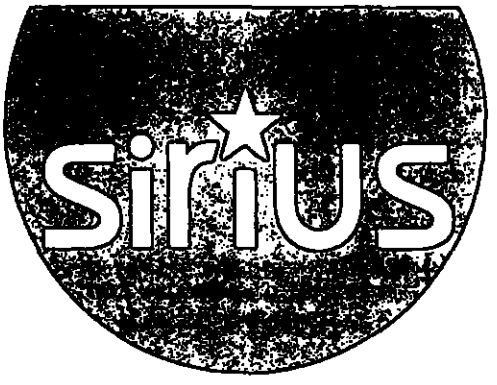


APPENDIX C

COAL AUTHORITY AND REGULATORY AUTHORITY SEARCHES

The Coal Authority

Issued by:
The Coal Authority, Mining Reports Office, 200 Lichfield Lane, Berry Hill, Mansfield, Nottinghamshire NG18 4RG
ON-Line Service: www.groundstability.com - Phone: 0845 762 6848 - DX 716176 MANSFIELD 5

JODIE CATHCART OR DENISE BROOMFIELD,
SIRIUS GEOTECHNICAL & ENVIRONMENTAL LTD,
RUSSELL HOUSE,
LITTLEBURN INDUSTRIAL ESTATE,
LANGLEY MOOR,
DURHAM,
COUNTY DURHAM,
DH7 8HJ

Person dealing with this matter:	**Darren Moody**
Our reference:	**00033077-10**
Your reference:	C3902/SA/2698
Electronic Ref:	EME_00014259690001_005
RRUID:	005.00014259690001
Date of your enquiry:	**27 July 2010**
Date we received your enquiry:	**27 July 2010**
Date of issue:	**28 July 2010**

This report is for the property described in the address below and the attached plan.

Non-Residential Coal and Brine Report

Land Off Champany Fields, Dodworth, Barnsley, South Yorkshire

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.

Coal mining	Yes
Brine Compensation District	No

Information from the Coal Authority

Underground Coal Mining

Past

The property is in the likely zone of influence from workings in 5 seams of coal at 60m to 210m depth, and last worked in 1960.

Any ground movement from these coal workings should have stopped by now.

In addition the property is in an area where the Coal Authority believe there is coal at or close to the surface. This coal may have been worked at some time in the past.

Present

The property is not in the likely zone of influence of any present underground coal workings.

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Future

The property is not in an area for which the Coal Authority is determining whether to grant a licence to remove coal using underground methods.

The property is not in an area for which a licence has been granted to remove coal using underground methods.

The property is not in an area that is likely to be affected at the surface from any planned future workings.

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

No notice of the risk of the land being affected by subsidence has been given under section 46 of the Coal Mining Subsidence Act 1991.

Mine entries

Within, or within 20 metres of, the boundary of the property there are 5 mine entries, the approximate positions of which are shown on the attached plan.

Coal Authority records disclose the following information:

431405-027. was found filled and subsequently drilled and grouted to full depth by Encia for Redrow Homes in 2005 .

431405-018. was found filled and subsequently drilled and grouted to full depth by Encia for Redrow Homes in 2005 .

431405-010. was found filled and subsequently drilled and grouted to full depth by Encia for Redrow Homes in 2005 .

431405-011. was found filled and subsequently drilled and grouted to full depth by Encia for Redrow Homes in 2005 .

431405-015. was found filled and subsequently drilled and grouted to full depth by Encia for Redrow Homes in 2005 .

Records may be incomplete. Consequently, there may exist in the local area mine entries of which the Coal Authority has no knowledge.

Coal-mining geology

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

Opencast Coal Mining

Past

The property is within the boundary of an opencast site from which coal has been removed by opencast methods.

Present

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

Future

The property is not within 800 metres of the boundary of an opencast site for which the Coal Authority is determining whether to grant a licence to remove coal by opencast methods.

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.

Coal-mining subsidence

The Coal Authority has not received a damage notice or claim for the property since 1 January 1984. There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The 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.

Mine gas

There is no record of a mine gas emission requiring action by the Coal Authority within the boundary of the property.

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.

Withdrawal of Support

The property is not in an area for which a notice of entitlement to withdraw support has been published.

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

Working Facilities Orders

The property is not in an area for which 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.

Payments to Owners of Former Copyhold Land

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

Comments on Coal Authority Information

In view of the mining circumstances a prudent developer would seek appropriate technical advice before any works are undertaken.

Therefore if development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply good engineering practice developed for mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or mines of coal without the permission of the Coal Authority. Developers should be aware that the investigation of coal seams/ former mines of coal may have the potential to generate and/or displace underground gases and these risks both under and adjacent to the development should be fully considered in developing any proposals. The need for effective measures to prevent gases entering into public properties either during investigation or after development also needs to be assessed and properly addressed. This is necessary due to the public safety implications of any development in these circumstances.

The attached plan shows the approximate location of the disused mine entry/entries referred to in this report. For reasons of clarity, mine entry symbols may not be drawn to the same scale as the plan. Property owners have the benefit of statutory protection (under the Coal Mining Subsidence act 1991*). This contains provision for the making good, to the reasonable satisfaction of the owner, of physical damage from disused coal mine workings including disused coal mine entries. A leaflet setting out the rights and the obligations of either the Coal Authority or other responsible persons under the 1991 Act can be obtained by telephoning 0845 762 6848 or online at www.coal.gov.uk/services/subsidence. If you wish to discuss the relevance of any of the information contained in this report you should seek the advice of a qualified mining engineer or surveyor. If you or your adviser wish to examine the source

plans from which the information has been taken these are normally available at our Mansfield office, free of charge, by prior appointment, telephone 01623 637233. Should you or your adviser wish to carry out any physical investigations that may enter, disturb or interfere with any disused mine entry the prior permission of the owner must be sought. For coal mine entries the owner will normally be the Coal Authority.
The Coal Authority, regardless of responsibility and in conjunction with other public bodies, provide an emergency call out facility in coalfield areas to assess the public safety implications of mining features (including disused mine entries). Our emergency telephone number at all times is 01623 646333.

*Note, this Act does not apply where coal was worked or gotten by virtue of the grant of a gale in the Forest of Dean, or any other part of the Hundred of St. Briavels in the county of Gloucester.

Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

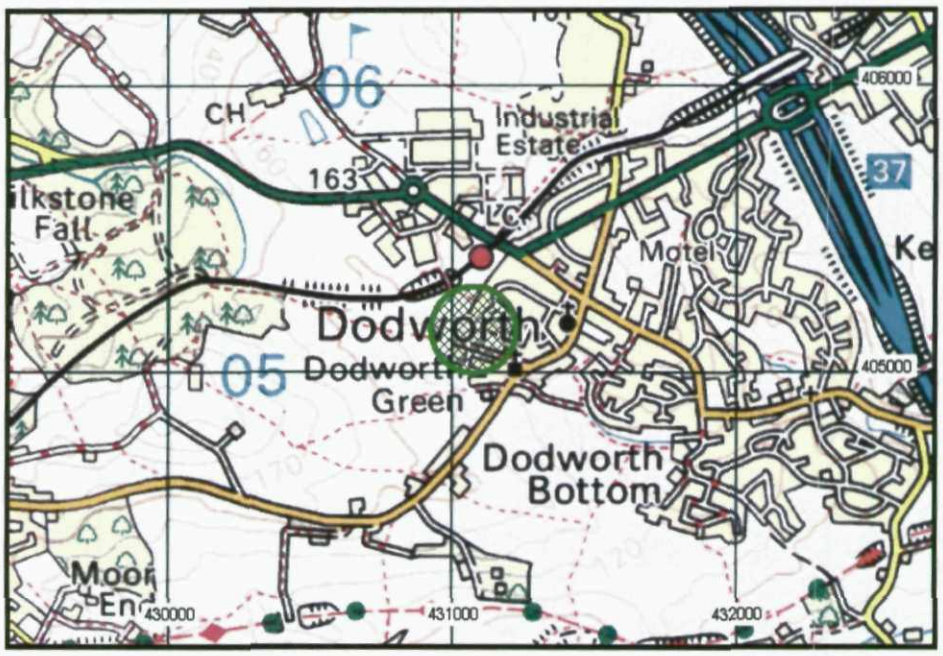
Additional remarks

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 2006. The report is compliant with Home Information Pack requirements.

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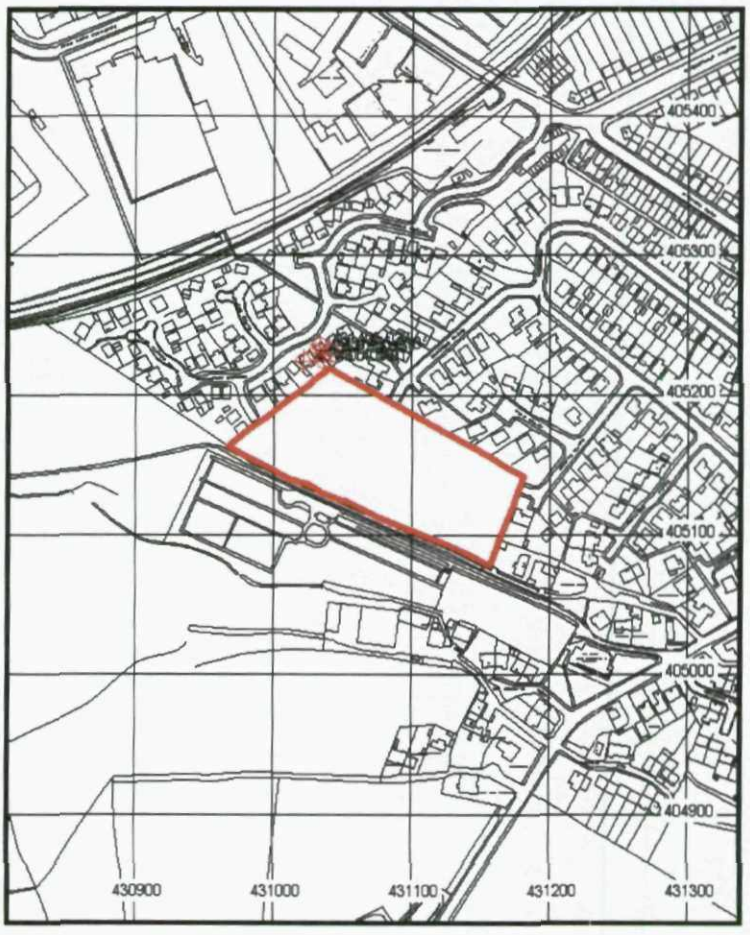
Location map

Approximate position of property



Enquiry boundary

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Key

Approximate position of enquiry boundary shown

Disused Adit or Mineshaft

Mapping sourced from Ordnance Survey

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BARNSLEY
Metropolitan Borough Council

Regulatory Services
Assistant Director: Ken Eastwood, BSc (Hons), MCIEH
PO Box 602, Barnsley S70 9FB

Jodie Cathcart
Sirius Geotechnical and Environmental Ltd
4245 Park Approach
Thorpe Park
Leeds
LS15 8GB

My Ref: JSC234040
Your Ref: C3902
Enquiries to: regulatoryservices@barnsley.gov.uk
Dial Direct: (01226) 772456
Fax: (01226) 775699
Date: 17 August 2010

Dear Madam

Re: Land off Champany Fields, Dodworth, Barnsley S75 3SQ

Further to your e-mail requesting information in respect of the above site, I can now supply you with the information we hold regarding this site.

Closed Landfill Sites
There are no closed landfills within 500m of the above site. However the adjacent site to the North has been previously open cast, and investigation on this area during redevelopment identified elevated levels of carbon dioxide and heavy metal contamination. I am not aware of the full extent of the open cast area, as to whether it extends on to the above site.

Contaminated Land
Under the provisions of the Environmental Protection Act 1990, we have a duty to inspect the borough for contaminated land. As part of this work, records of potential sources of contamination have been compiled through the use of historical Ordnance Survey maps and local knowledge.

In respect of the above site, as I have mentioned above, the adjacent site had been open casted, and we have no details of the boundary of the open cast area.

LAIPPC Authorised Processes
There are no LAIPPC Authorised Processes operating on, or within 250m of, the above site.

Nuisance Complaints
We have no records on our system of any complaints regarding the above site over the last three year period.

Reported Incidents
We have no records of any pollution incidents relating to this site. However, I recommend you contact the Environment Agency in respect of this matter, as they receive more reports on this matter.

Private Water Abstractions
We have no records of any private water supplies within one kilometre of the above site

I must inform you that the Council make a charge for supplying this information and you will be invoiced accordingly in due course. This charge will be £75, as agreed.

This information is submitted as being the position to-date and other information may be available in records not held by this Authority at the present time. The Borough Council cannot, therefore accept liability or be prejudiced by the views expressed.

Should you wish to discuss this correspondence further, please don't hesitate to contact me;

Yours faithfully

John Scott
Contaminated Land Officer

From: Jodie Cathcart
Sent: 29 July 2010 10:33
To: Sarah Amos
Subject: FW: C3902 Building Control Search Request
Attachments: C3902 Building Control Search Request.pdf

From: James , Paul [mailto:PaulJames@barnsley.gov.uk]
Sent: 29 July 2010 10:25
To: Jodie Cathcart
Cc: Cliffe , Tim; Bullen , Andrew
Subject: FW: C3902 Building Control Search Request

Jodie

Unfortunately we are unable to provide you with a SYMAS report due a recent service restructure and the lack of PI insurance for an external reports service.

However SYMAS continue to provide consultation advice with regard to planning and building control applications for BMBC. We would provide pre planning application advice or if a building control application is submitted we would then be able to provide more detailed information.

As a gesture of good will, I can tell you that our records suggest the site was subject to opencast coal extraction in the 1950's which worked the Flockton Thick coal seam.
The Flockton Thick coal seam and Tankersley Park ironstone may be present at a shallow depth in un-worked parts of the site and the possibility of unrecorded shallow mine workings can not be ruled out.
Considering the above there is clearly the potential for fugitive gas issues. The foundations of any development proposals should be suitably designed considering the presence of opencast backfill.

Obviously you should conduct your own desk top study/investigations into the above to establish remedial requirements.

Regards

Paul

Paul James
Principal Mining Engineer
South Yorkshire Mining Advisory Service
Barnsley Metropolitan Borough Council
PO Box 604
Barnsley
S70 9FE

Tel 01226 772689

From: Jodie Cathcart [mailto:Jodie.Cathcart@thesiriusgroup.com]
Sent: 27 July 2010 15:44
To: Building Control
Subject: C3902 Building Control Search Request

Hi

Please find attached Building Control Search Request

Many thanks

Jodie

|
Jodie Cathcart | Administrator | Sirius Geotechnical & Environmental Ltd
Tel: 0113 2649960 | **Fax:** 0113 2649962
Email: jodie.cathcart@thesiriusgroup.com | **Web:** www.thesiriusgroup.com



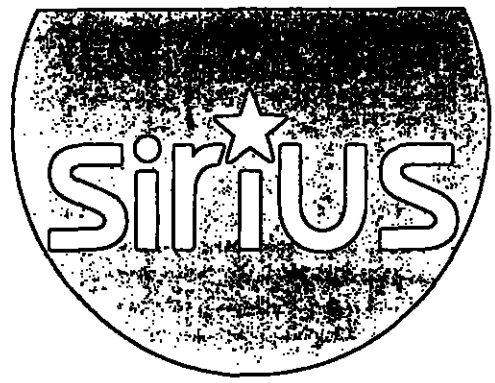
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Sirius Drilling Services Ltd: 06075338
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APPENDIX D

EXPLORATORY HOLE LOGS AND SOAKAWAY TEST RESULTS

BOREHOLE RECORD

BH No. **BH1**
Sheet 1 of 1

Site: Champany Fields, Dodworth
Contract No: C3902

Client: Bloor Homes
Dates: 07/09/2010-08/09/2010

Method: Cable percussive boring rig with 150mm diameter casing and tools.
Scale 1:80

Logged By: SA | Checked By: RIH
Driller: GD

SAMPLE DETAILS			Groundwater (Casing)	STRATA RECORD				
Type (Blows)	Depth From - To(m)	N (Cu)		Description	Depth (m)	Level (m AOD)	Legend	Well
D	0.20			MADE GROUND: Firm dark grey slightly sandy slightly gravelly CLAY with rootlets. Low plasticity (field description). Gravel is subangular to subrounded fine to coarse of siltstone, brick and glazed pottery. (Topsoil).	0.20			
S B	1.00 - 1.45 1.00 - 1.50	N=4 (3,2,1,1,1 ,1)	1	MADE GROUND: Medium dense dark grey clayey sandy angular to subangular fine to coarse GRAVEL with low cobble and boulder content. Gravel, cobbles and boulders are of siltstone and mudstone.				
D S B	1.80 2.00 - 2.45 2.00 - 2.50	N=27 (1,1,1,1,1 0,15)	2	--- At 1.00m loose --- At 2.00m dense				
S B	3.00 - 3.45 3.00 - 3.50	N=8 (2,1,2,2,1 ,3)	3					
S S	4.00 - 4.50 4.00 - 4.45	N=7 (2,1,1,2,2 ,2)	4					
D S B	4.80 5.00 - 5.45 5.00 - 5.50	N=5 (1,1,1,1,2)	5	--- At 5.00m loose				
D S B	5.80 6.00 - 6.45 6.00 - 6.50	N=10 (2,2,2,3,2 ,3)	6					
B	7.00 - 7.50		7					
S B	7.50 - 7.95 7.50 - 8.00	N=11 (1,2,2,2,3 ,4)	8					
S B	9.00 - 9.45 9.00 - 9.50	N=15 (6,5,3,5,3 ,4)	9					
S B	10.50 - 10.95 10.50 - 11.00	N=14 (2,2,3,3,4 ,4)	10 11					
S B	12.00 - 12.45 12.00 - 12.50	N=17 (4,2,3,4,5 ,5)	12					
D S B	13.30 13.50 - 13.95 13.50 - 14.00	N=16 (5,4,4,5,4 ,5)	13 14					
D	14.40							
S	15.00 - 15.45	57/150mm (2,7,18,30)	15	Weak dark grey SILTSTONE. Moderately weathered. --- From 15.00m to 15.02m coal End of Borehole at 15.45 m	15.00 15.45			

Remarks and Water Observations

1. No groundwater encountered.
2. Chiselling/hard strata from 15.10m to 15.30m bgl, 1 hour.
3. Cable percussive borehole complete at 15.45m.
4. Standpipe installed, as detailed above.

GL (m AOD) -
Easting: -
Northing: -

Fig. No. BH1

BOREHOLE RECORD

BH No. **BH2**
Sheet 1 of 1

Site: Champany Fields, Dodworth
Contract No: C3902

Client: Bloor Homes
Dates: 10/09/2010

Method: Cable percussive boring rig with 150mm diameter casing and tools.
Scale 1:80

Logged By: SA | Checked By: RIH
Driller: GD

SAMPLE DETAILS			Groundwater (Casing)	STRATA RECORD				
Type (Blows)	Depth From - To(m)	N (Cu)		Description	Depth (m)	Level (m AOD)	Legend	Well
D	0.20			MADE GROUND: Firm dark grey slightly sandy slightly gravelly CLAY with rootlets. Low plasticity (field description). Gravel is subangular to subrounded fine to coarse of siltstone, brick and glazed pottery. (Topsoil).	0.05			
D	0.50							
D	1.00 1.00 - 1.50	N=9 (2,2,2,2,2 ,2)	1	MADE GROUND: Medium dense dark grey locally orange brown clayey angular to subangular fine to coarse of siltstone and mudstone.				
D	1.80							
D B	2.00 2.00 - 2.50	N=10 (3,2,2,2,3 ,3)	2					
D	2.80							
D B	3.00 3.00 - 3.50	N=10 (2,2,3,2,3 ,2)	3					
D B	4.00 4.00 - 4.50	N=10 (2,2,2,2,2 ,4)	4					
D	4.80							
D B	5.00 5.00 - 5.50	N=6 (2,2,2,2,1 ,1)	5					
D	6.00		6					
D B	6.50 6.50 - 7.00	N=7 (1,1,2,1,2 ,2)	7					
D	7.80			MADE GROUND: Very stiff medium strength grey and orange brown slightly sandy slightly gravelly CLAY. Intermediate plasticity. Gravel is angular to subangular fine to coarse of siltstone and mudstone.	7.50			
D B	8.00 - 8.50	N=10 (2,2,2,2,3 ,3)	8					
UF	8.50							
D	9.50		9	MADE GROUND: Medium dense dark grey clayey angular to subangular fine to coarse GRAVEL of siltstone, mudstone and coal.	9.50			
D B	10.00 10.00 - 10.50	N=14 (2,4,4,3,4 ,3)	10					
D	11.00		11					
D B	11.50 11.50 - 12.00	54/150mm (3,4,13,41		Weak grey SILTSTONE. Moderately weathered. (Recovered as angular fine to coarse gravel).	11.50			
D	12.00 - 12.45	) 75/100mm (25,25,50)	12	End of Borehole at 12.45 m	12.45			
			13					
			14					
			15					

Remarks and Water Observations

1. No groundwater encountered.
2. Chiselling/hard strata from 4.70m to 5.00m bgl, 1 hour, and 11.50m to 12.00m bgl, 1.5 hours.
3. Cable percussive borehole complete at 12.45m.
4. Standpipe installed, as detailed above.

GL (m AOD) -
Easting: -
Northing: -

Fig. No. BH2

BOREHOLE RECORD

BH No. **BH3**

Sheet 1 of 1

Site: Champany Fields, Dodworth

Contract No: C3902

Client: Bloor Homes

Dates: 08/09/2010

Method: Cable percussive boring rig with 150mm diameter casing and tools.

Scale 1:80

Logged By: SA Checked By: RIH

Driller: GD

SAMPLE DETAILS			Groundwater (Casing)	STRATA RECORD				
Type (Blows)	Depth From - To(m)	N (Cu)		Description	Depth (m)	Level (m AOD)	Legend	Well
D	0.40			MADE GROUND: Firm dark grey sandy slightly gravelly CLAY with rootlets. Low plasticity (field description). Gravel is subangular to subrounded fine to coarse of siltstone, brick and glazed pottery. (Topsoil).	0.30			
D	0.80							
D B	1.00 1.00 - 1.50	N=9 (1,2,3,3,2 ,1)	1	MADE GROUND: Medium dense dark grey clayey slightly sandy angular to subangular fine to coarse GRAVEL with low cobble and boulder content. Gravel, cobbles and boulders are of siltstone and mudstone.				
D	2.50		2					
D B	3.00 3.00 - 3.50	N=37 (1,2,2,2,2 ,31)	3	--- At 3.25m to 3.50m 1no boulder				
D B	4.00 4.00 - 4.50	N=11 (4,4,3,3,2 ,3)	4					
D B	5.00 5.00 - 5.50	N=8 (2,3,2,2,2 ,2)	5					
D B	6.00 6.00 - 6.50	N=9 (4,3,2,3,2 ,2)	6					
B	7.00		7					
D B	7.50 7.50 - 8.00	N=10 (2,2,2,2,3 ,3)	8					
D	8.50							
D B	9.00 9.00 - 9.50	N=15 (5,4,3,3,5 ,4)	9					
D	10.00		10					
D B	10.50 10.50 - 11.00	N=13 (1,2,3,2,4 ,4)	11					
D	11.50							
D B	12.00 12.00 - 12.50	N=15 (2,2,3,3,4 ,5)	12					
D	13.50		13					
B	13.50 - 14.00	N=24 (1,3,6,6,4 ,8)	14	Weak dark grey SILTSTONE. Moderately weathered.	13.80			
D	14.10	50/50mm (25,50)		End of Borehole at 14.55 m	14.55			
			15					

Remarks and Water Observations

1. No groundwater encountered.
2. Chiselling/hard strata from 2.00m to 2.40m bgl, 1 hour, 3.25m to 3.50m bgl, 0.5 hour, and 14.10m to 14.25m bgl. 1 hour.
3. Cable percussive borehole complete at 14.55m.
4. Standpipe installed, as detailed above.

GL (m AOD) -

Easting: -

Northing: -

Fig. No. BH3

TRIAL PIT RECORD

TP No. **TP1**

Sheet 1 of 1

Site : Champany Fields, Dodworth

Contract No: C3902

Client : Bloor Homes

Dates: 07/09/2010

Method : JCB 3CX backhoe excavator with 0.80m wide toothed bucket.

Scale 1:25

Logged By: SA

Checked By: RIH

SAMPLE DETAILS			Groundwater	STRATA RECORD			
Type	Depth From - To(m)	Vane Results kN/m²		Description	Depth (m)	Level (mAOD) PID 0ppm	Legend
D	0.10m			MADE GROUND: Firm dark grey slightly sandy slightly gravelly CLAY with occasional rootlets. Low plasticity (field description). Gravel is subangular to subrounded fine to coarse of siltstone, mudstone and coal. (Topsoil).	0.20		
D	0.50m			MADE GROUND: Dark grey clayey sandy angular to subangular fine to coarse GRAVEL of siltstone, mudstone and coal.	0.80		
D	1.00m	100.0		Very stiff high strength orange brown and grey slightly sandy gravelly CLAY. High plastcity. Gravel is subangular to subrounded fine to coarse of siltstone and mudstone.	1.50		
D	1.60m			Weak dark grey SILTSTONE. Highly weathered. (Recovered as clayey angular to subangular fine to coarse gravel). -- At 1.60m recovered as very stiff grey gravelly CLAY. High plasticity. Gravel is angular of siltstone.	2.40		
D	2.60m			Weak dark grey MUDSTONE. Highly weathered. (Recovered as slightly clayey angular to subangular fine to coarse gravel).	3.40		
				End of Trial Pit at 3.40 m			

Remarks and Water Observations

1. No groundwater encountered.
2. Trial pit stable.
3. Trial pit complete at 3.40m.

GL (m AOD) -

Easting: -

Northing: -

Fig. No. TP1

TRIAL PIT RECORD

TP No. **TP2**

Sheet 1 of 1

Site : Champany Fields, Dodworth

Contract No: C3902

Client : Bloor Homes

Dates: 07/09/2010

Method : JCB 3CX backhoe excavator with 0.60m wide toothed bucket.

Scale 1:25

Logged By: SA

Checked By: RIH

SAMPLE DETAILS			Groundwater	STRATA RECORD			
Type	Depth From - To(m)	Vane Results kN/m²		Description	Depth (m)	Level (mAOD) PID ppm	Legend
D	0.10m			MADE GROUND: Firm dark grey slightly sandy slightly gravelly CLAY with occasional rootlets. Low plasticity (field description). Gravel is subangular to subrounded fine to coarse of siltstone, mudstone and coal. (Topsoil). (1)	0.30		
D	0.50m			MADE GROUND: Dark grey clayey sandy angular to subangular fine to coarse GRAVEL of siltstone and coal. (2)			
D	1.30m	90.0		Firm high strength orange grey slightly sandy slightly gravelly CLAY. High plasticity (field description). Gravel is subangular to subrounded fine to coarse of siltstone and mudstone. (3)	1.20		
		78.0					
		90.0					
D	2.30m			Weak dark grey SILTSTONE. Highly weathered. (Recovered as clayey angular fine to coarse gravel). (4)	2.10		
				Weak dark grey MUDSTONE. Highly weathered. (Recovered as angular fine to coarse gravel). (5)	2.70		
D	3.00m			End of Trial Pit at 3.30 m	3.30		

Remarks and Water Observations

1. No groundwater encountered.
2. Trial pit stable.
3. Trial pit complete at 3.30m.
4. Trial pit extended, please see log for TP2A and trial pit sketch for further details.
5. Numbers refer to trial pit sketch.

GL (m AOD) -

Easting: -

Northing: -

Fig. No. TP2

TRIAL PIT RECORD

TP No. **TP2A**

Sheet 1 of 1

Site : Champany Fields, Dodworth

Contract No: C3902

Client : Bloor Homes

Dates: 07/09/2010

Method : JCB 3CX backhoe excavator with 0.80m wide toothed bucket.

Scale 1:25

Logged By: SA

Checked By: RIH

SAMPLE DETAILS			Groundwater	STRATA RECORD			
Type	Depth From - To(m)	Vane Results kN/m²		Description	Depth (m)	Level (mAOD) PID ppm	Legend
				MADE GROUND: Firm dark grey slightly sandy slightly gravelly CLAY with rootlets. Low plasticity (field description). Gravel is subangular to subrounded fine to coarse of siltstone, brick and glazed pottery. (Topsoil). (1)	0.20		
				MADE GROUND: Dark grey clayey sandy angular to subangular fine to coarse GRAVEL with low cobble and boulder content. Gravel, cobbles and boulders are of siltstone and mudstone. (2)			
				End of Trial Pit at 1.70 m	1.70		

Remarks and Water Observations

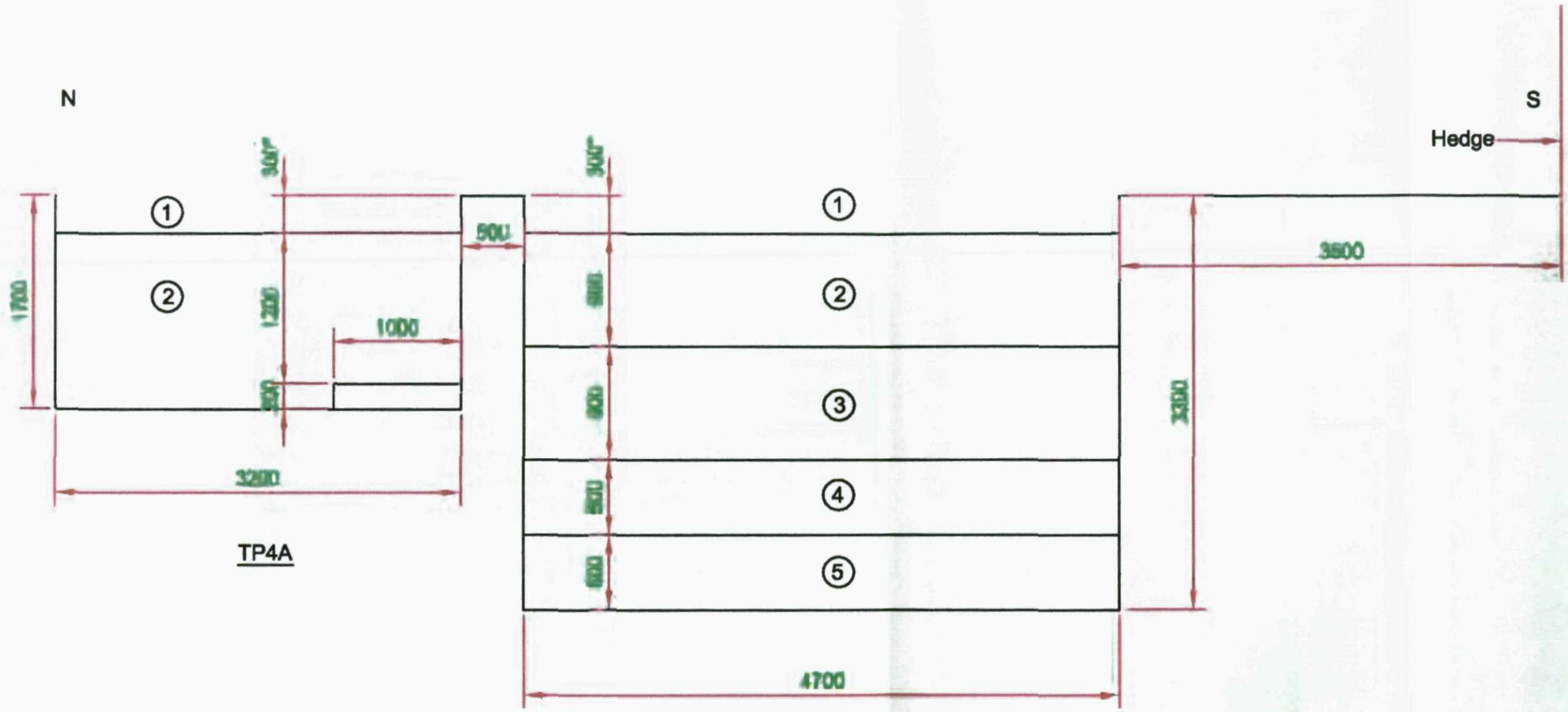
1. No groundwater encountered.
2. Trial pit stable.
3. Trial pit complete at 1.70m.
4. Trial pit extended, please see log for TP2 and trial pit sketch for further details.
5. Numbers refer to trial pit sketch.

GL (m AOD) -

Easting: -

Northing: -

Fig. No. TP2A



TP4A

TP4

* Depths refer to strata thickness

(1) Numbers refer to strata types: please see corresponding trial pit logs

NOTES

REVISION	
0	>>
A	>>
B	>>
C	>>
D	>>

SIRIUS GEOTECHNICAL & ENVIRONMENTAL
4245 Park Approach,
Thorpe Park,
Leeds
LS15 8GB
TEL: 0113 264 6660
FAX: 0113 264 6662

CLIENT

JS BLOOR HOMES (MEASHAM) LTD

SITE

CHAMPANY FIELDS, DODWORTH

DRAWING TITLE

TRIAL PITS 4 & 4A

DRAWING NO.	REVISION NO.
C3662/TP4/TP4A	-
DRAWN BY: RM	APPROVED BY: -
DATE: OCTOBER 2010	SCALE: 1:50 / PAPER SIZE: A4

TRIAL PIT RECORD

TP No. **TP3**

Sheet 1 of 1

Site : Champany Fields, Dodworth

Contract No: C3902

Client : Bloor Homes

Dates: 07/09/2010

Method : JCB 3CX backhoe excavator with 0.80m wide toothed bucket.

Scale 1:25

Logged By: SA

Checked By: RIH

SAMPLE DETAILS			Groundwater	STRATA RECORD			
Type	Depth From - To(m)	Vane Results kN/m²		Description	Depth (m)	Level (mAOD) PID (ppm)	Legend
D	0.10m			MADE GROUND: Firm dark grey slightly sandy slightly gravelly CLAY with occasional rootlets. Low plasticity (field description). Gravel is subangular to subrounded fine to coarse of siltstone, mudstone and coal. (Topsoil).			
D	0.30m				0.40		
				MADE GROUND: Dark grey clayey sandy angular to subangular fine to coarse GRAVEL of siltstone and coal.			
		97.0		Firm high strength orange grey slightly sandy slightly gravelly CLAY. High plasticity (field description). Gravel is subangular to subrounded fine to coarse of siltstone and mudstone.	0.70		
D	1.00m						
		88.0					
				Weak dark grey SILTSTONE. Highly weathered. (Recovered as clayey angular fine to coarse gravel).	1.60		
D	1.80m						
				Weak dark grey MUDSTONE. Highly weathered. (Recovered as angular fine to coarse gravel).	2.40		
D	2.80m						
				End of Trial Pit at 3.30 m	3.30		

Remarks and Water Observations

1. No groundwater encountered.
2. Trial pit stable.
3. Trial pit complete at 3.30m.

GL (m AOD) -

Easting: -

Northing: -

Fig. No. TP3

TRIAL PIT RECORD

TP No. **TP4**
Sheet 1 of 1

Site : Champany Fields, Dodworth
Contract No: C3902

Client : Bloor Homes
Dates: 07/09/2010

Method : JCB 3CX backhoe excavator with 0.80m wide toothed bucket.

Scale 1:25

Logged By: SA
Checked By: RIH

SAMPLE DETAILS			Groundwater	STRATA RECORD			
Type	Depth From - To(m)	Vane Results kN/m²		Description	Depth (m)	Level (mAOD) PID ppm	Legend
D	0.10m			MADE GROUND: Firm dark grey slightly sandy slightly gravelly CLAY with occasional rootlets. Low plasticity (field description). Gravel is subangular to subrounded fine to coarse of siltstone, mudstone and coal. (Topsoil). (1)	0.30		
D	0.40m			MADE GROUND: Dark grey clayey sandy angular to subangular fine to coarse GRAVEL of siltstone and coal. (2)	0.90		
D	1.00m	76.0		Very stiff high strength orange grey slightly sandy slightly gravelly CLAY. High plasticity (field description). Gravel is subangular to subrounded fine to coarse of siltstone and mudstone. (3)	1.60		
D	1.70m			Weak dark grey SILTSTONE. Highly weathered. (Recovered as clayey angular fine to coarse gravel). (4)			
D	2.70m						
				End of Trial Pit at 3.40 m	3.40		

Remarks and Water Observations

1. No groundwater encountered.
2. Trial pit stable.
3. Trial pit complete at 3.40m.
4. Trial pit extended, please see log for TP4A and trial pit sketch for further details.
5. Numbers refer to trial pit sketch.

GL (m AOD) -
Easting: -
Northing: -

Fig. No. TP4

TRIAL PIT RECORD

TP No. **TP4A**

Sheet 1 of 1

Site : Champany Fields, Dodworth

Contract No: C3902

Client : Bloor Homes

Dates: 07/09/2010

Method : JCB 3CX backhoe excavator with 0.80m wide toothed bucket.

Scale 1:25

Logged By: SA

Checked By: RIH

SAMPLE DETAILS			Groundwater	STRATA RECORD			
Type	Depth From - To(m)	Vane Results kN/m²		Description	Depth (m)	Level (mAOD) PID (ppm)	Legend
				MADE GROUND: Firm dark grey slightly sandy slightly gravelly CLAY with rootlets. Low plasticity (field description). Gravel is subangular to subrounded fine to coarse of siltstone, brick and glazed pottery. (Topsoil). (1)	0.20		
				MADE GROUND: Dark grey clayey sandy angular to subangular fine to coarse GRAVEL with low cobble and boulder content. Gravel, cobbles and boulders are of siltstone and mudstone. (2)			
				End of Trial Pit at 1.50 m	1.50		

Remarks and Water Observations

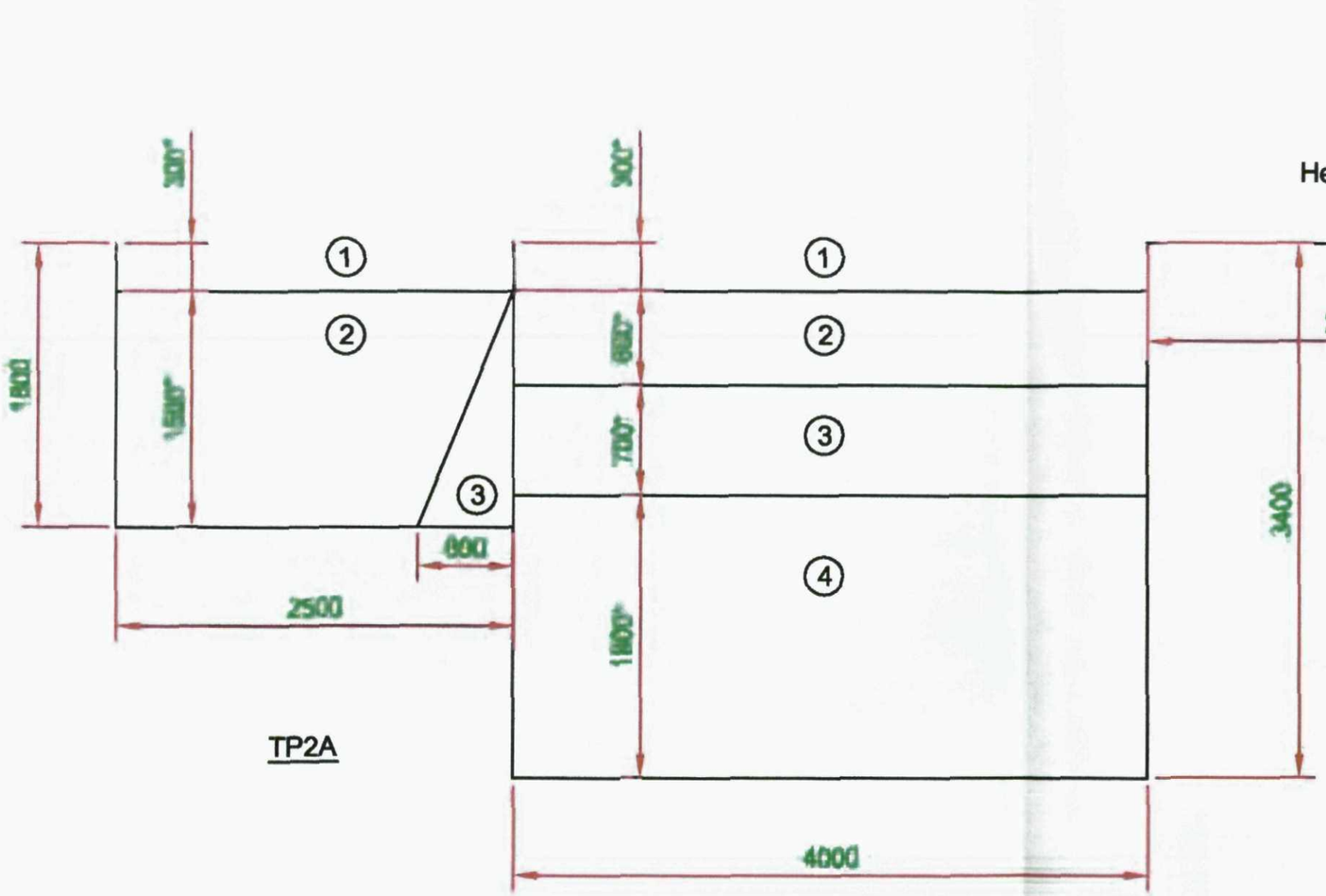
1. No groundwater encountered.
2. Trial pit stable.
3. Trial pit complete at 1.50m.
4. Trial pit extended, please see log for TP4A and trial pit sketch for further details.
5. Numbers refer to trial pit sketch.

GL (m AOD) -

Easting: -

Northing: -

Fig. No. TP4A



TP2A

TP2

* Depths refer to strata thickness

① Numbers refer to strata types: please see corresponding trial pit logs

NOTES

REVISION

0	>>
A	>>
B	>>
C	>>
D	>>

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Leeds
LS15 8GB
TEL: 0113 264 0000
FAX: 0113 264 0062

CLIENT

JS BLOOR HOMES (MEASHAM LTD)

SITE

CHAMPANY FIELDS, DODWORTH

DRAWING TITLE

TRIAL PITS 2 & 2A

DRAWING NO.	REVISION NO.
C3669/TP2/TP2A	-
DRAWN BY: RM	APPROVED BY: SMB
DATE: OCTOBER 2010	SCALE: 1:50
PAPER SIZE: A4	

TRIAL PIT RECORD

TP No. **TP5**

Sheet 1 of 1

Site : Champany Fields, Dodworth

Contract No: C3902

Client : Bloor Homes

Dates: 07/09/2010

Method : JCB 3CX backhoe excavator with 0.80m wide toothed bucket.

Scale 1:25

Logged By: SA

Checked By: RIH

SAMPLE DETAILS			Groundwater	STRATA RECORD			
Type	Depth From - To(m)	Vane Results kN/m²		Description	Depth (m)	Level (mAOD) PID (ppm)	Legend
D	0.10m			MADE GROUND: Firm dark grey slightly sandy slightly gravelly CLAY with rootlets. Low plasticity (field description). Gravel is subangular to subrounded fine to coarse of siltstone, brick and glazed pottery. (Topsoil).	0.30		
D	0.40m			MADE GROUND: Dark grey clayey sandy angular to subangular fine to coarse GRAVEL with low subangular cobble and boulder content. Gravel, cobbles and boulders are of siltstone and mudstone.			
D	0.80m						
D	1.90m						
D	2.90m						
				End of Trial Pit at 3.50 m	3.50		

Remarks and Water Observations

1. No groundwater encountered.
2. Trial pit spalling from 1.00m.
3. Trial pit complete at 3.50m.

GL (m AOD) -

Easting: -

Northing: -

Fig. No. TP5

TRIAL PIT RECORD

TP No. **TP6**

Sheet 1 of 1

Site : Champany Fields, Dodworth

Contract No: C3902

Client : Bloor Homes

Dates: 07/09/2010

Method : JCB 3CX backhoe excavator with 0.80m wide toothed bucket.

Scale 1:25

Logged By: SA

Checked By: RIH

SAMPLE DETAILS			Groundwater	STRATA RECORD			
Type	Depth From - To(m)	Vane Results kN/m²		Description	Depth (m)	Level (mAOD) PID ppm	Legend
D	0.20m			MADE GROUND: Firm dark grey slightly sandy slightly gravelly CLAY with rootlets. Low plasticity (field description).Gravel is subangular to subrounded fine to coarse of siltstone, brick and glazed pottery. (Topsoil).	0.40		
D	0.60m			MADE GROUND: Dark grey clayey sandy angular to subangular fine to coarse GRAVEL with low cobble and boulder content. Gravel, cobbles and boulders are subangular of siltstone and mudstone.			
D	1.00m						
D	2.00m						
D	3.00m						
				End of Trial Pit at 3.50 m	3.50		

Remarks and Water Observations

1. No groundwater encountered.
2. Trial pit spalling from 1.00m.
3. Trial pit complete at 3.50m.

GL (m AOD) -

Easting: -

Northing: -

Fig. No. TP6

TRIAL PIT RECORD

TP No. **TP7**

Sheet 1 of 1

Site : Champany Fields, Dodworth

Contract No: C3902

Client : Bloor Homes

Dates: 07/09/2010

Method : JCB 3CX backhoe excavator with 0.80m wide toothed bucket.

Scale 1:25

Logged By: SA

Checked By: RtH

SAMPLE DETAILS			Groundwater	STRATA RECORD			
Type	Depth From - To(m)	Vane Results kN/m²		Description	Depth (m)	Level (mAOD) PID (ppm)	Legend
D	0.10m			MADE GROUND: Firm dark grey slightly sandy slightly gravelly CLAY with rootlets. Low plasticity (field description). Gravel is subangular to subrounded fine to coarse of siltstone, brick and glazed pottery. (Topsoil).	0.30		
D	0.40m			MADE GROUND: Dark grey clayey sandy angular to subangular fine to coarse GRAVEL with low cobble and boulder content. Gravel, cobbles and boulders are subangular of siltstone and mudstone.			
D	1.00m						
D	2.00m						
D	3.00m						
				End of Trial Pit at 3.50 m	3.50		

Remarks and Water Observations

1. No groundwater encountered.
2. Trial pit spalling from 1.00m.
3. Trial pit complete at 3.50m.

GL (m AOD) -

Easting: -

Northing: -

Fig. No. TP7

TRIAL PIT RECORD

TP No. **TP8**
Sheet 1 of 1

Site : Champany Fields, Dodworth

Contract No: C3902

Client : Bloor Homes

Dates: 07/09/2010

Method : JCB 3CX backhoe excavator with 0.60m wide toothed bucket.

Scale 1:25

Logged By: SA

Checked By: RIH

SAMPLE DETAILS Type	Depth From - To(m)	Vane Results kN/m²	Groundwater	STRATA RECORD Description	Depth (m)	Level (mAOD) PID	Legend
D	0.10m			MADE GROUND: Firm dark grey slightly sandy slightly gravelly CLAY with rootlets. Low plasticity (field description). Gravel is subangular to subrounded fine to coarse of siltstone, brick and glazed pottery. (Topsoil).	0.20		
D	0.40m			MADE GROUND: Dark grey clayey sandy angular to subangular fine to coarse GRAVEL with low cobble and boulder content. Gravel, cobbles and boulders are of siltstone and mudstone.			
D	1.00m						
D	2.00m						
D	3.00m						
				End of Trial Pit at 3.50 m	3.50		

Remarks and Water Observations

1. No groundwater encountered.
2. Trial pit spalling from 1.00m.
3. Trial pit complete at 3.50m.

GL (m AOD) -

Easting: -

Northing: -

Fig. No. TP8

TRIAL PIT RECORD

TP No. **SA1**

Sheet 1 of 1

Site : Champany Fields, Dodworth

Contract No: C3902

Client : Bloor Homes

Dates: 07/09/2010

Method : JCB 3CX backhoe excavator with 0.30m wide toothed bucket.

Scale 1:25

Logged By: SA

Checked By: RIH

SAMPLE DETAILS			Groundwater	STRATA RECORD			
Type	Depth From - To(m)	Vane Results kN/m²		Description	Depth (m)	Level (mAOD) PID (ppm)	Legend
				MADE GROUND: Firm dark grey slightly sandy slightly gravelly CLAY with occasional rootlets. Low plasticity (field description). Gravel is subangular to subrounded fine to coarse of siltstone, mudstone and coal. (Topsoil).	0.20		
				MADE GROUND: Dark grey clayey sandy angular to subangular fine to coarse GRAVEL of siltstone, mudstone and coal.	0.80		
				Firm orange brown and grey slightly sandy gravelly CLAY. Low plastcity (field description). Gravel is subangular to subrounded fine to coarse of siltstone and mudstone.	1.00		
				End of Trial Pit at 1.00 m			

Remarks and Water Observations

1. No groundwater encountered.
2. Trial pit stable.
3. Trial pit complete at 1.00m.
4. Soakaway test undertaken within trial pit, please see soakaway sheet SA1 for results.

GL (m AOD) -

Easting: -

Northing: -

Fig. No. SA1

SOAKAWAY DESIGN IN ACCORDANCE WITH BRE DIGEST 365: 1991
BRE Digest 365, Figure 2, Page 5

Client:	***Bloor Homes***		
Site:	***Champany Fields, Dodworth***		
Job No:	**C3902**	**Test No:**	**SA1**

CALCULATION OF SOIL INFILTRATION RATE

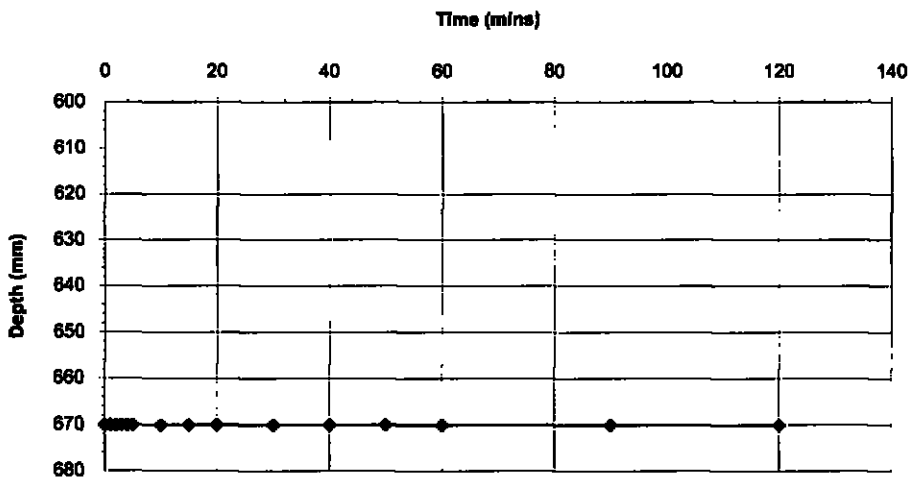
Time (min)	Depth (mm bgl)
0	670
1	670
2	670
3	670
4	670
5	670
10	670
15	670
20	670
30	670
40	670
50	670
60	670
90	670
120	670

Size of Soakaway	Length (m) =	1.20
	Width (m) =	0.30
	Depth (m) =	1.00

Depth to water at start of test (mm bgl) =	670mm
Depth of pit (mm bgl) =	1000mm
75% level =	753mm
50% level =	835mm
25% level =	918mm
Base area of pit (m^2) =	0.360
Eff area of loss 75 - 25% (m^2) =	0.855
Volume outflow 75 - 25% (m^3) =	0.059

From the graph	
tp 75 (min) =	NA
tp 25 (min) =	NA

Soil infiltration rate, f, (m/s) =		**NA**	**normal test**
Input by:	**SA**	**Date:**	**22/09/2010**
Checked by:	**RIH**		



TRIAL PIT RECORD

TP No. **SA2**

Sheet 1 of 1

Site : Champany Fields, Dodworth

Contract No: C3902

Client : Bloor Homes

Dates: 07/09/2010

Method : JCB 3CX backhoe excavator with 0.30m wide toothed bucket.

Scale 1:25

Logged By: SA

Checked By: RH

SAMPLE DETAILS			Groundwater	STRATA RECORD			
Type	Depth From - To(m)	Vane Results kN/m²		Description	Depth (m)	Level (mAOD) PID	Legend
				MADE GROUND: Firm dark grey slightly sandy slightly gravelly CLAY with rootlets. Low plasticity (field description). Gravel is subangular to subrounded fine to coarse of siltstone, *brick and glazed pottery. (Topsoil).*			
				MADE GROUND: Dark grey clayey sandy angular to subangular fine to coarse GRAVEL with low cobble and boulder content. Gravel, cobbles and boulders are of siltstone and mudstone.	0.40		
				End of Trial Pit at 1.00 m	1.00		

Remarks and Water Observations

1. No groundwater encountered.
2. Trial pit stable.
3. Trial pit complete at 1.00m.
4. Soakaway test undertaken within trial pit, please see soakaway sheet SA2 for results.

GL (m AOD)

Easting:

Northing:

Fig. No. SA2

SOAKAWAY DESIGN IN ACCORDANCE WITH BRE DIGEST 365: 1991
BRE Digest 365, Figure 2, Page 5

Client:	**Bloor Homes**		
Site:	**Champany Fields, Dodworth**		
Job No:	**C3902**	**Test No:**	**SA2**

CALCULATION OF SOIL INFILTRATION RATE

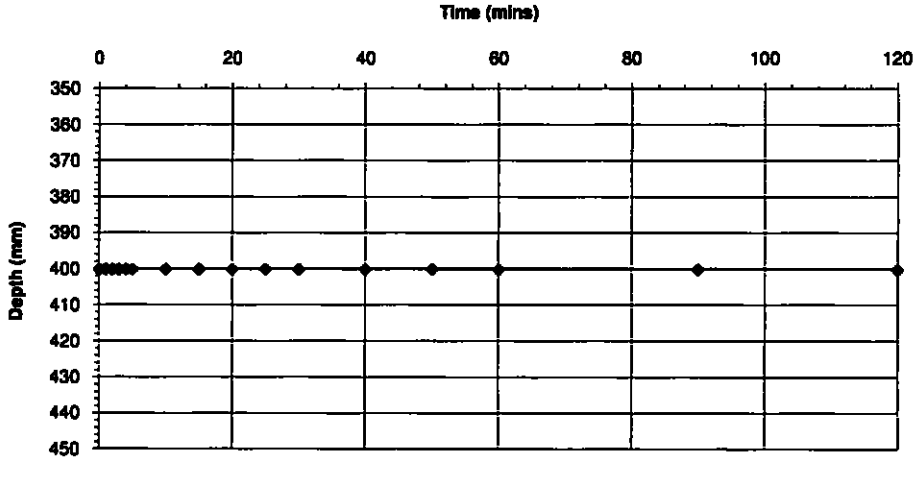
Time (min)	Depth (mm bgl)
0	400
1	400
2	400
3	400
4	400
5	400
10	400
15	400
20	400
25	400
30	400
40	400
50	400
60	400
90	400
120	400

Size of Soakaway	Length (m) =	1.50
	Width (m) =	0.30
	Depth (m) =	1.00

Depth to water at start of test (mm bgl) =	400mm
Depth of pit (mm bgl) =	1000mm
75% level =	550mm
50% level =	700mm
25% level =	850mm
Base area of pit (m^2) =	0.450
Eff area of loss 75 - 25% (m^2) =	1.530
Volume outflow 75 - 25% (m^3) =	0.135

Times extrapolated on graph below:	
tp 75 (min) =	NA
tp 25 (min) =	NA

Soil infiltration rate, f, (m/s) =		NA	normal test
Input by:	**SA**	**Date:**	**22/09/2010**
Checked by:	**RIH**		



TRIAL PIT RECORD

TP No. **SA3**

Sheet 1 of 1

Site : Champany Fields, Dodworth

Contract No: C3902

Client : Bloor Homes

Dates: 07/09/2010

Method : JCB 3CX backhoe excavator with 0.30m wide toothed bucket.

Scale 1:25

Logged By: SA

Checked By: RH

SAMPLE DETAILS			Groundwater	STRATA RECORD			
Type	Depth From - To(m)	Vane Results kN/m²		Description	Depth (m)	Level (mAOD) PID (ppm)	Legend
				MADE GROUND: Firm dark grey slightly sandy slightly gravelly CLAY with occasional rootlets. Low plasticity (field description). Gravel is subangular to subrounded fine to coarse of siltstone, mudstone and coal. (Topsoil).			
				MADE GROUND: Dark grey clayey sandy angular to subangular fine to coarse GRAVEL of siltstone and coal.	0.40		
				Firm high strength orange grey slightly sandy slightly gravelly CLAY. High plasticity (field description). Gravel is subangular to subrounded fine to coarse of siltstone and mudstone.	0.70		
				End of Trial Pit at 1.50 m	1.50		

Remarks and Water Observations

1. No groundwater encountered.
2. Trial pit stable.
3. Trial pit complete at 1.50m.
4. Soakaway test undertaken within trial pit, please see soakaway sheet SA3 for results.

GL (m AOD) -

Easting: -

Northing: -

Fig. No. SA3

SOAKAWAY DESIGN IN ACCORDANCE WITH BRE DIGEST 365: 1991
BRE Digest 365, Figure 2, Page 5

Client:	Bloor Homes		
Site:	Champany Fields, Dodworth		
Job No:	C3902	Test No:	SA3

CALCULATION OF SOIL INFILTRATION RATE

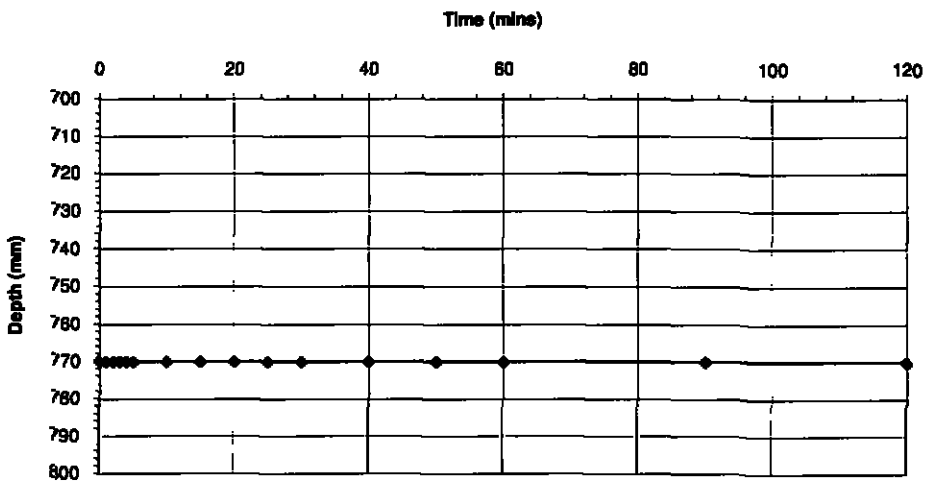
Time (min)	Depth (mm bgl)
0	770
1	770
2	770
3	770
4	770
5	770
10	770
15	770
20	770
25	770
30	770
40	770
50	770
60	770
90	770
120	770

Size of Soakaway		
	Length (m) =	1.20
	Width (m) =	0.30
	Depth (m) =	1.50

Depth to water at start of test (mm bgl) =	770mm
Depth of pit (mm bgl) =	1500mm
75% level =	953mm
50% level =	1135mm
25% level =	1318mm
Base area of pit (m^2) =	0.360
Eff area of loss 75 - 25% (m^2) =	1.455
Volume outflow 75 - 25% (m^3) =	0.131

Times extrapolated on graph below:	
tp 75 (min) =	NA
tp 25 (min) =	NA

Soil infiltration rate, f, (m/s) =		NA	normal test
Input by:	SA	Date:	22/09/2010
Checked by:	RIH		





APPENDIX E

LABORATORY TEST RESULTS

Derwentside Environmental Testing Services

2139

Certificate of Analysis

Certificate Number: 10-41747-1

Date: 19/10/2010

Client:	Sirius Geotechnical & Environmental 4245 Park Approach Thorpe Park Leeds LS15 8GB
Our Reference:	10-41747-1
Client Reference:	C3902
Contract Title:	Champany Fields, Dodworth
Description:	2 leachate samples, 16 soil samples
Date Received:	21/09/2010
Date Started:	24/09/2010
Date Completed:	19/10/2010
Test Procedures:	Identified by prefix DETSn, details available upon request.
Notes:	**This report supersedes 10-41747, additional testing carried out** Observations and interpretations are outside the scope of UKAS accreditation * *denotes* test not included in laboratory scope of accreditation # denotes test that holds MCERT accreditation $ denotes tests completed by an approved subcontractor I/S denotes insufficient sample to carry out test N/S denotes that the sample is not suitable for testing DETSM denotes tests carried out by DETS Midlands laboratory Solid samples will be disposed 1 month and liquids 2 weeks after the date of issue of this test certificate Asbestos subsamples will be kept for 6 months
Approved By:	
Authorised Signatories:	Rob Brown Business Manager

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 except in full, without the prior written approval of the laboratory.

Derwentside Environmental Testing Services Limited
Unit 2, Park Road Industrial Estate South, Consett, Co Durham, DH8 5PY
Tel: 01207 582333 • Fax 01207 582444 • email: info@dets.co.uk • www.dets.co.uk

Our Ref: 10-41747-1
Client Ref: C3902
Contract Title: Champany Fields, Dodworth

Sample Details

Sample ID	Depth	DETS Ref	Matrix Description	Date Sampled	Time Sampled	Preservation	Analysis Complete
BH1	0.20	283104	grey sandy CLAY	Not Provided	Not Provided	None	19/10/2010
BH1	1.00	283105	brown grey very gravelly clayey SAND	Not Provided	Not Provided	None	19/10/2010
BH3	0.80	283106	dark grey orange sandy CLAY	Not Provided	Not Provided	None	19/10/2010
TP1	0.10	283107	black gravelly sandy CLAY frequent rootlets	Not Provided	Not Provided	None	19/10/2010
TP3	0.50	283108	black gravelly sandy CLAY	Not Provided	Not Provided	None	19/10/2010
TP3	1.00	283109	brown orange slightly gravelly sandy CLAY	Not Provided	Not Provided	None	19/10/2010
TP6	0.20	283110	black gravelly sandy CLAY	Not Provided	Not Provided	None	19/10/2010
TP7	0.10	283111	black gravelly sandy CLAY odd rootlets	Not Provided	Not Provided	None	19/10/2010
BH1	9.00	283112	black grey very gravelly SAND	Not Provided	Not Provided	None	19/10/2010
BH2	4.00	283113	dark grey sandy CLAY	Not Provided	Not Provided	None	19/10/2010
BH2	11.50	283114	grey very gravelly SAND	Not Provided	Not Provided	None	19/10/2010
BH3	2.50	283115	dark grey orange gravelly sandy CLAY	Not Provided	Not Provided	None	19/10/2010
TP2	1.30	283116	orange light grey sandy CLAY	Not Provided	Not Provided	None	19/10/2010
TP3	1.80	283117	black gravelly sandy CLAY	Not Provided	Not Provided	None	19/10/2010
TP5	2.90	283118	black orange gravelly sandy CLAY	Not Provided	Not Provided	None	19/10/2010
BH3	7.50	283119	black gravelly sandy CLAY	Not Provided	Not Provided	None	19/10/2010

Summary of Chemical Analysis
Soil Samples

Our Ref: 10-41747-1
Client Ref: C3902
Contract Title: Champany Fields, Dodworth

		Lab No.	283104	283105	283106	283107	283108
		Sample ID	BH1	BH1	BH3	TP1	TP3
		Depth	0.20	1.00	0.80	0.10	0.50
		Sample Ref					
		Sample Type	D	D	D	D	D
Test	**Units**	**DETSxx**					
Arsenic	mg/kg	DETS 042#	5.7	5.3	5.1	11	5.1
Cadmium	mg/kg	DETS 042#	0.8	0.9	0.7	0.8	0.8
Chromium	mg/kg	DETS 042#	36	33	30	38	27
Copper	mg/kg	DETS 042#	31	30	30	37	31
Lead	mg/kg	DETS 042#	21	20	22	32	21
Mercury	mg/kg	DETS 081#	< 0.05	< 0.05	< 0.05	0.07	< 0.05
Nickel	mg/kg	DETS 042#	47	46	38	36	39
Selenium	mg/kg	DETS 042#	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Zinc	mg/kg	DETS 042#	96	110	92	120	95
Calorific Value	KJ/kg	DETS 037*	< 1000			< 1000	< 1000
Total Sulphate as SO4	%	DETS 075#	< 0.01	< 0.01	0.01	0.03	0.01
Sulphate Aqueous Extract as SO4	mg/l	DETS 076#	15	22	57	15	43
Total Sulphur as S	%	DETS 064					
Total Organic Carbon	%	DETS 002	0.9	1.0	1.0	2.7	1.1
pH		DETS 008#	8.2	8.4	8.4	8.2	8.5
Aliphatic C5-C6	mg/kg	DETS 072*	< 0.01			< 0.01	< 0.01
Aliphatic C6-C8	mg/kg	DETS 072*	< 0.01			< 0.01	< 0.01
Aliphatic C8-C10	mg/kg	DETS 072*	0.02			6.6	0.02
Aliphatic C10-C12	mg/kg	DETS 072#	< 1.5			< 1.5	< 1.5
Aliphatic C12-C16	mg/kg	DETS 072#	< 1.2			< 1.2	< 1.2
Aliphatic C16-C21	mg/kg	DETS 072#	< 1.5			< 1.5	< 1.5
Aliphatic C21-C35	mg/kg	DETS 072#	< 3.4			< 3.4	< 3.4
Aromatic C5-C7	mg/kg	DETS 072*	< 0.01			< 0.01	< 0.01
Aromatic C7-C8	mg/kg	DETS 072*	< 0.01			< 0.01	< 0.01
Aromatic C8-C10	mg/kg	DETS 072*	0.02			0.01	0.02
Aromatic C10-C12	mg/kg	DETS 072#	< 0.9			< 0.9	< 0.9
Aromatic C12-C16	mg/kg	DETS 072#	< 0.5			< 0.5	< 0.5
Aromatic C16-C21	mg/kg	DETS 072#	0.7			< 0.6	< 0.6
Aromatic C21-C35	mg/kg	DETS 072#	6.4			< 1.4	3.5
Aliphatic C5-C35	mg/kg	DETS 072*	< 10			< 10	< 10
Aromatic C5-C35	mg/kg	DETS 072*	< 10			< 10	< 10
TPH Ali/Aro	mg/kg	DETS 072*	< 10			< 10	< 10

Summary of Chemical Analysis
Soil Samples

Our Ref: 10-41747-1
Client Ref: C3902
Contract Title: Champany Fields, Dodworth

		Lab No.	283104	283105	283106	283107	283108
		Sample ID	BH1	BH1	BH3	TP1	TP3
		Depth	0.20	1.00	0.80	0.10	0.50
		Sample Ref					
		Sample Type	D	D	D	D	D
Test	Units	DETSxx					
Acenaphthene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Anthracene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)anthracene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(g,h,i)perylene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dibenzo(a,h)anthracene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-c,d)pyrene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Naphthalene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Pyrene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
PAH	mg/kg	DETS 050	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6
Phenol - Monohydric	mg/kg	DETS 067#	< 0.3	< 0.3	1.4	0.5	< 0.3

Summary of Chemical Analysis
Soil Samples

Our Ref: 10-41747-1
Client Ref: C3902
Contract Title: Champany Fields, Dodworth

		Lab No.	283109	283110	283111	283112	283113
		Sample ID	TP3	TP6	TP7	BH1	BH2
		Depth	1.00	0.20	0.10	9.00	4.00
		Sample Ref					
		Sample Type	D	D	D	D	D
Test	Units	DETSxx					
Arsenic	mg/kg	DETS 042#	4.9	14	17		
Cadmium	mg/kg	DETS 042#	1.1	0.9	1		
Chromium	mg/kg	DETS 042#	26	42	44		
Copper	mg/kg	DETS 042#	15	36	41		
Lead	mg/kg	DETS 042#	21	36	43		
Mercury	mg/kg	DETS 081#	< 0.05	0.09	0.13		
Nickel	mg/kg	DETS 042#	23	37	37		
Selenium	mg/kg	DETS 042#	< 0.5	< 0.5	< 0.5		
Zinc	mg/kg	DETS 042#	76	100	130		
Calorific Value	KJ/kg	DETS 037*			< 1000		
Total Sulphate as SO4	%	DETS 075#	0.03	0.04	0.04		
Sulphate Aqueous Extract as SO4	mg/l	DETS 076#	130	17	18	97	99
Total Sulphur as S	%	DETS 064	0.02				0.04
Total Organic Carbon	%	DETS 002	0.5	3.0	3.2		
pH		DETS 008#	8.3	8.1	8	8.4	8.4
Aliphatic C5-C6	mg/kg	DETS 072*			< 0.01		
Aliphatic C6-C8	mg/kg	DETS 072*			< 0.01		
Aliphatic C8-C10	mg/kg	DETS 072*			0.04		
Aliphatic C10-C12	mg/kg	DETS 072#			< 1.5		
Aliphatic C12-C16	mg/kg	DETS 072#			< 1.2		
Aliphatic C16-C21	mg/kg	DETS 072#			< 1.5		
Aliphatic C21-C35	mg/kg	DETS 072#			< 3.4		
Aromatic C5-C7	mg/kg	DETS 072*			< 0.01		
Aromatic C7-C8	mg/kg	DETS 072*			< 0.01		
Aromatic C8-C10	mg/kg	DETS 072*			0.04		
Aromatic C10-C12	mg/kg	DETS 072#			< 0.9		
Aromatic C12-C16	mg/kg	DETS 072#			< 0.5		
Aromatic C16-C21	mg/kg	DETS 072#			< 0.6		
Aromatic C21-C35	mg/kg	DETS 072#			2.9		
Aliphatic C5-C35	mg/kg	DETS 072*			< 10		
Aromatic C5-C35	mg/kg	DETS 072*			< 10		
TPH Ali/Aro	mg/kg	DETS 072*			< 10		

Summary of Chemical Analysis
Soil Samples

Our Ref: 10-41747-1
Client Ref: C3902
Contract Title: Champany Fields, Dodworth

		Lab No.	283109	283110	283111	283112	283113
		Sample ID	TP3	TP6	TP7	BH1	BH2
		Depth	1.00	0.20	0.10	9.00	4.00
		Sample Ref					
		Sample Type	D	D	D	D	D
Test	Units	DETSxx					
Acenaphthene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1		
Acenaphthylene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1		
Anthracene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1		
Benzo(a)anthracene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1		
Benzo(a)pyrene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1		
Benzo(b)fluoranthene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1		
Benzo(k)fluoranthene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1		
Benzo(g,h,i)perylene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1		
Chrysene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1		
Dibenzo(a,h)anthracene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1		
Fluoranthene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1		
Fluorene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1		
Indeno(1,2,3-c,d)pyrene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1		
Naphthalene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1		
Phenanthrene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1		
Pyrene	mg/kg	DETS 050	< 0.1	< 0.1	< 0.1		
PAH	mg/kg	DETS 050	< 1.6	< 1.6	< 1.6		
Phenol - Monohydric	mg/kg	DETS 067#	1.1	1.6	0.3		

Summary of Chemical Analysis
Soil Samples

Our Ref: 10-41747-1
Client Ref: C3902
Contract Title: Champany Fields, Dodworth

		Lab No.	283114	283115	283116	283117	283118
		Sample ID	BH2	BH3	TP2	TP3	TP5
		Depth	11.50	2.50	1.30	1.80	2.90
		Sample Ref					
		Sample Type	D	D	D	D	D
Test	Units	DETSxx					
Arsenic	mg/kg	DETS 042#					
Cadmium	mg/kg	DETS 042#					
Chromium	mg/kg	DETS 042#					
Copper	mg/kg	DETS 042#					
Lead	mg/kg	DETS 042#					
Mercury	mg/kg	DETS 081#					
Nickel	mg/kg	DETS 042#					
Selenium	mg/kg	DETS 042#					
Zinc	mg/kg	DETS 042#					
Calorific Value	*KJ/kg*	DETS 037*					
Total Sulphate as SO4	%	DETS 075#					
Sulphate Aqueous Extract as SO4	mg/l	DETS 076#	130	130	89	68	69
Total Sulphur as S	%	DETS 064	0.15				
Total Organic Carbon	%	DETS 002					
pH		DETS 008#	8.5	8.5	8.6	8.1	8.3
Aliphatic C5-C6	mg/kg	DETS 072*					
Aliphatic C6-C8	mg/kg	DETS 072*					
Aliphatic C8-C10	mg/kg	DETS 072*					
Aliphatic C10-C12	mg/kg	DETS 072#					
Aliphatic C12-C16	mg/kg	DETS 072#					
Aliphatic C16-C21	mg/kg	DETS 072#					
Aliphatic C21-C35	mg/kg	DETS 072#					
Aromatic C5-C7	mg/kg	DETS 072*					
Aromatic C7-C8	mg/kg	DETS 072*					
Aromatic C8-C10	mg/kg	DETS 072*					
Aromatic C10-C12	mg/kg	DETS 072#					
Aromatic C12-C16	mg/kg	DETS 072#					
Aromatic C16-C21	mg/kg	DETS 072#					
Aromatic C21-C35	mg/kg	DETS 072#					
Aliphatic C5-C35	mg/kg	DETS 072*					
Aromatic C5-C35	mg/kg	DETS 072*					
TPH Ali/Aro	mg/kg	DETS 072*					

Summary of Chemical Analysis
Soil Samples

Our Ref: 10-41747-1
Client Ref: C3902
Contract Title: Champany Fields, Dodworth

		Lab No.	283114	283115	283116	283117	283118
		Sample ID	BH2	BH3	TP2	TP3	TP5
		Depth	11.50	2.50	1.30	1.80	2.90
		Sample Ref					
		Sample Type	D	D	D	D	D
Test	**Units**	**DETSxx**					
Acenaphthene	mg/kg	DETS 050					
Acenaphthylene	mg/kg	DETS 050					
Anthracene	mg/kg	DETS 050					
Benzo(a)anthracene	mg/kg	DETS 050					
Benzo(a)pyrene	mg/kg	DETS 050					
Benzo(b)fluoranthene	mg/kg	DETS 050					
Benzo(k)fluoranthene	mg/kg	DETS 050					
Benzo(g,h,i)perylene	mg/kg	DETS 050					
Chrysene	mg/kg	DETS 050					
Dibenzo(a,h)anthracene	mg/kg	DETS 050					
Fluoranthene	mg/kg	DETS 050					
Fluorene	mg/kg	DETS 050					
Indeno(1,2,3-c,d)pyrene	mg/kg	DETS 050					
Naphthalene	mg/kg	DETS 050					
Phenanthrene	mg/kg	DETS 050					
Pyrene	mg/kg	DETS 050					
PAH	mg/kg	DETS 050					
Phenol - Monohydric	mg/kg	DETS 067#					

Summary of Chemical Analysis
Soil Samples

Our Ref: 10-41747-1
Client Ref: C3902
Contract Title: Champany Fields, Dodworth

		Lab No.	283119
		Sample ID	BH3
		Depth	7.50
		Sample Ref	
		Sample Type	D
Test	**Units**	**DETSxx**	
Arsenic	mg/kg	DETS 042#	
Cadmium	mg/kg	DETS 042#	
Chromium	mg/kg	DETS 042#	
Copper	mg/kg	DETS 042#	
Lead	mg/kg	DETS 042#	
Mercury	mg/kg	DETS 081#	
Nickel	mg/kg	DETS 042#	
Selenium	mg/kg	DETS 042#	
Zinc	mg/kg	DETS 042#	
Calorific Value	KJ/kg	DETS 037*	
Total Sulphate as SO4	%	DETS 075#	
Sulphate Aqueous Extract as SO4	mg/l	DETS 076#	21
Total Sulphur as S	%	DETS 064	
Total Organic Carbon	%	DETS 002	
pH		DETS 008#	8.3
Aliphatic C5-C6	mg/kg	DETS 072*	
Aliphatic C6-C8	mg/kg	DETS 072*	
Aliphatic C8-C10	mg/kg	DETS 072*	
Aliphatic C10-C12	mg/kg	DETS 072#	
Aliphatic C12-C16	mg/kg	DETS 072#	
Aliphatic C16-C21	mg/kg	DETS 072#	
Aliphatic C21-C35	mg/kg	DETS 072#	
Aromatic C5-C7	mg/kg	DETS 072*	
Aromatic C7-C8	mg/kg	DETS 072*	
Aromatic C8-C10	mg/kg	DETS 072*	
Aromatic C10-C12	mg/kg	DETS 072#	
Aromatic C12-C16	mg/kg	DETS 072#	
Aromatic C16-C21	mg/kg	DETS 072#	
Aromatic C21-C35	mg/kg	DETS 072#	
Aliphatic C5-C35	mg/kg	DETS 072*	
Aromatic C5-C35	mg/kg	DETS 072*	
TPH Ali/Aro	mg/kg	DETS 072*	

Summary of Chemical Analysis
Soil Samples

Our Ref: 10-41747-1
Client Ref: C3902
Contract Title: Champany Fields, Dodworth

		Lab No.	283119
		Sample ID	BH3
		Depth	7.50
		Sample Ref	
		Sample Type	D
Test	**Units**	**DETSxx**	
Acenaphthene	mg/kg	DETS 050	
Acenaphthylene	mg/kg	DETS 050	
Anthracene	mg/kg	DETS 050	
Benzo(a)anthracene	mg/kg	DETS 050	
Benzo(a)pyrene	mg/kg	DETS 050	
Benzo(b)fluoranthene	mg/kg	DETS 050	
Benzo(k)fluoranthene	mg/kg	DETS 050	
Benzo(g,h,i)perylene	mg/kg	DETS 050	
Chrysene	mg/kg	DETS 050	
Dibenzo(a,h)anthracene	mg/kg	DETS 050	
Fluoranthene	mg/kg	DETS 050	
Fluorene	mg/kg	DETS 050	
Indeno(1,2,3-c,d)pyrene	mg/kg	DETS 050	
Naphthalene	mg/kg	DETS 050	
Phenanthrene	mg/kg	DETS 050	
Pyrene	mg/kg	DETS 050	
PAH	mg/kg	DETS 050	
Phenol - Monohydric	mg/kg	DETS 067#	

Summary of Chemical Analysis
Leachate Samples

Our Ref: *10-41747-1*
Client Ref: C3902
Contract Title: Champany Fields, Dodworth

		Lab No.	283120	283121
		Sample ID	BH1	TP3
		Depth	0.20	0.50
		Sample Ref		
		Sample Type	D	D
Test	**Units**	**DETSxx**		
Arsenic Dissolved	ug/l	DETS 2326	< 1	< 1
Cadmium Dissolved	ug/l	DETS 042	< 2	< 2
Chromium Dissolved	ug/l	DETS 042	< 5	< 5
Copper Dissolved	ug/l	DETS 042	< 2	< 2
Lead Dissolved	ug/l	DETS 042	< 4	< 4
Mercury Dissolved	ug/l	DETS 078	< 0.05	< 0.05
Nickel Dissolved	ug/l	DETS 042	< 10	< 10
Selenium Dissolved	ug/l	DETS 017	< 3	< 3
Zinc Dissolved	ug/l	DETS 042	< 1	< 1
pH		DETS 008	7.3	7.1
Acenaphthene	ug/l	DETS 074*	< 0.01	< 0.01
Acenaphthylene	ug/l	DETS 074*	< 0.01	< 0.01
Anthracene	ug/l	DETS 074*	< 0.01	< 0.01
Benzo(a)anthracene	ug/l	DETS 074*	< 0.01	< 0.01
Benzo(a)pyrene	ug/l	DETS 074*	< 0.01	< 0.01
Benzo(b)fluoranthene	ug/l	DETS 074*	< 0.01	< 0.01
Benzo(k)fluoranthene	ug/l	DETS 074*	< 0.01	< 0.01
Benzo(g,h,i)perylene	ug/l	DETS 074*	< 0.01	< 0.01
Chrysene	ug/l	DETS 074*	< 0.01	< 0.01
Dibenzo(a,h)anthracene	ug/l	DETS 074*	< 0.01	< 0.01
Fluoranthene	ug/l	DETS 074*	0.01	< 0.01
Fluorene	ug/l	DETS 074*	< 0.01	< 0.01
Indeno(1,2,3-c,d)pyrene	ug/l	DETS 074*	< 0.01	< 0.01
Naphthalene	ug/l	DETS 074*	< 0.01	< 0.01
Phenanthrene	ug/l	DETS 074*	< 0.01	< 0.01
Pyrene	ug/l	DETS 074*	0.09	< 0.01
PAH	ug/l	DETS 074*	< 0.20	< 0.20
Phenol	ug/l	DETS 079*	3.3	3.2

Appendix A - Details of Analysis

Method details are shown only for those determinants listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS.
No Recovery Factors are used in the determination of results. Results reported assume 100% recovery
Full method statements are available on request.

Method	Name of Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETS 002	Organic Matter	%	0.01	Air Dried	No	Yes	Yes
DETS 003	Loss on Ignition	%	0.01	Air Dried	No	Yes	Yes
DETS 004	Total Sulphate	%	0.01	Air Dried	No	Yes	Yes
DETS 075	Total Sulphate	%	0.01	Air Dried	No	Yes	Yes
DETS 004	Water Soluble Sulphate	mg/l	10.00	Air Dried	No	Yes	Yes
DETS 076	Water Soluble Sulphate	mg/l	10.00	Air Dried	No	Yes	Yes
DETS 006	Chloride	mg/kg	0.01	Air Dried	No	Yes	Yes
DETS 008	pH	pH Units	0.10	Air Dried	No	Yes	Yes
DETS 042	Selenium	mg/kg	0.50	Air Dried	No	Yes	Yes
DETS 019	Ammonia	mg/kg	0.02	Air Dried	No	Yes	Yes
DETS 020	Boron (Water Soluble)	mg/kg	0.20	Air Dried	No	Yes	Yes
DETS 024	Sulphide	mg/kg	10.00	Air Dried	No	Yes	Yes
DETS 042	Antimony	mg/kg	1.00	Air Dried	No	No	No
DETS 042	Arsenic	mg/kg	0.20	Air Dried	No	Yes	Yes
DETS 042	Barium	mg/kg	1.50	Air Dried	No	Yes	Yes
DET S 042	Beryllium	mg/kg	0.20	Air Dried	No	Yes	Yes
DETS 042	Cadmium	mg/kg	0.10	Air Dried	No	Yes	Yes

Appendix A - Details of Analysis

Method details are shown only for those determinants listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS.
No Recovery Factors are used in the determination of results. Results reported assume 100% recovery
Full method statements are available on request.

Method	Name of Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETS 042	Cobalt	mg/kg	0.70	Air Dried	No	Yes	Yes
DETS 042	Copper	mg/kg	0.20	Air Dried	No	Yes	Yes
DETS 042	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETS 042	Iron	mg/kg	1.00	Air Dried	No	Yes	No
DETS 042	Lead	mg/kg	0.30	Air Dried	No	Yes	Yes
DETS 042	Manganese	mg/kg	20.00	Air Dried	No	Yes	Yes
DETS 081	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETS 042	Molybdenum	mg/kg	0.40	Air Dried	No	Yes	Yes
DETS 042	Nickel	mg/kg	0.20	Air Dried	No	Yes	Yes
DETS 042	Thallium	mg/kg	1.00	Air Dried	No	No	No
DETS 042	Vanadium	mg/kg	0.80	Air Dried	No	Yes	Yes
DETS 042	Zinc	mg/kg	1.00	Air Dried	No	Yes	Yes
DETS 049	Sulphur (Free)	mg/kg	0.50	As Received	No	Yes	Yes
DETS 050	PAH	mg/kg	0.10	As Received	No	Yes	No
DETS 051	TPH (C10 - C40)	mg/kg	20.00	As Received	No	Yes	Yes
DETS 052	PCB	mg/kg	0.01	As Received	No	Yes	Yes

Appendix A - Details of Analysis

Method details are shown only for those determinants listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS.
No Recovery Factors are used in the determination of results. Results reported assume 100% recovery
Full method statements are available on request.

Method	Name of Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETS 062	Benzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Toluene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Ethylbenzne	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 067	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETS 067	Easily Liberatable Cyanide	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 067	Complex Cyanide	mg/kg	0.30	Air Dried	No	Yes	No
DETS 067	Total Cyanide	mg/kg	0.40	Air Dried	No	Yes	Yes
DETS 067	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes
DETS 068	VOC	mg/kg	0.01	As Received	No	No	No

LABORATORY REPORT

4043

Contract Number: PSL10/1908

Client's Reference: Report Date: 06 October 2010

Client Name: Sirius Leeds
4245 Park Approach
Century Way
Thorpe Park
Leeds
LS15 8GB

For the attention of: Sarah Amos

Contract Title: Champany Fields, Dodworth

Date Received: 22-Sep-10
Date Commenced: 22-Sep-10
Date Completed: 6-Oct-10

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.

Checked and Approved Signatories:

R Gunson (Director) | A Watkins (Director) | M Beastall (Laboratory Manager)

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Doncaster DN4 0AR
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fax: +44 (0)844 815 6642
e-mail: rgunson@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Depth m	Description of Sample
BH1		B	3.00	Grey very gravelly sandy CLAY.
BH2		D	7.80	Brown gravelly sandy CLAY.
BH3		B	6.00	Grey very gravelly sandy CLAY.
TP1		D	1.00	Brown mottled grey CLAY.
TP1		D	1.60	Grey gravelly sandy CLAY.
TP4		D	1.00	Grey gravelly sandy CLAY.

PSL
Professional Soils Laboratory

Compiled by	Date	Checked by	Date	Approved by	Date
MAR	06/10/10	RC	06/10/10	RC	06/10/10

CHAMPANY FIELDS, DODWORTH.

Contract No: PSL10/1908

Client Ref: C3902

SUMMARY OF SOIL CLASSIFICATION TESTS

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

Hole Number	Sample Number	Sample Type	Depth m	Moisture Content % Clause 3.2	Bulk Density Mg/m^3 Clause 7.2	Dry Density Mg/m^3 Clause 7.2	Particle Density Mg/m^3 Clause 8.	Liquid Limit % Clause 4.3/4.4	Plastic Limit % Clause 5.	Plasticity Index % Clause 6.	% Passing .425mm	Remarks
BH2		D	7.80	19				45	24	21	88	Intermediate plasticity CI.
TP1		D	1.00	29				69	30	39	100	High plasticity CH.
TP1		D	1.60	16				52	26	26	80	High plasticity CH.
TP4		D	1.00	25				62	26	36	83	High plasticity CH.

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

PSL
Professional Soils Laboratory

Compiled by	Date	Checked by	Date	Approved by	Date
	06/10/10		06/10/10		06/10/10

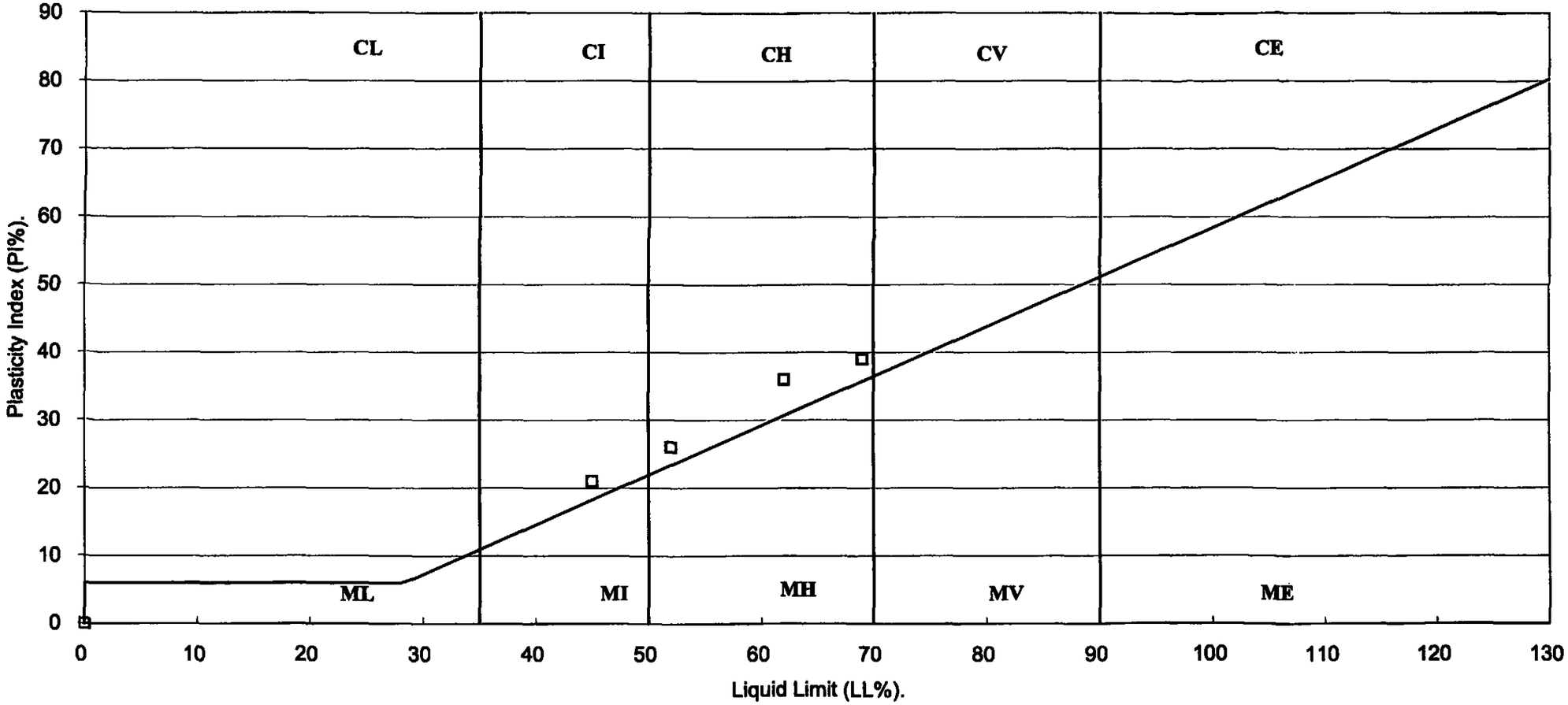
CHAMPANY FIELDS, DODWORTH.

Contract No: **PSL10/1908**

Client Ref: **C3902**

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(B.S.5930 : 1999)



PSL Professional Soils Laboratory	Compiled by	Date	Checked by	Date	Approved by	Date
		06/10/10		06/10/10		06/10/10
	CHAMPANY FIELDS, DODWORTH.				Contract No:	PSL10/1908
					Client Ref:	C3902

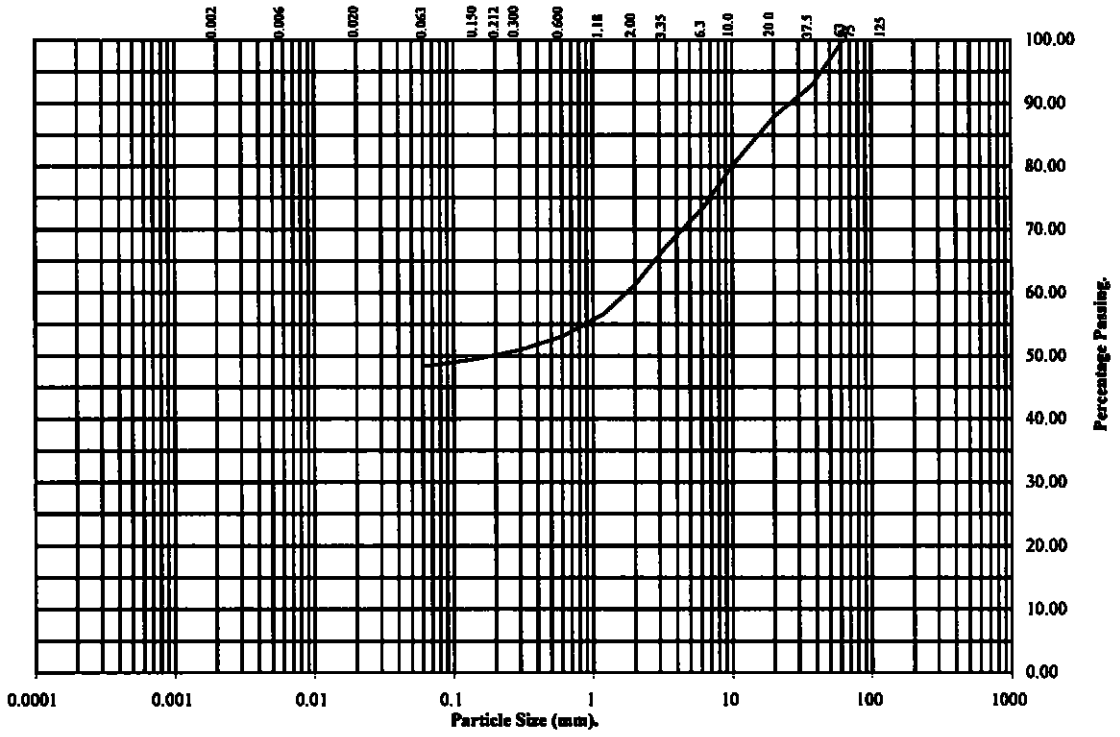
Particle Size Distribution Test

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: BH1 **Depth (m):** 3.00

Sample Number: **Sample Type:** BH1



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	93
20	88
10	80
6.3	74
3.35	67
2	61
1.18	57
0.6	53
0.3	51
0.212	50
0.15	50
0.063	48

Soil Fraction	Total Percentage
Cobbles	0
Gravel	39
Sand	13
Silt / Clay	48

Remarks:
See summary of soil descriptions.

Checked By	Date	Approved By	Date
RC	06/10/10	RC	06/10/10

PSL Professional Soils Laboratory

CHAMPANY FIELDS, DODWORTH.

Contract No.: PSL10/1908

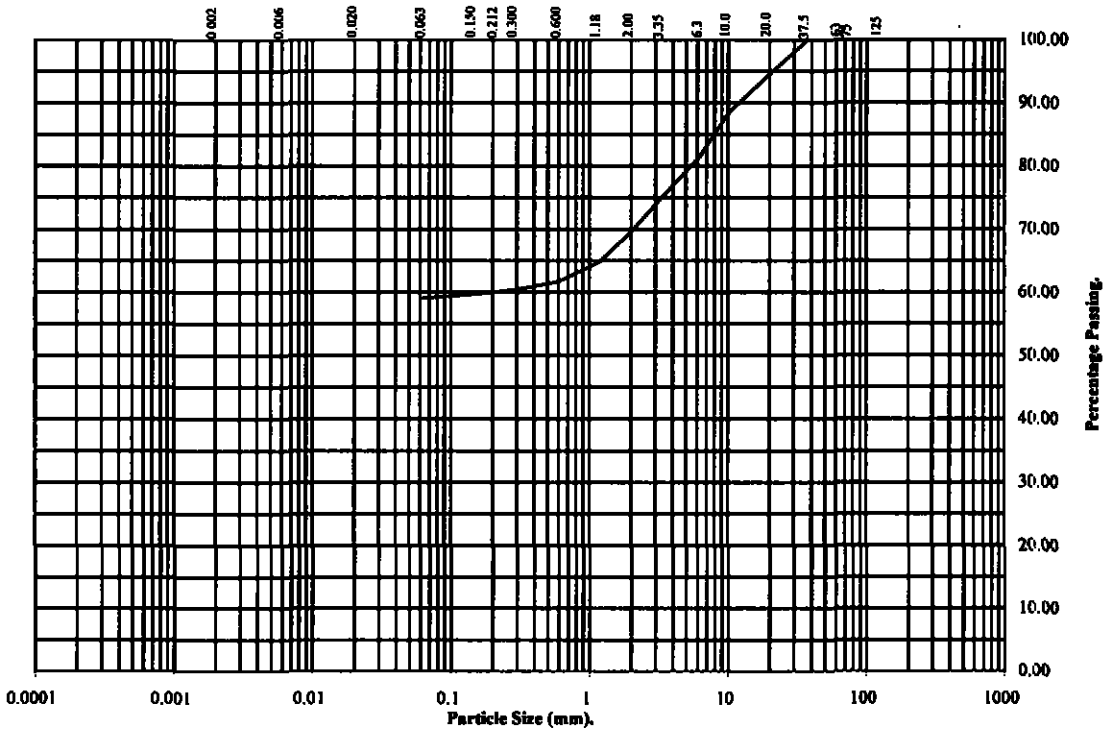
Particle Size Distribution Test

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: BH3 **Depth (m):** 6.00

Sample Number: **Sample Type:** B



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	100
20	95
10	88
6.3	82
3.35	75
2	70
1.18	65
0.6	62
0.3	60
0.212	60
0.15	60
0.063	59

Soil Fraction	Total Percentage
Cobbles	0
Gravel	30
Sand	11
Silt / Clay	59

Remarks:
See summary of soil descriptions.

Checked By	Date	Approved By	Date
RZ	06/10/10	RZ	06/10/10

PSL Professional Soils Laboratory

CHAMPANY FIELDS, DODWORTH.

Contract No.: PSL10/1908



APPENDIX F

GAS AND GROUNDWATER MONITORING RESULTS

Ground Gas and Groundwater Monitoring Record Sheet

JOB DETAILS:

Client:	Bloor Homes	**Job No:**	C3902		
Site:	Champany Fields, Dodworth	**Visit No:**	1 of 6		
Date:	30/09/2010	**Operator:**	DB	**Project Manager:**	SA

Monitoring Point	GAS CONCENTRATIONS												VOLATILES		FLOW DATA				WELL AND WATER DATA			Comments
	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	Water level (mbgl)	Depth of well (m)	Response Zone	
	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Min	Steady			Peak	Steady						
BH1	ND	ND	ND	ND	0.8	0.8	ND	ND	ND	ND	20.1	20.1	NR	NR	ND	ND	ND	ND	10.84	15.70	1.00-15.00	
BH2	ND	ND	ND	ND	0.9	0.9	ND	ND	ND	ND	19.5	19.5	NR	NR	ND	ND	ND	ND	15.28	11.00	1.00-11.00	
BH3	ND	ND	ND	ND	0.9	0.9	ND	ND	ND	ND	19.4	19.4	NR	NR	ND	ND	ND	ND	13.40	14.00	1.00-13.50	
Max	ND	ND	ND	ND	0.9	0.9	ND	ND	ND	ND	20.1	20.1	NR	NR	ND	ND	NR	NR				
Min	ND	ND	ND	ND	0.8	0.8	ND	ND	ND	ND	19.4	19.4	NR	NR	ND	ND	NR	NR				
GSV (l/hr)	ND				0.0008																	

METEOROLOGICAL AND SITE INFORMATION:

(Select correct box with X or enter data, as applicable)

State of ground:		Dry	X	Moist		Wet		Snow		Frozen
Wind:	X	Calm		Light		Moderate		Strong	
Cloud cover:	X	None		Slight		Cloudy		Overcast	
Preciptation:	X	None		Slight		Moderate		Heavy	
Barometric pressure (mbar):			1000	Before			997	After	
Pressure trend:				Falling		Steady		Rising	

INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter:	GFM Gas Data						
Gas concentration:	CH_4	0.2% @ 5%, 1.0% @ 30%, 3.0% @ 100%	CO_2	0.1% @ 10%, 3.0% @ 30%, 3.0% @ 100%	O_2	0.50%	
Gas Range:	CH_4	0-100%	CO_2	0-100%	O_2	0-25%	
Gas Flow range:	+100/-50 l/hour						
Differential Pressure:	(+/-) 1000 Pa						
Date of last calibration:	08/12/2009						
Date of next calibration:	08/12/2010						

Ground Gas and Groundwater Monitoring Record Sheet

JOB DETAILS:

Client:	Bloor Homes	**Job No:**	C3902		
Site:	Champany Fields, Dodworth	**Visit No:**	2 of 6		
Date:	14/10/2010	**Operator:**	SA	**Project Manager:**	SA

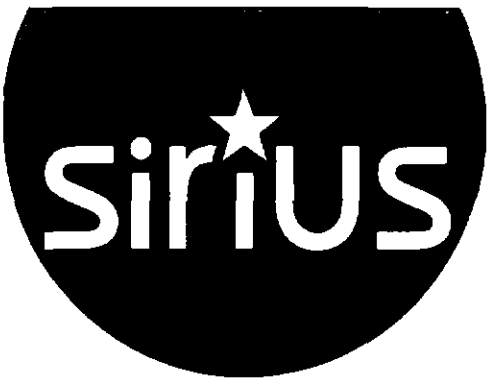
Monitoring Point	GAS CONCENTRATIONS												VOLATILES		FLOW DATA				WELL AND WATER DATA			Comments
	Methane (%v/v)		%LEL		Carbon dioxide (%v/v)		Carbon monoxide (ppmv)		Hydrogen sulphide (ppmv)		Oxygen (%v/v)		PID Peak (ppm)	Product thickness (mm)	Flow rate (l/hr)		Differential borehole Pressure (Pa)	Time for flow to equalise (secs)	Water level (mbgl)	Depth of well (m)	Response Zone	
	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Peak	Steady	Min	Steady			Peak	Steady						
BH1	ND	ND	ND	ND	8.9	8.9	ND	ND	ND	ND	3.4	3.4	NR	NR	ND	ND	NR	NR	13.20	15.70	1.00-15.00	
BH2	ND	ND	ND	ND	1.4	1.4	ND	ND	ND	ND	19.2	19.2	NR	NR	ND	ND	NR	NR	10.32	11.00	1.00-11.00	
BH3	ND	ND	ND	ND	0.8	0.8	ND	ND	ND	ND	18.7	18.7	NR	NR	ND	ND	NR	NR	13.29	14.00	1.00-13.50	
Max	ND	ND	ND	ND	8.9	8.9	ND	ND	ND	ND	19.2	19.2	NR	NR	ND	ND	NR	NR				
Min	ND	ND	ND	ND	0.8	0.8	ND	ND	ND	ND	3.4	3.4	NR	NR	ND	ND	NR	NR				
GSV (l/hr)	0				0.0089																	

METEOROLOGICAL AND SITE INFORMATION: (Select correct box with X or enter data, as applicable)

State of ground:		Dry	X	Moist		Wet		Snow		Frozen
Wind:		Calm	X	Light		Moderate		Strong	
Cloud cover:		None	X	Slight		Cloudy		Overcast	
Preciptation:	X	None		Slight		Moderate		Heavy	
Barometric pressure (mbar):			1001	Before			1001	After	
Pressure trend:				Falling		Steady		Rising	

INSTRUMENTATION TECHNICAL SPECIFICATIONS:

Ground gas meter:	GFM Gas Data							
Gas concentration:	**CH_4**	0.2% @ 5%, 1.0% @ 30%, 3.0% @ 100%	**CO_2**	0.1% @ 10%, 3.0% @ 30%, 3.0% @ 100%	**O_2**	0.50%		
Gas Range:	**CH_4**	0-100%	**CO_2**	0-100%	**O_2**	0-25%		
Gas Flow range:	+100/-50 l/hour							
Differential Pressure:	(+/-) 1000 Pa							
Date of last calibration:	08/12/2009							
Date of next calibration:	08/12/2010							



APPENDIX G

SIRIUS GENERIC ASSESSMENT CRITERIA

SIRIUS GENERIC ASSESSMENT CRITERIA

LEGISLATIVE AND RISK ASSESSMENT FRAMEWORK

Under the Town and Country Planning Legislation, in order that a site may be redeveloped, the site needs to be suitable for its intended use. Part IIA of the Environmental Protection Act 1990 (EPA) provides a legal framework for identifying and dealing with contaminated land.

The Contaminated Land (England) Regulations 2000 were issued in accordance with the provision with the EPA. The regulations define Contaminated Land as land "in such condition, by reason of substances in, on, or under the land, that: significant harm is being caused, or pollution of controlled waters is being or is likely to be caused".

In the UK the determination of whether land can be classified as contaminated land and whether land is suitable for its intended use are both based upon risk assessment. The methodology for undertaking such risk assessments has been published by DEFRA and the Environment Agency. This is based upon the concept of potential source-pathway-receptor relationships to determine whether there are pollutant linkages operating in a particular end use.

The framework for conducting site investigations, risk assessments and undertaking any necessary remedial works is presented in the Environment Agency report CLR11 "Model Procedures for the Management of Contaminated Land". This presents a tiered approach to risk assessment: analysis of potential pollutant linkages via a Conceptual Site Model; comparison of contaminant concentrations with Soil Guideline Values or other Generic Assessment Criteria (Generic Quantitative Risk Assessment; GQRA); and, if required, a Detailed Quantitative Risk Assessment (DQRA) based on site-specific conditions.

Human Health

Where Soil Guideline Values (SGV) have been published by the Environment Agency, these have been used by Sirius as the basis for human health Generic Assessment Criteria (GAC).

For metals and metalloids, SGVs have been applied directly for the "Residential With Plant Uptake" and "Commercial" land uses as the SGVs are not sensitive to soil type

nor soil organic matter content. For the "Residential Without Plant Uptake" land use, GAC values have been derived by Sirius using CLEA versions 1.04 and 1.06, the contaminant parameter values presented in the SGV reports and the relevant guidance presented in the Environment Agency Science Report SC050021 series. For organics, GAC values have been derived using the same approach for a sandy soil type at a range of SOM contents. The sandy soil type is conservative for the majority of soils (including made ground) encountered on historically contaminated sites.

In the absence of published SGVs, Sirius has normally derived GAC values using CLEA versions 1.04 and 1.06 and the authoritative parameter data presented in Nathanail *et al.* (2009) "The LQM/CIEH Generic Assessment Criteria for Human Health Risk Assessment", 2nd edition, Land Quality Press, Nottingham.

Where neither SGVs nor authoritative third party reports were available, GAC values were derived by Sirius using the CLEA version 1.04 and 1.06 models in accordance with the guidance published by the Environment Agency in the SC050021 report series. Full details of the derivation of these GAC values can be provided upon request.

Controlled Waters

The Environment Agency's "Methodology for the Derivation of Remedial Targets for Soil and Groundwater to Protect Water Resources", R&D Publication 20, provides a framework for assessing the potential for pollution of controlled waters and for deriving remedial target concentrations in soil and groundwater. In relation to the standards for controlled waters, there are currently no generic groundwater nor surface water standards that are applicable to all sites. However, the UK Drinking Water Standards and the Environment Agency's national Environmental Quality Standards (EQS) are considered appropriate assessment criteria for many cases.

Soil Leachability

A screening assessment has been carried out using leachability data obtained from tests performed on soils at the site, to assess the potential risks to local controlled waters, including groundwater. The Environment Agency's Remedial Targets Methodology recommends the use of the BS EN 12475 leachate methods and this is adopted by Sirius.

The results of the leachate analysis have been compared to relevant criteria derived from Environment Agency (2002) "Technical Advice to Third Parties on Pollution of Controlled Waters for Part IIA, EPA1990" and The Water Supply (Water Quality) Regulations 1989, as amended (2001 and 2007).

Buried Concrete

A generic assessment is made in relation to the potential impact on buried concrete by reference to BRE Special Digest No. 1; 3rd Edition (2005) "Concrete in Aggressive Ground".

SIRIUS HUMAN HEALTH GENERIC ASSESSMENT CRITERIA – SOILS

Parameter	Residential (mg/kg, unless otherwise stated)						Commercial / Industrial (mg/kg, unless otherwise stated)			Source
	With Plant Uptake			Without Plant Uptake						
	1% SOM	2.5% SOM	5% SOM	1% SOM	2.5% SOM	5% SOM	1% SOM	2.5% SOM	5% SOM	
Metals/Metalloids										
Arsenic (inorganic)	32			35			640			Arsenic SGV [a]
Boron	290			10300			190000			Sirius/LQM/CIEH [b]
Cadmium [c]	10			18			230			Cadmium SGV
Chromium (III) [d]	3000			3000			30000			Sirius/LQM/CIEH
Copper	200 [e]			6200			72000			See note [e]
Lead	450			450			750			SGV10 [f]
Mercury (inorganic) [g]	170			240			3600			Mercury SGV
Nickel	130			130			1800			Nickel SGV
Selenium	350			600			13000			Selenium SGV
Vanadium	74			190			3200			Sirius/LQM/CIEH
Zinc	450 [e]			40000			600000			See note [e]
Other Inorganics										
pH	<5			<5			<5			
Total Sulphate	2400			2400			2400			BRE (2005) [h]
Water-Soluble Sulphate	0.5 g/l			0.5 g/l			0.5 g/l			BRE (2005)
Free Cyanide	34			34			1400			Acute risk calc. [i]
Organics										
PAHs										
Acenaphthene	200	460	840	1400	2400	3200	77000	93000	100000	Sirius/LQM/CIEH
Acenaphthylene	160	380	710	1400	2400	3200	77000	93000	100000	Sirius/LQM/CIEH
Anthracene	2200	4900	8200	19000	22000	23000	520000	540000	540000	Sirius/LQM/CIEH
Benzo(a)anthracene	3.3	4.9	5.8	4.1	5.5	6.2	91	96	98	Sirius/LQM/CIEH
Benzo(a)pyrene	0.83	0.94	1.0	1.0	1.0	1.0	14	14	15	Sirius/LQM/CIEH
Benzo(b)fluoranthene	5.6	6.5	7.0	7.0	7.3	7.4	100	100	100	Sirius/LQM/CIEH
Benzo(g,h,i)perylene	44	46	47	47	47	48	660	660	660	Sirius/LQM/CIEH
Benzo(k)fluoranthene	8.5	9.6	10	10	10	10	140	140	140	Sirius/LQM/CIEH

Rev. 13/01/10

Parameter	Residential (mg/kg, unless otherwise stated)						Commercial / Industrial (mg/kg, unless otherwise stated)			Source
	With Plant Uptake			Without Plant Uptake						
	1% SOM	2.5% SOM	5% SOM	1% SOM	2.5% SOM	5% SOM	1% SOM	2.5% SOM	5% SOM	
Chrysene	6.1	8.1	9.1	9.0	9.8	10	140	140	140	Sirius/LQM/CIEH
Dibenz(a,h)anthracene	0.77	0.86	0.90	0.87	0.91	0.93	13	13	13	Sirius/LQM/CIEH
Fluoranthene	260	460	630	980	1000	1000	23000	23000	23000	Sirius/LQM/CIEH
Fluorene	160	370	660	1500	2200	2600	61000	67000	70000	Sirius/LQM/CIEH
Indeno(1,2,3-cd)pyrene	3.2	3.9	4.1	4.2	4.4	4.4	61	62	62	Sirius/LQM/CIEH
Naphthalene	0.68	1.6	3.2	0.7	1.7	3.3	110	270	540	Sirius/LQM/CIEH
Phenanthrene	92	200	330	820	920	960	22000	22000	23000	Sirius/LQM/CIEH
Pyrene	560	1000	1500	2300	2400	2400	54000	54000	55000	Sirius/LQM/CIEH
BTEX and related										
Benzene	0.054	0.11	0.20	0.11	0.21	0.38	16	30	52	Sirius/CLEA [II]
Toluene	92	210	410	260	570	1070	840	1900	3600	Sirius/CLEA
Ethylbenzene	42	100	200	70	160	320	510	1200	2400	Sirius/CLEA
Xylenes (total) [IX]	20	47	92	22	52	100	470	1100	2200	Sirius/CLEA
1,2,4-trimethylbenzene	0.16	0.39	0.76	0.17	0.41	0.81	23	55	110	Sirius/CLEA/EIC [II]
Iso-propylbenzene	4.7	11	23	4.8	12	23	750	1800	3600	Sirius/CLEA/EIC
Propylbenzene	15	37	54	16	40	79	2200	5400	10400	Sirius/CLEA/EIC
Styrene	6.1	14	28	15	34	65	2000	4100	6900	Sirius/CLEA/EIC
TPH										
Aliphatic EC 5-6	17	28	47	29	53	93	2500	4300	7200	Sirius/LQM/CIEH
Aliphatic EC >6-8	36	77	150	70	160	300	5500	12000	22000	Sirius/LQM/CIEH
Aliphatic EC >8-10	8.8	22	42	18	44	88	1300	3200	6300	Sirius/LQM/CIEH
Aliphatic EC >10-12	43	110	210	90	220	440	6400	15000	29000	Sirius/LQM/CIEH
Aliphatic EC >12-16	350	850	1600	720	1600	2700	44000	73000	85000	Sirius/LQM/CIEH
Aliphatic EC >16-35	29000	48000	62000	44000	64000	74000	No GAC [VI]	No GAC	No GAC	Sirius/LQM/CIEH
Aliphatic EC >35-44	29000	48000	62000	44000	64000	74000	No GAC	No GAC	No GAC	Sirius/LQM/CIEH
Aromatic EC >5-7	0.054	0.11	0.20	0.11	0.21	0.38	16	30	52	Set as benzene
Aromatic EC >7-8	92	210	410	610	1290	2300	35000	71000	120000	Sirius/LQM/CIEH

Parameter	Residential (mg/kg, unless otherwise stated)						Commercial / Industrial (mg/kg, unless otherwise stated)			Source
	With Plant Uptake			Without Plant Uptake						
	1% SOM	2.5% SOM	5% SOM	1% SOM	2.5% SOM	5% SOM	1% SOM	2.5% SOM	5% SOM	
Aromatic EC >8-10	14	34	68	32	78	150	2300	5400	10000	Sirius/LQM/CIEH
Aromatic EC >10-12	54	130	250	170	400	730	11000	23000	30000	Sirius/LQM/CIEH
Aromatic EC >12-16	140	300	520	1200	1600	1700	35000	37000	38000	Sirius/LQM/CIEH
Aromatic EC >16-21	250	480	710	1300	1300	1300	28000	28000	28000	Sirius/LQM/CIEH
Aromatic EC >21-35	890	1100	1200	1300	1300	1300	28000	28000	28000	Sirius/LQM/CIEH
Aromatic EC >35-44	890	1100	1200	1300	1300	1300	28000	28000	28000	Sirius/LQM/CIEH
Chlorinated Organics										
Chlorobenzene	0.14	0.31	0.61	0.14	0.31	0.61	33	75	150	Sirius/LQM/CIEH
Dichloromethane (DCM)	0.41	0.7	1.0	0.83	1.2	1.7	140	200	290	Sirius/CLEA/EIC
1,1-dichloroethane (DCA)	1.0	1.7	2.8	1.0	1.7	2.9	150	250	420	Sirius/CLEA/EIC
1,2-dichloroethane (DCA)	0.0022	0.0035	0.0055	0.0024	0.0037	0.0059	0.36	0.55	0.86	Sirius/LQM/CIEH
1,1-dichloroethene (DCE)	0.10	0.18	0.32	0.10	0.18	0.32	15	28	48	Sirius/CLEA/EIC
cis-1,2-dichloroethene (DCE)	0.05	0.08	0.14	0.05	0.09	0.19	7.7	14	24	Sirius/CLEA/EIC
trans-1,2-dichloroethene (DCE)	0.08	0.15	0.27	0.08	0.15	0.27	12	23	41	Sirius/CLEA/EIC
Pentachlorophenol	0.54	1.3	2.5	23	31	35	1200	1300	1400	Sirius/LQM/CIEH
1,1,1,2-tetrachloroethane	0.41	0.96	1.9	0.44	1.0	2	63	150	280	Sirius/LQM/CIEH
1,1,2,2-tetrachloroethane	0.78	1.7	3.2	1.1	2.4	4.4	160	330	600	Sirius/LQM/CIEH
Tetrachloroethene (PCE)	0.41	0.94	1.8	0.43	0.96	1.9	72	163	310	Sirius/LQM/CIEH
Tetrachloromethane	0.0078	0.017	0.033	0.0078	0.017	0.033	1.7	3.8	7.3	Sirius/LQM/CIEH
1,1,1-trichloroethane (TCA)	2.6	5.5	10	2.7	5.5	10	390	820	1500	Sirius/LQM/CIEH
1,1,2-trichloroethane (TCA)	0.30	0.64	1.2	0.36	0.76	1.4	51	110	200	Sirius/CLEA/EIC
Trichloroethene (TCE)	0.045	0.1	0.18	0.046	0.098	0.19	6.6	14	27	Sirius/LQM/CIEH
Trichloromethane	0.34	0.63	1.1	0.37	0.68	1.2	57	110	190	Sirius/LQM/CIEH
Vinyl Chloride	0.00024	0.00032	0.00045	0.00026	0.00034	0.00047	0.04	0.052	0.072	Sirius/LQM/CIEH
Miscellaneous Organics										
Carbon disulphide	0.047	0.094	0.17	0.047	0.094	0.17	7.1	14	27	Sirius/LQM/CIEH
Di-(2-ethylhexyl)-phthalate	280	610	1000	2700	2800	2800	85000	86000	86000	Sirius/CLEA/EIC

Parameter	Residential (mg/kg, unless otherwise stated)						Commercial / Industrial (mg/kg, unless otherwise stated)			Source
	With Plant Uptake			Without Plant Uptake						
	1% SOM	2.5% SOM	5% SOM	1% SOM	2.5% SOM	5% SOM	1% SOM	2.5% SOM	5% SOM	
MTBE	23	40	70	28	48	81	4000	6900	12000	Sirius/CLEA/EIC
Phenol	180	290	392	310	420	510	3200 [N]			Phenol SGV
Methylphenols (cresols), total [o]	77	170	330	3900	5600	6800	160000	160000	160000	Sirius/CLEA/EIC
2,4-dimethylphenol (m-xylenol)	18	41	78	140	300	500	14000	22000	27000	Sirius/CLEA/EIC

All values are rounded to 1 or 2 significant figures.

Notes:

[a] SGV reports comprise the SGV, TOX and supporting contaminant-specific reports published by the Environment Agency as part of the Science Report SC050021 series. SGV values are applied directly as the criteria are not sensitive to soil type nor SOM content. For the "Residential Without Plant Uptake" land use, GAC values have been derived by Sirius using CLEA version 1.06 and the published model parameter and chemical property data.

[b] Calculated by Sirius for sandy soil in CLEA version 1.06 using the toxicological, model parameter and chemical property data presented in Nathanail et al. (2009) "The LQM/CIEH Generic Assessment Criteria for Human Health Risk Assessment", 2nd edition, Land Quality Press, Nottingham.

[c] The SGV and GAC values for cadmium are based on data for soils having a pH value in the range 6-8. Caution should be applied in applying them at pH values outside this range, especially at pH values <5.

[d] GAC for Cr (III) also applied for total chromium, as hexavalent chromium does not persist to a significant extent in soils under normal conditions (further information can be provided upon request). A SSAC will be required for sites where historical information indicate that Cr (VI) was handled or generated on site, when analytical data demonstrate Cr (VI) is present or when soil conditions indicate that Cr (VI) will persist in situ.

[e] For the 'Residential with Plant Uptake' end-use, the GAC values for Cu and Zn are based on potential phytotoxic effects and have been set at the maximum allowable concentrations for sewage sludge-amended soils presented in the "Sludge (Use in Agriculture) Regulations" (SI 1263/1989). The equivalent GAC values for human health protection in this land-use are: Cu, 2300 mg/kg; Zn, 3700 mg/kg (LQM/CIEH values - Nathanail et al., 2009). The GAC values for the other land uses presented are human health-based criteria presented in Nathanail et al. (2009). In cases where soils in those land uses may be used for vegetation purposes, then the 'Residential with Plant Uptake' GAC values may be applied. However, for all cases where the GAC is set on the basis of potential phytotoxicity, alternative criteria will be derived where elevated natural background soil concentrations of these metals have been demonstrated.

[f] SGV10 has been retained as the most appropriate source of a GAC for lead, given the specific blood lead calculation methods and input data applied.

[g] The SGV for mercury is based on inorganic mercury which represents the most common form encountered within the environment. This is considered appropriate for most sites as: "...the SGV for inorganic mercury can normally be compared with chemical analysis for total mercury content because the equilibrium concentrations of elemental and methylmercury compounds are likely to be very low" (SC050021/Mercury SGV). Analysis and specific assessment for elemental or methylated forms of mercury will need to be considered if historical land use or site-specific factors indicate that these forms of mercury are likely to be present.

[h] BRE (2005) Special Digest 1, 3rd Edition "Concrete in aggressive ground". Sulphate is not considered to pose a potential risk to human health under normal circumstances – this GAC applies to construction cases only and is set at the upper limit for DS-1 Design Sulphate Class concrete.

[i] GAC calculated for acute risk. Further information can be provided upon request.

[j] Calculated by Sirius for all land uses using CLEA version 1.06 and the toxicological, model parameter and chemical property data published by the Environment Agency (Science Report SC050021 Series).

[k] For screening purposes, a single GAC has been set for total xylene. This is the lowest of the values calculated for the three individual xylene isomers.

[l] Calculated by Sirius for all land uses using CLEA version 1.06 and the toxicological, model parameter and chemical property data published by CL:AIRE in association with the AGS and EIC (December 2009).

[m] "No GAC" indicates that no value has been specified for this land use as the HCV cannot be exceeded at achievable soil concentrations.

[n] The GAC for Commercial/Industrial land use is based on the threshold protective of direct skin contact with phenol (See SR050021/Phenol SGV).

[o] For screening purposes, a single GAC has been set for total methylphenol. This is the lowest of the values calculated for the three individual methylphenol isomers.

[p] The Hazardous Waste (England and Wales) Regulations 2005. TOC content in itself does not represent a potential risk to human health. This GAC is provided for indicative assessment of disposal options, in the case that off-site landfill of soil is is undertaken. This GAC is specified at the 'Inert' waste threshold and should be considered as for information purposes only.

[q] ICRCL (1986) Guidance Note 61/84, 2nd Edition, Notes on the Fire Hazards of Contaminated Land. Calorific value is not an indication of chronic human health risk but may be useful in assessment of the potential fire risk posed by made ground or natural soils containing elevated concentrations of potentially combustible organic matter.

CONTROLLED WATERS GAC (SCREENING) VALUES FOR FRESH WATER

Parameter	Generic Assessment Criterion (µg/l unless otherwise stated)
Metals/Metalloids	
Arsenic	50 [a] 10 [b]
Cadmium	5 [a, b]
Chromium+	5-250 [a] 50 [b]
Lead+	4-250 [a] 25 [b]
Mercury	1 [a, b]
Boron	2,000 [a] 1,000 [b]
Selenium	10 [b]
Copper+	1-28 [a] 2,000 [b]
Nickel+	50-200 [a] 20 [b]
Zinc+	8-500 [a] 5,000 [b]
Inorganics	
Sulphate	400 mg/l [a] 250 mg/l [b]
Ammonia (NH_3 as N) Ammonium (as NH_4^+)	15 [a] 500 [b]
Organics	
Total TPH	10 [b]
Naphthalene	10 [a]
Benzo(a)pyrene	0.01 [b]
Benzo(b)fluoranthene*	0.1 [b]
Benzo(k)fluoranthene*	0.1 [b]
Benzo(ghi)perylene*	0.1 [b]
Indeno(1,2,3-cd)pyrene*	0.1 [b]
Sum PAH-4*	0.1 [b]
Benzene	30 [a] 1 [b]
Toluene	50 [a]
Ethylbenzene	20 [c] 300 [d]
Xylenes (sum)	30 [a]
MTBE	2,600 [f] 200 [e]
Phenol	30 [a] 0.5 [b]
Others	
Electrical Conductivity	2,500 µS/cm @ 20ºC [b]
pH	6-9 pH units [g]

(a) Environment Agency (2002) Environment Agency technical advice to third parties on pollution of controlled waters for Part IIA of the EPA 1990. Freshwater Environmental Quality Standards (EQS).

(b) The Water Supply (Water Quality) (Amendment) Regulations 2001 and 2007.

(c) SEPA (2004) Environmental Quality Standards, Issue No 1, October 2004

(d) World Health Organisation (WHO) Guidelines for Drinking Water Quality, 1984. Health value.

(e) Based on a 5-fold dilution of the USEPA (1997) Drinking Water Advisory on MTBE value for taint, EPA-822-F-97-009. Full justification can be provided on request.

(f) EU Risk Assessment Report (2002) MTBE, 3rd Priority List, Volume 19. PNEC value for fresh and sea water life.

(g) The Surface Waters (Fishlife) (Classification) Regulations 1997.

\+ Hardness related (Lowest values are applied in the absence of site-specific hardness data).

* The sum of all 4 individual PAHs marked with an asterisk (*)

CONTROLLED WATERS GAC (SCREENING) VALUES FOR SALT WATER

Parameter	Generic Assessment Criterion (µg/l unless otherwise stated)
Metals/Metalloids	
Arsenic	25 [a]
Cadmium	2.5 [a]
Chromium	15 [a]
Lead	25 [a]
Mercury	0.3 [a]
Boron	7,000 [a]
Selenium	10 [b]
Copper	5 [a]
Nickel	30 [a]
Zinc	40 [a]
Inorganics	
Sulphate	250 mg/l [a, b]
Ammonia (NH_3 as N)	21 [a]
Organics	
Total TPH	10 [b]
Naphthalene	10 [a]
Benzo(a)pyrene	0.01 [b]
Benzo(b)fluoranthene*	0.1 [b]
Benzo(k)fluoranthene*	0.1 [b]
Benzo(ghi)perylene*	0.1 [b]
Indeno(1,2,3-cd)pyrene*	0.1 [b]
Sum PAH-4*	0.1 [b]
Benzene	30 [a]
Toluene	40 [a]
Ethylbenzene	20 [c]
Xylenes (sum)	30 [a]
MTBE	2,600 [d]
Phenol	30 [a]
Others	
Electrical Conductivity	2,500 µS/cm @ 20°C [b]
pH	6-9 pH units [e]

(a) Environment Agency (2002) Environment Agency technical advice to third parties on pollution of controlled waters for Part IIA of the EPA 1990. Saltwater EQS.

(b) The Water Supply (Water Quality) Regulations 1989 and (Amendment) 2001 and 2007.

(c) SEPA (2004) Environmental Quality Standards, Issue No 1, October 2004.

(d) EU Risk Assessment Report (2002) MTBE, 3rd Priority List, Volume 19. PNEC value for fresh and sea water life.

(e) The Surface Waters (Fishlife) (Classification) Regulations 1997.

* The sum of all 4 individual PAHs marked with an asterisk (*)