

PHASE 1 & 2 ENGINEERING & ENVIRONMENTAL ASSESSMENT

FOR A RESIDENTIAL DEVELOPMENT SITE ADJACENT BELLWOOD CRESCENT, HOYLAND, BARNSELY

VOLUME 2

APPENDICES

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APPENDIX 'A'

LIST OF DOCUMENTS REFERRED TO:

- BGS Geological Map 87 Barnsley
- Ordnance Survey Sheets:

1855	1:10,000	1938/48	1:10,000	1978/82	1:10,000
1893	1:2,500	1956	1:2,500	1978/92	1:10,000
1893/84	1:10,000	1956	1:10,000	1993	1:2,500
1905	1:2,500	1965/66	1:10,000	2000	1:10,000
1905/07	1:10,000	1969/70	1:2,500	2006	1:10,000
1931	1:2,500	1968/75	1:2,500		

- Envirocheck Report
- CIRIA C552 (2001) Contaminated Land Risk Assessment
- Mining Search prepared by D Bellis Consulting Surveyor
- Mining Search prepared by the coal Authority
- CLEA Model
- LQM/CIEH Safe for Use Levels for Human Health Risk Assessment
- SP1010: Development of Category 4 Screening Levels
- BRE Special Digest 1, 'Concrete in Aggressive Ground'

APPENDIX B

SITE LOCATION PLAN - FIG. 1

CoDa—Structures

Consulting Civil & Structural Engineers

No 2 Harewood Yard

Harewood

Leeds LS17 9LP

Tel: 0113 288 6766

Fax: 0113 288 6765

Project Bellwood Crescent Hoyland

Title Site Location Plan

Drawn JL

Date 12.07

Dwg. No.

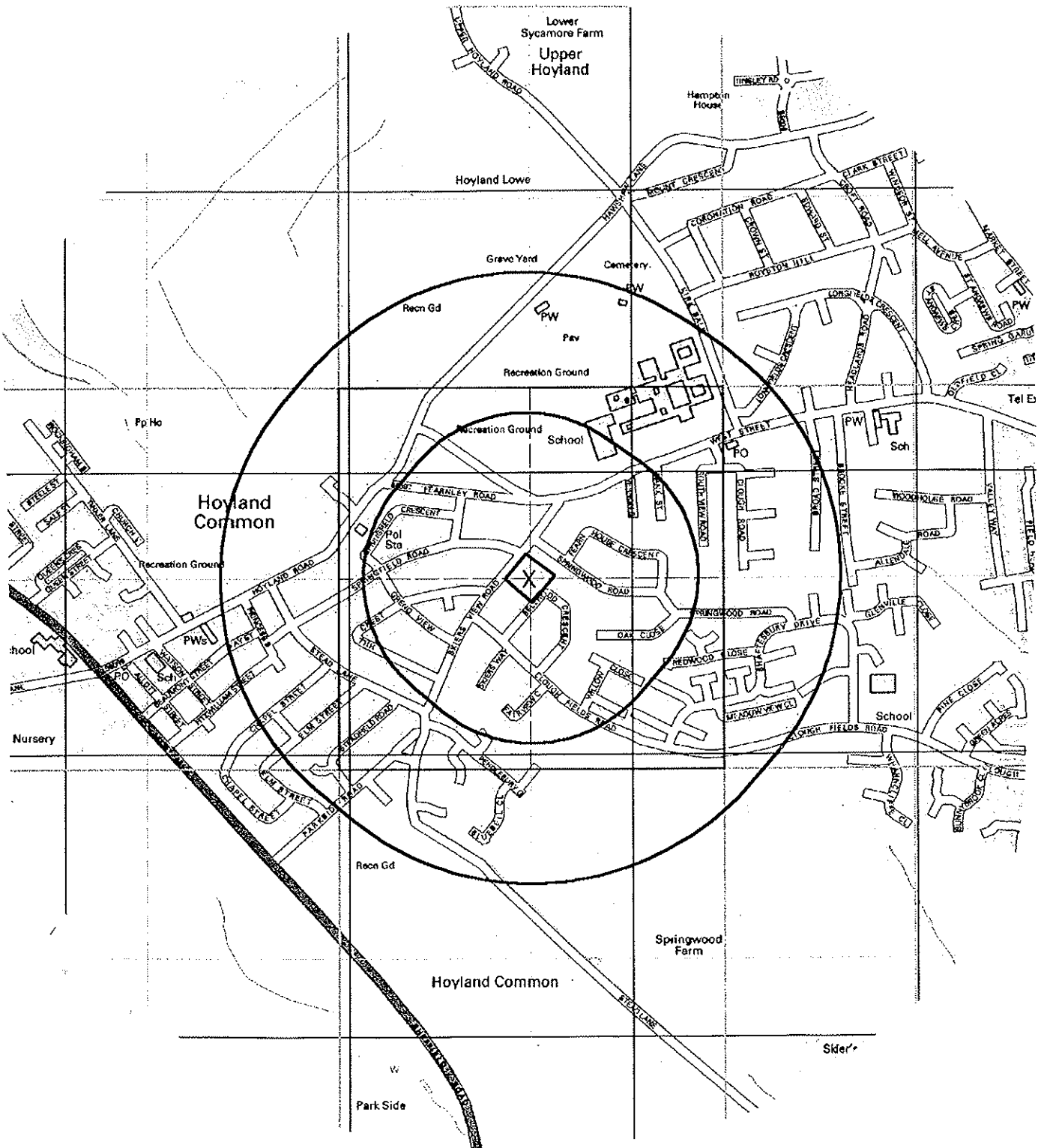
6084/Fig1

Rev.

Scale 1:10000

Checked JL

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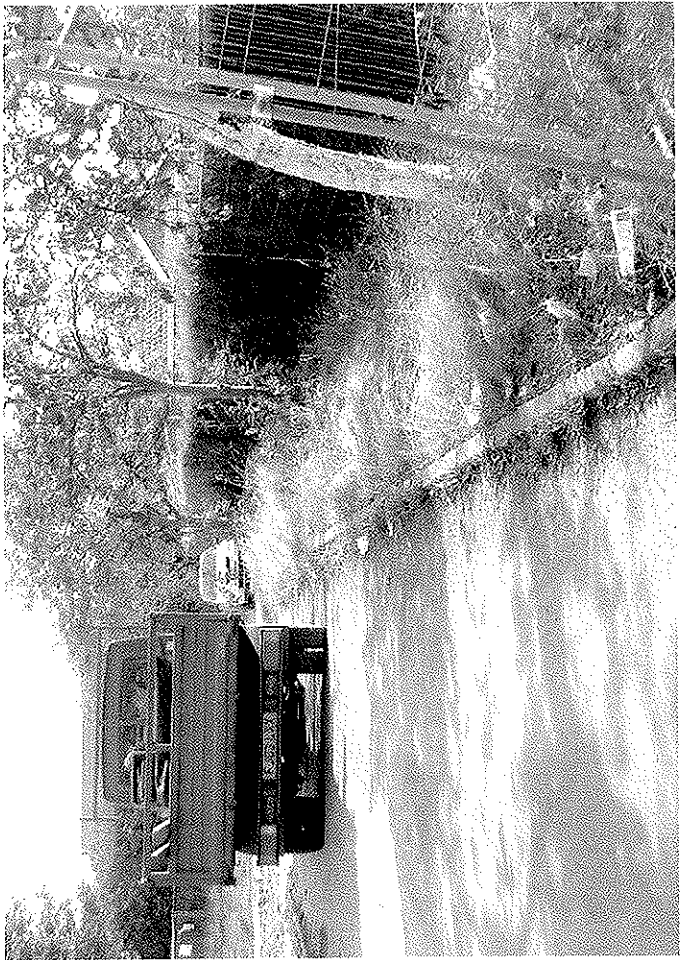


APPENDIX C

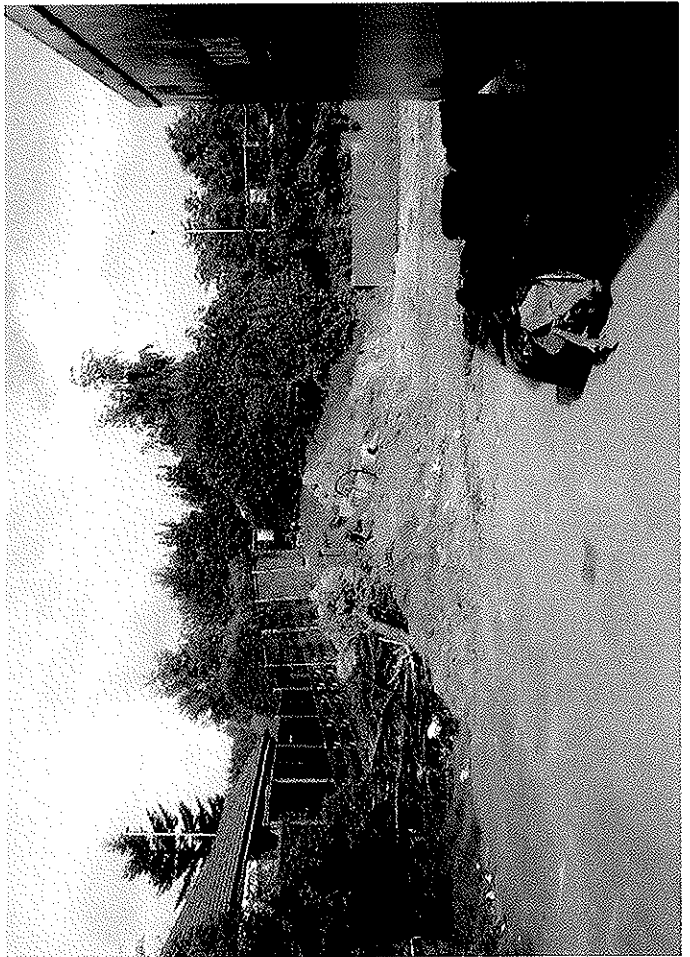
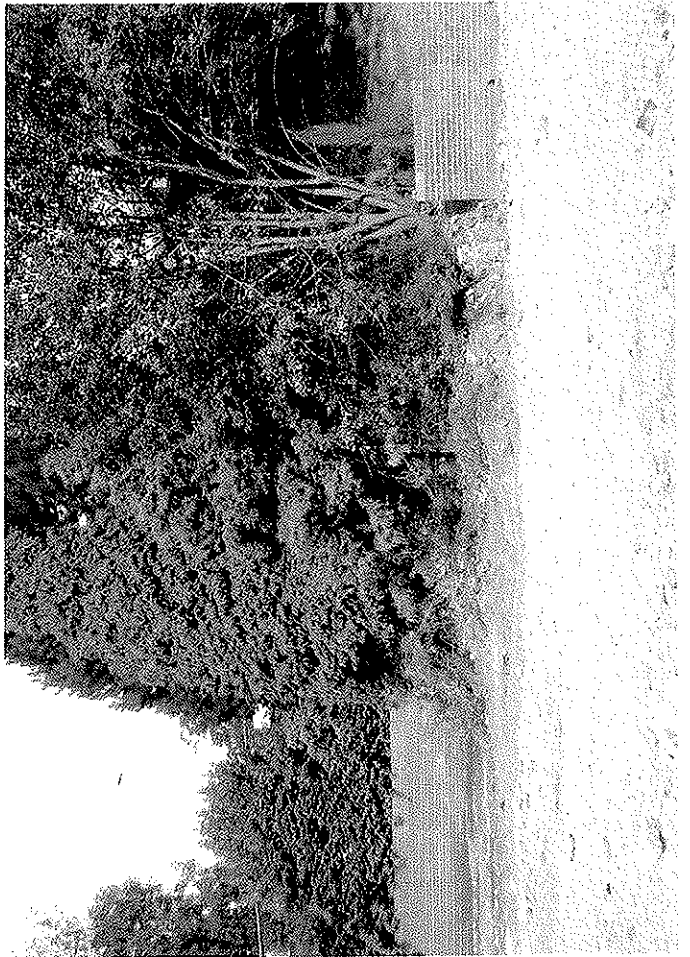
SITE TOPOGRAPHICAL SURVEY - FIG. 2

APPENDIX D

SITE PHOTOGRAPHS







APPENDIX E

HISTORIC ORDNANCE SURVEY PLANS

APPENDIX F

MINING SEARCHES

CoalSearchPlus+
8, Morningside Terrace
Harrogate
North Yorkshire
HG1 5DH

Tel : 01423 529911
Fax : 01423 529922
DX 720352 Harrogate



By

David Bellis
CONSULTING SURVEYORS

Coal Mining Search Report

Incorporating Cheshire Brine Enquiries



WWW.COALSEARCH.PLUS.COM

17 Dec 07

Coal Mining Search Report

Incorporating Cheshire Brine Enquiries

Page 1 / 3

Serial Number 217399

Client detail :

CoDa Structures
Civil & Structural Engineers
2 Harewood Yard
Harewood
Leeds
LS17 9LF

CoalSearchPlus+ by David Bellis Consulting
Surveyors
8 Mornington Terrace
Harrogate
North Yorkshire
HG1 5DH
(DX 720352 Harrogate)

Tel 01423 529911
Fax 01423 529922

Practice Principal M J Peace BSc PgDip FGS

Property details:

Bellwood Crescent
Hoyland
Barnsley
S74 0BL

Your ref : 6084
Purchaser :
Vendor :

In accordance with your instructions received 12 Sep 2007 we have inspected plans and records of coal mine workings and have made enquiries with respect to Cheshire brine extraction in relation to the above property and can report as follows :

1. SEAM DETAILS FOR PAST UNDERGROUND COAL MINING : In relation to the property the undermentioned seam(s) have been worked within the likely zone of physical influence on the surface.

Seam	Depth (m)	Sect (cm)	Date	Remarks
Swallow Wood	126	85	1976	Adjacent
Lidgett	151	48	1914	Subjacent
Top Fenton	311	83	1977	Subjacent
Low Fenton	314	120	1954	Subjacent
Parkgate	332	137	1979	Subjacent
Thorncliffe	362	120	1904	Subjacent
Silkstone	415	114	pre 1980	Subjacent

2. SEAM DETAILS FOR CURRENT AND FUTURE UNDERGROUND COAL MINING : The undermentioned seam(s) are currently being worked, or licenses to work are being determined, or have been granted to work, within the likely zone of physical influence on the surface in relation to the property.

Seam	Depth (m)	Sect (cm)	Date	Remarks
				Coal in reserve - no workings currently planned.

Serial Number 217399

3. UNDERLYING GEOLOGY :

The property is situated in an area of Middle Coal Measures, shales and mudstones.

There are no faults or abnormal features relevant to the property.

4. OPENCAST COAL MINING :

Past Opencast Workings : The property is not situated within the boundary of a former opencast coal mining site.

Present Opencast Workings : The property is not situated within 200m of the boundary of a currently operating opencast coal mining site.

Future Opencast Workings : The property is not situated within 800m of the boundary of an opencast site for which a license to extract coal by opencast methods has been granted or a license to do so is currently being determined.

5. SHAFTS, ADITS (MINE ENTRIES) AND ADDITIONAL INFORMATION :

We have no knowledge of any shafts or adits within 20 metres of the property or the boundary of the property.

There are no tips or lagoons in the vicinity of the property.

6. NOTICES IN RELATION TO FUTURE COAL MINING ACTIVITY :

We have no knowledge of any intention to work coal by underground methods , within influencing distance on the surface in the vicinity of the property, for which notices have been issued under the Coal Mining Subsidence Act 1991.

7. PAST COAL MINING RELATED SUBSIDENCE :

Our investigations have shown no evidence of coal mining related subsidence claims in relation to the property in the past 10 years.

8. CONCLUSION (COAL MINING) : In the light of the above facts we conclude that in relation to coal mining :

Old workings are present but all settlement is likely to have completed long ago.
In our opinion it is unlikely that coal will be worked in the foreseeable future.

COAL MINING RISK LEVEL : We recommend that the transaction is treated as :

If development of the site is intended then it would be wise in our opinion to undertake all necessary enquiries and investigations prior to the commencement of works.

Please note that the overall coal mining risk level above is based upon an assessment of the detailed information contained in the body of the report. The risk assessment must be used in conjunction with the detailed report.

Serial Number 217399

CHESHIRE BRINE EXTRACTION INFORMATION :

The property lies outside the Cheshire Brine Compensation District as prescribed by the Cheshire Brine Pumping (Compensation for Subsidence) Act 1952.

With respect to coal mining there is nothing to prevent a claim being made under the provisions of the Coal Mining Subsidence Act 1991 and subsequent legislation, but it must not be inferred that the Coal Authority or their licensees will necessarily accept that any damage has been caused as a result of mining subsidence.

If you require any further information or amplification please contact CoalSearchPlus+ on 01423 529911 or via our website www.coalsearch.plus.com.

Note:

This search report is based upon plans and records currently available from third party organisations and the CoalSearchPlus+ mining record database. Third party organisations reserve the right to vary their proposals and intentions as to their future mining operations without prior notice save as provided in the Coal Mining (subsidence) Act 1991 and the Coal Industry Act 1994.

This is a Coal Mining Search Report and is not to be interpreted as being part of an Environmental Assessment of the property.

We cannot be held responsible for the accuracy of the information provided to us by third party organisations.

The information and/or material supplied is composed from data based in many cases on measurements and records of various standards of reliability and age. We cannot be held responsible for the accuracy of such information.

This report is prepared in accordance with the CoalSearchPlus+ terms and conditions as published on the CoalSearchPlus+ website (www.coalsearch.plus.com) on the date of issue of this report.

Date : 17 Dec 2007

Signed : *M. J. Peace*



The Coal
Authority

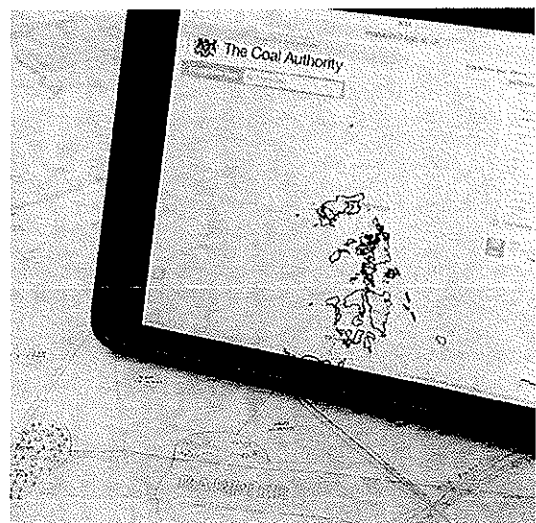
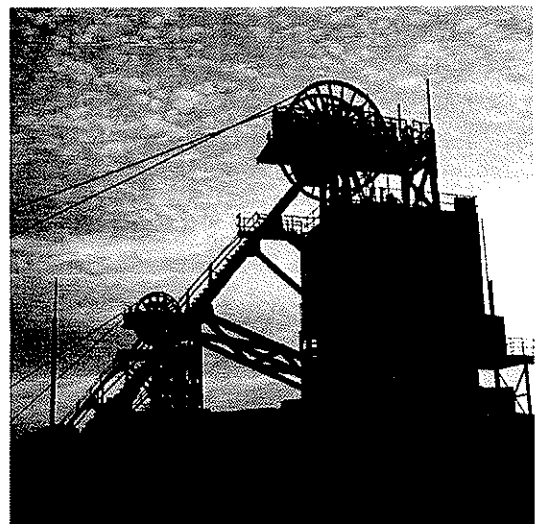
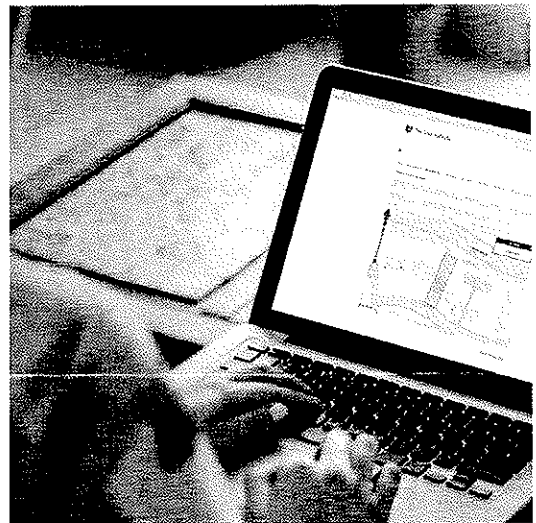
Resolving the impacts of mining

CON29M Non-Residential Mining Report

LAND AT BELLWOOD CRESCENT
HOYLAND
BARNESLEY
SOUTH YORKSHIRE
S74 0BL

Date of enquiry: 27 January 2017
Date enquiry received: 27 January 2017
Issue date: 27 January 2017

Our reference: 51001374432001
Your reference: BC/116300/4



CON29M Non-Residential Mining Report

This report is based on, and limited to, the records held by the Coal Authority and the Cheshire Brine Subsidence Compensation Board's records, at the time we answer the search.

Client name

PROPERTY SEARCH GROUP (SHEFFIELD)

Enquiry address

LAND AT BELLWOOD CRESCENT, HOYLAND,
BARNLEY, SOUTH YORKSHIRE, S74 0BL

How to contact us

0345 762 6848 (UK)

+44 (0)1623 637 000 (International)

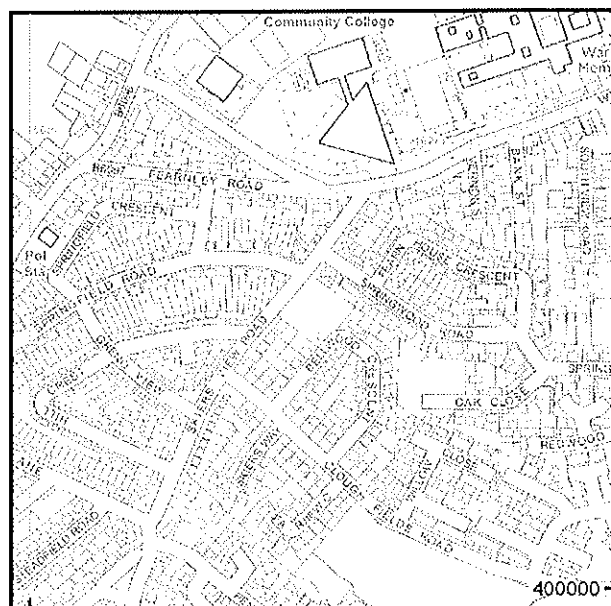
200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

 /company/the-coal-authority

 /thecoalauthority

 /coalauthority



Approximate position of property



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Summary

Has the search report highlighted evidence or potential of		
1	Past underground coal mining	Yes
2	Present underground coal mining	No
3	Future underground coal mining	Yes
4	Mine entries	Yes
5	Coal mining geology	No
6	Past opencast coal mining	No
7	Present opencast coal mining	No
8	Future opencast coal mining	No
9	Coal mining subsidence	Yes
10	Mine gas	No
11	Hazards related to coal mining	No
12	Withdrawal of support	No
13	Working facilities order	No
14	Payments to owners of former copyhold land	No
15	Information from the Cheshire Brine Subsidence Compensation Board	No

Further recommended reports
Coal mining subsidence claims 50m buffer report
Coal mining subsidence claims history

For detailed findings, please go to page 4.

Detailed findings

1. Past underground coal mining

The property is in a surface area that could be affected by underground mining in 7 seams of coal at 60m to 410m depth, and last worked in 1954.

Any movement in the ground due to coal mining activity should have stopped.

2. Present underground coal mining

The property is not within a surface area that could be affected by present underground mining.

3. Future underground coal mining

The property is not in an area where the Coal Authority has plans to grant a licence to remove coal using underground methods.

The property is not in an area where a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area likely to be affected from any planned future underground coal mining.

However, reserves of coal exist in the local area which could be worked at some time in the future.

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

4. Mine entries

There are no known coal mine entries within, or within 20 metres of, the boundary of the property.

There may however be mine entries/additional mine entries in the local area which the Coal Authority has no knowledge of.

5. Coal mining geology

The Coal Authority is not aware of any damage due to geological faults or other lines of weakness that have been affected by coal mining.

6. Past opencast coal mining

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

7. Present opencast coal mining

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

8. Future opencast coal mining

There are no licence requests outstanding to remove coal by opencast methods within 800 metres of the boundary.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

9. Coal mining subsidence

A damage notice or claim for alleged subsidence damage was made in October 1994 for 7 SPRINGWOOD ROAD, HOYLAND, BARNLEY, SOUTH YORKSHIRE, S74 0AZ. The claim was settled by a compensation payment totalling £51,634.52.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

A damage notice or claim for alleged subsidence damage was made in November 1994 for 3 SPRINGWOOD ROAD, HOYLAND, BARNLEY, SOUTH YORKSHIRE, S74 0AZ. The claim was settled by a compensation payment totalling £39,890.97.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

A damage notice or claim for alleged subsidence damage was made in November 1994 for 12 SKIERS VIEW ROAD, HOYLAND, BARNLEY, SOUTH YORKSHIRE, S74 0BD. The claim was settled by repairs to the value of £13,432.21.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

A damage notice or claim for alleged subsidence damage was made in December 1994 for 1 SPRINGWOOD ROAD, HOYLAND, BARNLEY, SOUTH YORKSHIRE, S74 0AZ. The claim was settled by repairs to the value of £19,568.71.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

There are a further 5 claim(s) within 50 metres of the property boundary that do not match the property address. These are shown on the enquiry boundary plot.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

If further subsidence damage claims information is required, please visit www.groundstability.com.

10. Mine gas

The Coal Authority has no record of a mine gas emission requiring action.

11. Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Authority, under its Emergency Surface Hazard Call Out procedures.

12. Withdrawal of support

The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

13. Working facilities order

The property is not in an area where an order has been made, under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

14. Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

15. Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

Additional remarks

Information provided by the Coal Authority in this report is compiled in response to the Law Society's Con29M Coal Mining and Brine Subsidence Claim enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL. Please note that Brine Subsidence Claim enquiries are only relevant for England and Wales. This report is prepared in accordance with the Law Society's Guidance Notes 2006, the User Guide 2006 and the Coal Authority and Cheshire Brine Board's Terms and Conditions applicable at the time the report was produced.

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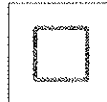
Alternative formats

If you would like this report in an alternative format, please contact our communications team.

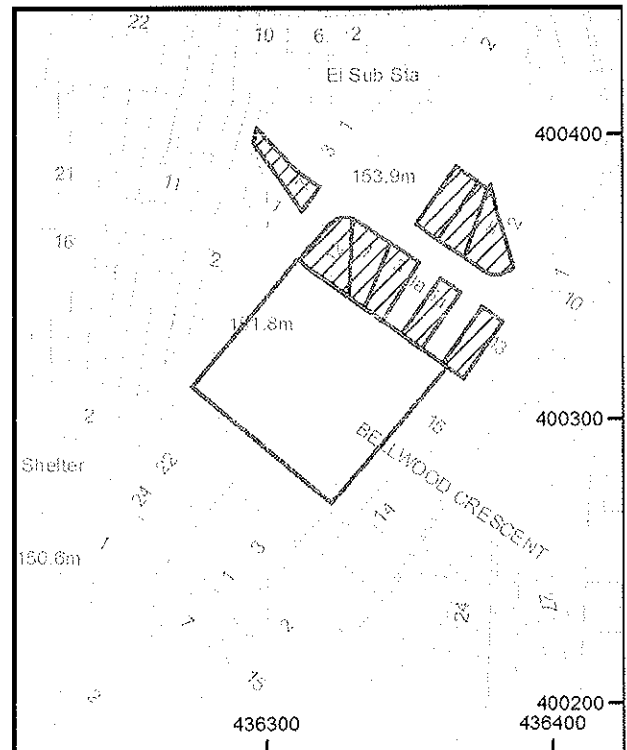
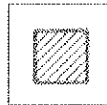
Enquiry boundary

Key

Approximate position of enquiry boundary shown



Coal claims



How to contact us

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

 /company/the-coal-authority

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CoDa Structures

Consulting Civil & Structural Engineers
14 Springfield Court
GUISELEY
Leeds LS20 8FD

**PHASE 1 & 2 ENGINEERING & ENVIRONMENTAL
ASSESSMENT FOR A RESIDENTIAL DEVELOPMENT
SITE ADJACENT BELLWOOD CRESCENT,
HOYLAND, BARNSLEY**

APPENDIX G
BGS BR211 RADON REPORT

BR211 Radon Report

BGS BR211 RADON REPORT REPORT RECEIPT

REPORT PREPARED FOR:

CODA STRUCTURES
2 HAREWOOD YARD
HAREWOOD
LEEDS
LS17 9LF

CLIENT REFERENCE:

6084

CHARGES:

COST: £40.00
VAT: £7.00

TOTAL PAYABLE
£47.00

Client Ref.	6084
Report No.	BR211
Date	10 DEC 2007
By	[Signature]
For	DATE

CHEQUE NUMBER: 016845

PAYMENT RECEIVED WITH THANKS

VAT REGISTRATION No. 618 3673 25

BR211 Radon Report

Section 6: Terms & Conditions

General

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The most appropriate techniques for copying original records are used, but there may be some loss of detail and dimensional distortion when such records are copied.

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If a report or other output is produced for you on the basis of data you have provided to BGS, or your own data input into a BGS system, please do not rely on it as a source of information about other areas or geological features, as the report may omit important details.

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For further information, please contact:

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British Geological Survey
Kingsley Dunham Centre
Keyworth
Nottingham
NG12 5GG
Tel: 0115 936 3143
Fax: 0115 936 3276
Email: enquiries@bgs.ac.uk



BR211 Radon Report

Section 5: Radon in existing buildings

Useful information is given in the following free publications which can be obtained by writing to:

Radon Studies, Radiation Protection Division, Health Protection Agency, Chilton, Didcot,
Oxfordshire OX11 0RQ

Radon - A Householder's Guide

Radon - You Can Test for it

Radon - A Guide for Homebuyers and Sellers

Radon - A Guide to Reducing Levels in Your Home

Information in the booklets is also available on the DEFRA website at:
<http://www.defra.gov.uk/environment/radioactivity/background/radon.htm>

Householders are recommended to follow advice in **Radon - a householder's guide**. The guide outlines simple solutions for dealing with the radon problem depending on whether or not the home has been tested for radon. In radon affected homes, the problem of radon can usually be tackled with simple, effective and relatively inexpensive measures. These measures are comparable in cost to work such as damp-proofing and timber treatment. You can get practical advice about construction work to reduce radon levels from the Building Control Officer at your local council.

Advice about radon, its health risks and details of how to order the radon test may be obtained from the HPA free radon answerphone 0800 614529, HPA Radon Helpline on 01235 822622, website: www.hpa.org.uk or by writing to Radon Studies at the Health Protection Agency, address above.

BR211 Radon Report

Section 2: Requirement for radon protective measures

The determination below follows advice in *BR211 Radon: Guidance on protective measures for new buildings (2007 edition)*, which also provides guidance on what to do if the result indicates that protective measures are required.

NO RADON PROTECTIVE MEASURES ARE REQUIRED FOR THE REPORT AREA.

The BGS is not able to provide advice on the technical specifications of 'basic' and 'full' radon protective measures. This information is detailed in **BRE Report BR211 :Radon: Protective measures for new buildings** which may be purchased from **brebookshop.com**. BR211 offers guidance on the technical solutions that are required to satisfy Building Regulations requirements. Summary guidance is available on the web at: <http://www.bre.co.uk/radon/protect.html>.

If you require further information or guidance, you should contact your local authority building control officer or approved inspector.

Contact 020 7944 5758 or Email: partsac.br@communities.gsi.gov.uk for advice on the interpretation of guidance contained in BRE Report BR211 (2007).

Section 3: What is radon ?

Radon is a naturally occurring radioactive gas, which is produced by the radioactive decay of radium which, in turn, is derived from the radioactive decay of uranium. Uranium is found in small quantities in all soils and rocks, although the amount varies from place to place. Radon released from rocks and soils is quickly diluted in the atmosphere. Concentrations in the open air are normally very low and do not present a hazard. Radon that enters enclosed spaces such as some buildings (particularly basements), caves, mines, and tunnels may reach high concentrations in some circumstances. The construction method and degree of ventilation will influence radon levels in individual buildings. A person's exposure to radon will also vary according to how particular buildings and spaces are used.

Inhalation of the radioactive decay products of radon gas increases the chance of developing lung cancer. If individuals are exposed to high concentrations for significant periods of time, there may be cause for concern. In order to limit the risk to individuals, the Government has adopted an Action Level for radon in homes of 200 becquerels per cubic metre (Bq m^{-3}). The Government advises householders that, where the radon level exceeds the Action Level, measures should be taken to reduce the concentration.

Section 4: Radon in workplaces

The Ionising Radiation Regulations, 1999, require employers to take action when radon is present above a defined level in the workplace. Advice may be obtained from your local Health and Safety Executive Area Office or the Environmental Health Department of your local authority. The BRE publishes a guide (BR293): **Radon in the workplace**.

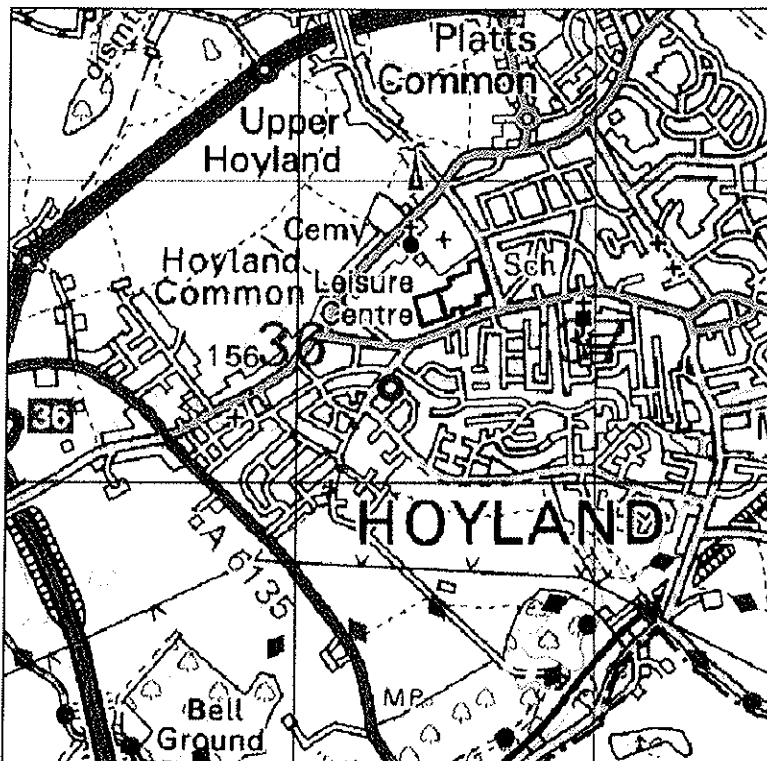
BRE publications may be obtained from The BRE Bookshop, I H S Technical Indexes Ltd., Willoughby Road, Bracknell, Berkshire RG12 8DW. Tel: 01344 404407, Fax: 01344 714440, website: www.brebookshop.com

BR211 Radon Report

Section 1: Location and extent of report area

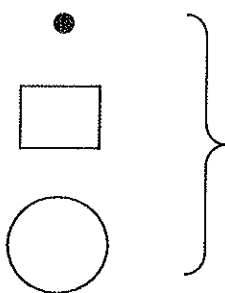
Area centred at: 436320,400310

Radius of site area: 35.0 metres



Scale: 1:25000 (1cm = 250m)

KEY:



POINT, RECTANGLE or CIRCLE defines report location or site area (details provided by client).

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Mapping
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Date: 10 December 2007

BGS BR211 Radon Version 1.0

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Page: 2

Report No: /GR_117901_1

BR211 Radon Report

CODA STRUCTURES
2 HAREWOOD YARD
HAREWOOD
LEEDS
LS17 9LF

BR211 RADON REPORT

Advisory report on the requirement for radon protective measures in new buildings and extensions

Client's Reference:

6084

APPENDIX H

TRIAL PIT LOGS

 SUB SURFACE SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS 3 Peel Street, Preslon, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907						Site STEADHAVEN, BELLWOOD CRESCENT, HOYLAND, SOUTH YORKSHIRE		Trial Pit Number TP1	
Excavation Method MECHANICAL EXCAVATOR JCB 3CX		Dimensions		Ground Level (mOD)		Client CODA STRUCTURES		Job Number NE2786	
		Location AS PLAN		Dates 07/09/2007		Engineer		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	
0.00-0.05	D				0.05	MADE GROUND: light grey sandy gravel. Gravel sized fragments are subangular to subrounded fine to medium limestone and concrete.			
0.10	D				(0.35)	Firm orange brown and light grey CLAY.			
0.45	D		07/09/2007: DRY		0.40 (0.10) 0.50	Moderately weak brown, dark brown and grey fresh fine grained SANDSTONE.			
						Complete at 0.50m			
Plan						Remarks No groundwater entries encountered, no further progress.			
Scale (approx) 1:25						Logged By TB/SJ		Figure No. NE2786.TP1	

 SUB SURFACE SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS 3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907						Site STEADHAVEN, BELLWOOD CRESCENT, HOYLAND, SOUTH YORKSHIRE		Trial Pit Number TP2	
Excavation Method MECHANICAL EXCAVATOR JCB 3CX		Dimensions		Ground Level (mOD)		Client CODA STRUCTURES		Job Number NE2786	
		Location AS PLAN		Dates 07/09/2007		Engineer		Sheet 1/1	
Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description		Legend	Water
0.30	D				(0.50)	MADE GROUND: brown very sandy gravel. Gravel sized fragments are subangular to subrounded fine to coarse brick, concrete, limestone, tile and occasional wood.			
0.55	D		07/09/2007: DRY		0.50 0.60	Weak brown, dark brown and grey brown highly weathered fine grained SANDSTONE.			
						Complete at 0.60m			
Plan 						Remarks No groundwater entries encountered, no further progress.			
						Scale (approx) 1:25		Logged By TB/SJ	
								Figure No. NE2786.TP2	



SUB SURFACE

SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907

Site

STEADHAVEN, BELLWOOD CRESCENT, HOYLAND,
SOUTH YORKSHIRE

Trial Pit
Number
TP3

Excavation Method

MECHANICAL EXCAVATOR
JCB 3CX

Dimensions

Location

AS PLAN

Ground Level (mOD)

Dates

07/09/2007

Client

CODA STRUCTURES

Job
Number
NE2786

Engineer

Sheet

1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.10	D				(0.20)	MADE GROUND: brown sandy gravel. Gravel sized fragments are subangular to subrounded fine to coarse brick, concrete and limestone.		
0.25	D		07/09/2007: DRY		0.20 (0.10) 0.30	Moderately strong brown, grey brown and dark brown stained fresh fine grained SANDSTONE.		
						Complete at 0.30m		

Plan

Remarks

No groundwater entries encountered, no further progress.

Scale (approx)

1:25

Logged By

TB/SJ

Figure No.

NE2786.TP3



**Trial Pit
Number**
TP4

Job
Number
NE2786

Sheet
1/1

NE2786.TP4



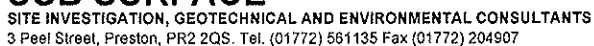
**Trial Pit
Number**
TP5

Job
Number
NE2786

Sheet
1/1

Remarks
No groundwater entries encountered. HV = Hand Shear Vane test.

NE2786.TP5



Site
STEADHAVEN, BELLWOOD CRESCENT, HOYLAND,
SOUTH YORKSHIRE

Trial Pit
 Number
 TP6

Excavation Method
MECHANICAL EXCAVATOR
JCB 3CX

Dimensions

Ground Level (mOD)

Client
CODA STRUCTURES

Job
Number
NE2786

Location
AS PLAN

Dates
07/09/2007

Engineer

Sheet
1/1

Scale (approx)	Logged By	Figure No.
1:25	TB/SJ	NE2786.TP6



SUB SURFACE

SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907

Site
STEADHAVEN, BELLWOOD CRESCENT, HOYLAND,
SOUTH YORKSHIRE

Trial Pit
Number
TP7

Excavation Method
MECHANICAL EXCAVATOR
JCB 3CX

Dimensions

Ground Level (mOD)

Client

CODA STRUCTURES

Job
Number
NE2786

Location
AS PLAN

Dates
07/09/2007

Engineer

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.30	D				(0.50)	MADE GROUND: dark brown sandy topsoil.		
0.60	D				0.50 (0.20)	MADE GROUND: brown clayey gravelly fine to medium sand. Gravel sized fragments are subangular to subrounded fine to coarse brick, concrete and limestone.		
0.80	D				0.70 (0.20)	MADE GROUND: brown and reddish brown sandy gravel. Gravel sized fragments are subangular to subrounded fine to coarse burnt shale, brick and concrete.		
1.00	D		HV@1.00m, c=44kPa		0.90 (0.20)	Firm brown, light brown and light grey mottled CLAY.		
1.20	D				1.10 (0.30)	Firm grey and light grey mottled slightly organic CLAY with some relict rootlets.		
1.50	D		HV@1.50m, c=48kPa		1.40 (0.30)	Firm light brown, brown and light grey mottled slightly sandy CLAY.		
2.00	D		HV@2.00m, c=78kPa		1.70 (0.60)	Stiff light brown and light grey mottled CLAY with some fine to medium gravel sized mudstone lithorelicts.		
2.60	D				2.30 (0.80)	Very weak grey brown, greyish and brown mottled highly weathered MUDSTONE.		
3.30	D				3.10 (0.30)	Very weak greyish and grey brown mottled highly weathered SILTSTONE.		
3.50	D				3.40 (0.20)	Weak grey, greyish brown and orange brown stained fresh SILTSTONE.		
			07/09/2007: DRY		3.60	Complete at 3.60m		

Plan

Remarks

No groundwater entries encountered, no further progress.
HV = Hand Shear Vane test

Scale (approx)

1:25

Logged By

TB/SJ

Figure No.

NE2786.TP7



SUB SURFACE

SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907

Site
STEADHAVEN, BELLWOOD CRESCENT, HOYLAND,
SOUTH YORKSHIRE

Trial Pit
Number
TP8

Excavation Method
MECHANICAL EXCAVATOR
JCB 3CX

Dimensions

Ground Level (mOD)

Client
CODA STRUCTURES

Job
Number
NE2786

Location
AS PLAN

Dates
07/09/2007

Engineer

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.30	D				(0.50)	MADE GROUND: brown slightly clayey very sandy gravel. Gravel sized fragments are subangular to subrounded fine to coarse concrete, brick and limestone.		
0.80	D				0.50 (0.80)	Firm orange brown and light grey mottled CLAY.		
1.50	D				1.30 (0.30)	Brown slightly clayey sandy GRAVEL. Gravel is subangular to subrounded fine to medium quartzite, siltstone and sandstone.		
2.00	D				1.60 (0.80)	Very weak greyish brown, brown and grey highly weathered MUDSTONE, in places completely weathered.		
2.60	D				2.40 (0.30)	Weak dark brown, dark grey and grey moderately weathered SILTSTONE.		
2.80	D				2.70 (0.20)	Moderately weak greyish brown, brown and dark grey fresh, thinly bedded fine grained SANDSTONE.		
			07/09/2007: DRY		2.90	Complete at 2.90m		

Plan

Remarks

No groundwater entries encountered, no further progress.

Scale (approx)

1:25

Logged By

TB/SJ

Figure No.

NE2786.TP8

**SUB SURFACE**SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907**Site**STEADHAVEN, BELLWOOD CRESCENT, HOYLAND,
SOUTH YORKSHIRE**Trial Pit
Number
TP9****Excavation Method**MECHANICAL EXCAVATOR
JCB 3CX**Dimensions****Location**

AS PLAN

Ground Level (mOD)**Dates**

07/09/2007

Client

CODA STRUCTURES

**Job
Number
NE2786****Engineer****Sheet
1/1**

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.30	D		HV@0.30m, c=44kPa		(0.60)	Firm light brown and light grey mottled CLAY.		
0.80	D		HV@0.80m, c=86kPa		0.60 (0.60)	Stiff brown and light grey CLAY with some fine to medium gravel sized mudstone lithorelicts.		
1.40	D				1.20 (0.40)	Weak grey and dark grey highly weathered MUDSTONE.		
1.80	D				1.60 (0.30)	Weak greyish brown and grey moderately weathered SILTSTONE.		
2.10	D				1.90 (0.30)	Moderately weak greyish brown fresh SILTSTONE.		
			07/09/2007: DRY		2.20	Complete at 2.20m		

Plan

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RemarksNo groundwater entries encountered, no further progress.
HV = Hand Shear Vane test.**Scale (approx)**

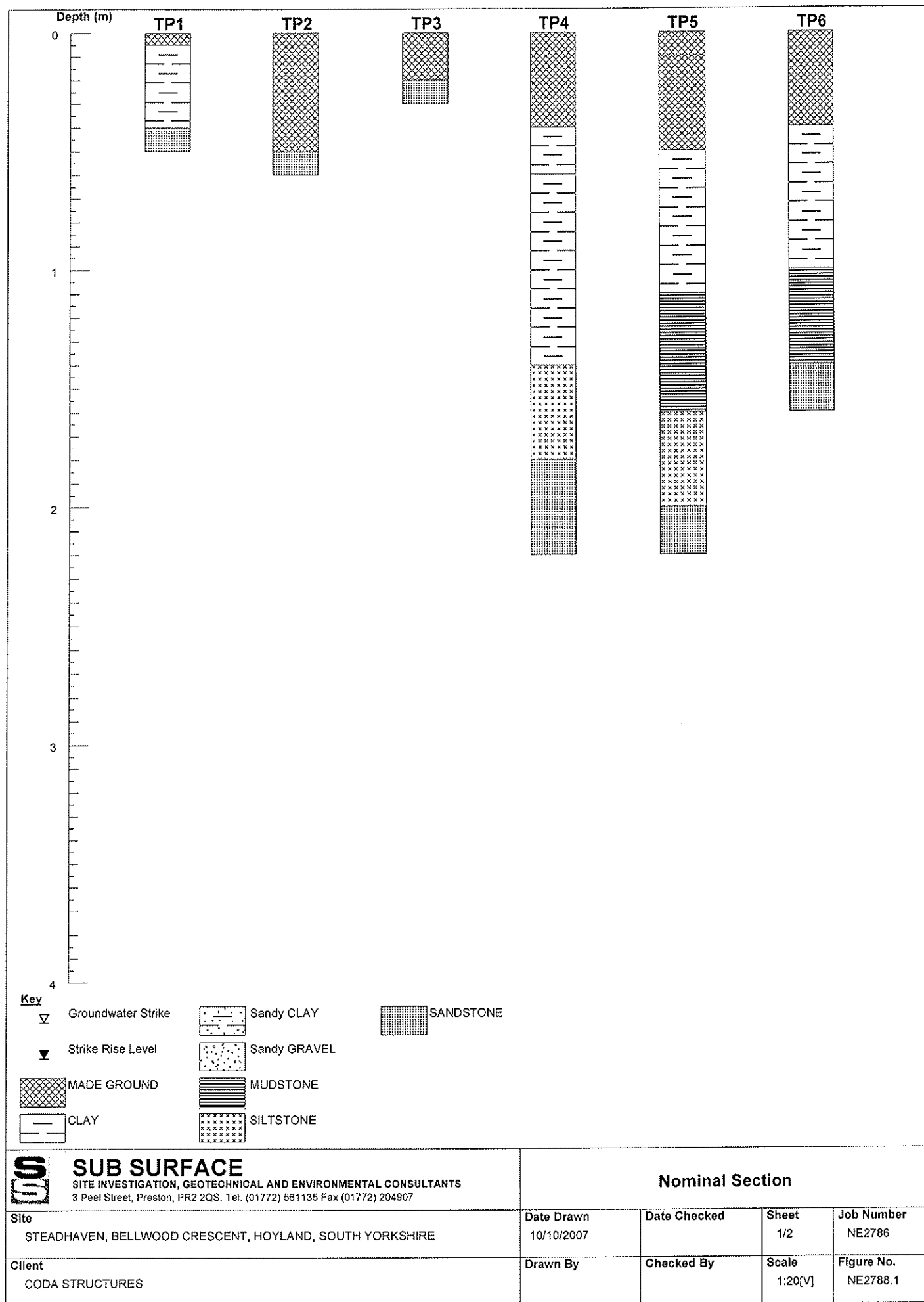
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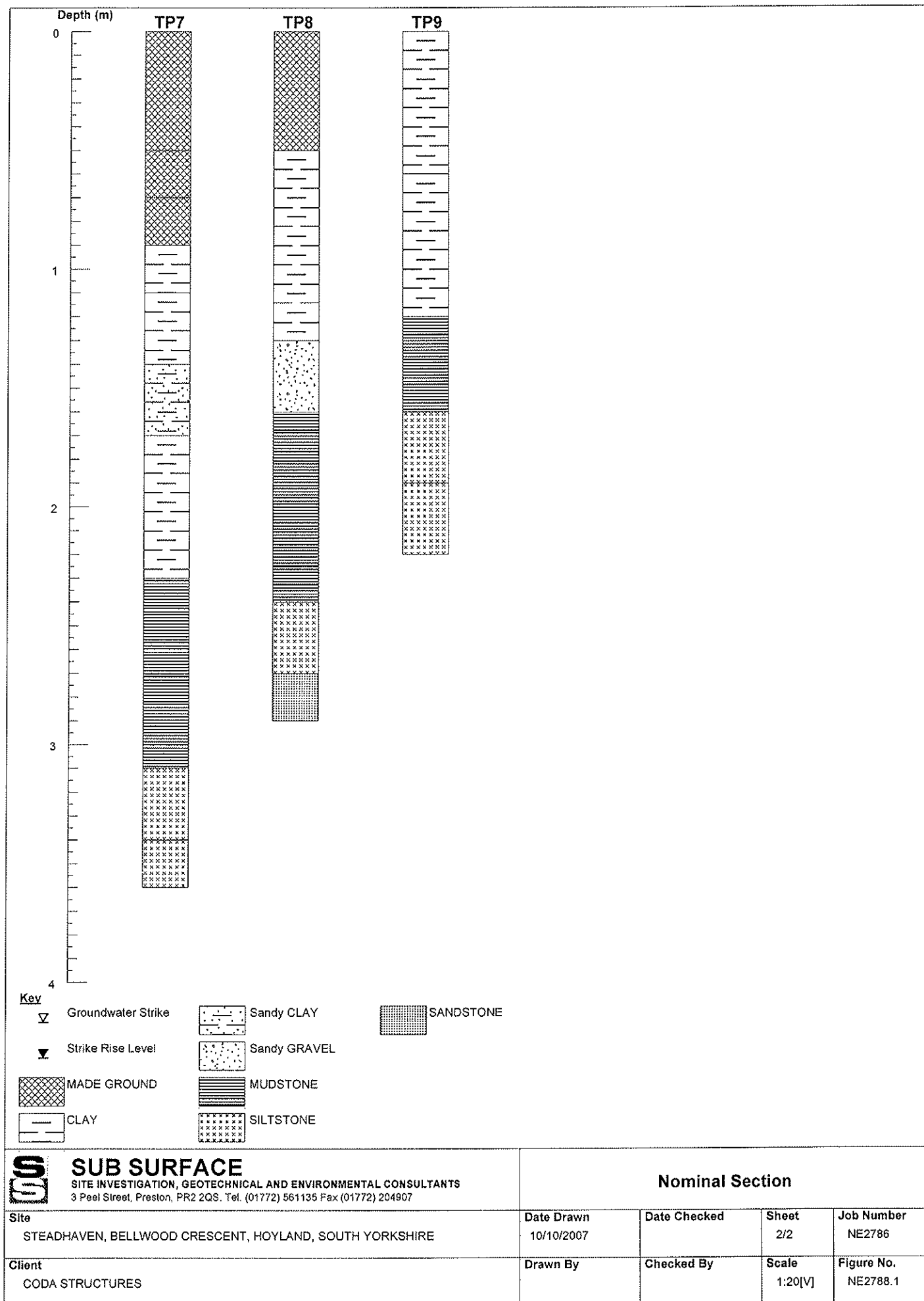
Logged By

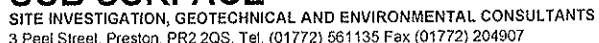
TB/SJ

Figure No.

NE2786.TP9





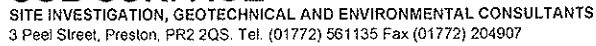


Trial Pit
Number
S1

Job
Number
NE2786B

Sheet
1/1

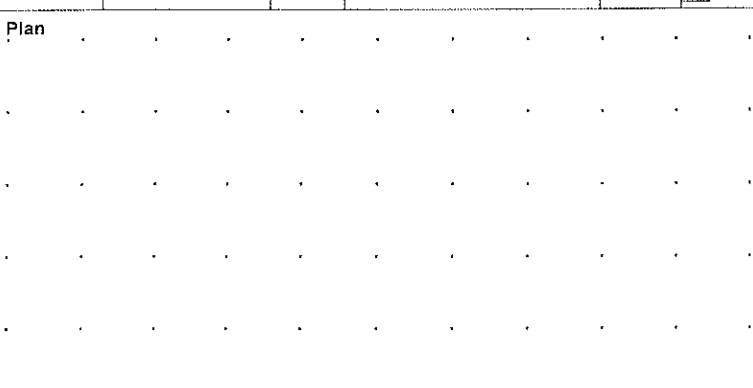
	Remarks Pit sides remained stable. No groundwater encountered.		
	Scale (approx) 1:25	Logged By TB/SJ	Figure No. NE2786B.S1



Trial Pit
Number
S2

Job
Number
NE27868

Sheet
1/1

Plan 	Remarks Pit sides remained stable. No groundwater encountered.		
	Scale (approx) 1:25	Logged By TB/SJ	Figure No. NE2786B.S2



SUB SURFACE

SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907

Site
BELLWOOD CRESCENT, HOYLAND, SOUTH YORKSHIRE

Trial Pit
Number
S3

Excavation Method
MECHANICAL EXCAVATOR

Dimensions

Ground Level (mOD)

Client
CoDA STRUCTURES

Job
Number
NE2786B

Location
AS PLAN

Dates
15/04/2008

Engineer
CoDA STRUCTURES

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.10	D				(0.40)	Firm orange brown and light grey mottled slightly sandy CLAY.		
0.30	D				0.40			
0.50	D				(0.40)	Very weak orange brown and light grey highly weathered SILTSTONE, in places completely weathered to clay.		
0.90	D				0.80			
						Moderately weak light grey, brown and dark brown moderately weathered SILTSTONE.		
1.50	D				(1.50)			
2.00	D							
2.40	D				2.30			
					(0.20)	Moderately strong light grey, brown and dark brown moderately weathered SILTSTONE.		
					2.50			
			15/04/2008: DRY			Complete at 2.50m		

Plan

Remarks

Pit sides remained stable.
No groundwater encountered.

Scale (approx)

1:25

Logged By

TB/SJ

Figure No.

NE2786B.S3



SUB SURFACE

SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
3 Peel Street, Preston, PR2 2QS. Tel. (01772) 581135 Fax (01772) 204907

Site
BELLWOOD CRESCENT, HOYLAND, SOUTH YORKSHIRE

Trial Pit
Number
S4

Excavation Method
MECHANICAL EXCAVATOR

Dimensions

Ground Level (mOD)

Client
CoDA STRUCTURES

Job
Number
NE2786B

Location
AS PLAN

Dates
15/04/2008

Engineer
CoDA STRUCTURES

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.20	D				(0.40)	MADE GROUND: grey brown sandy subangular to subrounded fine to coarse gravel sized fragments of brick, burnt shale, bituminous macadam, concrete and limestone.		
0.60	D				0.40 (0.70)	Firm orange brown and light grey mottled CLAY.		
1.20	D				1.10 (0.50)	Very weak dark brown, brown and light grey mottled highly weathered SILTSTONE.		
1.80	D				1.60 (0.30)	Moderately strong light grey and dark grey mottled moderately weathered SILTSTONE.		
2.00	D				1.90 (0.30)	Hard dark grey, brown and light grey mottled fresh SILTSTONE.		
		15/04/2008: DRY			2.20	Complete at 2.20m		

Plan

Remarks

Pit sides remained stable.
No groundwater encountered.

Scale (approx)

1:25

Logged By

TB/SJ

Figure No.

NE2786B.S4



SUB SURFACE

SITE INVESTIGATION, GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907

Site
BELLWOOD CRESCENT, HOYLAND, SOUTH YORKSHIRE

Trial Pit
Number
S5

Excavation Method
MECHANICAL EXCAVATOR

Dimensions

Ground Level (mOD)

Client
CoDA STRUCTURES

Job
Number
NE2786B

Location
AS PLAN

Dates
15/04/2008

Engineer
CoDA STRUCTURES

Sheet
1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
0.10	D					Weak dark brown, grey brown, brown and orange brown stained moderately weathered thinly bedded fine grained SANDSTONE.		
0.50	D				(0.90)			
1.00	D				0.90 (0.30)	Hard dark brown, grey brown, brown and orange brown stained fresh thinly bedded fine grained SANDSTONE.		
1.10	D		15/04/2008: DRY		1.20	Complete at 1.20m		

Plan

Remarks

Pit sides remained stable.
No groundwater encountered.

Scale (approx)

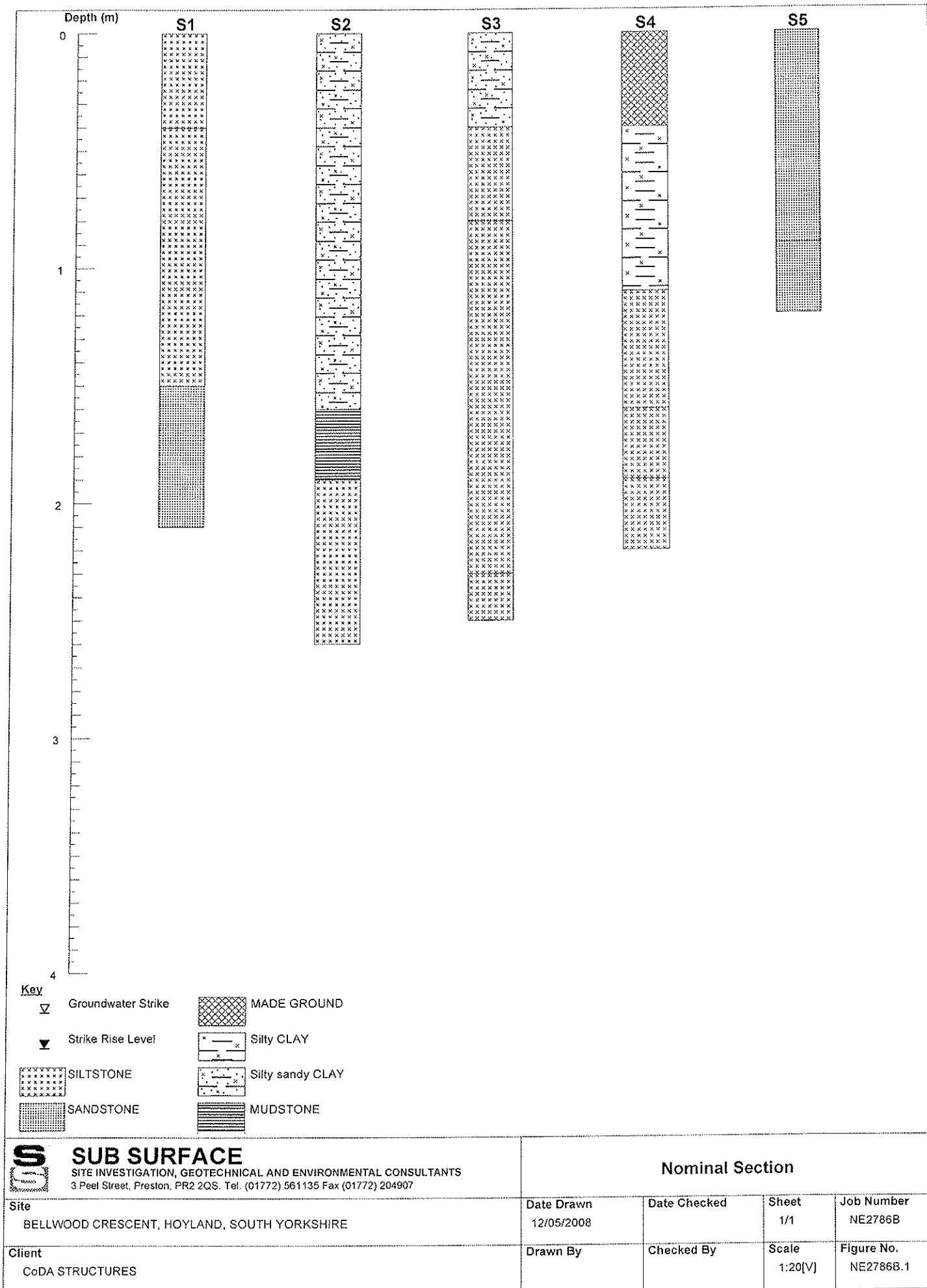
1:25

Logged By

TB/SJ

Figure No.

NE2786B.S5



APPENDIX I

CHEMICAL TEST RESULTS



Client: Coda Structures
2 Harewood Yard
Harewood
Leeds
West Yorkshire
LS17 9LF

FAO: Mr J Lawrence

Test Report Number: R07/1930

Client Project Name:	Bellwood Crescent
Client Project Number:	6084
Your Order Number:	None Specified
Order Receipt Date:	15/11/07
Reporting Date:	Wednesday 21 November 2007

If you have any queries regarding this report please contact our Customer Services Section



Client Project Name: Bellwood Crescent
Project Number: 6084

Client: Coda Structures
Reporting Date: Wednesday 21 November 2007

Comments

All analyses are carried out using the laboratory's standard methods unless otherwise agreed.
The test results in this report refer only to the actual samples on which testing has been performed.
Any opinions and/or interpretations expressed herein are outside the scope of the testing laboratory's UKAS accreditation.
The test report shall not be reproduced, except in full, without the testing laboratory's written approval.
This testing laboratory cannot be held responsible for the condition or suitability of samples submitted for testing by a third party or for the competency of personnel other than its own staff.
This laboratory cannot be held responsible for the accuracy of test sample locations or descriptions when supplied by a third party.

Soil Samples

Results are expressed on a dry mass basis. Assisted drying carried out @ 40°C.
See key in Notes section for explanation of numerical categories for asbestos results, if applicable.
All material is crushed if possible after assisted drying. Material which cannot be crushed is removed prior to analysis. See Notes section for details, if applicable.
Samples submitted for leachate determination were prepared using agreed procedures and analysed using UKAS accredited methodology where appropriate.
Results are expressed without correction for recovery factors.

Sample Pretreatment (as listed in method statement)

AD = Assisted drying @ 40°C R = As Received

Sample Type

B = Bulk disturbed sample P = Piston sample
C = Core Sample U = Undisturbed sample - open drive
D = Small disturbed sample W = Water Sample
ES = Environmental Soil Sample EW = Environmental Water Sample

Sample Results

Analysis not requested
*** Test not completed. Please see notes on last page

Signed: _____

For and on behalf of ECOS Environmental Limited

Approved signatories:

Name	Position
J R Brown	Business Development Manager
L Dewell	Production Manager
P Richardson	Section Head
J Stoddart	Technical Manager



Client Project Name: Bellwood Crescent

Project Number: 6084

Client: Coda Structures

Reporting Date: Wednesday 21 November 2007

Soil Samples

Method Statement

Determinand	Method of Detection	Sample Pretreatment	Limit of Detection	UKAS Accreditation	Sub-Contracted	Result Date
Chrysotile (white)	Microscopy	D	Not applicable	Yes	No	30/01/07
Amosite (brown)	Microscopy	D	Not applicable	Yes	No	30/01/07
Crocidolite (blue)	Microscopy	D	Not applicable	Yes	No	30/01/07
Anthophyllite	Microscopy	D	Not applicable	Yes	No	30/01/07
Actinolite	Microscopy	D	Not applicable	Yes	No	30/01/07
Tremolite	Microscopy	D	Not applicable	Yes	No	30/01/07
Asbestos content	Gravimetric	D	0.1% w/w	No	No	30/01/07



Client Project Name: Bellwood Crescent

Client: Coda Structures

Project Number: 6084

Reporting Date: Wednesday 21 November 2007

Sample Location	TP4	TP8	TP9
Top Depth / m			
Bottom Depth / m			
Sample No.	S1	S1	S1
Sample Type			
Date Sampled			
Receipt Date	15/11/07	15/11/07	15/11/07
EC&S Sample ID	S0715327	S0715328	S0715329
Matrix Type	Soil	Soil	Soil

Determinand	Units			
Chrysotile (white)	Category	2	ND	ND
Amosite (brown)	Category	ND	ND	ND
Crocidolite (blue)	Category	ND	ND	ND
Anthophyllite	Category	ND	ND	ND
Actinolite	Category	ND	ND	ND
Tremolite	Category	ND	ND	ND
Weight asbestos cont. material	g	<0.1	<0.1	<0.1
Fraction asbestos in material	%	<0.1	<0.1	<0.1
Test sample weight	g	732.0	796.0	900.0
Asbestos content	%	<0.1	<0.1	<0.1



Client Project Name: Bellwood Crescent
Project Number: 6084

Client: Coda Structures
Reporting Date: Wednesday 21 November 2007

Notes and Preservation Details

ASBESTOS BULK MATERIAL ANALYSIS

Samples analysed using polarised light optical microscopy with dispersion staining in accordance with a documented in-house procedure based on HSG 248 - Asbestos in Bulk Materials.

KEY TO ASBESTOS RESULTS

The standard analytical method used for asbestos identification cannot give an accurate quantitative value for percentage asbestos content.

- 1 - Present
- 2 - Trace asbestos identified
- 3 - Fine fibres present but too thin to identify
- ND - Asbestos not detected

End of Test Report



Client: Coda Structures
2 Harewood Yard
Harewood
Leeds
West Yorkshire
LS17 9LF

FAO: Mr J Lawrence

Test Report Number: R07/1701s

Client Project Name:	Bellwood Crescent, Hoyland
Client Project Number:	6084
Your Order Number:	None Specified
Order Receipt Date:	02/10/07
Reporting Date:	Monday 8 October 2007

If you have any queries regarding this report please contact our Customer Services Section



Client Project Name: Bellwood Crescent, Hoyland
Project Number: 6084

Client: Coda Structures
Reporting Date: Monday 8 October 2007

Comments

All analyses are carried out using the laboratory's standard methods unless otherwise agreed.
The test results in this report refer only to the actual samples on which testing has been performed.
Any opinions and/or interpretations expressed herein are outside the scope of the testing laboratory's UKAS accreditation.
The test report shall not be reproduced, except in full, without the testing laboratory's written approval.
This testing laboratory cannot be held responsible for the condition or suitability of samples submitted for testing by a third party or for the competency of personnel other than its own staff.
This testing laboratory cannot be held responsible for the accuracy of test sample locations or descriptions when supplied by a third party.

Soil Samples

Results are expressed on a dried mass basis. Assisted drying carried out @ 40°C.
See key in Notes section for explanation of numerical categories for asbestos results, if applicable.
Stones (for example inert flints and inorganic minerals) >10mm are removed prior to analysis.
Results have not been corrected for this loss.
Samples submitted for leachate determination were prepared using agreed procedures and analysed using UKAS accredited methodology where appropriate.
Results are expressed without correction for recovery factors.

Sample Pretreatment (as listed in method statement)

AD = Assisted drying @ 40°C R = As Received

Sample Type

B = Bulk disturbed sample	P = Piston sample
C = Core Sample	U = Undisturbed sample - open drive
D = Small disturbed sample	W = Water Sample
ES = Environmental Soil Sample	EW = Environmental Water Sample

Sample Results

Analysis not requested
*** Test not completed. Please see notes on last page

Signed: _____

For and on behalf of EC&S Environmental Limited

Approved signatories:

Name	Position
J R Brown	Business Development Manager
L Dewell	Production Manager
P Richardson	Section Head
J Stoddart	Technical Manager



Client Project Name: Bellwood Crescent, Hoyland
Project Number: 6084

Client: Coda Structures
Reporting Date: Monday 8 October 2007

Soil Samples

Method Statement

Determinand	Method of Detection	Sample Pretreatment	Limit of Detection	UKAS Accreditation	Sub-Contracted	Result Date
Chrysotile (white)	Microscopy	AD	N/A	Yes	No	05/10/07
Amosite (brown)	Microscopy	AD	N/A	Yes	No	05/10/07
Crocidolite (blue)	Microscopy	AD	N/A	Yes	No	05/10/07
Anthophyllite	Microscopy	AD	N/A	Yes	No	05/10/07
Actinolite	Microscopy	AD	N/A	Yes	No	05/10/07
Tremolite	Microscopy	AD	N/A	Yes	No	05/10/07
Weight asbestos cont. material	Gravimetry	AD	0.1 g	No	No	05/10/07
Fraction asbestos in material	Gravimetry	AD	0.1 % w/w	No	No	05/10/07
Test sample weight	Gravimetry	AD	0.1 g	No	No	05/10/07
Asbestos content	Gravimetry	AD	0.1 % w/w	No	No	05/10/07



Client Project Name: Bellwood Crescent, Hoyland

Client: Coda Structures

Project Number: 6084

Reporting Date: Monday 8 October 2007

Sample Location / Identification		TP1	TP3	TP5	TP2	TP2
Top Depth / m		0.05	0.10	0.05	0.10	0.10
Bottom Depth / m						
Sample No.		250	255	261	S1	S2
Sample Type						
Date Sampled						
Receipt Date		02/10/07	02/10/07	02/10/07	02/10/07	02/10/07
ECoS Sample ID		S0713349	S0713350	S0713351	S0713352	S0713353
Matrix Type		Soil	Soil	Soil	Soil	Soil
Determinand	Units					
Chrysotile (white)	Category	2	ND	ND	ND	ND
Amosite (brown)	Category	ND	2	ND	ND	2
Crocidolite (blue)	Category	ND	ND	ND	ND	ND
Anthophyllite	Category	ND	ND	ND	ND	ND
Actinolite	Category	ND	ND	ND	ND	ND
Tremolite	Category	ND	ND	ND	ND	ND
Weight asbestos cont. material	g	<0.1	<0.1	<0.1	<0.1	<0.1
Fraction asbestos in material	%	<0.1	<0.1	<0.1	<0.1	<0.1
Test sample weight	g	605.0	690.0	645.0	557.0	664.0
Asbestos content	%	<0.1	<0.1	<0.1	<0.1	<0.1



Client Project Name: Bellwood Crescent, Hoyland
Project Number: 6084

Client: Coda Structures
Reporting Date: Monday 8 October 2007

Sample Location / Identification		TP2	TP2
Top Depth / m		0.10	0.10
Bottom Depth / m			
Sample No.		S3	S4
Sample Type			
Date Sampled			
Receipt Date		02/10/07	02/10/07
EC&S Sample ID		S0713354	S0713355
Matrix Type		Soil	Soil
Determinand	Units		
Chrysotile (white)	Category	ND	ND
Amosite (brown)	Category	ND	2
Crocidolite (blue)	Category	ND	ND
Anthophyllite	Category	ND	ND
Actinolite	Category	ND	ND
Tremolite	Category	ND	ND
Weight asbestos cont. material	g	<0.1	<0.1
Fraction asbestos in material	%	<0.1	<0.1
Test sample weight	g	866.0	876.0
Asbestos content	%	<0.1	<0.1



Client Project Name: Bellwood Crescent, Hoyland
Project Number: 6084

Client: Coda Structures
Reporting Date: Monday 8 October 2007

Notes and Preservation Details

Report R07/1701s is a supplementary to Ecos Report R07/1701 with additional sample results.

ASBESTOS BULK MATERIAL ANALYSIS

Samples analysed using polarised light optical microscopy with dispersion staining in accordance with a documented in-house procedure based on HSG 248 - Asbestos in Bulk Materials.

KEY TO ASBESTOS RESULTS

The standard analytical method used for asbestos identification cannot give an accurate quantitative value for percentage asbestos content.

- 1 - Present
- 2 - Trace asbestos identified
- 3 - Fine fibres present but too thin to identify
- ND - Asbestos not detected

ASBESTOS CONTENT : GRAVIMETRIC ANALYSIS

Quantitative estimates are outside the scope of the laboratory's UKAS accreditation.

The weight of asbestos is an estimate calculated as follows:

Weight of asbestos = weight of asbestos containing material (ACM) x fraction of asbestos content as given in MDHS 100.

% Asbestos content = weight of asbestos present (g) / test sample weight (g) x 100

End of Test Report



Client: Coda Structures
2 Harewood Yard
Harewood
Leeds
West Yorkshire
LS17 9LF

FAO: Mr J Lawrence

Test Report Number: R07/1604

Client Project Name:	Bellwood Crescent Hoyland
Client Project Number:	None Specified
Your Order Number:	None Specified
Order Receipt Date:	18/09/07
Reporting Date:	Tuesday 2 October 2007

If you have any queries regarding this report please contact our Customer Services Section



Client Project Name: Bellwood Crescent Hoyland

Client: Coda Structures

Project Number: None Specified

Reporting Date: Tuesday 2 October 2007

Comments

All analyses are carried out using the laboratory's standard methods unless otherwise agreed.

The test results in this report refer only to the actual samples on which testing has been performed.

Any opinions and/or interpretations expressed herein are outside the scope of the testing laboratory's UKAS accreditation.

The test report shall not be reproduced, except in full, without the testing laboratory's written approval.

This testing laboratory cannot be held responsible for the condition or suitability of samples submitted for testing by a third party or for the competency of personnel other than its own staff.

This laboratory cannot be held responsible for the accuracy of test sample locations or descriptions when supplied by a third party.

Soil Samples

Results are expressed on a dry mass basis. Assisted drying carried out @ 40°C.

See key in Notes section for explanation of numerical categories for asbestos results, if applicable.

Stones (for example inert flints and inorganic minerals) >10mm are removed prior to analysis.

Results have not been corrected for this loss.

Samples submitted for leachate determination were prepared using agreed procedures and analysed using UKAS accredited methodology where appropriate.

Results are expressed without correction for recovery factors.

Sample Pretreatment (as listed in method statement)

AD = Assisted drying @ 40°C

R = As Received

Sample Type

B = Bulk disturbed sample

C = Core Sample

D = Small disturbed sample

ES = Environmental Soil Sample

P = Piston sample

U = Undisturbed sample - open drive

W = Water Sample

EW = Environmental Water Sample

Sample Results

Analysis not requested

*** Test not completed. Please see notes on last page

Signed: _____

For and on behalf of ECOS Environmental Limited

Approved signatories:

Name	Position
J R Brown	Business Development Manager
L Dewell	Production Manager
P Richardson	Section Head
J Stoddart	Technical Manager



Client Project Name: Bellwood Cresent Hoyland

Client: Coda Structures

Project Number: None Specified

Reporting Date: Tuesday 2 October 2007

Soil Samples

Method Statement

Determinand	Method of Detection	Sample Pretreatment	Limit of Detection	UKAS Accreditation	Sub-Contracted	Result Date
Arsenic	ICP-OES	AD	1.5 mg/kg	Yes	No	25/09/07
Cadmium	ICP-OES	AD	0.2 mg/kg	Yes	No	25/09/07
Chromium (total)	ICP-OES	AD	2.0 mg/kg	Yes	No	25/09/07
Lead	ICP-OES	AD	1.0 mg/kg	Yes	No	25/09/07
Mercury	ICP-OES	AD	0.1 mg/kg	Yes	No	28/09/07
Selenium	ICP-OES	AD	0.1 mg/kg	Yes	No	28/09/07
Boron (water soluble)	ICP-OES	AD	0.5 mg/kg	Yes	No	26/09/07
Copper	ICP-OES	AD	0.5 mg/kg	Yes	No	25/09/07
Nickel	ICP-OES	AD	1.0 mg/kg	Yes	No	25/09/07
Zinc	ICP-OES	AD	3.0 mg/kg	Yes	No	25/09/07
pH	pH-meter	AD	0.1 N/A	Yes	No	25/09/07
Sulphate (water soluble)	HPLC-IC	AD	0.001 g/l SO ₄	Yes	No	27/09/07
PAH (sum of PAH 17)	GC-MS	AD	0.1 mg/kg	No	No	01/10/07
Naphthalene	GC-MS	AD	0.1 mg/kg	Yes	No	01/10/07
Acenaphthylene	GC-MS	AD	0.1 mg/kg	Yes	No	01/10/07
Acenaphthene	GC-MS	AD	0.1 mg/kg	Yes	No	01/10/07
Fluorene	GC-MS	AD	0.1 mg/kg	Yes	No	01/10/07
Phenanthrene	GC-MS	AD	0.1 mg/kg	Yes	No	01/10/07
Anthracene	GC-MS	AD	0.1 mg/kg	Yes	No	01/10/07
Fluoranthene	GC-MS	AD	0.1 mg/kg	Yes	No	01/10/07
Pyrene	GC-MS	AD	0.1 mg/kg	Yes	No	01/10/07
Benzo(a)anthracene	GC-MS	AD	0.1 mg/kg	Yes	No	01/10/07
Chrysene	GC-MS	AD	0.1 mg/kg	Yes	No	01/10/07
Benzo(b)+(j)fluoranthene	GC-MS	AD	0.1 mg/kg	No	No	01/10/07
Benzo(k)fluoranthene	GC-MS	AD	0.1 mg/kg	Yes	No	01/10/07
Benzo(a)pyrene	GC-MS	AD	0.1 mg/kg	Yes	No	01/10/07
Indeno(1,2,3-cd)pyrene	GC-MS	AD	0.1 mg/kg	Yes	No	01/10/07
Dibenz(a,h)anthracene	GC-MS	AD	0.1 mg/kg	Yes	No	01/10/07
Benzo(g,h,i)perylene	GC-MS	AD	0.1 mg/kg	Yes	No	01/10/07
Chrysotile (white)	Microscopy	AD	N/A	Yes	No	19/09/07
Amosite (brown)	Microscopy	AD	N/A	Yes	No	19/09/07
Crocidolite (blue)	Microscopy	AD	N/A	Yes	No	19/09/07
Anthophyllite	Microscopy	AD	N/A	Yes	No	19/09/07
Actinolite	Microscopy	AD	N/A	Yes	No	19/09/07
Tremolite	Microscopy	AD	N/A	Yes	No	19/09/07
Weight asbestos cont. material	Gravimetry	AD	0.1 g	No	No	19/09/07
Fraction asbestos in material	Gravimetry	AD	1 %	No	No	19/09/07
Test sample weight	Gravimetry	AD	0.1 g	No	No	19/09/07
Asbestos content	Gravimetry	AD	0.1 %	No	No	19/09/07



Client Project Name: Bellwood Crescent Hoyland

Client: Coda Structures

Project Number: None Specified

Reporting Date: Tuesday 2 October 2007

Sample Location		TP2	TP2	TP4	TP4	TP5
Top Depth / m		0.30	0.55	0.20	0.50	0.30
Bottom Depth / m						
Sample No.		253	254	245	246	262
Sample Type						
Date Sampled						
Receipt Date		18/09/07	18/09/07	18/09/07	18/09/07	18/09/07
EC&S Sample ID		S0712578	S0712579	S0712580	S0712581	S0712582
Matrix Type		Soil	Soil	Soil	Soil	Soil
Determinand	Units					
Arsenic	mg/kg	***	7.8	2.1	10.6	2.7
Cadmium	mg/kg	***	0.2	2.7	0.5	0.4
Chromium (total)	mg/kg	***	8.4	62.7	22.2	6.5
Lead	mg/kg	***	7.2	23.4	49.1	12.0
Mercury	mg/kg	***	0.2	0.1	0.4	0.2
Selenium	mg/kg	***	<0.1	<0.1	<0.1	<0.1
Boron (water soluble)	mg/kg	***	<0.5	<0.5	1.0	<0.5
Copper	mg/kg	***	13.4	9.4	26.3	10.0
Nickel	mg/kg	***	19.0	5.1	19.9	5.7
Zinc	mg/kg	***	33.6	69.3	99.9	64.9
pH	N/A	***	6.9	8.9	7.2	11.3
Sulphate (water soluble)	g/l SO4	***	0.016	0.429	0.221	0.294
PAH (sum of PAH 17)	mg/kg	***	<0.1	8.1	2.6	1.1
Naphthalene	mg/kg	***	<0.1	<0.1	<0.1	0.2
Acenaphthylene	mg/kg	***	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	***	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	***	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	***	<0.1	0.3	0.6	0.2
Anthracene	mg/kg	***	<0.1	<0.1	0.1	<0.1
Fluoranthene	mg/kg	***	<0.1	0.8	0.8	0.3
Pyrene	mg/kg	***	<0.1	0.8	0.5	0.3
Benzo(a)anthracene	mg/kg	***	<0.1	0.4	0.2	<0.1
Chrysene	mg/kg	***	<0.1	0.5	0.2	0.1
Benzo(b)+(j)fluoranthene	mg/kg	***	<0.1	1.3	0.3	<0.1
Benzo(k)fluoranthene	mg/kg	***	<0.1	0.4	<0.1	<0.1
Benzo(a)pyrene	mg/kg	***	<0.1	1.2	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	***	<0.1	1.6	<0.1	<0.1
Dibenz(a,h)anthracene	mg/kg	***	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	***	<0.1	0.9	<0.1	<0.1
Chrysotile (white)	Category	2	#	#	#	#
Amosite (brown)	Category	ND	#	#	#	#
Crocidolite (blue)	Category	ND	#	#	#	#
Anthophyllite	Category	ND	#	#	#	#
Actinolite	Category	ND	#	#	#	#
Tremolite	Category	ND	#	#	#	#



Client Project Name: Bellwood Crescent Hoyland

Client: Coda Structures

Project Number: None Specified

Reporting Date: Tuesday 2 October 2007

Sample Location		TP2	TP2	TP4	TP4	TP5
Top Depth / m		0.30	0.55	0.20	0.50	0.30
Bottom Depth / m						
Sample No.		253	254	245	246	262
Sample Type						
Date Sampled						
Receipt Date		18/09/07	18/09/07	18/09/07	18/09/07	18/09/07
EC&S Sample ID		S0712578	S0712579	S0712580	S0712581	S0712582
Matrix Type		Soil	Soil	Soil	Soil	Soil
Determinand	Units					
Weight asbestos cont. material	g	<0.1	#	#	#	#
Fraction asbestos in material	%	<0.1	#	#	#	#
Test sample weight	g	708.0	#	#	#	#
Asbestos content	%	<0.1	#	#	#	#



Client Project Name: Bellwood Cresent Hoyland

Client: Coda Structures

Project Number: None Specified

Reporting Date: Tuesday 2 October 2007

Sample Location		TP5	TP6	TP6	TP7	TP7
Top Depth / m		1.40	0.20	0.50	0.30	0.80
Bottom Depth / m						
Sample No.		264	257	258	235	237
Sample Type						
Date Sampled						
Receipt Date		18/09/07	18/09/07	18/09/07	18/09/07	18/09/07
ECoS Sample ID		S0712583	S0712584	S0712585	S0712586	S0712587
Matrix Type		Soil	Soil	Soil	Soil	Soil
Determinand	Units					
pH	N/A	7.0	7.8	7.0	6.8	8.1
Sulphate (water soluble)	g/l SO4	0.024	0.464	0.029	0.019	0.031
Arsenic	mg/kg	#	9.4	1.8	26.5	9.1
Cadmium	mg/kg	#	0.5	0.2	0.6	0.3
Chromium (total)	mg/kg	#	22.1	22.4	25.2	13.4
Lead	mg/kg	#	36.8	37.3	61.9	12.0
Mercury	mg/kg	#	0.2	0.1	0.2	0.1
Selenium	mg/kg	#	<0.1	<0.1	<0.1	<0.1
Boron (water soluble)	mg/kg	#	<0.5	<0.5	<0.5	<0.5
Copper	mg/kg	#	35.7	21.1	29.3	20.6
Nickel	mg/kg	#	30.6	33.1	23.3	15.4
Zinc	mg/kg	#	166.5	99.3	90.3	50.0
PAH (sum of PAH 17)	mg/kg	#	<0.1	2.4	15.2	0.3
Naphthalene	mg/kg	#	<0.1	0.4	0.1	0.2
Acenaphthylene	mg/kg	#	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	#	<0.1	<0.1	0.2	<0.1
Fluorene	mg/kg	#	<0.1	<0.1	0.3	<0.1
Phenanthrene	mg/kg	#	<0.1	0.4	4.0	0.1
Anthracene	mg/kg	#	<0.1	<0.1	0.8	<0.1
Fluoranthene	mg/kg	#	<0.1	0.6	3.6	<0.1
Pyrene	mg/kg	#	<0.1	0.4	2.6	<0.1
Benzo(a)anthracene	mg/kg	#	<0.1	0.2	1.0	<0.1
Chrysene	mg/kg	#	<0.1	0.2	0.8	<0.1
Benzo(b)+(j)fluoranthene	mg/kg	#	<0.1	0.2	0.6	<0.1
Benzo(k)fluoranthene	mg/kg	#	<0.1	<0.1	0.3	<0.1
Benzo(a)pyrene	mg/kg	#	<0.1	<0.1	0.5	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	#	<0.1	<0.1	0.3	<0.1
Dibenz(a,h)anthracene	mg/kg	#	<0.1	<0.1	<0.1	<0.1
Benzo(g,h,i)perylene	mg/kg	#	<0.1	<0.1	0.3	<0.1
Chrysotile (white)	Category	#	ND	#	#	ND
Amosite (brown)	Category	#	ND	#	#	ND
Crocidolite (blue)	Category	#	ND	#	#	ND
Anthophyllite	Category	#	ND	#	#	ND
Actinolite	Category	#	ND	#	#	ND
Tremolite	Category	#	ND	#	#	ND



Client Project Name: Bellwood Crescent Hoyland
Project Number: None Specified

Client: Coda Structures
Reporting Date: Tuesday 2 October 2007

Sample Location		TP5	TP6	TP6	TP7	TP7
Top Depth / m		1.40	0.20	0.50	0.30	0.80
Bottom Depth / m						
Sample No.		264	257	258	235	237
Sample Type						
Date Sampled						
Receipt Date		18/09/07	18/09/07	18/09/07	18/09/07	18/09/07
ECoS Sample ID		S0712583	S0712584	S0712585	S0712586	S0712587
Matrix Type		Soil	Soil	Soil	Soil	Soil
Determinand	Units					
Weight asbestos cont. material	g	#	<0.1	#	#	<0.1
Fraction asbestos in material	%	#	<0.1	#	#	<0.1
Test sample weight	g	#	605.0	#	#	702.0
Asbestos content	%	#	<0.1	#	#	<0.1



Client Project Name: Bellwood Cresnet Hoyland

Client: Coda Structures

Project Number: None Specified

Reporting Date: Tuesday 2 October 2007

Sample Location		TP7	TP8
Top Depth / m		1.20	0.30
Bottom Depth / m			
Sample No.		239	267
Sample Type			
Date Sampled			
Receipt Date		18/09/07	18/09/07
ECoS Sample ID		S0712588	S0712589
Matrix Type		Soil	Soil
Determinand	Units		
pH	N/A	7.2	11.7
Sulphate (water soluble)	g/l SO4	0.132	0.089
Arsenic	mg/kg	#	3.9
Cadmium	mg/kg	#	0.5
Chromium (total)	mg/kg	#	7.2
Lead	mg/kg	#	9.6
Mercury	mg/kg	#	0.1
Selenium	mg/kg	#	<0.1
Boron (water soluble)	mg/kg	#	<0.5
Copper	mg/kg	#	7.4
Nickel	mg/kg	#	5.7
Zinc	mg/kg	#	53.9
PAH (sum of PAH 17)	mg/kg	#	32.8
Naphthalene	mg/kg	#	0.1
Acenaphthylene	mg/kg	#	<0.1
Acenaphthene	mg/kg	#	0.4
Fluorene	mg/kg	#	0.6
Phenanthrene	mg/kg	#	7.8
Anthracene	mg/kg	#	1.5
Fluoranthene	mg/kg	#	7.5
Pyrene	mg/kg	#	5.6
Benzo(a)anthracene	mg/kg	#	2.4
Chrysene	mg/kg	#	1.9
Benzo(b)+(j)fluoranthene	mg/kg	#	1.4
Benzo(k)fluoranthene	mg/kg	#	1.1
Benzo(a)pyrene	mg/kg	#	1.2
Indeno(1,2,3-cd)pyrene	mg/kg	#	0.8
Dibenz(a,h)anthracene	mg/kg	#	0.2
Benzo(g,h,i)perylene	mg/kg	#	0.6



Client Project Name: Bellwood Cresnet Hoyland

Client: Coda Structures

Project Number: None Specified

Reporting Date: Tuesday 2 October 2007

Notes and Preservation Details

Results marked *** indicate Asbestos present in sample – No further preparation or analysis possible.

ASBESTOS BULK MATERIAL ANALYSIS

Samples analysed using polarised light optical microscopy with dispersion staining in accordance with a documented in-house procedure based on HSG 248 - Asbestos in Bulk Materials.

KEY TO ASBESTOS RESULTS

The standard analytical method used for asbestos identification cannot give an accurate quantitative value for percentage asbestos content.

- 1 - Present
- 2 - Trace asbestos identified
- 3 - Fine fibres present but too thin to identify
- ND - Asbestos not detected

ASBESTOS CONTENT : GRAVIMETRIC ANALYSIS

Quantitative estimates are outside the scope of the laboratory's UKAS accreditation.

The weight of asbestos is an estimate calculated as follows:

Weight of asbestos = weight of asbestos containing material (ACM) x fraction of asbestos content as given in MDHS 100.

% Asbestos content = weight of asbestos present (g) / test sample weight (g) x 100

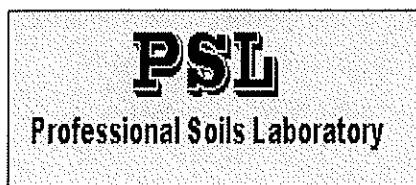
End of Test Report

CoDa Structures

Consulting Civil & Structural Engineers
14 Springfield Court
GUISELEY
Leeds LS20 8FD

**PHASE 1 & 2 ENGINEERING & ENVIRONMENTAL
ASSESSMENT FOR A RESIDENTIAL DEVELOPMENT
SITE ADJACENT BELLWOOD CRESCENT,
HOYLAND, BARNSLEY**

APPENDIX J
GEOTECHNICAL TEST RESULTS



LABORATORY REPORT



4043

Contract Number: PSL07/2918

Client's Reference:

Report Date: 17 December 2007

Client Name: Coda Structures
Harewood Yard
Harewood
Leeds
LS17 9LF

For the attention of: John Lawrence

Contract Title: Bellwood Crescent, Hoyland

Date Received: 12-Dec-07
Date Commenced: 12-Dec-07
Date Completed: 17-Dec-07

JOB No.	1
	
RECEIVED 20 DEC 2007 RECEIVED	
REPLIED	
COPY TO	DATE

Notes: Observations and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced in full, without the prior written approval of the laboratory.

Approved Signatories:

R Gunson
(Director)



A Watkins
(Director)

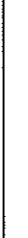
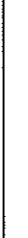
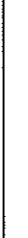
D Lambe
(Senior Technician)

5 - 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AG
tel: +44 (0)870 240 1964
fax: +44 (0)870 240 1965
e-mail: rgunson@prosoils.co.uk
awatkins@prosoils.co.uk

Page 1 of

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

[illegible]

 Professional Soils Laboratory					<table border="1"> <tr> <td>Compiled by</td> <td>Date</td> <td>Checked by</td> <td>Date</td> <td>Approved by</td> <td>Date</td> </tr> <tr> <td></td> <td>17/12/17</td> <td></td> <td>17/12/17</td> <td></td> <td>17/12/17</td> </tr> </table>					Compiled by	Date	Checked by	Date	Approved by	Date		17/12/17		17/12/17		17/12/17
Compiled by	Date	Checked by	Date	Approved by	Date																
	17/12/17		17/12/17		17/12/17																
BELLWOOD CRESCENT, HOYLAND.						Contract No: PSL07/2918															
						Client Ref: 6084															

(B.S. 1377 : PART 2 : 1990)

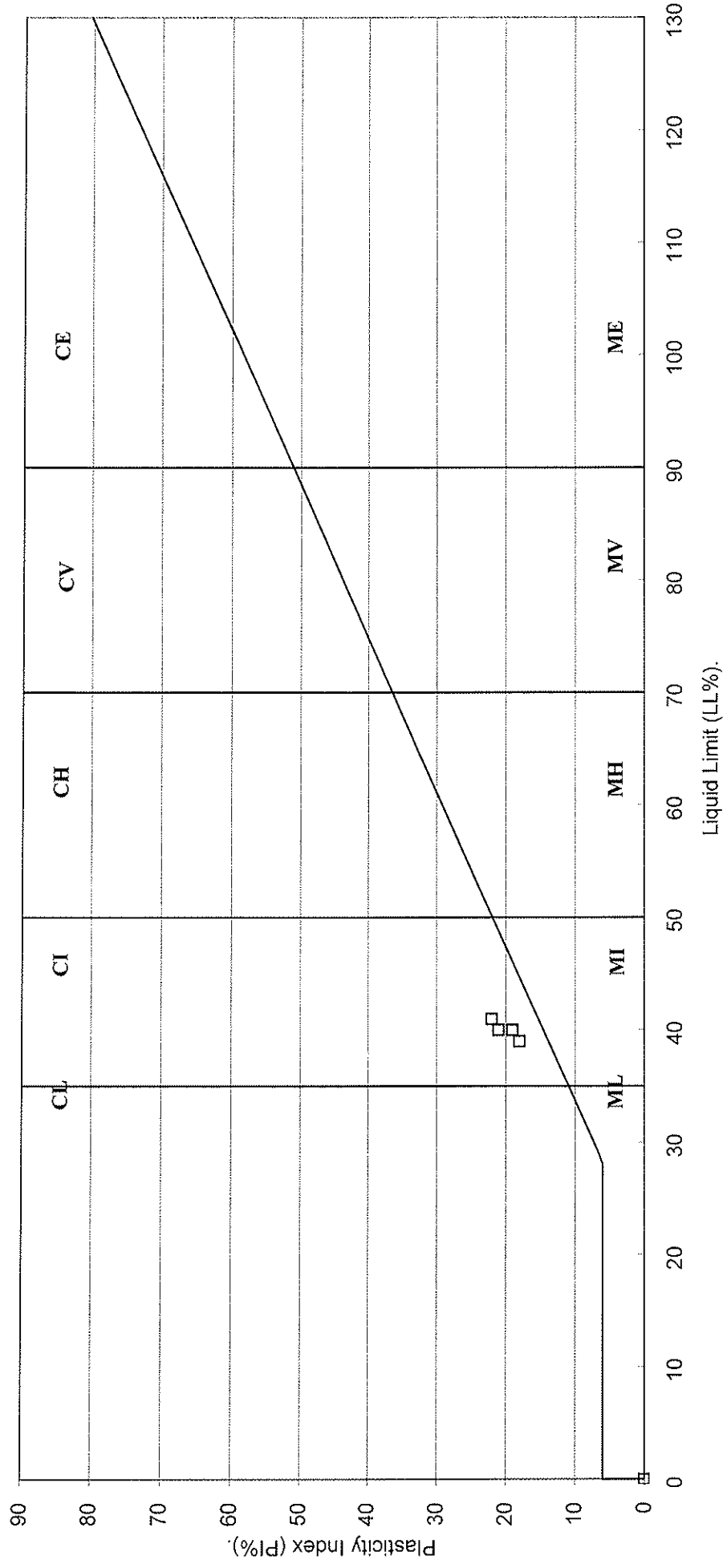
SYMBOLS: NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.

 Professional Soils Laboratory						<table border="1"> <tr> <td>Compiled by</td> <td>Date</td> <td>Checked by</td> <td>Date</td> <td>Approved by</td> <td>Date</td> </tr> <tr> <td></td> <td>12/12/19</td> <td></td> <td>12/12/19</td> <td></td> <td>12/12/19</td> </tr> </table>						Compiled by	Date	Checked by	Date	Approved by	Date		12/12/19		12/12/19		12/12/19
Compiled by	Date	Checked by	Date	Approved by	Date																		
	12/12/19		12/12/19		12/12/19																		
						Contract No: PSL0712918																	
						Client Ref: 6084																	

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(B.S.5930 : 1999)



PSL Professional Soils Laboratory		Compiled by	Date	Checked by	Date	Approved by	Date
		<i>[Signature]</i>	17/12/27	<i>[Signature]</i>	17/12/27	<i>[Signature]</i>	17/12/27
BELLWOOD CRESCENT, HOYLAND.							
Contract No: PSL07/2918						Client Ref: 6084	

**SUB SURFACE**SITE INVESTIGATION AND SPECIALIST GEOTECHNICAL CONSULTANTS
3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907**In-Situ Test Results**

Site: BELLWOOD CRESCENT, HOYLAND, BARNLEY

Client: ACKROYD AND ABBOTT

Engineer: CODA STRUCTURES

Job Number

NE2786 B

Sheet:

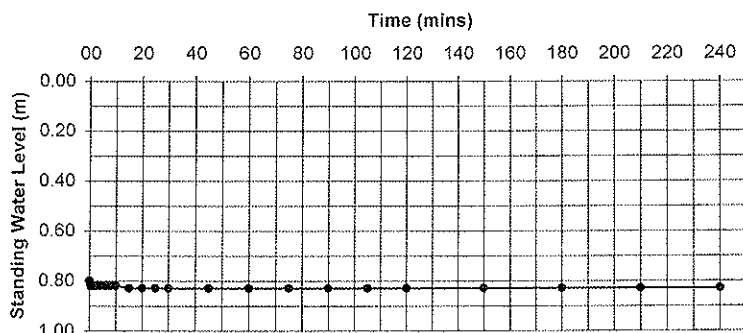
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Trial Pit Soakaway Test

SOAKAWAY TEST PIT NO: S1

TEST NO: 1

DATE: 15/04/2008



Time (min)	Depth (m)
00	0.80
0.5	0.82
01	0.82
02	0.82
04	0.82
06	0.82
08	0.82
10	0.82
15	0.83
20	0.83
25	0.83
30	0.83
45	0.83
60	0.83
75	0.83
90	0.83
105	0.83
120	0.83
150	0.83
180	0.83
210	0.83
240	0.83

Length of pit: L = 2.00 m

Width of pit: W = 0.90 m

Depth of pit: D = 2.10 m

Base area of pit: A = 1.80 m²

100% effective depth D100 = 0.80 m

75% effective depth D75 = 1.13 m

50% effective depth D50 = 1.45 m

25% effective depth D25 = 1.78 m

time to D75 T75 = - sec

time to D25 T25 = - sec

time from D75 to D25 t_{p75-25} = - sec

(T25 - T75)

volume between D75 & D25 V_{p75-25} = - m³

(A x (D25 - D75))

surface area to D50 inc. base a_{p50} = - m²

((2x(D-D50)x(W+L)) + A)

SOIL INFILTRATION RATE

$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

f = - m/sec

Test Strata: Moderately weak dark brown, brown and light grey mottled moderately weathered
(see Trial Pit) SILTSTONE becoming hard light grey fresh fine grained SANDSTONE.

Remarks: Unable to calculate due to low permeability of strata

**SUB SURFACE**SITE INVESTIGATION AND SPECIALIST GEOTECHNICAL CONSULTANTS
3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907**In-Situ Test Results**

Site: BELLWOOD CRESECENT, HOYLAND, BARNSELY

Client: ACKROYD AND ABBOTT

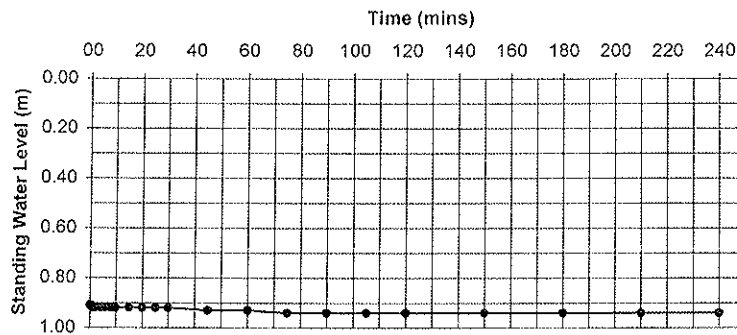
Engineer: CODA STRUCTURES

Job Number
NE2786 B

Sheet:
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Trial Pit Soakaway TestSOAKAWAY TEST PIT NO: **S2**

TEST NO: 1
DATE: 15/04/2008



Time (min)	Depth (m)
00	0.91
0.5	0.91
01	0.92
02	0.92
04	0.92
06	0.92
08	0.92
10	0.92
15	0.92
20	0.92
25	0.92
30	0.92
45	0.93
60	0.93
75	0.94
90	0.94
105	0.94
120	0.94
150	0.94
180	0.94
210	0.94
240	0.94

Length of pit: L = 1.60 m
 Width of pit: W = 0.60 m
 Depth of pit: D = 2.60 m
 Base area of pit: A = 0.96 m²

100% effective depth D100 = 0.91 m
 75% effective depth D75 = 1.33 m
 50% effective depth D50 = 1.76 m
 25% effective depth D25 = 2.18 m

time to D75 T75 = - sec
 time to D25 T25 = - sec

time from D75 to D25 t_{p75-25} = - sec
 (T25 - T75)

volume between D75 & D25 V_{p75-25} = - m³
 (A x (D25 - D75))

surface area to D50 inc. base a_{p50} = - m²
 ((2x(D-D50)x(W+L)) + A)

SOIL INFILTRATION RATE $f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

$f = -$ m/sec

Test Strata: Firm to stiff orange brown and light grey mottled slightly sandy CLAY with some sub angular to sub rounded fine to medium sandstone and mudstone becoming moderately weak dark brown, brown and light grey mottled lightly to moderately weathered MUDSTONE becoming moderately strong dark brown, brown and light grey mottled fresh SILTSTONE.

Remarks: Unable to calculate due to low permeability of strata

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3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907**In-Situ Test Results**

Site: BELLWOOD CRESECENT, HOYLAND, BARNSELEY

Job Number

NE2786 B

Client: ACKROYD AND ABBOTT

Sheet:

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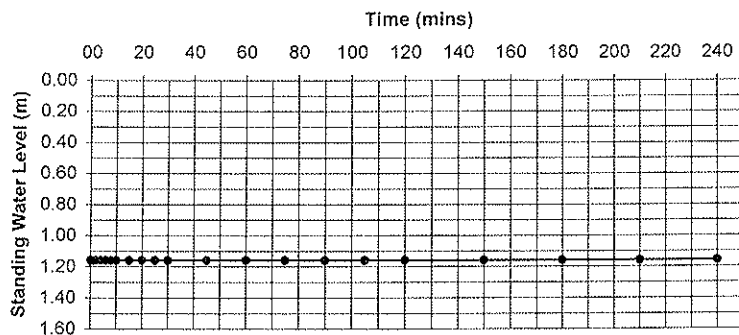
Engineer: CODA STRUCTURES

Trial Pit Soakaway Test

SOAKAWAY TEST PIT NO: S3

TEST NO: 1

DATE: 15/04/2008



Time (min)	Depth (m)
00	1.16
0.5	1.16
01	1.16
02	1.16
04	1.16
06	1.16
08	1.16
10	1.16
15	1.16
20	1.16
25	1.16
30	1.16
45	1.16
60	1.16
75	1.16
90	1.16
105	1.16
120	1.16
150	1.16
180	1.16
210	1.16
240	1.16

Length of pit: L = 2.00 m
 Width of pit: W = 0.60 m
 Depth of pit: D = 2.50 m
 Base area of pit: A = 1.20 m²

100% effective depth D100 = 1.16 m
 75% effective depth D75 = 1.50 m
 50% effective depth D50 = 1.83 m
 25% effective depth D25 = 2.17 m

time to D75 T75 = - sec
 time to D25 T25 = - sec

time from D75 to D25 t_{p75-25} = - sec
 (T25 - T75)

volume between D75 & D25 V_{p75-25} = - m³
 (A x (D25 - D75))

surface area to D50 inc. base a_{p50} = - m²
 ((2x(D-D50)x(W+L)) + A)

SOIL INFILTRATION RATE

$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

f = - m/sec

Test Strata: Moderately weak light grey, brown and dark brown moderately weathered SILTSTONE
 (see Trial Pit) becoming moderately strong light grey, brown and dark brown moderately weathered SILTSTONE

Remarks: Unable to calculate due to low permeability of strata

**SUB SURFACE**

SITE INVESTIGATION AND SPECIALIST GEOTECHNICAL CONSULTANTS
3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907

In-Situ Test Results

Site: BELLWOOD CRESCENT, HOYLAND, BARNSELY

Client: ACKROYD AND ABBOTT

Engineer: CODA STRUCTURES

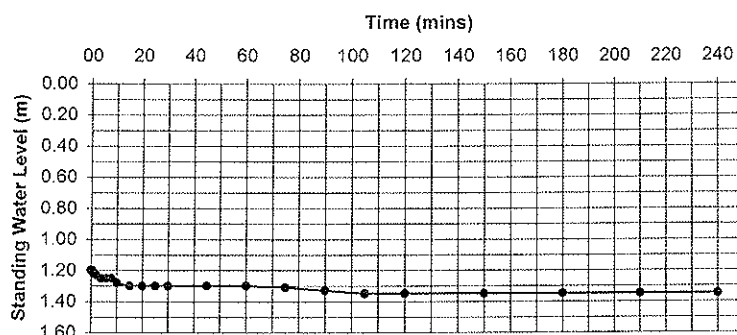
Job Number
NE2786 B

Sheet:
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Trial Pit Soakaway Test

SOAKAWAY TEST PIT NO: **S4**

TEST NO: 1
DATE: 15/04/2008



Time (min)	Depth (m)
00	1.20
0.5	1.20
01	1.22
02	1.23
04	1.25
06	1.25
08	1.25
10	1.28
15	1.30
20	1.30
25	1.30
30	1.30
45	1.30
60	1.30
75	1.31
90	1.33
105	1.35
120	1.35
150	1.35
180	1.35
210	1.35
240	1.35

Length of pit: L = 2.00 m
Width of pit: W = 0.60 m
Depth of pit: D = 2.20 m
Base area of pit: A = 1.20 m²

100% effective depth D100 = 1.20 m
75% effective depth D75 = 1.45 m
50% effective depth D50 = 1.70 m
25% effective depth D25 = 1.95 m

time to D75 T75 = - sec
time to D25 T25 = - sec

time from D75 to D25 t_{p75-25} = - sec
(T25 - T75)

volume between D75 & D25 V_{p75-25} = - m³
(A x (D25 - D75))

surface area to D50 inc. base a_{p50} = - m²
((2x(D-D50)x(W+L)) + A)

SOIL INFILTRATION RATE f = $\frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$

f = - m/sec

Test Strata: Very weak dark brown, brown and light grey mottled highly weathered SILTSTONE becoming moderately strong light grey and dark grey mottled moderately weathered SILTSTONE
(see Trial Pit) hard dark grey, brown and light grey mottled fresh SILTSTONE

Remarks: Unable to calculate due to low permeability of strata

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Site: BELLWOOD CRESECENT, HOYLAND, BARNSELEY

Client: ACKROYD AND ABBOTT

Engineer: CODA STRUCTURES

Job Number

NE2786 B

Sheet:

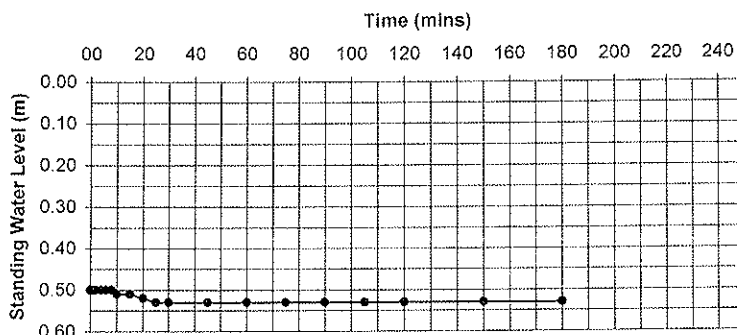
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Trial Pit Soakaway Test

SOAKAWAY TEST PIT NO: S5

TEST NO: 1

DATE: 15/04/2008



Time (min)	Depth (m)
00	0.50
0.5	0.50
01	0.50
02	0.50
04	0.50
06	0.50
08	0.50
10	0.51
15	0.51
20	0.52
25	0.53
30	0.53
45	0.53
60	0.53
75	0.53
90	0.53
105	0.53
120	0.53
150	0.53
180	0.53

Length of pit: L = 3.50 m
 Width of pit: W = 2.20 m
 Depth of pit: D = 1.20 m
 Base area of pit: A = 7.70 m²

100% effective depth D100 = 0.50 m
 75% effective depth D75 = 0.68 m
 50% effective depth D50 = 0.85 m
 25% effective depth D25 = 1.03 m

time to D75 T75 = - sec
 time to D25 T25 = - sec

time from D75 to D25 t_{p75-25} = - sec
 (T25 - T75)

volume between D75 & D25 V_{p75-25} = - m³
 (A x (D25 - D75))

surface area to D50 inc. base a_{p50} = - m²
 ((2x(D-D50)x(W+L)) + A)

SOIL INFILTRATION RATE

$$f = \frac{V_{p75-25}}{a_{p50} \times t_{p75-25}}$$

f = - m/sec

Test Strata: Weak dark brown, grey brown, brown and orange brown stained moderately weathered
 (see Trial Pit) thinly bedded fine grained SANDSTONE becoming hard dark brown, grey brown, brown
 and orange brown stained fresh thinly bedded fine grained SANDSTONE

Remarks: Unable to calculate due to low permeability of strata

APPENDIX K

CONTAMINATION ASSESSMENT CRITERIA FOR RESIDENTIAL USE WITH HOME GROWN PRODUCE

	Units	Residential Use With Homegrown Produce	Derivation Tool
ORGANICS			
Sum of PCDDs, PCDFs, (eg PCBs)	mg/kg	8	EA 2009
Phenol	mg/kg	280	LQM/CI/IEH S4UL's
Chlorophenols	mg/kg	0.87	LQM/CI/IEH S4UL's
Pentachlorophenols	mg/kg	0.22	LQM/CI/IEH S4UL's
PAH 16 EPA			
Acenaphthene	mg/kg	210	LQM/CI/IEH S4UL's
Acenaphthylene	mg/kg	170	LQM/CI/IEH S4UL's
Anthracene	mg/kg	2400	LQM/CI/IEH S4UL's
Benzo (a) Anthracene	mg/kg	7.2	LQM/CI/IEH S4UL's
Benzo (a) pyrene	mg/kg	5.0	SP1010: Development of C4SL's for Assessment of Land Affected by Contamination
Benzo (b) fluoranthene	mg/kg	2.6	LQM/CI/IEH S4UL's
Benzo (k) fluoranthene	mg/kg	77	LQM/CI/IEH S4UL's
Benzo (g, h, i) perylene	mg/kg	320	LQM/CI/IEH S4UL's
Chrysene	mg/kg	15	LQM/CI/IEH S4UL's
Di-benzo (a, h) anthracene	mg/kg	0.24	LQM/CI/IEH S4UL's
Indeno (1, 2, 3-cd) pyrene	mg/kg	27	LQM/CI/IEH S4UL's
Fluoranthene	mg/kg	280	LQM/CI/IEH S4UL's
Fluorene	mg/kg	170	LQM/CI/IEH S4UL's
Naphthalene	mg/kg	2.3	LQM/CI/IEH S4UL's
Phenanthrene	mg/kg	95	LQM/CI/IEH S4UL's
Pyrene	mg/kg	670	LQM/CI/IEH S4UL's
Total PAHs	mg/kg	no sum	
VOCs			
1,1,1 Trichloroethane	mg/kg	8.8	LQM/CI/IEH S4UL's
Vinyl Chloride	mg/kg	0.00054	LQM/CI/IEH S4UL's
1,2 Dichloroethane	mg/kg	0.0071	LQM/CI/IEH S4UL's
Tetrachloroethane	mg/kg	1.2	LQM/CI/IEH S4UL's
Chlorobenzene	mg/kg	0.46	LQM/CI/IEH S4UL's
1,2 Dichlorobenzene	mg/kg	23	LQM/CI/IEH S4UL's
1,3 Dichlorobenzene	mg/kg	0.4	LQM/CI/IEH S4UL's
1,4 Dichlorobenzene	mg/kg	61	LQM/CI/IEH S4UL's
1,2,3 Trichlorobenzene	mg/kg	1.5	LQM/CI/IEH S4UL's
1,2,4 Trichlorobenzene	mg/kg	2.6	LQM/CI/IEH S4UL's
1,3,5 Trichlorobenzene	mg/kg	0.33	LQM/CI/IEH S4UL's
1,2,3,4 Tetrachlorobenzene	mg/kg	15	LQM/CI/IEH S4UL's
1,2,3,5 Tetrachlorobenzene	mg/kg	0.66	LQM/CI/IEH S4UL's
1,2,4,5 Tetrachlorobenzene	mg/kg	0.33	LQM/CI/IEH S4UL's
Pentachlorobenzene	mg/kg	5.8	LQM/CI/IEH S4UL's
Hexachlorobenzene	mg/kg	1.8	LQM/CI/IEH S4UL's
Trichloroethene	mg/kg	0.016	LQM/CI/IEH S4UL's
Trichloromethane	mg/kg	0.91	LQM/CI/IEH S4UL's
GENERAL INORGANICS			
Easily Liberatable Cyanide (free)	mg/kg	36	Acute effects infant 1 dose 3g soil
Thiocyanate	mg/kg	50	Former ICRC Threshold Trigger Value
HEAVY METAL/METALLOIDS			
Arsenic	mg/kg	37	SP1010: Development of C4SL's for Assessment of Land Affected by Contamination
Cadmium	mg/kg	20	SP1010: Development of C4SL's for Assessment of Land Affected by Contamination
Chromium (iii)	mg/kg	910	LQM/CI/IEH S4UL's
Chromium (vi)	mg/kg	21	SP1010: Development of C4SL's for Assessment of Land Affected by Contamination
Lead	mg/kg	200	SP1010: Development of C4SL's for Assessment of Land Affected by Contamination
Mercury (inorganic)	mg/kg	40	LQM/CI/IEH S4UL's
Nickel	mg/kg	180	LQM/CI/IEH S4UL's
Selenium	mg/kg	250	LQM/CI/IEH S4UL's
Boron	mg/kg	290	LQM/CI/IEH S4UL's
Copper	mg/kg	2400	LQM/CI/IEH S4UL's
Zinc	mg/kg	3700	LQM/CI/IEH S4UL's
Beryllium	mg/kg	1.7	LQM/CI/IEH S4UL's
Vanadium	mg/kg	410	LQM/CI/IEH S4UL's
MONOAROMATICS			
Benzene	mg/kg	0.87	SP1010: Development of C4SL's for Assessment of Land Affected by Contamination
Toluene	mg/kg	130	LQM/CI/IEH S4UL's
Ethylbenzene	mg/kg	47	LQM/CI/IEH S4UL's
o - Xylene	mg/kg	60	LQM/CI/IEH S4UL's
m - Xylene	mg/kg	59	LQM/CI/IEH S4UL's
p - Xylene	mg/kg	56	LQM/CI/IEH S4UL's
ALIPHATIC HYDROCARBONS			
TPH Aliphatic>EC5-6	mg/kg	42	LQM/CI/IEH S4UL's
TPH Aliphatic>EC8-8	mg/kg	100	LQM/CI/IEH S4UL's
TPH Aliphatic>EC8-10	mg/kg	27	LQM/CI/IEH S4UL's
TPH Aliphatic>EC10-12	mg/kg	130	LQM/CI/IEH S4UL's
TPH Aliphatic>EC12-16	mg/kg	1100	LQM/CI/IEH S4UL's
TPH Aliphatic>EC16-35	mg/kg	65000	LQM/CI/IEH S4UL's
TPH Aliphatic>C35-44	mg/kg	65000	LQM/CI/IEH S4UL's
TPH Aromatic>EC5-7	mg/kg	70	LQM/CI/IEH S4UL's
TPH Aromatic>EC7-8	mg/kg	130	LQM/CI/IEH S4UL's
TPH Aromatic>EC8-10	mg/kg	34	LQM/CI/IEH S4UL's
TPH Aromatic>EC10-12	mg/kg	74	LQM/CI/IEH S4UL's
TPH Aromatic>EC12-16	mg/kg	140	LQM/CI/IEH S4UL's
TPH Aromatic>EC16-21	mg/kg	260	LQM/CI/IEH S4UL's
TPH Aromatic>EC21-35	mg/kg	1100	LQM/CI/IEH S4UL's
TPH Aromatic>EC35-44	mg/kg	1100	LQM/CI/IEH S4UL's
PESTICIDES			
Aldrin	mg/kg	5.7	LQM/CI/IEH S4UL's
Altrazine	mg/kg	3.3	LQM/CI/IEH S4UL's
Dichloroos	mg/kg	0.032	LQM/CI/IEH S4UL's
Endosulfans	mg/kg	7.4	LQM/CI/IEH S4UL's
Hexachlorocyclonhexane	mg/kg	0.06	LQM/CI/IEH S4UL's
Dieldrin	mg/kg	0.97	LQM/CI/IEH S4UL's
OTHERS			
pH	Value	<5	Former ICRL Threshold Trigger Value
Asbestos	-	Presence	Lab Screening
Sulphate	mg/l	500	Class DS1 - BRE Special Digest 1
Sulphide	mg/kg	250	Former ICRL Threshold Trigger Value
Sulphur	mg/kg	5000	Former ICRL Threshold Trigger Value
Calorific Value	MJ/kg	2	Fire Research