fine to coarse angular to sub-rounded quartz and flint gravel.		
2.80-2.90	D 3				3.00	----- <i>End of Trial Pit 3.00 m</i>		

**Remarks and Water Observations**

- 1.\* - Denotes relative density assessed visually from the stability of pit walls, and ease of excavation.
- 2.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of >14%.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Method of excavation  
Mechanical Excavator

Dimensions  
0.70m x 2.50m

Logged by: JP  
Scale: 1:25

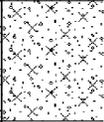
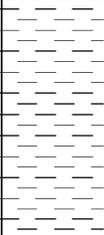
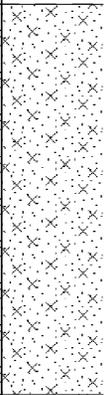
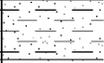
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Ground Level:

Date: 01/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
						TOPSOIL.		
0.50-0.60	B 1				0.30	Dense* brown silty slightly gravelly fine to coarse SAND. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
1.00-1.10	D 2				0.70	Very stiff red brown fissured CLAY.		
1.60-1.70	D 3				1.50	Medium dense* red brown and light grey silty fine to medium SAND.		
2.80-2.90	D 4				2.80 3.00	Firm red brown sandy CLAY with occasional bands of fine to medium SAND and pockets of cemented fine to medium sand. <i>End of Trial Pit 3.00 m</i>		

**Remarks and Water Observations**

- 1.\* - Denotes relative density assessed visually from the stability of pit walls, and ease of excavation.
- 2.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of >14%.
- 3.Attempted Hand Shear Vane (HSV) test at 1.00m but the ground was too hard for the test.
- 4.No groundwater seepages were observed.
- 5.Trial pit walls did not collapse.
- 6.Trial pit was backfilled with arisings upon completion.

# TRIAL PIT RECORD

Trial Pit Number  
**TP31**

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Method of excavation  
Mechanical Excavator

Dimensions  
0.70m x 2.50m

Logged by: JP  
Scale: 1:25

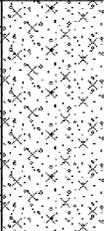
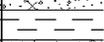
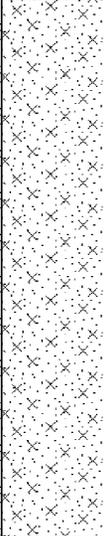
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Ground Level:

Date: 01/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
0.50-0.60	B 1				0.30	TOPSOIL.		
						Dense* brown silty slightly gravelly fine to coarse SAND with siltstone and occasional flint cobbles. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
1.30-1.40	B 2				1.10 1.20	Very stiff red brown fissured CLAY.		
						Medium dense* orange brown slightly silty medium SAND.		
2.80-2.90	D 3				3.00	End of Trial Pit 3.00 m		

**Remarks and Water Observations**

- 1.\* - Denotes relative density assessed visually from the stability of pit walls, and ease of excavation.
- 2.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 14%.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

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# TRIAL PIT RECORD

**Trial Pit  
 Number**  
**TP32**

Site  
 Hallam Fields, Birstall, Leicestershire.

Client  
 Jelson Limited.

Method of excavation  
 Mechanical Excavator

Dimensions  
 0.70m x 2.50m

Logged by: JP  
 Scale: 1:25

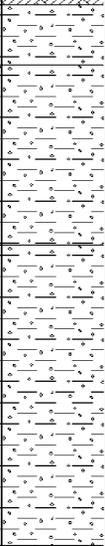
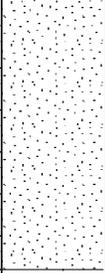
LR: G04003

Ground Level:

Date: 08/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
0.50-0.60	B 1				0.30 0.50	TOPSOIL.  Stiff brown CLAY with occasional fine to coarse angular to sub-rounded flint, chalk and siltstone gravel.  Stiff brown slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
1.20 1.20-1.30	HSV D 2	150 kPa			1.10	Very stiff red brown slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
2.40-2.50	D 3				2.10	Medium dense* red brown fine SAND.		
					3.00	End of Trial Pit 3.00 m		

**Remarks and Water Observations**

1. Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 12%.
2. Set of three Hand Shear Vane (HSV) tests at 1.20m gave average apparent undrained shear strength of >150kPa.
3. No groundwater seepages were observed.
4. Trial pit walls did not collapse.
5. Trial pit was backfilled with arisings upon completion.

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# TRIAL PIT RECORD

**Trial Pit Number**  
**TP33**

Site  
 Hallam Fields, Birstall, Leicestershire.

Client  
 Jelson Limited.

Method of excavation  
 Mechanical Excavator

Dimensions  
 0.70m x 2.50m

Logged by: JP  
 Scale: 1:25

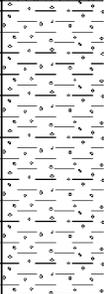
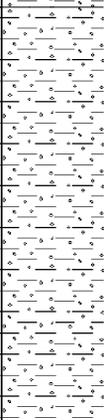
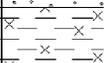
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Ground Level:

Date: 01/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
					0.30	TOPSOIL.		
0.50-0.60	B 1					Very stiff red brown fissured CLAY with many rootlets and occasional fine to coarse angular to sub-rounded flint, sandstone, siltstone and quartz gravel.		
1.10-1.20	D 2				1.30	Stiff red brown slightly gravelly CLAY with occasional pockets of silt/clay. Gravel is fine to coarse angular to sub-rounded quartz, siltstone and sandstone.		
2.00-2.10	D 3							
2.70-2.80	D 4				2.70	Firm and stiff brown CLAY with many partings of silt.		
					2.90	<i>End of Trial Pit 2.90 m</i>		

**Remarks and Water Observations**

- 1.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of >14%.
- 2.Attempted Hand Shear Vane (HSV) test at 1.00m but the ground was too hard for the test.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Method of excavation  
Mechanical Excavator

Dimensions  
0.70m x 2.50m

Logged by: JP  
Scale: 1:25

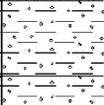
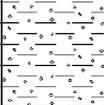
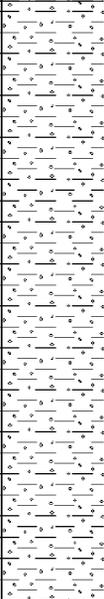
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Ground Level:

Date: 08/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
0.50-0.60	B 1				0.30	TOPSOIL.		
					0.55	Stiff brown CLAY with occasional fine to coarse angular to sub-rounded flint, chalk and siltstone gravel.		
0.90 1.00-1.10	HSV D 2	150 kPa			1.00	Very stiff brown slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
2.40-2.50	D 3					Very stiff dark brown and grey slightly gravelly CLAY with occasional cobbles and boulders. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
					3.00	----- End of Trial Pit 3.00 m		

**Remarks and Water Observations**

- 1.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 10%.
- 2.Set of three Hand Shear Vane (HSV) tests at 0.90m gave average apparent undrained shear strength of >150kPa.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

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# TRIAL PIT RECORD

**Trial Pit  
 Number**  
**TP35**

Site  
 Hallam Fields, Birstall, Leicestershire.

Client  
 Jelson Limited.

Method of excavation  
 Mechanical Excavator

Dimensions  
 0.70m x 2.50m

Logged by: JP  
 Scale: 1:25

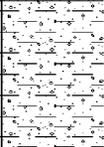
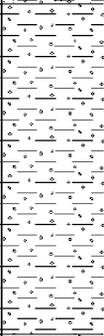
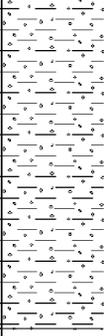
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Ground Level:

Date: 08/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
						TOPSOIL.		
0.50-0.60	B 1				0.30	Stiff brown CLAY with some pockets of brown fine to medium sand and occasional gravel. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
1.00-1.10	D 2				0.80	Stiff brown and grey gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
2.00-2.10	D 3				1.90	Stiff dark grey and brown slightly gravelly CLAY with occasional cobbles and boulders. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
					3.00	----- <i>End of Trial Pit 3.00 m</i>		

**Remarks and Water Observations**

- 1.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 10%.
- 2.Hand Shear Vane tests were aborted because the ground was too gravelly.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

**NICHOLLS COLTON AND PARTNERS LTD.**  
**Tel: 0116 - 2536333**

# TRIAL PIT RECORD

**Trial Pit  
 Number**  
**TP36**

Site  
 Hallam Fields, Birstall, Leicestershire.

Client  
 Jelson Limited.

Method of excavation  
 Mechanical Excavator

Dimensions  
 0.70m x 2.50m

Logged by: JP  
 Scale: 1:25

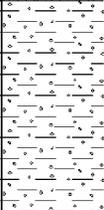
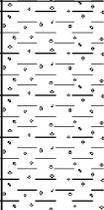
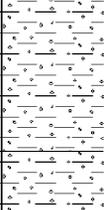
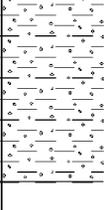
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Ground Level:

Date: 02/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
0.50-0.60	B 1				0.30	TOPSOIL.		
						Very stiff brown slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
1.20-1.30	D 2				1.00	Very stiff brown and grey gravelly CLAY with occasional pockets of sand and gravel. Gravel is fine to coarse angular to sub-rounded chalk with some flint and siltstone.		
						. . . with occasional cobbles below 2.00m.		
2.70-2.80	D 3				2.20	Very stiff dark grey and brown slightly gravelly CLAY with occasional cobbles. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
					3.00	<i>End of Trial Pit 3.00 m</i>		

**Remarks and Water Observations**

- 1.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 9.0%.
- 2.No groundwater seepages were observed.
- 3.Trial pit walls did not collapse.
- 4.Trial pit was backfilled with arisings upon completion.

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Method of excavation  
Mechanical Excavator

Dimensions  
0.70m x 2.50m

Logged by: JP  
Scale: 1:25

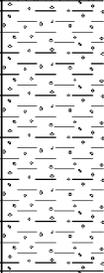
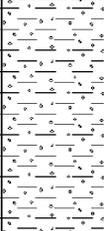
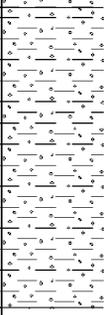
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Ground Level:

Date: 08/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
0.50-0.60	B 1				0.30	TOPSOIL.		
0.90 0.90-1.00	HSV D 2	108 kPa			1.20	Stiff brown slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
					2.00	Stiff brown and grey slightly gravelly CLAY with occasional cobbles, boulders and pockets of orange brown fine to medium sand. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
2.20-2.30	D 3				3.00	Very stiff dark grey and brown slightly gravelly CLAY with occasional cobbles, boulders and pockets of fine brown sand.		
					3.00	<i>End of Trial Pit 3.00 m</i>		

**Remarks and Water Observations**

- 1.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 11%.
- 2.Set of three Hand Shear Vane (HSV) tests at 0.90m gave average apparent undrained shear strength of 108kPa.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

**NICHOLLS COLTON AND PARTNERS LTD.**  
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# TRIAL PIT RECORD

Trial Pit  
 Number  
**TP38**

Site  
 Hallam Fields, Birstall, Leicestershire.

Client  
 Jelson Limited.

Method of excavation  
 Mechanical Excavator

Dimensions  
 0.70m x 2.50m

Logged by: JP  
 Scale: 1:25

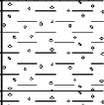
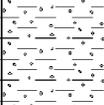
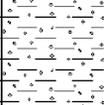
LR:G04003

Ground Level:

Date: 08/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
0.50-0.60	B 1	105 kPa			0.30	TOPSOIL.		
0.80-0.90	D 2				0.60	Very stiff fissured brown CLAY with occasional fine to coarse angular to sub-rounded flint, chalk and siltstone gravel.		
0.90	HSV					Stiff brown slightly gravelly CLAY with occasional cobbles, boulders and pockets of sand.		
2.50-2.60	D 3				1.90	Very stiff dark grey and brown slightly gravelly CLAY with occasional cobbles and boulders. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
					3.00	----- End of Trial Pit 3.00 m		

**Remarks and Water Observations**

- 1.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 8.0%.
- 2.Set of three Hand Shear Vane (HSV) tests at 0.90m gave average apparent undrained shear strength of 105kPa.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Method of excavation  
Mechanical Excavator

Dimensions  
0.70m x 2.50m

Logged by: JP  
Scale: 1:25

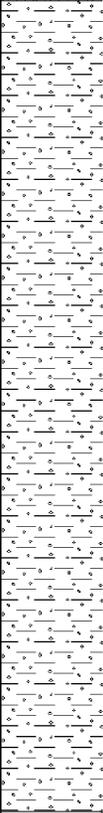
LR:G04003

Ground Level:

Date: 02/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
0.10-0.20	J 1				0.30	TOPSOIL.		
0.50-0.60	J 2 B 3					Very stiff brown slightly gravelly CLAY with occasional boulders and pockets of orange brown fine sand. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
1.00	HSV	150 kPa				. . . becoming brown and grey below 0.80m.		
1.40-1.50	D 4							
2.80-2.90	D 5				3.00	----- End of Trial Pit 3.00 m		

**Remarks and Water Observations**

- 1.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 7.0%.
- 2.Set of three Hand Shear Vane (HSV) tests at 1.00m gave average apparent undrained shear strength of >150kPa.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

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# TRIAL PIT RECORD

**Trial Pit Number**  
**TP40**

**Site**  
Hallam Fields, Birstall, Leicestershire.

**Client**  
Jelson Limited.

**Method of excavation**  
Mechanical Excavator

**Dimensions**  
0.70m x 2.50m

**Logged by:** JP  
**Scale:** 1:25

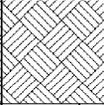
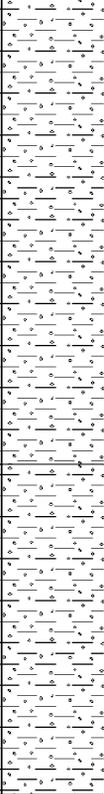
**LR:** G04003

**Ground Level:**

**Date:** 02/10/2003

**Location:** 0E 0N

**Sheet 1 of 1**

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
0.50-0.60	B 1				0.35	TOPSOIL.		
1.00	HSV	115 kPa				Very stiff brown and grey slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
1.30-1.40	D 2					. . . with occasional cobbles below 1.50m.		
2.80-2.90	D 3				1.90	Very stiff dark grey and brown slightly gravelly CLAY with occasional cobbles. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
					3.00	<i>End of Trial Pit 3.00 m</i>		

**Remarks and Water Observations**

1. Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 7.0%.
2. Land drain encountered at 0.85m below ground level running in an East- West direction.
3. Cement asbestos pipe (60mm OD) encountered in southern end of pit at 0.80m below ground level running in a North West- South East direction.
4. Set of three Hand Shear Vane (HSV) tests at 1.00m gave average apparent undrained shear strength of 115kPa.
5. No groundwater seepages were observed.
6. Trial pit walls did not collapse.
7. Trial pit was backfilled with arisings upon completion.

**NICHOLLS COLTON AND PARTNERS LTD.**  
**Tel: 0116 - 2536333**

# TRIAL PIT RECORD

**Trial Pit  
 Number**  
**TP41**

Site  
 Hallam Fields, Birstall, Leicestershire.

Client  
 Jelson Limited.

Method of excavation  
 Mechanical Excavator

Dimensions  
 0.70m x 2.50m

Logged by: JP  
 Scale: 1:25

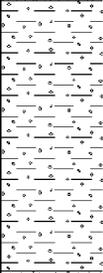
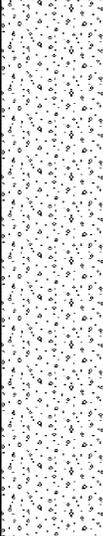
LR:G04003

Ground Level:

Date: 01/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
0.50-0.60	B 1				0.30	TOPSOIL.		
1.00-1.10	D 2				1.20	Very stiff brown slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded quartz.		
2.00-2.10	D 3				3.00	Medium dense* brown fine to coarse SAND and fine to coarse angular to sub-rounded flint and quartz GRAVEL with angular siltstone and flint cobbles.		
					3.00	----- End of Trial Pit 3.00 m		

**Remarks and Water Observations**

- 1.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 14%.
- 2.Attempted Hand Shear Vane (HSV) test at 1.00m but the ground was too hard for the test.
- 3.\*- Denotes relative density assessed visually from the stability of pit walls, and ease of excavation.
- 4.No groundwater seepages were observed.
- 5.Trial pit walls did not collapse.
- 6.Trial pit was backfilled with arisings upon completion.

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Method of excavation  
Mechanical Excavator

Dimensions  
0.70m x 2.50m

Logged by: JP  
Scale: 1:25

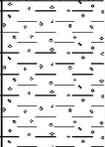
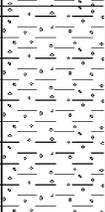
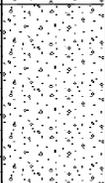
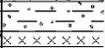
LR:G04003

Ground Level:

Date: 01/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation	
Depth (m)	Type	Result							
						TOPSOIL.			
0.50-0.60	B 1				0.30	Very stiff brown fissured CLAY with occasional fine to coarse angular to sub-rounded flint gravel.			
					0.80	Very stiff brown slightly gravelly CLAY. Gravel is fine to coarse angular to sub-rounded flint.			
1.20-1.30	D 2				1.10	Very stiff red brown CLAY with occasional fine to coarse angular to sub-rounded quartz and siltstone gravel.			
					1.80	Medium dense* orange brown slightly gravelly fine SAND. Gravel is fine to coarse sub-angular to sub-rounded quartz and siltstone.			
2.00-2.10	D 3				2.40	Stiff red brown slightly gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded quartz and siltstone.			
					2.50				
2.50-2.55	D 4				2.55				
						Medium strong red brown slightly quartzitic SILTSTONE.			
						<i>End of Trial Pit 2.55 m</i>			

**Remarks and Water Observations**

1. Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of 12%.
2. Attempted Hand Shear Vane (HSV) test at 1.00m but the ground was too hard for the test.
3. \*- Denotes relative density assessed visually from the stability of pit walls, and ease of excavation.
4. Could not penetrate the siltstone below 2.55m.
5. No groundwater seepages were observed.
6. Trial pit walls did not collapse.
7. Trial pit was backfilled with arisings upon completion.

**NICHOLLS COLTON AND PARTNERS LTD.**  
**Tel: 0116 - 2536333**

# TRIAL PIT RECORD

**Trial Pit  
 Number**  
**TP43**

Site  
 Hallam Fields, Birstall, Leicestershire.

Client  
 Jelson Limited.

Method of excavation  
 Mechanical Excavator

Dimensions  
 0.70m x 2.50m

Logged by: JP  
 Scale: 1:25

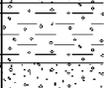
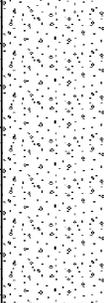
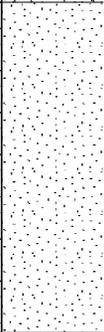
LR:G04003

Ground Level:

Date: 01/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
						TOPSOIL.		
0.50-0.60	B 1				0.30	Medium dense* brown slightly clayey silty slightly gravelly fine SAND locally cemented. Gravel is fine to coarse angular to sub-rounded flint.		
1.00-1.10	D 2				0.60 0.80	Stiff brown slightly gravelly CLAY. Gravel is fine to coarse sub-angular to sub-rounded chalk and flint.		
2.00-2.10	D 3				1.90	Medium dense* brown gravelly fine to coarse SAND with some cobbles and occasional boulders. Gravel is fine to coarse angular to sub-rounded quartz, siltstone and flint.		
					3.00	Medium dense* orange brown fine to medium SAND.		
						End of Trial Pit 3.00 m		

**Remarks and Water Observations**

- 1.\* - Denotes relative density assessed visually from the stability of pit walls, and ease of excavation.
- 2.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of >14%.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

**NICHOLLS COLTON AND PARTNERS LTD.**  
**Tel: 0116 - 2536333**

# TRIAL PIT RECORD

**Trial Pit  
 Number**  
**TP44**

Site  
 Hallam Fields, Birstall, Leicestershire.

Client  
 Jelson Limited.

Method of excavation  
 Mechanical Excavator

Dimensions  
 0.70m x 2.50m

Logged by: JP  
 Scale: 1:25

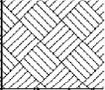
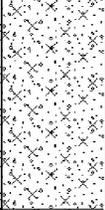
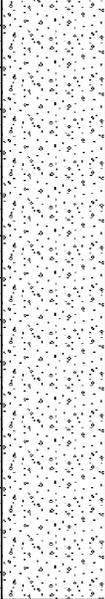
LR:G04003

Ground Level:

Date: 01/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
					0.30	TOPSOIL.		
0.50-0.60	B 1				1.00	Medium dense* brown silty slightly gravelly fine SAND with occasional partings of clay. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
1.20-1.30	D 2					Medium dense* orange brown fine to medium SAND with occasional fine to coarse sub-angular to sub-rounded quartz gravel.		
2.50-2.60	D 3				3.00	<i>End of Trial Pit 3.00 m</i>		

**Remarks and Water Observations**

- 1.\*- Denotes relative density assessed visually from the stability of pit walls, and ease of excavation.
- 2.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of >14%.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

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# TRIAL PIT RECORD

**Trial Pit  
 Number**  
**TP45**

Site  
 Hallam Fields, Birstall, Leicestershire.

Client  
 Jelson Limited.

Method of excavation  
 Mechanical Excavator

Dimensions  
 0.70m x 2.50m

Logged by: JP  
 Scale: 1:25

LR:G04003

Ground Level:

Date: 01/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
					0.30	TOPSOIL.		
0.50-0.60	B 1				0.90	Dense* brown silty slightly gravelly fine to coarse SAND. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
1.10-1.20	D 2				1.70	Medium dense* orange brown slightly gravelly fine to coarse SAND. Gravel is fine to coarse angular to sub-rounded flint quartz and siltstone.		
1.90-2.00	D 3				3.00	Medium dense* orange brown gravelly fine to coarse SAND. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
						<i>End of Trial Pit 3.00 m</i>		

**Remarks and Water Observations**

- 1.\* - Denotes relative density assessed visually from the stability of pit walls, and ease of excavation.
- 2.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of >14%.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

NICHOLLS COLTON AND PARTNERS LTD.  
Tel: 0116 - 2536333

# TRIAL PIT RECORD

Trial Pit  
Number  
**TP46**

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Method of excavation  
Mechanical Excavator

Dimensions  
0.70m x 2.50m

Logged by: JP  
Scale: 1:25

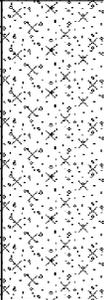
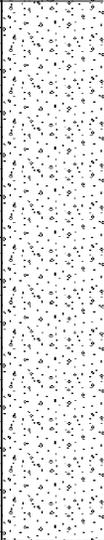
LR:G04003

Ground Level:

Date: 01/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
0.50-0.60	B 1				0.30	TOPSOIL.		
						Dense* brown silty slightly gravelly fine to coarse SAND with occasional flint cobbles. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
1.40-1.50	D 2				1.30	Medium dense* red brown slightly gravelly fine to coarse SAND with occasional flint and siltstone cobbles. Gravel is fine to coarse angular to sub-rounded flint, chalk and siltstone.		
2.80-2.90	D 3				3.10	<i>End of Trial Pit 3.10 m</i>		

### Remarks and Water Observations

- 1.\* - Denotes relative density assessed visually from the stability of pit walls, and ease of excavation.
- 2.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of >14%.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

# TRIAL PIT RECORD

**Trial Pit Number**  
**TP47**

Site  
 Hallam Fields, Birstall, Leicestershire.

Client  
 Jelson Limited.

Method of excavation  
 Mechanical Excavator

Dimensions  
 0.70m x 2.50m

Logged by: JP  
 Scale: 1:25

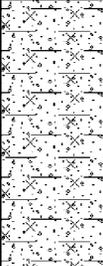
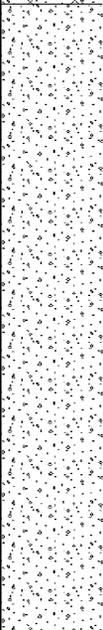
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Ground Level:

Date: 01/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
0.10-0.20	J 1				0.20	TOPSOIL.		
0.40-0.50	J 2				0.20	Medium dense* brown slightly clayey silty slightly gravelly fine SAND locally cemented. Gravel is fine to coarse angular to sub-rounded flint.		
0.50-0.60	B 3							
1.20-1.30	D 4				1.10	Medium dense* orange brown slightly gravelly fine to medium SAND with occasional partings of firm brown clay. Gravel is fine to coarse angular to sub-rounded flint.		
3.00-3.10	D 5				3.20	<i>End of Trial Pit 3.20 m</i>		

**Remarks and Water Observations**

- 1.\* - Denotes relative density assessed visually from the stability of pit walls, and ease of excavation.
- 2.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of >14%.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

**NICHOLLS COLTON AND PARTNERS LTD.**  
**Tel: 0116 - 2536333**

# TRIAL PIT RECORD

**Trial Pit Number**  
**TP48**

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
**Jelson Limited.**

Method of excavation  
Mechanical Excavator

Dimensions  
0.70m x 2.50m

Logged by: JP  
Scale: 1:25

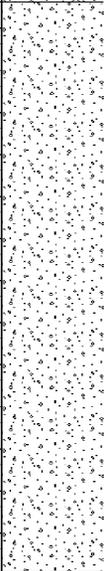
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Ground Level:

Date: 01/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
0.50-0.60	B 1				0.30	TOPSOIL.		
						Medium dense* brown slightly clayey silty slightly gravelly fine SAND locally cemented. Gravel is fine to coarse angular to sub-rounded flint.		
1.40-1.50	D 2				1.20	Medium dense* orange brown slightly gravelly fine to medium SAND with occasional flint cobbles. Gravel is fine to coarse angular to sub-rounded flint.		
2.80-3.00	D 3				3.10	<i>End of Trial Pit 3.10 m</i>		

**Remarks and Water Observations**

- 1.\* - Denotes relative density assessed visually from the stability of pit walls, and ease of excavation.
- 2.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of >14%.
- 3.No groundwater seepages were observed.
- 4.Trial pit walls did not collapse.
- 5.Trial pit was backfilled with arisings upon completion.

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Method of excavation  
Mechanical Excavator

Dimensions  
0.70m x 2.50m

Logged by: JP  
Scale: 1:25

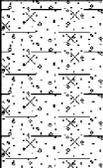
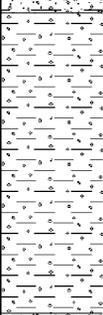
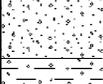
LR:G04003

Ground Level:

Date: 01/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
0.00	0					TOPSOIL.		
0.50-0.60	B 1				0.30	Medium dense* brown slightly clayey silty slightly gravelly fine SAND locally cemented. Gravel is fine to coarse angular to sub-rounded flint.		
1.00	HSV	150 kPa			0.90	Very stiff red brown fissured CLAY with occasional fine to coarse angular to sub-rounded flint, quartz and sandstone gravel.		
1.20-1.30	D 2							
2.20-2.30	D 3				1.90 2.10	Medium dense* orange brown slightly gravelly fine to medium SAND. Gravel is fine to coarse angular to sub-rounded flint.  Firm slightly gravelly CLAY with some pockets of orange brown slightly gravelly sand. Gravel is fine to coarse angular to sub-rounded flint.	 	
2.80-2.90	D 4				2.70	Soft red brown and light grey sandy CLAY / very clayey fine to medium SAND.		
					3.10	<i>End of Trial Pit 3.10 m</i>		

**Remarks and Water Observations**

- 1.\* - Denotes relative density assessed visually from the stability of pit walls, and ease of excavation.
- 2.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of >14%.
- 3.Set of three Hand Shear Vane (HSV) tests at 1.00m gave average apparent undrained shear strength of >150kPa.
- 4.No groundwater seepages were observed.
- 5.Trial pit walls did not collapse.
- 6.Trial pit was backfilled with arisings upon completion.

**NICHOLLS COLTON AND PARTNERS LTD.**  
**Tel: 0116 - 2536333**

# TRIAL PIT RECORD

**Trial Pit  
 Number**  
**TP50**

Site  
 Hallam Fields, Birstall, Leicestershire.

Client  
 Jelson Limited.

Method of excavation  
 Mechanical Excavator

Dimensions  
 0.70m x 2.50m

Logged by: JP  
 Scale: 1:25

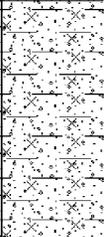
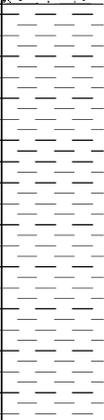
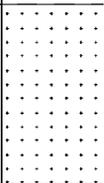
LR:G04003

Ground Level:

Date: 01/10/2003

Location: 0E 0N

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
0.50-0.60	B 1				0.30	TOPSOIL.		
						Medium dense* light brown locally clayey silty slightly gravelly fine SAND. Gravel is fine to coarse angular to sub-rounded flint.		
1.20 1.30-1.40	HSV D 2	111 kPa			1.10	Stiff red brown and light grey fissured CLAY.		
2.60-2.70	D 3				2.50	Very weak light grey with some red brown fine grained SANDSTONE.		
					3.10	Stiff red brown CLAY.		
					3.30	<i>End of Trial Pit 3.30 m</i>		

**Remarks and Water Observations**

- 1.\* - Denotes relative density assessed visually from the stability of pit walls, and ease of excavation.
- 2.Set of three Mexi Probe tests undertaken at 0.50m gave average apparent CBR value of >14%.
- 3.Set of three Hand Shear Vane (HSV) tests at 1.20m gave average apparent undrained shear strength of 111kPa.
- 4.No groundwater seepages were observed.
- 5.Trial pit walls did not collapse.
- 6.Trial pit was backfilled with arisings upon completion.

**APPENDIX C**

**SOAKAWAY PIT LOGS**

LR: G04003

NICHOLLS COLTON AND PARTNERS LTD.  
Tel: 0116 - 2536333

# TRIAL PIT RECORD

Trial Pit  
Number  
**SK 1**

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Method of excavation  
Mechanical Excavator

Dimensions  
0.60m x 1.50m

Logged by: JP  
Scale: 1:15

LR:G04003

Ground Level:

Date: 22/10/2003

Location: -

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
					0.30	TOPSOIL		
						Brown slightly gravelly fine to medium SAND.		
					2.15	End of Trial Pit 2.15 m		

### Remarks and Water Observations

- 1.No groundwater seepages were observed.
2. Trial pit walls did not collapse.
3. The pit was backfilled with gravel from 1.00m to 2.15m, monitoring pipe installed to the base.
4. The remainder of the pit was backfilled with arisings to ground level.
5. See separate sheet for soakaway test results.

NICHOLLS COLTON AND PARTNERS LTD.  
Tel: 0116 - 2536333

# TRIAL PIT RECORD

Trial Pit Number  
**SK 2**

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Method of excavation  
Mechanical Excavator

Dimensions  
0.60m x 1.70m

Logged by:  
Scale: 1:15

LR:G04003

Ground Level:

Date: 22/10/2003

Location: -

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
					0.30	TOPSOIL.		
						Brown slightly gravelly fine to medium SAND		
					2.20	End of Trial Pit 2.20 m		

### Remarks and Water Observations

- 1.No groundwater seepages were observed.
2. Trial pit walls did not collapse.
3. The pit was backfilled with gravel from 1.00m to 2.20m, monitoring pipe installed to the base.
4. The remainder of the pit was backfilled with arisings to ground level.
5. See separate sheet for soakaway test results.

# TRIAL PIT RECORD

Trial Pit Number

**SK 3**

Site  
Hallam Fields, Birstall, Leicestershire.

Client  
Jelson Limited.

Method of excavation  
Mechanical Excavator

Dimensions  
0.60m x 1.40m

Logged by:

Scale: 1:15

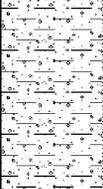
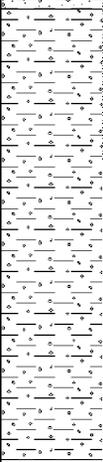
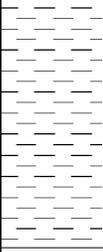
LR:G04003

Ground Level:

Date: 22/10/2003

Location: -

Sheet 1 of 1

Samples & In situ Tests			Water	Level (m)	Depth (m)	Description	Legend	Installation
Depth (m)	Type	Result						
						TOPSOIL.		
					0.30	Stiff brown slightly sandy slightly gravelly CLAY		
					0.70	Very stiff light grey and brown slightly gravelly CLAY		
					1.60	Stiff dark grey CLAY		
					2.10	End of Trial Pit 2.10 m		

Remarks and Water Observations

- 1.No groundwater seepages were observed.
2. Trial pit walls did not collapse.
3. The pit was backfilled with gravel from 1.00m to 2.10m, monitoring pipe installed to the base.
4. The remainder of the pit was backfilled with arisings to ground level.
5. See separate sheet for soakaway test results.

**APPENDIX D**

**INSITU SOAKAWAY TEST RESULTS**

LR: G04003

# INSITU SOAKAWAY TEST RESULTS

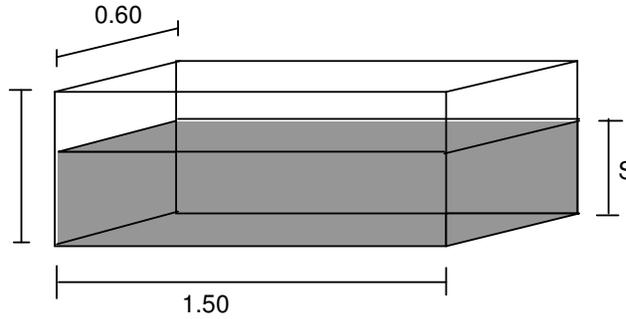
## Trialpit No.: SK 1

**Soil Profile:**

Depth (m)	Description
From: 0.00	To: 0.30 Topsoil.
0.30	2.15 Brown slightly gravelly fine to medium SAND.

**Sketch plan of test zone**

Not to scale  
 All dimensions in metres.  
 Test zone filled with pea gravel,  
 porosity (N) = 0.41  
 (measured in laboratory)  
 S= Storage depth (m) 2.15  
 Gravel from 1.00m to 2.15m.

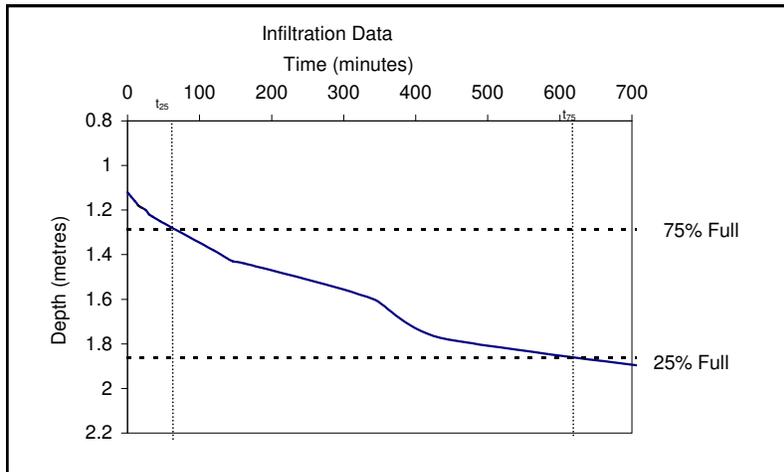


**Gives the Figures**

S= 1.15 m  
 $a_{p50} = 3.32 \text{ m}^2$   
 $V_{p75-25} = 0.52 \text{ m}^3$

**Soakaway Test Run 1**

**Test Date: 22/10/2003**



Time (minutes)	Depth (m)
0	1.12
5	1.14
10	1.16
15	1.18
20	1.19
25	1.20
30	1.22
35	1.23
45	1.25
119	1.38
162	1.44
342	1.60
445	1.78
1333	2.14

From the above graph,

$t_{p25} = 70$  (min)       $t_{p75} = 620$  (min)

Soil Infiltration Rate:  $f = \frac{V_{p75-25} \times N}{a_{p50} \times t_{p75-25}} = 1.94E-06$        $f_{run1} = \underline{1.94 \times 10^{-6}}$  m/s

Test and analysis carried out in general accordance with BRE Digest 365 : 1991

**Job No.:** G04003  
**Site:** Hallam Fields, Birstall, Leicester.  
**Client:** Jelson Ltd

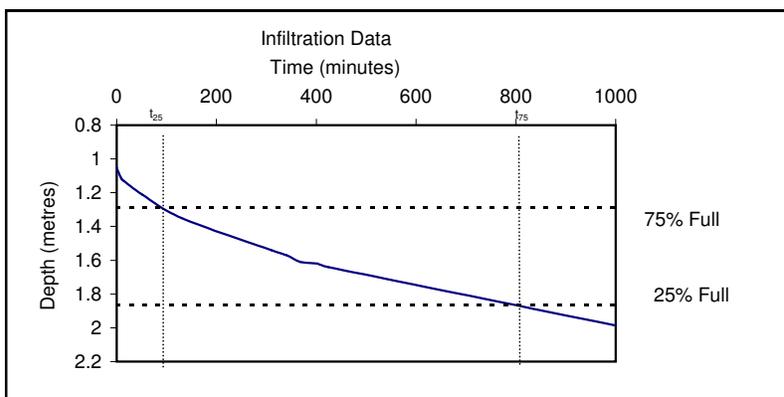
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 COLTON  
 GEOTECHNICAL**

# INSITU SOAKAWAY TEST RESULTS

**Trialpit No.: SK 1**

**Soakaway Test Run 2**

**Test Date: 23/10/2003**



Time (minutes)	Depth (m)
0	1.05
8	1.11
10	1.12
14	1.13
51	1.21
130	1.35
310	1.54
341	1.57
368	1.61
402	1.62
424	1.64
1358	2.20

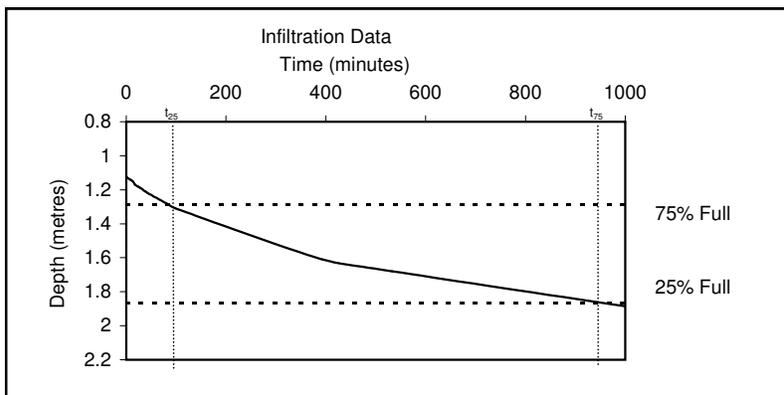
From the above graph,

$$t_{p25} = 80 \text{ (min)} \quad t_{p75} = 795 \text{ (min)}$$

$$\text{Soil Infiltration Rate: } f = \frac{V_{p75-25} \times N}{a_{p50} \times t_{p75-25}} = 1.49\text{E-}06 \quad f_{\text{run2}} = \underline{1.49 \times 10^{-6}} \text{ m/s}$$

**Soakaway Test Run 3**

**Test Date: 24/10/2003**



Time (minutes)	Depth (m)
0	1.12
2	1.13
8	1.14
13	1.15
23	1.18
28	1.19
43	1.22
80	1.28
394	1.61
533	1.68
1533	2.12

From the above graph,

$$t_{p25} = 85 \text{ (min)} \quad t_{p75} = 950 \text{ (min)}$$

$$\text{Soil Infiltration Rate: } f = \frac{V_{p75-25} \times N}{a_{p50} \times t_{p75-25}} = 1.23\text{E-}06 \quad f_{\text{run3}} = \underline{1.23 \times 10^{-6}} \text{ m/s}$$

Test and analysis carried out in general accordance with BRE Digest 365 : 1991

**Job No.: G04003**  
**Site: Hallam Fields, Birstall, Leicester.**  
**Client: Jelson Ltd**

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 GEOTECHNICAL**

# INSITU SOAKAWAY TEST RESULTS

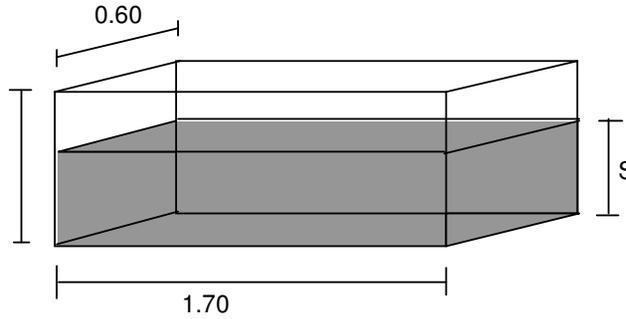
## Trialpit No.: SK 2

**Soil Profile:**

Depth (m)	Description	
From:	To:	
0.00	0.30	Topsoil.
0.30	2.20	Brown slightly gravelly fine to medium SAND.

**Sketch plan of test zone**

Not to scale  
 All dimensions in metres.  
 Test zone filled with pea gravel,  
 porosity (N) = 0.41  
 (measured in laboratory)  
 S= Storage depth (m) 2.20  
 Gravel from 1.00m to 2.20m.

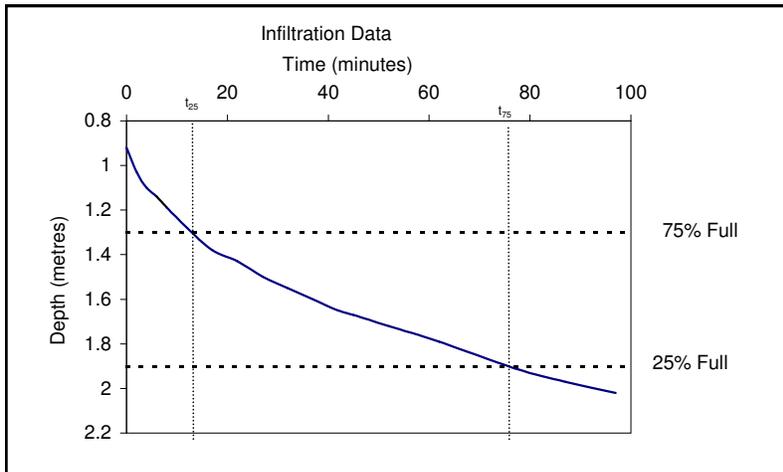


**Gives the Figures**

S= 1.20 m  
 $a_{p50}$ = 3.78 m<sup>2</sup>  
 $V_{p75-25}$ = 0.61 m<sup>3</sup>

**Soakaway Test Run 1**

**Test Date: 22/10/2003**



Time (minutes)	Depth (m)
0	0.92
4	1.10
8	1.10
17	1.38
27	1.28
37	1.28
45	1.67
62	1.50
87	1.50
97	2.02

From the above graph,

$t_{p25}$ = 12 (min)       $t_{p75}$ = 75 (min)

**Soil Infiltration Rate:**  $f = \frac{V_{p75-25} \times N}{a_{p50} \times t_{p75-25}} = 1.76E-05$        $f_{run1} = \underline{1.76 \times 10^{-5}}$  m/s

Test and analysis carried out in general accordance with BRE Digest 365 : 1991

**Job No.:** G04003  
**Site:** Hallam Fields, Birstall, Leicester.  
**Client:** Jelson Ltd

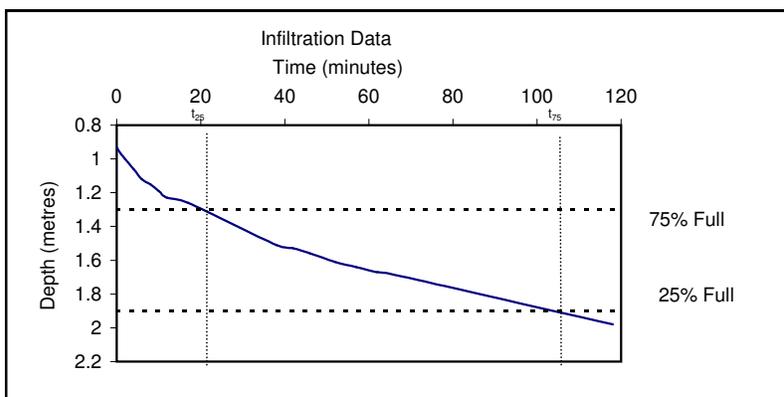
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 GEOTECHNICAL**

# INSITU SOAKAWAY TEST RESULTS

## Trialpit No.: SK 2

**Soakaway Test Run 2**

**Test Date: 23/10/2003**



Time (minutes)	Depth (m)
0	0.93
2	1.00
4	1.06
8	1.15
10	1.19
12	1.23
17	1.26
38	1.51
42	1.53
52	1.61
57	1.64
65	1.68
118	1.98

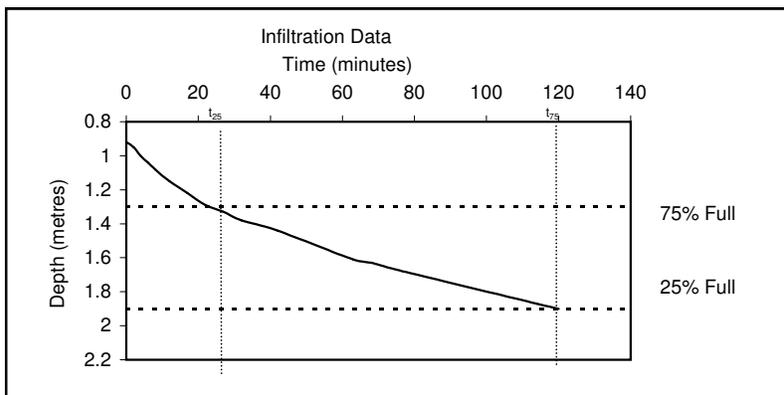
From the above graph,

$$t_{p25} = 22 \text{ (min)} \quad t_{p75} = 104 \text{ (min)}$$

$$\text{Soil Infiltration Rate: } f = \frac{V_{p75-25} \times N}{a_{p50} \times t_{p75-25}} = 1.35E-05 \quad f_{run2} = \underline{1.35 \times 10^{-5}} \text{ m/s}$$

**Soakaway Test Run 3**

**Test Date: 23/10/2003**



Time (minutes)	Depth (m)
0	0.92
2	0.95
6	1.04
8	1.08
17	1.22
22	1.29
27	1.33
42	1.44
63	1.61
114	1.87
120	1.90

From the above graph,

$$t_{p25} = 23 \text{ (min)} \quad t_{p75} = 120 \text{ (min)}$$

$$\text{Soil Infiltration Rate: } f = \frac{V_{p75-25} \times N}{a_{p50} \times t_{p75-25}} = 1.14E-05 \quad f_{run3} = \underline{1.14 \times 10^{-5}} \text{ m/s}$$

Test and analysis carried out in general accordance with BRE Digest 365 : 1991

**Job No.:** G04003  
**Site:** Hallam Fields, Birstall, Leicester.  
**Client:** Jelson Ltd

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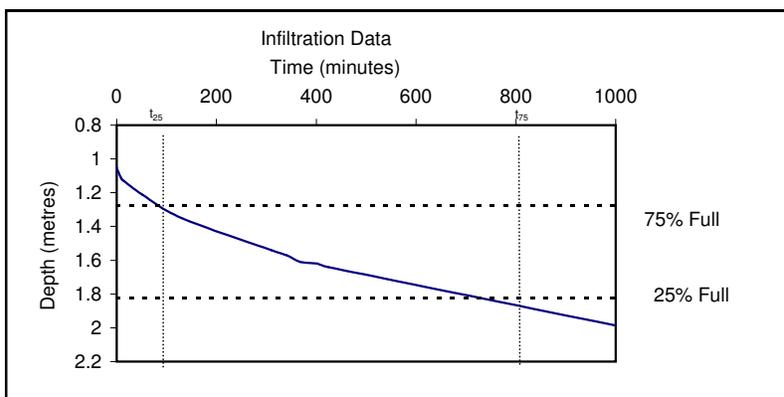


# INSITU SOAKAWAY TEST RESULTS

## Trialpit No.: SK 3

**Soakaway Test Run 2**

**Test Date: 23/10/2003**



Time (minutes)	Depth (m)
0	1.05
8	1.11
10	1.12
14	1.13
51	1.21
130	1.35
310	1.54
341	1.57
368	1.61
402	1.62
424	1.64
1358	2.20

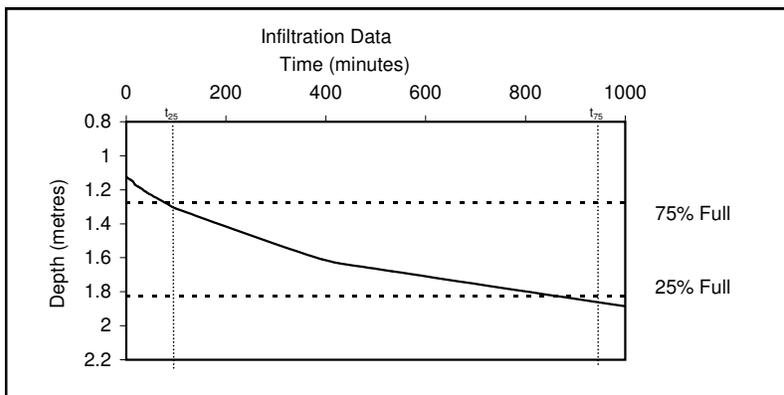
From the above graph,

$$t_{p25} = 80 \text{ (min)} \quad t_{p75} = 795 \text{ (min)}$$

$$\text{Soil Infiltration Rate: } f = \frac{V_{p75-25} \times N}{a_{p50} \times t_{p75-25}} = 1.45E-06 \quad f_{run2} = \underline{1.49 \times 10^{-6}} \text{ m/s}$$

**Soakaway Test Run 3**

**Test Date: 24/10/2003**



Time (minutes)	Depth (m)
0	1.12
2	1.13
8	1.14
13	1.15
23	1.18
28	1.19
43	1.22
80	1.28
394	1.61
533	1.68
1533	2.12

From the above graph,

$$t_{p25} = 85 \text{ (min)} \quad t_{p75} = 950 \text{ (min)}$$

$$\text{Soil Infiltration Rate: } f = \frac{V_{p75-25} \times N}{a_{p50} \times t_{p75-25}} = 1.20E-06 \quad f_{run3} = \underline{1.23 \times 10^{-6}} \text{ m/s}$$

Test and analysis carried out in general accordance with BRE Digest 365 : 1991

**Job No.:** G04003  
**Site:** Hallam Fields, Birstall, Leicester.  
**Client:** Jelson Ltd

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 COLTON  
 GEOTECHNICAL**

**APPENDIX E**

**LABORATORY TEST RESULTS - GEOTECHNICAL**

LR: G04003

## TEST RESULTS SUMMARY SHEET

**SITE:** Hallam Fields, Birstall.

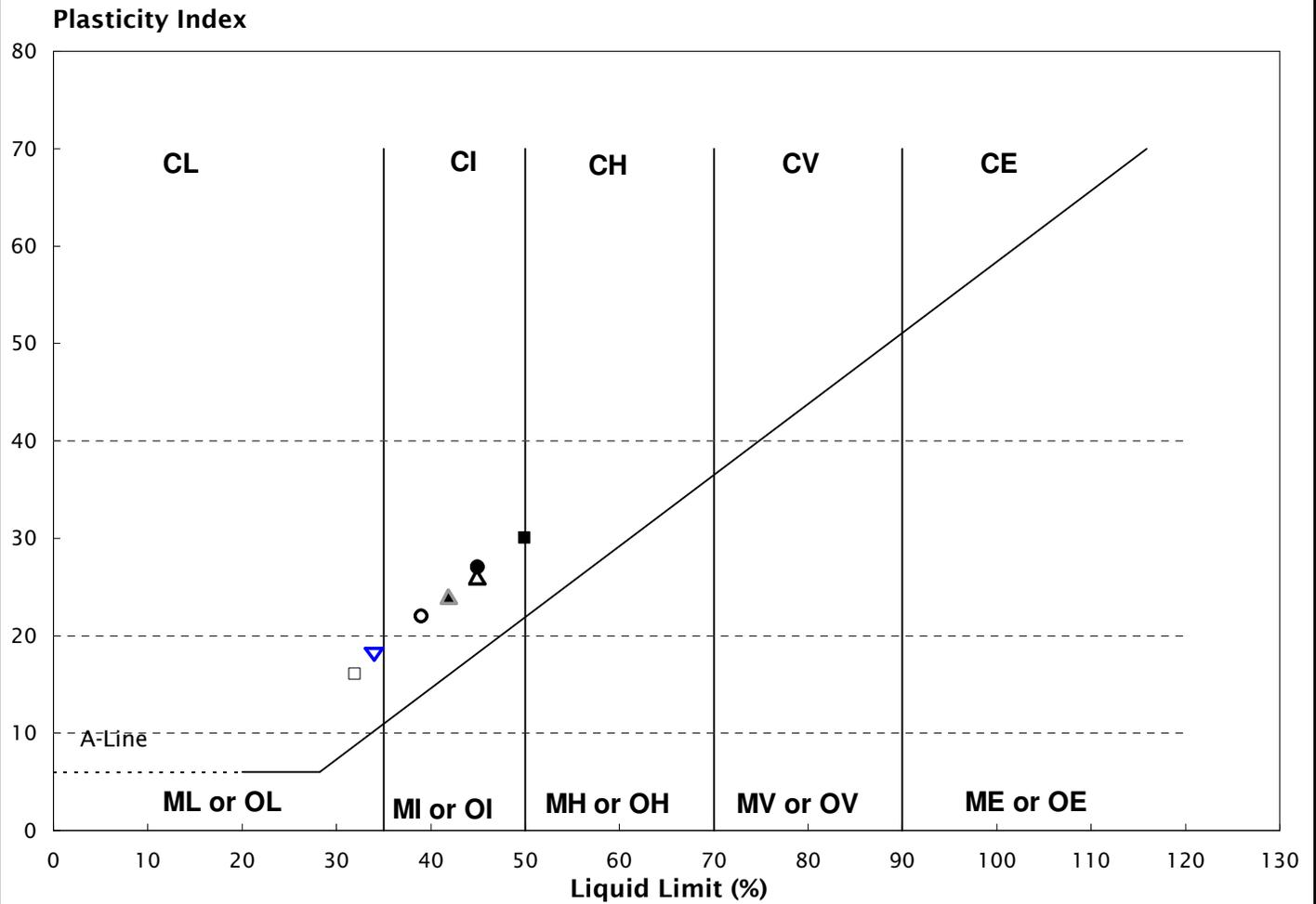
### NATURAL MOISTURE CONTENT AND ATTERBERG LIMIT TEST RESULTS

Tests carried out in accordance with B.S.1377: Part 2: 1990

Hole No.	Depth (m)	Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Passing 425 µm Sieve (%)	Group Symbol
BH1	1.20-1.65	15	32	16	16	100	CL
BH2	1.20-1.65	17	50	20	30	98	CI
BH4	2.00-2.40	15	39	17	22	92	CI
TP1	1.20-1.30	15	45	18	27	98	CI
TP12	1.10-1.20	13	34	16	18	98	CL
TP18	1.00-1.10	17	45	19	26	96	CI
TP39	1.40-1.50	20	42	18	24	98	CI

BH = Borehole; TP = Trial Pit

# CASAGRANDE PLASTICITY CHART



## LEGENDS

BH1    
  BH2    
  BH4    
  TP1    
  TP12    
  TP18    
  TP39

## CASAGRANDE CLASSIFICATION

The fine grained soils are divided into the following groups and further subdivided on the basis of Liquid Limits:

### SOIL GROUPS

- C** Inorganic clays (these plot *above* the A-Line)
- M** Inorganic silts (these plot *below* the A-Line)
- O** Organic silts and clays (these plot *below* the A-Line)

### PLASTICITY SUB-GROUPS

- L** **Low** : less than 35%
- I** **Intermediate** : 35% to 50%
- H** **High** : 50% to 70%
- V** **Very high** : 70% to 90%
- E** **Extremely high** : more than 90%

## SHRINKAGE POTENTIAL

NHBC 'Building Near Trees' Chapter 4.2

classifies shrinkable soils as having more than 35% fine particles (silt and clay) and further subdivides such soils into four categories of heave and shrinkage potential based on Plasticity Index:

**HIGH** PI > 40    
 **MEDIUM** PI = 20 - 40    
 **LOW** PI = 10 - 20    
 **NON-SHRINKABLE** PI < 10

Remarks:

**Project :** Hallam Fields, Birstall.

**Client :** Jelson Ltd

**Project No.**

G04003

## TEST RESULTS SUMMARY SHEET

**SITE:** Hallam Fields, Birstall.

### SOIL SULPHATE CONTENT & pH VALUE RESULTS

Tests carried out in accordance with B.S.1377: Part 3: 1990

Hole No.	Sample Depth (m)	Description of sample	Sulphate Content (g/l as SO <sub>4</sub> )	pH Value	DS Class: * <sup>1</sup>	ACEC Class: * <sup>1</sup>
BH1	1.20-1.65	Slightly sandy slightly gravelly CLAY	<0.1	7.8	DS-1	AC-1s
BH2	1.20-1.65	Slightly gravelly CLAY	0.1	7.9	DS-1	AC-1s
BH3	1.20-1.50	Slightly gravelly CLAY	0.1	8.0	DS-1	AC-1s
BH4	2.00-2.40	Slightly gravelly CLAY	<0.1	8.2	DS-1	AC-1s
BH5	2.50-2.95	Slightly silty slightly gravelly SAND	<0.1	8.7	DS-1	AC-1s
BH6	1.20-1.65	Slightly gravelly CLAY	<0.1	8.2	DS-1	AC-1s
BH7	3.00-3.45	Slightly sandy slightly gravelly CLAY	<0.1	8.3	DS-1	AC-1s
BH8	2.50-3.00	Silty SAND	<0.1	8.4	DS-1	AC-1s
TP2	1.00-1.10	Slightly gravelly CLAY	<0.1	8.3	DS-1	AC-1s
TP3	1.00-1.10	Slightly gravelly CLAY	<0.1	8.3	DS-1	AC-1s
TP6	1.00-1.10	Slightly gravelly CLAY	<0.1	8.2	DS-1	AC-1s
TP7	0.50-0.60	Slightly gravelly CLAY	0.1	7.3	DS-1	AC-1s
TP11	1.10-1.20	Slightly clayey slightly silty SAND	<0.1	7.2	DS-1	AC-1s
TP12	1.10-1.20	Sandy CLAY	0.1	7.1	DS-1	AC-1s
TP15	1.00-1.10	Slightly gravelly CLAY	<0.1	7.8	DS-1	AC-1s
TP18	1.00-1.10	Slightly gravelly CLAY	<0.1	7.7	DS-1	AC-1s
TP20	1.00-1.10	Slightly gravelly CLAY	<0.1	8.0	DS-1	AC-1s
TP22	2.50-2.60	Gravelly SAND	<0.1	7.9	DS-1	AC-1s

Note: Results refer to water-soluble sulphates (2:1 Water:Soil Extract) unless otherwise specified.

\*<sup>1</sup> - Classification determined from BRE Special Digest 1: 2001, Table 2

BH = Borehole; TP = Trial Pit

NICHOLLS COLTON GEOTECHNICAL

LR: G04003

DATE: November 2003

# TEST RESULTS SUMMARY SHEET

SITE: Hallam Fields, Birstall.

## SOIL SULPHATE CONTENT & pH VALUE RESULTS

Tests carried out in accordance with B.S.1377: Part 3: 1990

Hole No.	Sample Depth (m)	Description of sample	Sulphate Content (g/l as SO <sub>4</sub> )	pH Value	DS Class: * <sup>1</sup>	ACEC Class: * <sup>1</sup>
TP27	0.80-0.90	SILT	<0.1	8.1	DS-1	AC-1s
TP30	1.00-1.10	CLAY	<0.1	7.3	DS-1	AC-1s
TP36	1.20-1.30	Gravelly CLAY	<0.1	7.8	DS-1	AC-1s
TP39	1.40-1.50	Slightly gravelly CLAY	<0.1	8.1	DS-1	AC-1s
TP42	1.20-1.30	CLAY	<0.1	8.0	DS-1	AC-1s
TP47	1.20-1.30	Slightly gravelly SAND	<0.1	7.3	DS-1	AC-1s
TP49	1.20-1.30	CLAY	<0.1	6.9	DS-1	AC-1s

Note: Results refer to water-soluble sulphates (2:1 Water:Soil Extract) unless otherwise specified.

\*<sup>1</sup> - Classification determined from BRE Special Digest 1: 2001, Table 2

TP = Trial Pit

## TEST RESULTS SUMMARY SHEET

**SITE:** Hallam Fields, Birstall.

### SINGLE STAGE QUICK UNDRAINED TRIAXIAL COMPRESSION TEST RESULTS

Tests carried out in accordance with B.S.1377: Part 7: 1990

Hole No.	Sample Depth (m)	Natural Moisture Content (%)	Bulk Density (Mg/m <sup>3</sup> )	Cell Pressure (kN/m <sup>2</sup> )	Failure Conditions		
					Deviator Stress (kN/m <sup>2</sup> )	Strain (%)	Shear Strength $c_u$ (kN/m <sup>2</sup> )
BH1	1.20-1.65	15	2.07	25	244	4.0	122
BH1	3.50-3.95	15	2.20	60	488	7.0	244
BH2	1.20-1.65	17	2.08	25	362	7.0	181
BH2	2.00-2.45	19	2.13	40	303	21	152
BH3	1.20-1.50	17	2.15	40	485	7.5	243
BH3	3.00-3.35	17	2.23	60	520	4.5	260
BH4	2.00-2.40	15	2.18	40	498	5.0	249
BH4	4.00-4.45	15	2.23	80	493	6.0	247
BH6	1.20-1.65	18	2.13	25	404	4.5	202
BH6	2.00-2.45	20	2.17	40	287	18	143
BH7	3.00-3.45	10	2.31	60	221	5.5	111
BH7	5.00-5.45	25	2.04	100	133	11	66

Nominal sample diameter = 105mm unless otherwise specified

BH = Borehole

NICHOLLS COLTON GEOTECHNICAL

LR: G04003

DATE: November 2003

## TEST RESULTS SUMMARY SHEET

**SITE:** Hallam Fields, Birstall.

### CALIFORNIA BEARING RATIO (C.B.R.) TEST RESULTS

Surcharge load: 16kg equivalent to approximately 450mm of road construction.

Sample prepared at natural moisture content adopting Dynamic Compaction Method 5 (4.5 kg Rammer) Clause 7, B.S.1377: Part 4: 1990

Hole No.	Sample Depth (m)	Sample Description	Moisture Content (%)	Dry Density (Mg/m <sup>3</sup> )	CBR (%)
TP3	0.50-0.60	Slightly gravelly CLAY	13	1.88	50
TP7	0.50-0.60	Slightly gravelly CLAY	17	1.80	18
TP9	0.50-0.60	Slightly gravelly CLAY	14	1.88	36
TP10	0.50-0.60	Silty fine SAND	11	2.01	34
TP18	0.50-0.60	Slightly gravelly CLAY	17	1.83	22
TP23	0.50-0.60	Slightly gravelly CLAY	16	1.84	30
TP28	0.50-0.60	Slightly silty slightly gravelly fine to medium SAND	10	2.01	16
TP31	0.50-0.60	Silty slightly gravelly fine to coarse SAND	4.5	1.87	78
TP37	0.50-0.60	Slightly gravelly CLAY	14	1.88	28
TP39	0.50-0.60	Slightly gravelly CLAY	19	1.76	16
TP47	0.50-0.60	Slightly clayey silty slightly gravelly fine SAND	5.9	1.98	>70
TP50	0.50-0.60	Silty slightly gravelly fine SAND	5.8	1.96	>107

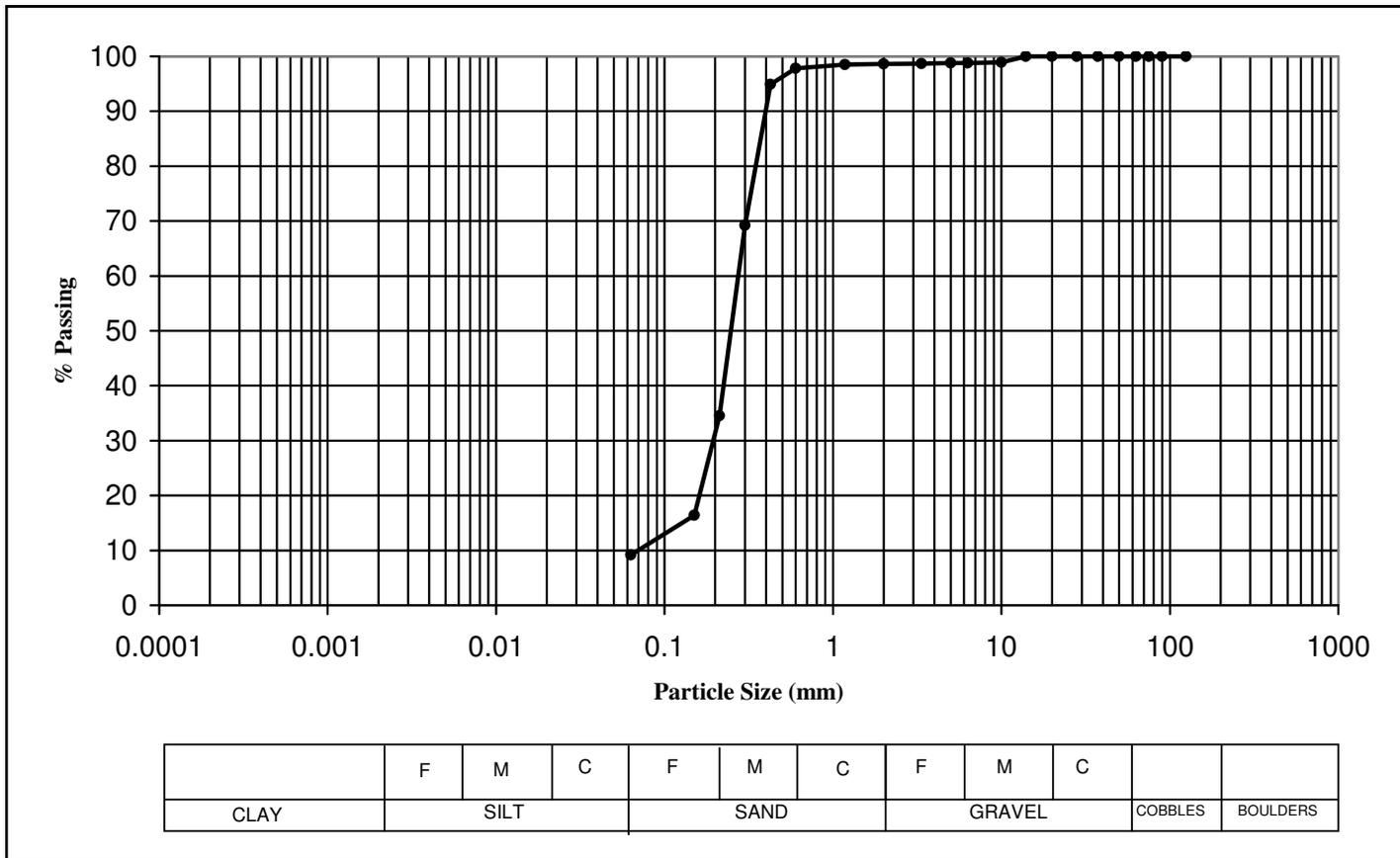
TP = Trial Pit

NICHOLLS COLTON GEOTECHNICAL

LR: G04003

DATE: November 2003

**B.S.1377 1990 PART 2 PARTICLE SIZE ANALYSIS**



Sieve Size	Percentage Passing	Group % retained
125	100	Cobbles
90	100	
75	100	
63	100	0
50	100	Gravel
37.5	100	
28	100	
20	100	
14	100	
10	99	
6.3	99	1
5	99	
3.35	99	
2	99	
1.18	99	
0.6	98	Sand
0.425	95	
0.3	69	
0.212	35	
0.15	16	
0.063	9	
		89
		Fines
		9

Key: F - Fine; M - Medium; C - Coarse

**N.C.T**

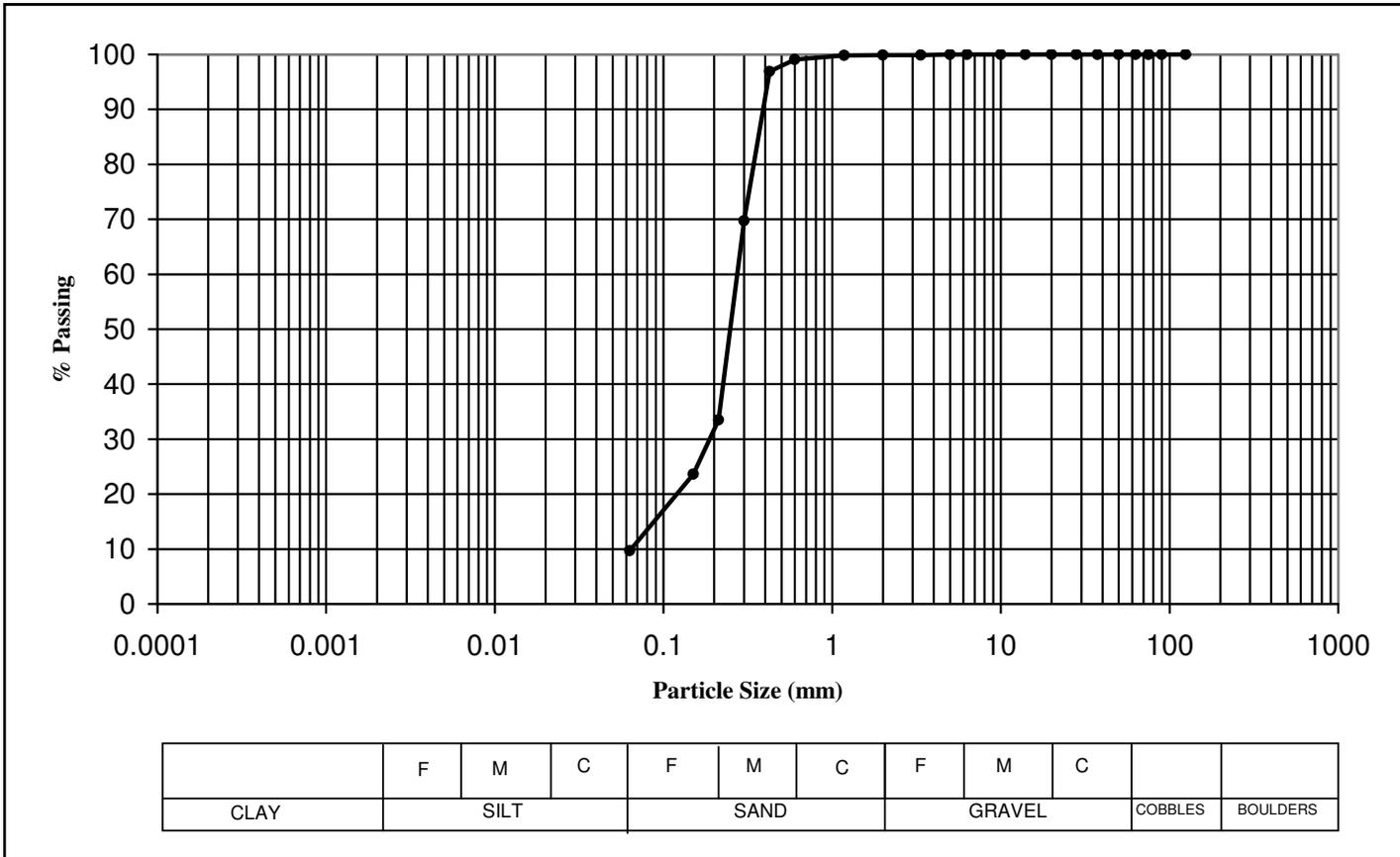
Site Ref:  
Hallam Fields, Birstall

Job No: G04003  
Hole No. BH 5

Sample No: B7  
Depth (m): 2.50-2.95

Date:  
October 2003

**B.S.1377 1990 PART 2 PARTICLE SIZE ANALYSIS**

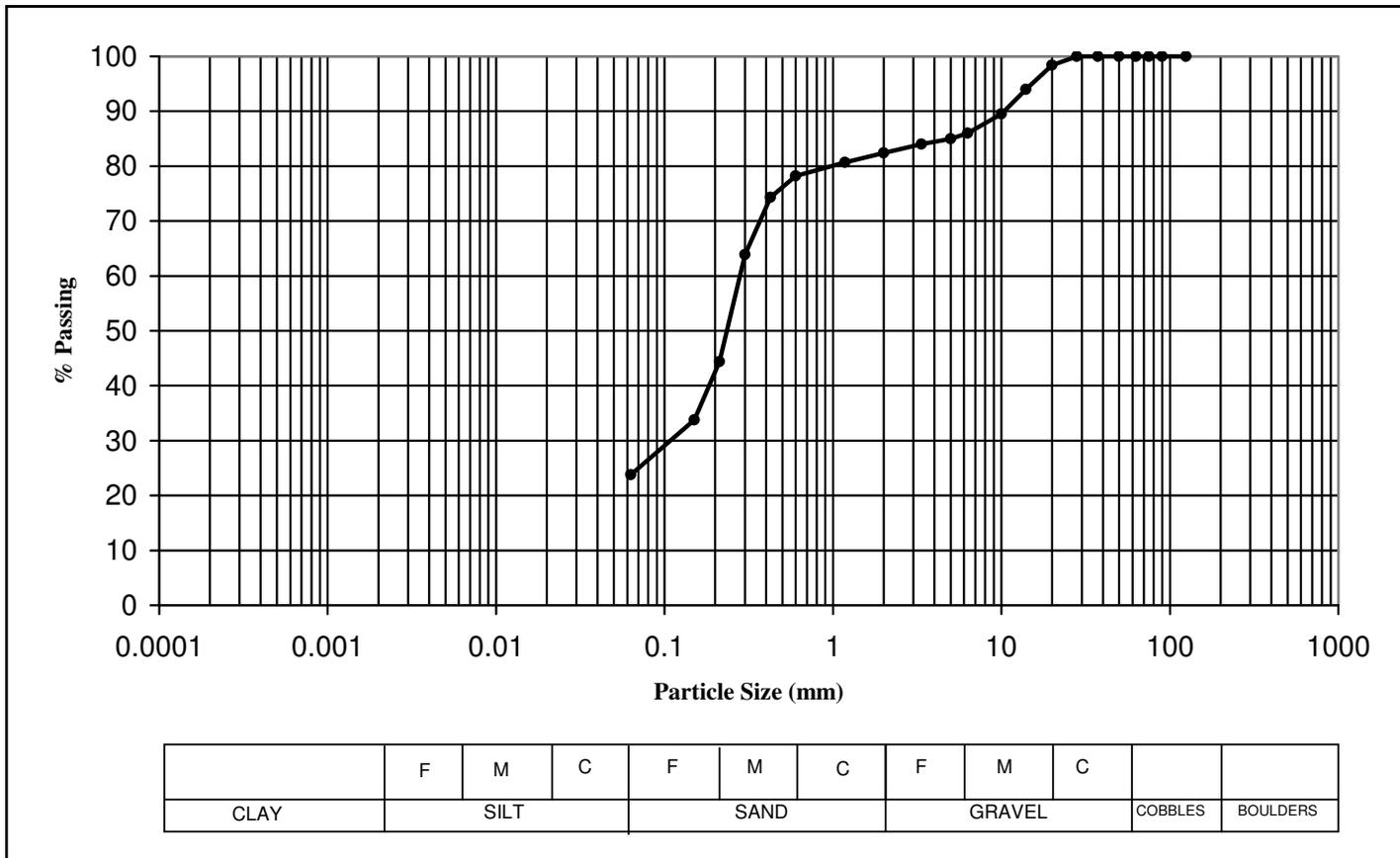


Sieve Size	Percentage Passing	Group % retained
125	100	Cobbles
90	100	
75	100	
63	100	0
50	100	Gravel
37.5	100	
28	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	0
3.35	100	Sand
2	100	
1.18	100	
0.6	99	
0.425	97	
0.3	70	
0.212	34	
0.15	24	90
0.063	10	
		Fines
		10

Key: F - Fine; M - Medium; C - Coarse

<b>N.C.T</b>	Site Ref:	Job No:	Sample No:	Date:
	Hallam Fields, Birstall	G04003	B8	October 2003
		Hole No.:	Depth (m):	
		BH 8	2.50-3.00	

**B.S.1377 1990 PART 2 PARTICLE SIZE ANALYSIS**



Sieve Size	Percentage Passing	Group % retained
125	100	Cobbles
90	100	
75	100	
63	100	0
50	100	Gravel
37.5	100	
28	100	
20	98	
14	94	
10	90	
6.3	86	
5	85	18
3.35	84	
2	82	
1.18	81	Sand
0.6	78	
0.425	74	
0.3	64	
0.212	44	
0.15	34	
0.063	24	59
		Fines
		24

Key: F - Fine; M - Medium; C - Coarse

<b>N.C.T</b>	Site Ref:	Job No:	G04003	Sample No:	B3	Date:	
	Hallam Fields, Birstall	Hole No.:	TP 47	Depth (m):	0.50-0.60	October 2003	

**APPENDIX F**

**LABORATORY TEST RESULTS - CONTAMINATION**

LR: G04003

## Soil Analysis

NCP /84965  
Hallam Fields  
Your Reference:- G04003  
Your Order:- NCP/7829

CAS Number:			427606	427607	427608	427609
Sample Ref			TP3	TP3	TP10	TP10
Detname	Method	Units	0.10m	0.50m	0.10m	0.40m
Arsenic (Total)	30/30C	mg/kg	14	18	10	8.9
Boron (Soluble)	6	mg/kg	0.76	0.47	0.13	0.27
Cadmium (Total)	30	mg/kg	0.55	< 0.50	0.62	< 0.50
Chromium (Hexavalent)	30B	mg/kg	< 0.10	< 0.10	0.18	N/S
Chromium (Total)	30	mg/kg	30	26	29	19
Copper (Total)	30	mg/kg	18	19	26	13
Lead (Total)	30	mg/kg	18	9.5	28	8.9
Mercury (Total)	30C	mg/kg	< 0.10	< 0.10	0.14	< 0.10
Nickel (Total)	30	mg/kg	28	32	19	17
Selenium (Total)	30C	mg/kg	0.28	0.34	0.24	0.16
Zinc (Total)	30	mg/kg	72	52	71	54
Cyanide (Total)	14	mg/kg	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	36	%	N/S	N/S	N/S	N/S
Phenols (Total)	40A	mg/kg	< 0.50	< 0.50	< 0.50	< 0.50
Sulphate (Total) as SO4	45	%	0.020	< 0.01	0.020	< 0.01
Sulphide as S	47	mg/kg	< 5.0	< 5.0	< 5.0	< 5.0
pH	39	pH units	7.3	7.7	7.4	7.2
Sulphur (Elemental)	51	mg/kg	< 100	< 100	< 100	< 100
>> PAH SUITE <<			N/S	N/S	N/S	N/S
naphthalene	307	mg/kg	N/S	N/S	N/S	N/S
acenaphthylene	307	mg/kg	N/S	N/S	N/S	N/S
acenaphthene	307	mg/kg	N/S	N/S	N/S	N/S
fluorene	307	mg/kg	N/S	N/S	N/S	N/S
phenanthrene	307	mg/kg	N/S	N/S	N/S	N/S
anthracene	307	mg/kg	N/S	N/S	N/S	N/S
fluoranthene	307	mg/kg	N/S	N/S	N/S	N/S
pyrene	307	mg/kg	N/S	N/S	N/S	N/S
benzo(a)anthracene	307	mg/kg	N/S	N/S	N/S	N/S
chrysene	307	mg/kg	N/S	N/S	N/S	N/S
benzo(b)fluoranthene	307	mg/kg	N/S	N/S	N/S	N/S
benzo(k)fluoranthene	307	mg/kg	N/S	N/S	N/S	N/S
benzo(a)pyrene	307	mg/kg	N/S	N/S	N/S	N/S
dibenzo(ah)anthracene	307	mg/kg	N/S	N/S	N/S	N/S
benzo(ghi)perylene	307	mg/kg	N/S	N/S	N/S	N/S
indeno(123cd)pyrene	307	mg/kg	N/S	N/S	N/S	N/S
PAH (Total)	307	mg/kg	2.0	2.0	< 2	< 2



INVESTOR IN PEOPLE



Business of the Year Winner 2001



N/S - Not Scheduled  
I/S - Insufficient Sample



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**Soil Analysis**

NCP /84965  
Hallam Fields  
Your Reference:- G04003  
Your Order:- NCP/7829

CAS Number:			427610	427611	427612	427613
Sample Ref			TP23	TP23	TP39	TP39
Detname	Method	Units	0.10m	0.50m	0.10m	0.50m
Arsenic (Total)	30/30C	mg/kg	15	18	10	14
Boron (Soluble)	6	mg/kg	0.58	0.45	0.46	0.44
Cadmium (Total)	30	mg/kg	0.59	< 0.50	< 0.50	< 0.50
Chromium (Hexavalent)	30B	mg/kg	0.13	< 0.10	0.12	< 0.10
Chromium (Total)	30	mg/kg	35	36	39	36
Copper (Total)	30	mg/kg	28	23	18	19
Lead (Total)	30	mg/kg	22	9.9	26	9.0
Mercury (Total)	30C	mg/kg	0.10	< 0.10	0.16	< 0.10
Nickel (Total)	30	mg/kg	29	44	18	32
Selenium (Total)	30C	mg/kg	0.34	0.42	0.25	0.43
Zinc (Total)	30	mg/kg	86	76	64	58
Cyanide (Total)	14	mg/kg	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	36	%	4.2	1.2	N/S	N/S
Phenols (Total)	40A	mg/kg	< 0.50	< 0.50	< 0.50	< 0.50
Sulphate (Total) as SO4	45	%	0.030	< 0.01	0.10	< 0.01
Sulphide as S	47	mg/kg	< 5.0	< 5.0	< 5.0	< 5.0
pH	39	pH units	7.9	7.6	6.8	7.0
Sulphur (Elemental)	51	mg/kg	< 100	< 100	< 100	< 100
>> PAH SUITE <<					N/S	N/S
naphthalene	307	mg/kg	0.88	1.8	N/S	N/S
acenaphthylene	307	mg/kg	< 0.50	< 0.50	N/S	N/S
acenaphthene	307	mg/kg	< 0.50	< 0.50	N/S	N/S
fluorene	307	mg/kg	< 0.50	< 0.50	N/S	N/S
phenanthrene	307	mg/kg	< 0.50	< 0.50	N/S	N/S
anthracene	307	mg/kg	< 0.50	< 0.50	N/S	N/S
fluoranthene	307	mg/kg	< 0.50	< 0.50	N/S	N/S
pyrene	307	mg/kg	< 0.50	< 0.50	N/S	N/S
benzo(a)anthracene	307	mg/kg	< 0.50	< 0.50	N/S	N/S
chrysene	307	mg/kg	< 0.50	< 0.50	N/S	N/S
benzo(b)fluoranthene	307	mg/kg	< 0.50	< 0.50	N/S	N/S
benzo(k)fluoranthene	307	mg/kg	< 0.50	< 0.50	N/S	N/S
benzo(a)pyrene	307	mg/kg	< 0.50	< 0.50	N/S	N/S
dibenzo(ah)anthracene	307	mg/kg	< 0.50	< 0.50	N/S	N/S
benzo(ghi)perylene	307	mg/kg	< 0.50	< 0.50	N/S	N/S
indeno(123cd)pyrene	307	mg/kg	< 0.50	< 0.50	N/S	N/S
PAH (Total)	307	mg/kg	< 2	2.0	< 2	2.0



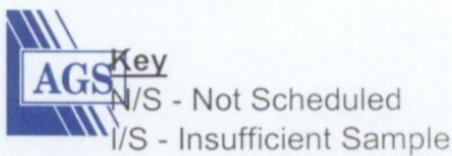
Key  
N/S - Not Scheduled  
I/S - Insufficient Sample



**Soil Analysis**

NCP /84965  
Hallam Fields  
Your Reference:- G04003  
Your Order:- NCP/7829

CAS Number:			427614	427615
Sample Ref			TP47	TP47
Detname	Method	Units	0.10m	0.40m
Arsenic (Total)	30/30C	mg/kg	9.2	10
Boron (Soluble)	6	mg/kg	0.18	< 0.13
Cadmium (Total)	30	mg/kg	< 0.50	< 0.50
Chromium (Hexavalent)	30B	mg/kg	0.52	0.28
Chromium (Total)	30	mg/kg	37	25
Copper (Total)	30	mg/kg	24	16
Lead (Total)	30	mg/kg	41	21
Mercury (Total)	30C	mg/kg	0.23	0.14
Nickel (Total)	30	mg/kg	16	15
Selenium (Total)	30C	mg/kg	0.21	0.22
Zinc (Total)	30	mg/kg	70	45
Cyanide (Total)	14	mg/kg	< 0.50	< 0.50
Organic Matter	36	%	N/S	N/S
Phenols (Total)	40A	mg/kg	< 0.50	< 0.50
Sulphate (Total) as SO4	45	%	0.010	< 0.01
Sulphide as S	47	mg/kg	< 5.0	< 5.0
pH	39	pH units	7.4	7.3
Sulphur (Elemental)	51	mg/kg	< 100	< 100
>> PAH SUITE <<			N/S	N/S
naphthalene	307	mg/kg	N/S	N/S
acenaphthylene	307	mg/kg	N/S	N/S
acenaphthene	307	mg/kg	N/S	N/S
fluorene	307	mg/kg	N/S	N/S
phenanthrene	307	mg/kg	N/S	N/S
anthracene	307	mg/kg	N/S	N/S
fluoranthene	307	mg/kg	N/S	N/S
pyrene	307	mg/kg	N/S	N/S
benzo(a)anthracene	307	mg/kg	N/S	N/S
chrysene	307	mg/kg	N/S	N/S
benzo(b)fluoranthene	307	mg/kg	N/S	N/S
benzo(k)fluoranthene	307	mg/kg	N/S	N/S
benzo(a)pyrene	307	mg/kg	N/S	N/S
dibenzo(ah)anthracene	307	mg/kg	N/S	N/S
benzo(ghi)perylene	307	mg/kg	N/S	N/S
indeno(123cd)pyrene	307	mg/kg	N/S	N/S
PAH (Total)	307	mg/kg	< 2	< 2



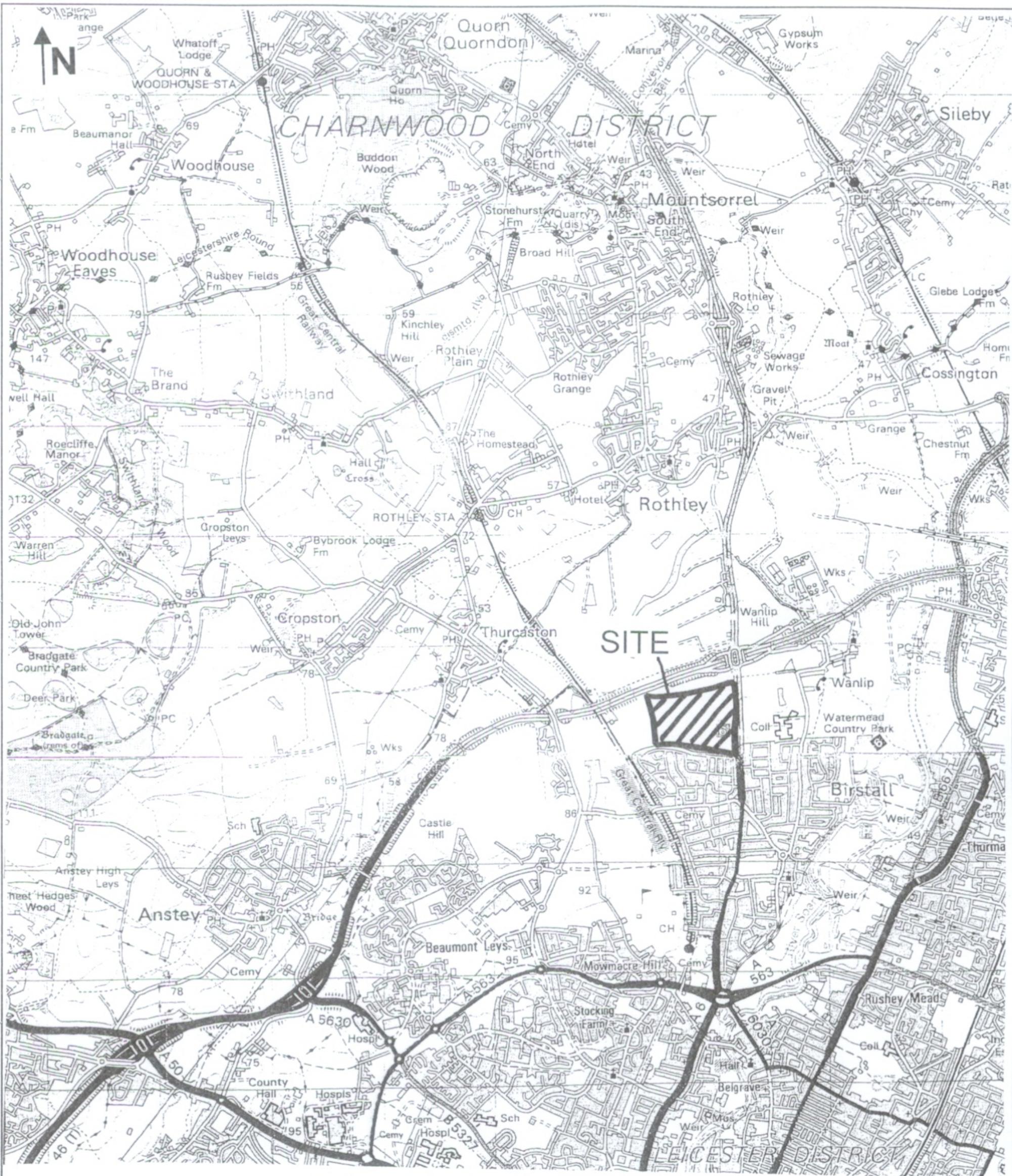
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**DRAWINGS**

G04003/01 - Site Location Plan

G04003/02 - Exploratory Hole Location Plan



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NICHOLLS COLTON GEOTECHNICAL  
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Leicester LE1 4DH

Client.  
Jelson Limited

Project.  
Hallam Fields, Birstall, Leicester.



Approximate Boundary  
of Cohesive / granular soils

- NOTES:
- TP 1 TRIAL PIT LOCATION
  - BH 1 BOREHOLE LOCATION

REVISIONS:

**NICHOLLS COLTON**  
**GEOTECHNICAL**  
 Consulting Engineers,  
 7-11 Harding Street,  
 Leicester LE1 4DH  
 Telephone: 0116 253 6333

CLIENT:  
**JELSON LIMITED**

PROJECT:  
**HALLAM FIELDS,  
 BIRSTALL  
 LEICESTER**

TITLE:  
**EXPLORATORY HOLE  
 LOCATION PLAN**

JOB No.  
**G04003**

DRAWING No.  
**G04003/02**

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 Checked: JWP  
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