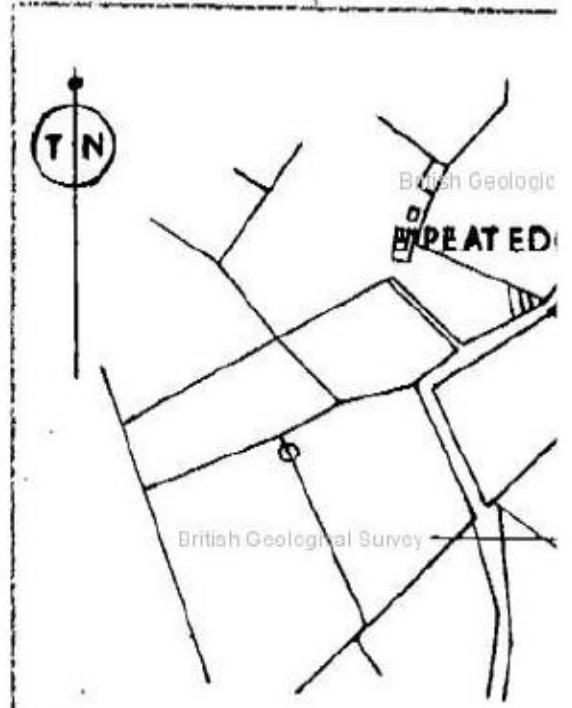


NZ/33/NW 143 43
 6 inch Map Registered G-22 D 5

SECTION OF..... **BORING SURFACE BOREHOLE (No. 1) NZ33NW/93**
 approximately 300 yds South West
 of. **Coor. Trees,**

Exact Site.....
 Lat. **N. 54° - 43' - 35.3"**
 Long. **W. 1° - 31' - 39"**



Level at which ~~slank~~ bore commenced relative to O.D. + **875 12**
 Date of sinking or boring ... **commenced 29.8.54** **Finished 29.9.54**
 Sinker or Borer..... **H.C.B**

One Inch Geological Map. **103 NS (New series Sheet 27)**
 Six Inch Map (County and Quarter Sheet). **Durban NZ 33/NW**

Scale 6" to 1 M

Geologist's Notes.	NATURE OF STRATA Borer's Journal	THICKNESS	
		Feet	In.
	Soil	1	0
	Clay	8	0
	Sand	1	6
	Clay	93	6
	Sandy clay with heavy coal traces	1	3
	Sandy clay with heavy boulders	48	9
	Sand	-	6
	Gravel	+119.37	1
	Soggy	4	3
	Foot (nto) bottom of borehole + 114.12	1	0

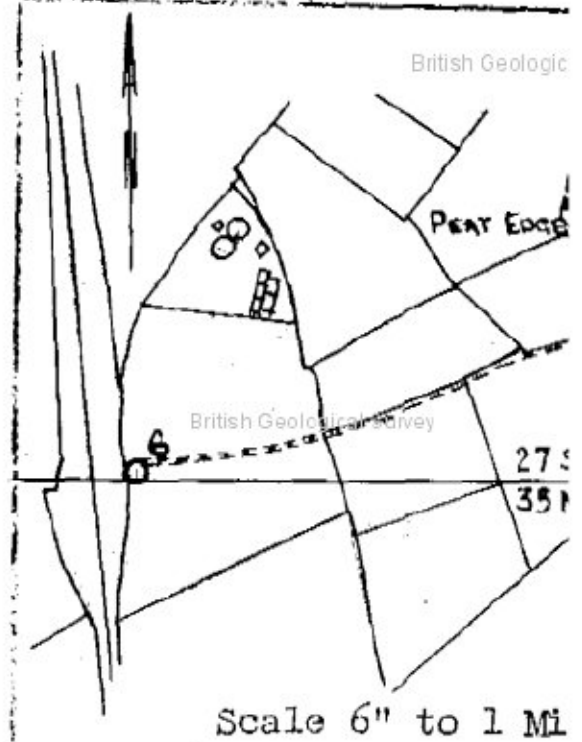
SAME LOG AS
NZ 33 NW/153!

NZ/33/NW/97

SECTION OF... **Justum Surface Borehole (No. 5)**
 Approx. 1100 Feet West South West of No. 1 Borehole (S. N. 3)
 and 1700 Feet South West of Peat Edge

6 inch Map
Registered

Exact Site,
 Lat. $51^{\circ} - 43' - 33.4''$
 Long. $1^{\circ} - 31' - 57.3''$



Level at which shaft bore commenced relative to O.D. **+ 241.72**
drift
 Date of sinking or boring **Commenced 20.9.54 Completed 5.10.54**
 Sinker or Borer **H.C.B.**
 One Inch Geological Map **103 N.E. (New Series Sheet 27)**
 Six Inch Map (County and Quarter Sheet) **Durham 27 S.W.**

Scale 6" to 1 MI

NATURE OF STRATA Geologist's Notes.	Borer's Journal	THICKNESS		DE Fe
		Feet	In.	
Soil		1	0	1
Sandy Clay and Boulders	+ 153.72	87	0	88
Red Sandstone		4	0	92
Gray Sandstone		26	7	118
Soft Dark Shale with Coal Traces			11	119
Gray Sandstone with Coal Ripings		15	11	135
COAL (Low Main)	+ 103.99	2	5	137
Hard Sagger with Root Partings		4	2	142
Gray Post with Dark Metal Partings		11	2	153
Dark Gray Metal		5	4	158
Dark Gray Shale with Ironstone Nodules		5	2	163
Gray Sandstone		1	2	164
Dark Gray Shale with Ironstone Nodules		6	4	171
COAL (Dirg)		1	1	172

NZ33NW/97

GA

SECTION OF **Eastern Surface Borehole (No. 5) Continued**

6 inch Map
Regd.No.

Six Inch Map (County and Quarter Sheet) **Durham 27 S.W.**

NZ/33/NW

D

NATURE OF STRATA		THICKNESS		DEPTH
Geologist's Notes	Borer's Journal	Feet	In.	Feet
	Grey Shale	3	3	184
	COAL	-	3	185
	Grey metal	4	2	190
	Grey Post with Dark Metal Partings	12	6	202
	Dark Shale	1	9	204
	COAL. Top Hutton + 35.39	1	1	205
	Saggar	-	8	206
	Black Shale	2	7	208
	Canal Coal	-	9	209
	Saggar	-	8	210
	Grey Post (Intc) 29.9.54	1	4	211
	Grey Shale & Ironstone Nodules	18	9	230
	COAL	-	7	230
	Sand	-	2	230
	COAL. Bottom Hutton + 10.14	-	9	231
	Black Shale	-	5	232
	Saggar	5	0	237
	Blue Shale	13	0	250
	Grey Shale & Post Partings	30	4	250
	Grey Post and Coal Partings (Intc)	12	8	293
	Bottom of Borehole - 51.28			

NZ/33/NW
 NZ 33NW/97

147
 6 inch N
 Registered
 9
 106

SECTION OF **borehole No. 5 at Rowburn.**

Exact Site **N. 54° 43' 33.4"**
S. 10 21' 51.3"

Attach tracing from a sketch map if possible

Level at which ^{shaft} ~~bore~~ _{drift} commenced relative to O.D. **+ 2.2'**

Date of sinking or boring **Sept. - Oct. 1954.**

Sinker or Borer **N.C.B.**

One Inch Geological Map **27**

Six Inch Map (County and Quarter Sheet) **Durham 27 S.W.**

NZ/33/NW

NATURE OF STRATA		THICKNESS		D
Geologist's Notes	Borer's Journal	Feet	In.	
	Soil			
	Clay stiff med-brown with boulders.	3	3	0
+ 154'. Not cored.	Sandy clay & boulders.	11	0	0
	Sandstone, iron stained, fine grained.	4	4	0
	Sandstone, grey, fine grained, medium grained bands & scattered shale pellets.	2	2	7
	Shale grey silty micaceous			11
	Sandstone light grey micaceous partings & occasional coal scars.	2	3	11
+ 104'. COAL (recovery 3%)	Low Main Seam (J)		2	5
	Fireclay grey		1	2
	Shale sandy roety		1	1
	Fireclay grey althensided		1	11
	Sandstone grey argillaceous with dark shaly partings.	1	5	2
	Shale dark grey micaceous, sandy partings.		5	4
	Shale grey silty occasional mussels.		5	2
				27

Series 520

Form P.71

NZ 33NW/97

6
B
9

SECTION OF Borehole No. 5 at Bowburn (1954)

Six Inch Map (County and Quarter Sheet)

Durham 27 S.W.

NZ/33/NW

NATURE OF STRATA		THICKNESS		D
Geologist's Notes	Borer's Journal	Feet	In.	
				29
Shale silty & micaceous carbonaceous at base muscle at base.		3	2	30
+ 59". COAL (6" recovery)	Bottom Brass Hill Seam (L.2)	1	2	30
Fireclay			7	30
Shale grey rooty micaceous		2	7	30
COAL			3	30
Fireclay shaly			6	31
Shale grey sandy with argillaceous sandstone partings. Very sandy at base.		3	8	31
Sandstone light grey fine dark partings.		2	0 6	33
Shale dark, slightly sandy micaceous with plants.		1	9	34
+ 36". COAL	Top Hutton Seam (L.1)	1	1	34
Fireclay dark grey slickensided.			8	34
Fireclay dark grey shaly.		2	7	34
Shale conchoidal with pyritic films.			9	34
Fireclay grey slickensided.			8	35
Sandstone grey fine argillaceous.		1	4	35
Shale grey silty, fine sandy partings.		2	1 8	37
Shale grey, ironstone bands & muscels in basal inch.		5	1	38
+ COAL (recovery 3")	Bottom Hutton Seam (L.2)	1	11	38
This thickness considered to be more accurate than drillers record which records 1' 6".				
Fireclay light grey brown slickensided.		5	0	39
				41

149 98

N7/33/NW
NZ 33 NW/98

SECTION OF... **Bowburn Surface Borehole No. 6 1400ft South West of Peat Edge and 271 ft East of No. 5 Borehole (S.N.6)** 6 inch Map Registered 1

Exact Site.....

Lat. **N 54°-43'-34.4"**

Long. **W 1°-31'-52.9"**

Level at which bore commenced relative to O.D. **+ 255.02**

Date of sinking or boring **Commenced 13.10.54 Completed 20.10.54**

Sinker or Borer **N.C.B.**

One Inch Geological Map **103 N.E. (New Series Sheet 27)**

Six Inch Map (County and Quarter Sheet) **Durham 27 S.W. NZ/33/NW**

Scale 6" to 1 Mile



NATURE OF STRATA Geologist's Notes. Borer's Journal	THICKNESS		DEP
	Feet	In.	Feet
Soil	1	0	1
Clay	49	0	50
Boulder Clay	24	0	74
Sandy Clay with Ironstone Boulders	22	0	96
Sandy Loam + 151.69	7	4	103
Sandstone	48	4	151
COAL (Low Main) + 101.02	2	4	154
Seggar (Into)	12	0	166
Bottom of Borehole + 89.02			



APPENDIX 4 ▪ Coal Authority Report



Issued by:

The Coal Authority, Property Search Services, 200 Lichfield Lane, Berry Hill, Mansfield, Nottinghamshire, NG18 4RG
Website: www.groundstability.com Phone: 0845 762 6848 DX 716176 MANSFIELD 5

**IDOM MEREBROOK
1 LEONARD PLACE, WESTERHAM
ROAD
KESTON
KENT
BR2 6HQ**

Our reference: **51000508082001**
Your reference: **14-S313-NTD-18582**
Date of your enquiry: **04 April 2014**
Date we received your enquiry: **04 April 2014**
Date of issue: **04 April 2014**

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

Non-Residential Coal Authority Mining Report

ACORN BUSINESS PARK, TURSDALE ROAD, BOWBURN, DURHAM, DURHAM,

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	See comments below
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 4 seams of coal at 60m to 190m depth, and last worked in 1967.

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.

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 or otherwise work 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

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

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 not 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 subject property, or any property within 50 metres, since 31st October 1994.

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.

Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

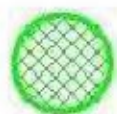
Additional Remarks

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 Coal Authority owns the copyright in this report. The information we have used to write this report is protected by our database right. All rights are reserved and unauthorised use is prohibited. If we provide a report for you, this does not mean that copyright and any other rights will pass to you. However, you can use the report for your own purposes.

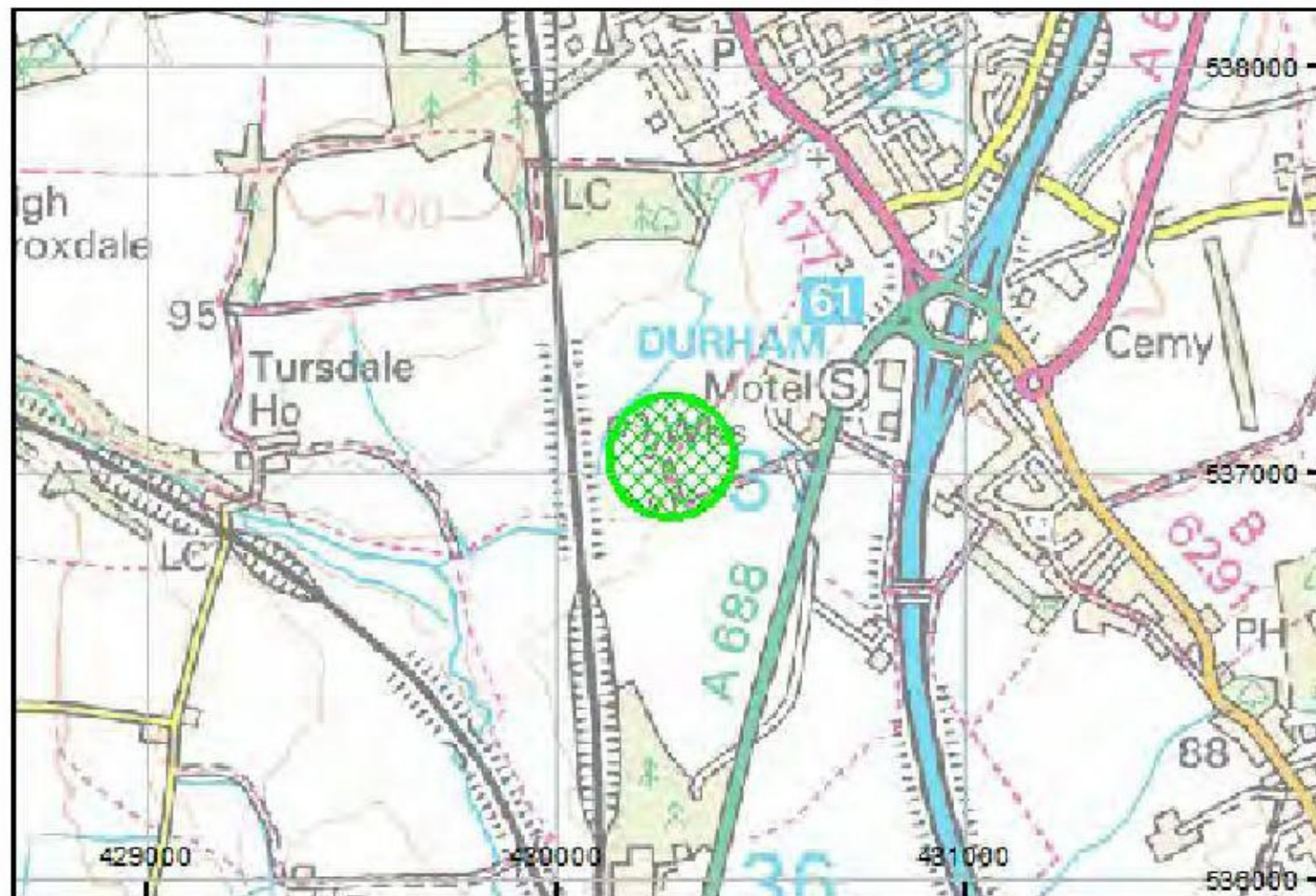
Issued by:	The Coal Authority, 200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG
Tax Point Date:	04 April 2014
Issued to:	IDOM MEREBROOK 1 LEONARD PLACE, WESTERHAM ROAD KESTON KENT BR2 6HQ
Property Search for:	ACORN BUSINESS PARK, TURSDALE ROAD, BOWBURN, DURHAM, DURHAM,
Reference Number:	51000508082001
Date of Issue:	04 April 2014
Cost:	£286.00
VAT @ 20%:	£57.20
Total Received:	£343.20
VAT Registration	598 5850 68

Map images are being sent under separate cover

Location map



Approximate position of property

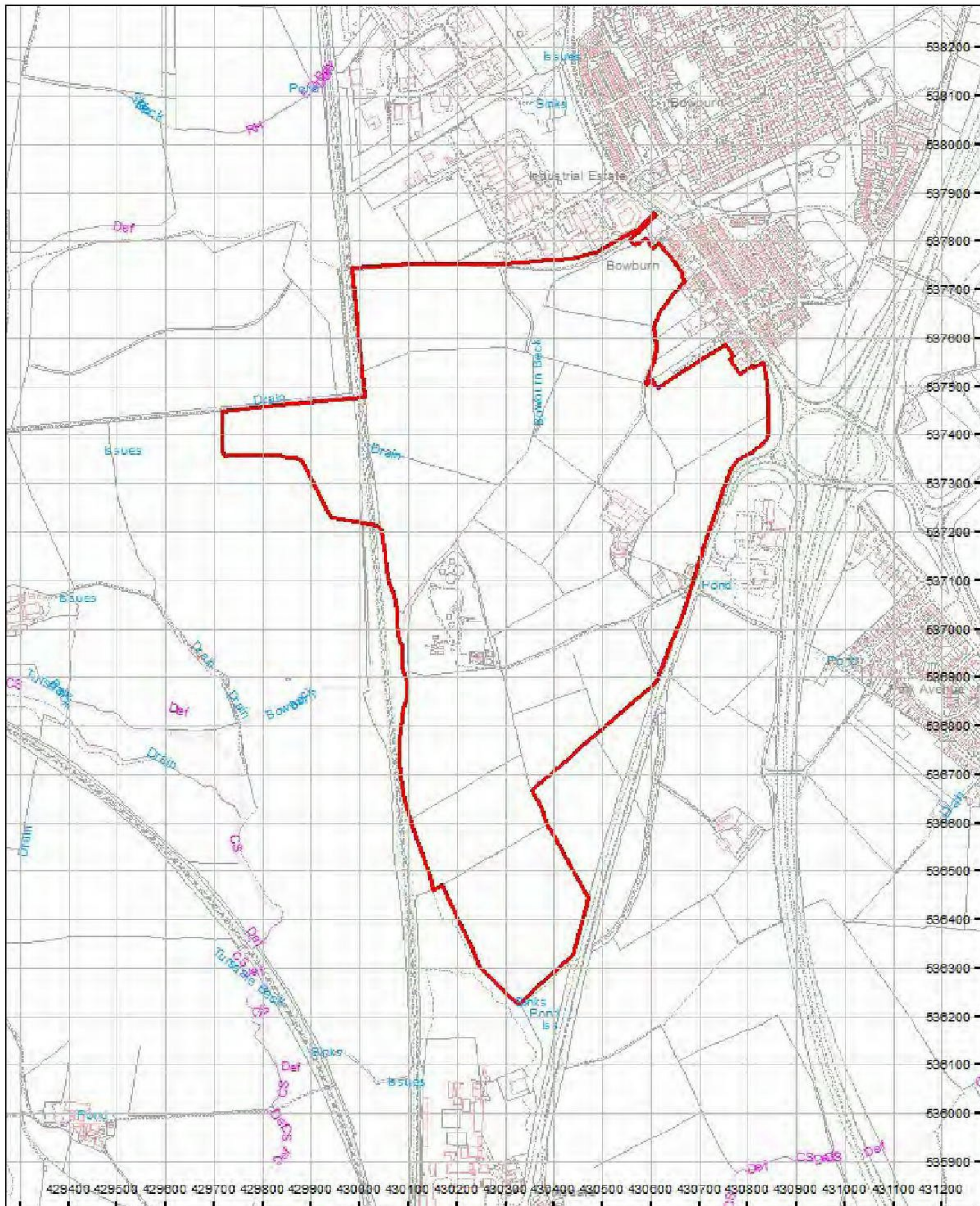


Enquiry boundary

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Key

Approximate position of enquiry boundary shown





APPENDIX 5 ▪ Exploratory Hole Logs

Project Name
 Acorn Business Park
Location: Durham

Project No.
 18582

Co-ords
 -
Level
 -

Hole Type
 WLS
Scale
 1:25

Client: Guernsey Property Investment Limited

Dates: 11/04/2014

Logged By
 SM

Well	Water Strike	Samples & In Situ Testing			Depth in metres (thickness)	Legend	Stratum Description	
		Depth (m)	Type	Results				
		0.10			0.10	MADE GROUND: Clay with occasional fine to medium angular brick, mudstone and coal (TOPSOIL)		
		(0.50)			(0.50)	MADE GROUND: Black-red ashy sandy gravel. Gravel is coal, brick, mudstone and clinker		
		1.00	SPT	N=8 (1,1,2,2,2,2)	0.60	Firm orange-buff slightly silty CLAY	1	
		2.00	SPT	N=6 (2,2,1,1,2,2)	(2.30)		2	
		3.00	SPT	N=9 (2,2,2,2,2,3)	2.90	Soft to firm brown-orange buff silty CLAY	3	
		4.00	SPT	N=11 (2,3,2,3,3,3)	(2.10)		4	
		End of Window Sample at 5.00 m						

Remarks: No groundwater encountered

IVN - in-situ hand vane
 IPP - in-situ pocket penetrometer
 SPT - in-situ standard penetration test
 PID - in-situ photoionization detector

D - small disturbed sample (tub)
 J - amber glass jar (250ml)
 V - amber glass jar (60ml)
 B - bulk disturbed sample

Project Name
 Acorn Business Park
Location: Durham

Project No.
 18582

Co-ords
 -
Level
 -

Hole Type
 WLS
Scale
 1:25

Client: Guernsey Property Investment Limited

Dates: 11/04/2014

Logged By
 SM

Well	Water Strike	Samples & In Situ Testing			Depth in metres (thickness)	Legend	Stratum Description
		Depth (m)	Type	Results			
		0.10				MADE GROUND: Clay with occasional fine to medium angular brick, mudstone and coal (TOPSOIL)	
		1.00	SPT	N=2 (0,0,0,0,1,1)	(2.20)	MADE GROUND: Black-red ashy sandy gravel. Gravel is coal, brick, mudstone and clinker. No recovery 0.9-2.3m.	
		2.00	SPT	N=4 (1,1,1,1,1,1)			
		2.30				Firm orange buff occasionally silty CLAY	
		3.00	SPT	N=5 (1,1,1,1,2,1)	3.00	End of Window Sample at 3.00 m	

Remarks: Groundwater at 2.3m. Installed with 0.5m plain, 1.0m slotted pipe

IVN - in-situ hand vane
 IPP - in-situ pocket penetrometer
 SPT - in-situ standard penetration test
 PID - in-situ photoionization detector

D - small disturbed sample (tub)
 J - amber glass jar (250ml)
 V - amber glass jar (60ml)
 B - bulk disturbed sample

Project Name
 Acorn Business Park
Location: Durham

Project No.
 18582

Co-ords
 -
Level
 -

Hole Type
 WLS
Scale
 1:25

Client: Guernsey Property Investment Limited

Dates: 11/04/2014

Logged By
 SM

Well	Water Strike	Samples & In Situ Testing			Depth in metres (thickness)	Legend	Stratum Description
		Depth (m)	Type	Results			
					0.10	Firm dark brown silty sandy clay TOPSOIL	
					(0.80)	Firm orange-buff mottled grey sandy CLAY with fine sandy lenses	
		1.00	SPT	N=9 (2,1,2,2,2,3)	0.90	Dark orange brown clayey SAND (fine to medium) with soft clay lenses	1
		1.00-1.50	B		(0.70)		
		1.50-2.00	B		1.60	Soft dark orange brown slightly clayey fine to medium SAND	
		2.00	SPT	N=1 (1,0,0,0,0,1)	(0.80)		2
					2.40	Soft dark red brown slightly silty CLAY	
		3.00	SPT	N=5 (1,1,1,1,1,2)	3.00	Red-black sandy GRAVEL. Gravel is ironstone, shale and igneous rocks	3
		3.00	D		(0.40)		
					3.40	Soft dark orange brown slightly clayey fine to medium SAND	
					3.60	Soft dark red brown slightly silty CLAY	
					(0.40)		
		4.00	SPT	N=10 (2,3,3,2,2,3)	4.00	Soft dark orange brown slightly clayey fine to medium SAND	4
					(1.00)		
End of Window Sample at 5.00 m							

Remarks: Groundwater approximately 3.0m (in gravel). Installed with 0.8m plain, 3.0m slotted pipe

IVN - in-situ hand vane
 IPP - in-situ pocket penetrometer
 SPT - in-situ standard penetration test
 PID - in-situ photoionization detector

D - small disturbed sample (tub)
 J - amber glass jar (250ml)
 V - amber glass jar (60ml)
 B - bulk disturbed sample

Project Name
Acorn Business Park
Location: Durham

Project No.
18582

Co-ords
-
Level
-

Hole Type
WLS
Scale
1:25

Client: Guernsey Property Investment Limited

Dates: 11/04/2014

Logged By
SM

Well	Water Strike	Samples & In Situ Testing			Depth in metres (thickness)	Legend	Stratum Description
		Depth (m)	Type	Results			
		0.10	D,J		(0.30)		MADE GROUND: Firm dark brown silty sandy clay TOPSOIL
		0.40	D,J		(0.30)		MADE GROUND: Dark brown clayey gravelly ashy fine sand. Gravel is fine to coarse angular coal, ash and brick
					0.60		Orange brown gravelly fine to coarse SAND
		1.00	SPT	N=1 (1,0,0,0,0,1)	(0.70)		
					1.30		Firm grey brown silty CLAY
					(0.30)		
					1.60		Orange-buff brown clayey fine sandy SILT
					(0.30)		
		2.00	SPT	N=12 (2,2,3,2,2,5)	1.90		Brown slightly clayey occasionally gravelly fine to medium SAND. Gravel is fine to medium rounded quartz
					(1.00)		
					2.90		Soft grey to brown silty CLAY
		3.00	SPT	N=4 (0,1,0,1,1,2)	3.00		
							End of Window Sample at 3.00 m

Remarks: Groundwater at 1.9m. Installed with 0.5m plain, 2.0m slotted pipe

IVN - in-situ hand vane
IPP - in-situ pocket penetrometer
SPT - in-situ standard penetration test
PID - in-situ photoionization detector

D - small disturbed sample (tub)
J - amber glass jar (250ml)
V - amber glass jar (60ml)
B - bulk disturbed sample

Project Name
 Acorn Business Park
Location: Durham

Project No.
 18582



Co-ords
 -
Level
 -

Hole Type
 WLS
Scale
 1:25

Client: Guernsey Property Investment Limited

Dates: 11/04/2014

Logged By
 SM

Well	Water Strike	Samples & In Situ Testing			Depth in metres (thickness)	Legend	Stratum Description
		Depth (m)	Type	Results			
		0.10			0.10		MADE GROUND: Firm dark brown silty sandy clay TOPSOIL
		(0.40)			(0.40)		MADE GROUND: Firm brown mottled grey silty clay
		0.50			0.50		MADE GROUND: Orange brown-cream and black sandy clayey gravel. Gravel is mudstone, brick, ash, coal and clinker
		1.00	SPT	N=7 (2,2,2,1,2,2)	(1.40)		
		1.90			1.90		
		2.00	SPT	N=11 (2,3,3,3,2,3)	2.00		MADE GROUND: Firm yellow brown silty sandy gravelly clay. Gravel is fine to medium rounded quartz
		(0.40)			(0.40)		MADE GROUND: Orange brown-cream and black sandy clayey gravel. Gravel is mudstone, brick, ash, coal and clinker
		2.40			2.40		Firm to soft yellow brown grey slightly silty CLAY
		(0.60)			(0.60)		
		3.00	SPT	N=9 (1,1,2,2,2,3)	3.00		End of Window Sample at 3.00 m
4.00	SPT	N=8 (2,2,2,2,2,2)					

Remarks: Groundwater at 2.1m. Installed with 0.5m plain, 1.0m slotted pipe

IVN - in-situ hand vane
 IPP - in-situ pocket penetrometer
 SPT - in-situ standard penetration test
 PID - in-situ photoionization detector

D - small disturbed sample (tub)
 J - amber glass jar (250ml)
 V - amber glass jar (60ml)
 B - bulk disturbed sample

Project Name
Acorn Business Park

Project No.
18582

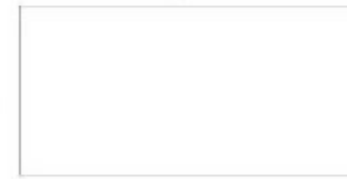
Dimensions (m):

Date
09/04/2014

Location: Durham

Depth (m)

3.40



Scale
1:25

Client: Guernsey Property Investment Limited

Logged By
SM

Samples & In Situ Testing			Depth in metres (thickness)	Legend	Stratum Description	
Depth (m)	Type	Results				
0.10	D,J		(0.30)		MADE GROUND: Dark brown firm silty sandy gravelly clay. Gravel is angular fine to medium brick and quartz (TOPSOIL)	
0.40	D,J		0.30		Firm to stiff red brown mottled grey CLAY with occasional buff to orange silt lenses. Thinly laminated	
			(2.40)			1
			2.70		Light brown mottled grey slightly clayey medium to fine SAND	2
			(0.70)			3
			3.40			4
					Trialpit Complete at 3.40 m	

Remarks: Groundwater at 2.7m. Moderate rate of water ingress in sand

IVN - in-situ hand vane
IPP - in-situ pocket penetrometer
PID - in-situ photoionization detector

D - small disturbed sample (tub)
J - amber glass jar (250ml)
V - amber glass jar (60ml)
B - bulk disturbed sample

Project Name

Acorn Business Park

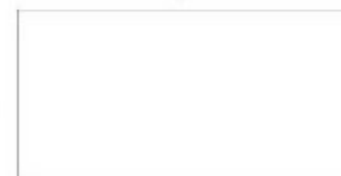
Project No.

18582

Dimensions (m):

Depth (m)

3.00



Date

09/04/2014

Scale

1:25

Logged By

SM

Client: Guernsey Property Investment Limited

Samples & In Situ Testing			Depth in metres (thickness)	Legend	Stratum Description
Depth (m)	Type	Results			
0.10	D,J		0.10		MADE GROUND: Dark brown firm silty sandy gravelly clay. Gravel is angular fine to coarse brick and tile (TOPSOIL)
0.20	D,J		(0.30)		MADE GROUND: Firm yellow brown silty sandy gravelly clay. Gravel is fine to medium brick
0.40	D,J		0.40		Firm to stiff red brown mottled grey CLAY with occasional buff to orange silt lenses. Thinly laminated
			(1.80)		
			2.20		
			(0.80)		Light brown mottled grey slightly clayey medium to fine SAND, with occasional lenses of medium black coal sand
			3.00		
Trialpit Complete at 3.00 m					

Remarks: Groundwater at 2.8m. Hole unstable from 2.2m

IVN - in-situ hand vane
IPP - in-situ pocket penetrometer
PID - in-situ photoionization detector

D - small disturbed sample (tub)
J - amber glass jar (250ml)
V - amber glass jar (60ml)
B - bulk disturbed sample

Project Name

Acorn Business Park

Project No.

18582

Dimensions (m):

Depth (m)

2.00

Date

09/04/2014



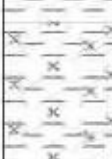


Scale

1:25

Logged By

SM

Client: Guernsey Property Investment Limited

Samples & In Situ Testing			Depth in metres (thickness)	Legend	Stratum Description
Depth (m)	Type	Results			
0.20	D,J		0.20		MADE GROUND: Dark brown firm silty sandy gravelly clay. Gravel is angular fine to medium brick, ceramics and rare coal (TOPSOIL)
0.30	D,J		(0.40)		Firm yellow brown mottled grey CLAY
			0.60		Firm to stiff red brown mottled grey CLAY with occasional buff to orange silt lenses. Thinly laminated
			(1.40)		
			2.00		Trialpit Complete at 2.00 m

Remarks: No groundwater encountered. Field drains at 0.6m, rapid ingress of water

IVN - in-situ hand vane
IPP - in-situ pocket penetrometer
PID - in-situ photoionization detector

D - small disturbed sample (tub)
J - amber glass jar (250ml)
V - amber glass jar (60ml)
B - bulk disturbed sample

Project Name

Acorn Business Park

Project No.

18582

Dimensions (m):

Depth (m)

4.00

Date

09/04/2014




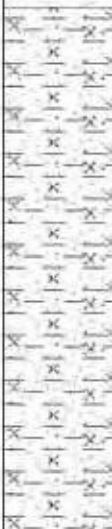


Scale

1:25

Logged By

SM

Client: Guernsey Property Investment Limited

Samples & In Situ Testing			Depth in metres (thickness)	Legend	Stratum Description	
Depth (m)	Type	Results				
0.30	D,J		(0.40)		TOPSOIL: Firm dark brown silty CLAY	
0.40	D,J		0.40		Firm orange brown mottled grey sandy CLAY	
			(1.20)			1
1.60	D,J		1.60		Soft to firm red brown to purple silty CLAY with occasional sandy lenses. Thinly laminated	2
			(2.40)			3
			4.00			4
					Trialpit Complete at 4.00 m	

Remarks: No groundwater encountered. Sides stable. Perched water within sandy lenses

IVN - in-situ hand vane
IPP - in-situ pocket penetrometer
PID - in-situ photoionization detector

D - small disturbed sample (tub)
J - amber glass jar (250ml)
V - amber glass jar (60ml)
B - bulk disturbed sample

Project Name
Acorn Business Park

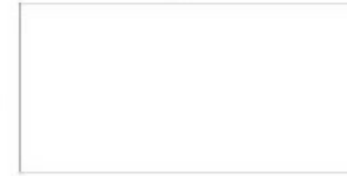
Project No.
18582

Dimensions (m):

Date
09/04/2014

Location: Durham

Depth (m)
4.40



Scale
1:25

Client: Guernsey Property Investment Limited

Logged By
SM

Samples & In Situ Testing			Depth in metres (thickness)	Legend	Stratum Description	
Depth (m)	Type	Results				
0.10	D,J		0.20		TOPSOIL: Firm dark brown silty CLAY	
0.40	D,J		(1.40)		Firm orange brown mottled grey sandy CLAY	1
			1.60		Soft to firm red brown to purple silty CLAY. Thinly laminated	2
			2.30		Soft red to purple rarely silty CLAY	3
			(2.10)			4
			4.40		Trialpit Complete at 4.40 m	

Remarks: No groundwater encountered. Sides stable.

IVN - in-situ hand vane
IPP - in-situ pocket penetrometer
PID - in-situ photoionization detector

D - small disturbed sample (tub)
J - amber glass jar (250ml)
V - amber glass jar (60ml)
B - bulk disturbed sample

Project Name
 Acorn Business Park

Project No.
 18582

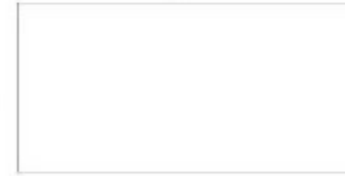
Dimensions (m):

Date
 09/04/2014

Location: Durham

Depth (m)



3.40



Scale
 1:25

Client: Guernsey Property Investment Limited

Logged By
 SM

Samples & In Situ Testing			Depth in metres (thickness)	Legend	Stratum Description	
Depth (m)	Type	Results				
0.20	D,J		0.20		MADE GROUND: Firm dark brown ashy gravelly sandy clay (TOPSOIL). Gravel is coal,brick and clinker	
0.30	D,J		(0.50)		MADE GROUND: Dark brown-black clayey ash. Ash is coal and clinker	
0.80	D,J		0.70		MADE GROUND: Firm orange brown to buff silty gravelly clay. Gravel is fine to coarse mudstone and brick	
1.00	D,J		1.00		MADE GROUND: Orange sandy ashy gravel. Gravel is crushed brick, ash and clinker	1
			(0.80)			
1.80	D,J		1.80		Firm to soft orange brown to buff silty CLAY	2
			(1.60)			
						3
			3.40			4
					Trialpit Complete at 3.40 m	

Remarks: No groundwater encountered. Sides stable.

IVN - in-situ hand vane
 IPP - in-situ pocket penetrometer
 PID - in-situ photoionization detector

D - small disturbed sample (tub)
 J - amber glass jar (250ml)
 V - amber glass jar (60ml)
 B - bulk disturbed sample

Project Name
 Acorn Business Park

Project No.
 18582

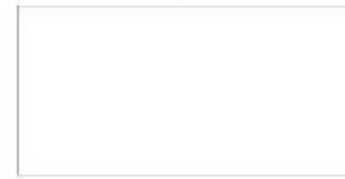
Dimensions (m):

Date
 10/04/2014

Location: Durham

Depth (m)



4.10



Scale
 1:25

Client: Guernsey Property Investment Limited

Logged By
 SM

Samples & In Situ Testing			Depth in metres (thickness)	Legend	Stratum Description	
Depth (m)	Type	Results				
0.10	D,J		(0.30)		MADE GROUND: Dark brown sandy silty ashy gravelly firm clay. Gravel is fine to medium brick, clinker and coal	
0.50	D,J		0.30		MADE GROUND: Black sandy ashy gravel. Gravel is fine to coarse angular coal and clinker	
			(1.10)			1
1.40	D,J		1.40		Soft to firm orange-buff brown mottled grey silty CLAY. Thinly laminated silt horizons	
			(1.50)			
			2.90		Soft buff orange brown silty CLAY	
			(1.20)			3
			4.10			4
					Trialpit Complete at 4.10 m	

Remarks: No groundwater encountered. Sides stable.

IVN - in-situ hand vane
 IPP - in-situ pocket penetrometer
 PID - in-situ photoionization detector

D - small disturbed sample (tub)
 J - amber glass jar (250ml)
 V - amber glass jar (60ml)
 B - bulk disturbed sample

Project Name
Acorn Business Park

Project No.
18582

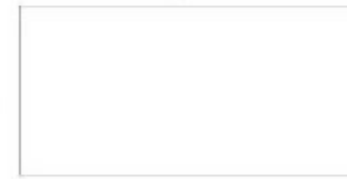
Dimensions (m):

Date
10/04/2014

Location: Durham

Depth (m)

3.10



Scale
1:25

Client: Guernsey Property Investment Limited

Logged By
SM

Samples & In Situ Testing			Depth in metres (thickness)	Legend	Stratum Description	
Depth (m)	Type	Results				
0.10	D,J		0.20		MADE GROUND: Dark brown firm silty sandy gravelly clay. Gravel is angular fine to medium brick and quartz (TOPSOIL)	
0.20	D,J				Firm orange buff brown silty fine sandy CLAY	
			(1.20)			1
			1.40		Soft to firm red brown silty CLAY	
			(1.70)			2
			3.10			3
					Trialpit Complete at 3.10 m	
						4

Remarks: No groundwater encountered. Sides stable.

IVN - in-situ hand vane
IPP - in-situ pocket penetrometer
PID - in-situ photoionization detector

D - small disturbed sample (tub)
J - amber glass jar (250ml)
V - amber glass jar (60ml)
B - bulk disturbed sample

Project Name

Acorn Business Park

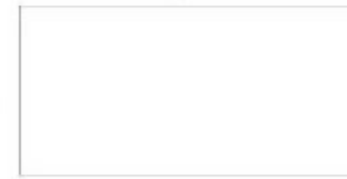
Project No.

18582

Dimensions (m):

Depth (m)

2.70



Date

10/04/2014

Scale

1:25

Logged By

SM

Client: Guernsey Property Investment Limited

Samples & In Situ Testing			Depth in metres (thickness)	Legend	Stratum Description	
Depth (m)	Type	Results				
0.20	D,J		(0.30)		MADE GROUND: Dark brown firm silty sandy gravelly clay. Gravel is angular fine to medium brick and quartz (TOPSOIL)	
0.30	D,J		0.30		Firm orange buff brown silty gravelly CLAY. Gravel is fine to coarse rounded quartz and rare quartz cobbles	
			(1.10)			1
			1.40		Firm red brown slightly silty CLAY	
			(1.30)			2
			2.70			
					Trialpit Complete at 2.70 m	3
						4

Remarks: No groundwater encountered. Sides stable.

IVN - in-situ hand vane
IPP - in-situ pocket penetrometer
PID - in-situ photoionization detector

D - small disturbed sample (tub)
J - amber glass jar (250ml)
V - amber glass jar (60ml)
B - bulk disturbed sample

Project Name

Acorn Business Park

Project No.

18582

Dimensions (m):

Depth (m)

2.80

Date

10/04/2014

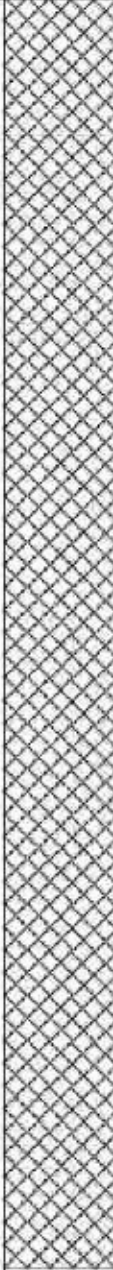
Scale

1:25

Logged By

SM

Client: Guernsey Property Investment Limited

Samples & In Situ Testing			Depth in metres (thickness)	Legend	Stratum Description
Depth (m)	Type	Results			
0.10	D,J		(0.30)		MADE GROUND: Dark brown firm silty sandy gravelly clay. Gravel is angular fine to medium brick, quartz, coal and mudstone (TOPSOIL)
0.50	D,J		0.30		MADE GROUND: Black grey sandy clayey gravel. Gravel is fine to coarse angular coal, mudstone and occasional brick. Regular mudstone boulders from 2.0m
1.50	D,J		(2.50)		
			2.80		Trialpit Complete at 2.80 m

Remarks: No groundwater encountered. Sides stable. Hard digging

IVN - in-situ hand vane
IPP - in-situ pocket penetrometer
PID - in-situ photoionization detector

D - small disturbed sample (tub)
J - amber glass jar (250ml)
V - amber glass jar (60ml)
B - bulk disturbed sample

Project Name
Acorn Business Park

Project No.
18582

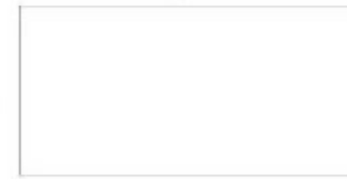
Dimensions (m):

Date
10/04/2014

Location: Durham

Depth (m)

4.10



Scale
1:25

Client: Guernsey Property Investment Limited

Logged By
SM

Samples & In Situ Testing			Depth in metres (thickness)	Legend	Stratum Description
Depth (m)	Type	Results			
0.30	D,J		(0.40)		MADE GROUND: Firm brown sandy gravelly silty clay. Gravel is brick, mudstone and coal
			0.40		MADE GROUND: Black grey sandy clayey gravel. Gravel is fine to coarse angular coal, frequent red mudstone and brick.
1.00	D,J				
2.00	D,J				
3.00	D,J		(3.70)		
			4.10		Trialpit Complete at 4.10 m

Remarks: No groundwater encountered. Sides stable.

IVN - in-situ hand vane
IPP - in-situ pocket penetrometer
PID - in-situ photoionization detector

D - small disturbed sample (tub)
J - amber glass jar (250ml)
V - amber glass jar (60ml)
B - bulk disturbed sample

Project Name
Acorn Business Park

Project No.
18582

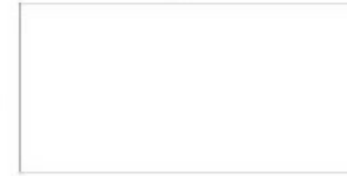
Dimensions (m):

Date
10/04/2014

Location: Durham

Depth (m)

3.10



Scale
1:25

Client: Guernsey Property Investment Limited

Logged By
SM

Samples & In Situ Testing			Depth in metres (thickness)	Legend	Stratum Description	
Depth (m)	Type	Results				
1.00	D,J		(0.50)		MADE GROUND: Firm brown sandy gravelly silty clay. Gravel is brick, mudstone and coal	1
			0.50		MADE GROUND: Red, cream and black sandy gravel. Gravel is angular fine to coarse mudstone. Frequent cobbles and boulders of angular mudstone	2
			(2.60)			3
			3.10			4

Trialpit Complete at 3.10 m

Remarks: No groundwater encountered. Side collapse from 0.5m.

IVN - in-situ hand vane
IPP - in-situ pocket penetrometer
PID - in-situ photoionization detector

D - small disturbed sample (tub)
J - amber glass jar (250ml)
V - amber glass jar (60ml)
B - bulk disturbed sample



APPENDIX 6 ▪ Soil Chemical Analysis Laboratory Certificates



Certificate of Analysis

Certificate Number 14-03414

14-Apr-14

Client Merebrook Consulting Limited
Suite 2B
East Mill
Belper
DE56 2UA

Our Reference 14-03414

Client Reference 18582

Contract Title Peat Edge Farm, Thursdale Rd, Durham

Description 10 Soil samples.

Date Received 09-Apr-14

Date Started 10-Apr-14

Date Completed 24-Mar-14

Test Procedures Identified by prefix DETSn (details on request), Asbestos Analysis DETSC 1101.

Notes Opinions and interpretations are outside the scope of UKAS accreditation. 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. Observations and interpretations are outside the scope of ISO 17025. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Rob Brown
Business Manager



Summary of Chemical Analysis

Matrix Descriptions

Our Ref 14-03414

Client Ref 18582

Contract Title Peat Edge Farm, Thursdale Rd, Durham

Sample ID	Other ID	Depth	Lab No	Completed	Matrix Description
MTP1	1	0.1	632626	24/03/2014	Brown gravelly sandy CLAY with odd rootlets
MTP1	2	0.4	632627	24/03/2014	Brown gravelly sandy CLAY
MTP2	1	0.1	632628	24/03/2014	Brown gravelly sandy CLAY with odd rootlets (made ground includes brick)
MTP2	2	0.2	632629	24/03/2014	Brown gravelly sandy CLAY with odd rootlets
MTP4	1	0.3	632630	24/03/2014	Dark brown gravelly sandy CLAY with odd rootlets
MTP4	2	0.4	632631	24/03/2014	Brown grey sandy CLAY
MTP5	1	0.1	632632	24/03/2014	Dark brown sandy CLAY
MTP6	1	0.2	632633	24/03/2014	Dark brown clayey gravelly SAND
MTP6	3	0.8	632634	24/03/2014	Brown sandy gravelly CLAY (made ground includes brick)

Summary of Chemical Analysis

Soil Samples

Our Ref 14-03414

Client Ref 18582

Contract Title Peat Edge Farm, Thursdale Rd, Durham

Lab No	632626	632627	632628	632629	632630	632631	632632
Sample ID	MTP1	MTP1	MTP2	MTP2	MTP4	MTP4	MTP5
Depth	0.10	0.40	0.10	0.20	0.30	0.40	0.10
Other ID	1	2	1	2	1	2	1
Sample Type	ES	ES	ES	ES	ES	ES	ES
Sampling Date	09/04/14	09/04/14	09/04/14	09/04/14	09/04/14	09/04/14	09/04/14
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units	632626	632627	632628	632629	632630	632631	632632
Metals										
Arsenic	DETSC 2301#	0.2	mg/kg	11	5.4	8.2	5.5	9.1	7.2	11
Cadmium	DETSC 2301#	0.1	mg/kg	0.8	0.5	0.7	0.5	0.8	0.6	0.8
Chromium	DETSC 2301#	0.15	mg/kg	47	46	49	32	41	43	57
Hexavalent Chromium	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	32	17	20	8.9	21	17	21
Lead	DETSC 2301#	0.3	mg/kg	59	16	52	31	51	18	48
Mercury	DETSC 2325#	0.05	mg/kg	0.09	< 0.05	< 0.05	< 0.05	0.07	< 0.05	0.10
Nickel	DETSC 2301#	1	mg/kg	25	33	31	16	21	32	24
Selenium	DETSC 2301#	0.5	mg/kg	0.9	< 0.5	0.5	< 0.5	0.9	0.8	1.4
Zinc	DETSC 2301#	1	mg/kg	120	51	77	50	94	64	86
Inorganics										
pH	DETSC 2008#			7.7	8.4	7.6	7.8	6.8	8.4	6.8
Cyanide total	DETSC 2130#	0.1	mg/kg	0.2	< 0.1	0.1	< 0.1	0.3	< 0.1	0.3
Organic matter	DETSC 2002#	0.1	%	9.8	0.9	3.9	2.8	6.7	7.0	6.6
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	75	94	30	24	45	33	50
Sulphide	DETSC 2024#	10	mg/kg	12	< 10	< 10	< 10	< 10	16	< 10
Petroleum Hydrocarbons										
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10	< 10	< 10
TPH Ali/Aro	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
MTBE	DETSC 3321	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PAHs										
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03

Summary of Chemical Analysis

Soil Samples

Our Ref 14-03414

Client Ref 18582

Contract Title Peat Edge Farm, Thursdale Rd, Durham

Lab No	632626	632627	632628	632629	632630	632631	632632
Sample ID	MTP1	MTP1	MTP2	MTP2	MTP4	MTP4	MTP5
Depth	0.10	0.40	0.10	0.20	0.30	0.40	0.10
Other ID	1	2	1	2	1	2	1
Sample Type	ES	ES	ES	ES	ES	ES	ES
Sampling Date	09/04/14	09/04/14	09/04/14	09/04/14	09/04/14	09/04/14	09/04/14
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units	632626	632627	632628	632629	632630	632631	632632
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.04	< 0.03	< 0.03	< 0.03	0.03	< 0.03	0.04
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
Pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Total PAH - USEPA 16	DETSC 3303	0.1	mg/kg	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenols										
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3

Summary of Chemical Analysis

Soil Samples

Our Ref 14-03414

Client Ref 18582

Contract Title Peat Edge Farm, Thursdale Rd, Durham

Lab No	632633	632634
Sample ID	MTP6	MTP6
Depth	0.20	0.80
Other ID	1	3
Sample Type	ES	ES
Sampling Date	09/04/14	09/04/14
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Metals					
Arsenic	DETSC 2301#	0.2	mg/kg	18	8.7
Cadmium	DETSC 2301#	0.1	mg/kg	0.9	0.6
Chromium	DETSC 2301#	0.15	mg/kg	46	38
Hexavalent Chromium	DETSC 2204*	1	mg/kg	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	66	18
Lead	DETSC 2301#	0.3	mg/kg	88	19
Mercury	DETSC 2325#	0.05	mg/kg	0.39	< 0.05
Nickel	DETSC 2301#	1	mg/kg	52	30
Selenium	DETSC 2301#	0.5	mg/kg	1.2	< 0.5
Zinc	DETSC 2301#	1	mg/kg	160	66
Inorganics					
pH	DETSC 2008#			8.1	8.4
Cyanide total	DETSC 2130#	0.1	mg/kg	0.2	< 0.1
Organic matter	DETSC 2002#	0.1	%	20	1.2
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	40	36
Sulphide	DETSC 2024#	10	mg/kg	< 10	< 10
Petroleum Hydrocarbons					
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	1.6
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	2.1	2.8
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10
TPH Ali/Aro	DETSC 3072*	10	mg/kg	< 10	< 10
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
MTBE	DETSC 3321	0.01	mg/kg	< 0.01	< 0.01
PAHs					
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03

Summary of Chemical Analysis Soil Samples

Our Ref 14-03414

Client Ref 18582

Contract Title Peat Edge Farm, Thursdale Rd, Durham

Lab No	632633	632634
Sample ID	MTP6	MTP6
Depth	0.20	0.80
Other ID	1	3
Sample Type	ES	ES
Sampling Date	09/04/14	09/04/14
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	0.05	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	0.15	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	0.08	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	0.15	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	0.06	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	0.05	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	0.19	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.53	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	0.07	< 0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	0.28	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	0.41	< 0.03
Total PAH - USEPA 16	DETSC 3303	0.1	mg/kg	2.0	< 0.10
Phenols					
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	< 0.3

Summary of Asbestos Analysis

Soil Samples

Our Ref 14-03414

Client Ref 18582

Contract Title Peat Edge Farm, Thursdale Rd, Durham

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
632633	MTP6 1 0.20	SOIL	NAD	none	John Leeson
632635	MTP6 4 1.00	SOIL	NAD	none	John Leeson

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 14-03414
 Client Ref 18582
 Contract Peat Edge Farm, Thursdale Rd, Durham

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
632626	MTP1 0.10 SOIL	09/04/14	No containers logged		Cannot evaluate
632627	MTP1 0.40 SOIL	09/04/14	No containers logged		Cannot evaluate
632628	MTP2 0.10 SOIL	09/04/14	No containers logged		Cannot evaluate
632629	MTP2 0.20 SOIL	09/04/14	No containers logged		Cannot evaluate
632630	MTP4 0.30 SOIL	09/04/14	No containers logged		Cannot evaluate
632631	MTP4 0.40 SOIL	09/04/14	No containers logged		Cannot evaluate
632632	MTP5 0.10 SOIL	09/04/14	No containers logged		Cannot evaluate
632633	MTP6 0.20 SOIL	09/04/14	No containers logged		Cannot evaluate
632634	MTP6 0.80 SOIL	09/04/14	No containers logged		Cannot evaluate
632635	MTP6 1.00 SOIL	09/04/14	No containers logged		Cannot evaluate

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time and/or inappropriate containers are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.
 Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.
 The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-
 Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETS 2002	Organic matter	%	0.1	Air Dried	No	Yes	Yes
DETS 2003	Loss on ignition	%	0.01	Air Dried	No	Yes	Yes
DETS 2008	pH	pH Units	1	Air Dried	No	Yes	Yes
DETS 2024	Sulphide	mg/kg	10	Air Dried	No	Yes	Yes
DETS 2076	Sulphate Aqueous Extract as SO4	mg/l	10	Air Dried	No	Yes	Yes
DETS 2084	Total Carbon	%	0.5	Air Dried	No	Yes	Yes
DETS 2084	Total Organic Carbon	%	0.5	Air Dried	No	Yes	Yes
DETS 2119	Ammoniacal Nitrogen as N	mg/kg	0.5	Air Dried	No	Yes	Yes
DETS 2130	Cyanide free	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2130	Cyanide total	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2130	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETS 2130	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes
DETS 2321	Total Sulphate as SO4	%	0.01	Air Dried	No	Yes	Yes
DETS 2325	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETS 3049	Sulphur (free)	mg/kg	0.75	Air Dried	No	Yes	Yes
DETS2123	Boron (water soluble)	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS2301	Arsenic	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS2301	Barium	mg/kg	1.5	Air Dried	No	Yes	Yes
DETS2301	Beryllium	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS2301	Cadmium Available	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS2301	Cadmium	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS2301	Cobalt	mg/kg	0.7	Air Dried	No	Yes	Yes
DETS2301	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETS2301	Copper	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS2301	Manganese	mg/kg	20	Air Dried	No	Yes	Yes
DETS2301	Molybdenum	mg/kg	0.4	Air Dried	No	Yes	Yes
DETS2301	Nickel	mg/kg	1	Air Dried	No	Yes	Yes
DETS2301	Lead	mg/kg	0.3	Air Dried	No	Yes	Yes
DETS2301	Selenium	mg/kg	0.5	Air Dried	No	Yes	Yes
DETS2301	Zinc	mg/kg	1	Air Dried	No	Yes	Yes
DETS 3072	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETS 3072	Aliphatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETS 3072	Aliphatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETS 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETS 3072	Aromatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETS 3072	Aromatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETS 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETS 062	Benzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Ethylbenzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Toluene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	m+p Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	o Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3311	C10-C24 Diesel Range Organics (DRO)	mg/kg	10	As Received	No	Yes	Yes
DETS 3311	C24-C40 Lube Oil Range Organics (LORO)	mg/kg	10	As Received	No	Yes	Yes
DETS 3311	EPH (C10-C40)	mg/kg	10	As Received	No	Yes	Yes

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETS 3303	Acenaphthene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Acenaphthylene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(a)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(a)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(b)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(k)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(g,h,i)perylene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Dibenzo(a,h)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Indeno(1,2,3-c,d)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Naphthalene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Phenanthrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3401	PCB 28 + PCB 31	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 52	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 101	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 118	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 153	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 138	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 180	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB Total	mg/kg	0.01	As Received	No	Yes	Yes

Method details are shown only for those determinands 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.



Certificate of Analysis

Certificate Number 14-03523

15-Apr-14

Client Merebrook Consulting Limited
Suite 2B
East Mill
Belper
DE56 2UA

Our Reference 14-03523

Client Reference 18582

Contract Title Peat Edge Farm, Thursdale Rd, Durham

Description 10 Soil samples.

Date Received 11-Apr-14

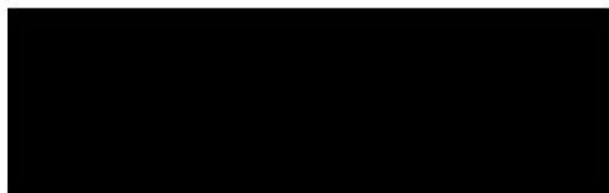
Date Started 11-Apr-14

Date Completed 15-Apr-14

Test Procedures Identified by prefix DETSn (details on request), Asbestos Analysis DETSC 1101.

Notes Opinions and interpretations are outside the scope of UKAS accreditation. 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. Observations and interpretations are outside the scope of ISO 17025. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Rob Brown
Business Manager



Summary of Chemical Analysis

Matrix Descriptions

Our Ref 14-03523

Client Ref 18582

Contract Title Peat Edge Farm, Thursdale Rd, Durham

Sample ID	Other ID	Depth	Lab No	Completed	Matrix Description
MTP07	1	0.1	633237	15/04/2014	Dark brown gravelly sandy CLAY (made ground includes brick)
MTP08	1	0.1	633239	15/04/2014	Dark brown gravelly sandy CLAY with odd rootlets (made ground includes brick)
MTP08	2	0.2	633240	15/04/2014	Brown grey gravelly sandy CLAY
MTP09	1	0.2	633241	15/04/2014	Dark brown gravelly sandy CLAY with odd rootlets (made ground includes brick)
MTP09	2	0.3	633242	15/04/2014	Brown gravelly sandy CLAY
MTP10	1	0.1	633243	15/04/2014	Brown gravelly sandy CLAY with odd rootlets
MTP10	2	0.5	633244	15/04/2014	Grey dark brown clayey gravelly SAND
MTP11	1	0.3	633245	15/04/2014	Brown grey gravelly sandy CLAY with numerous rootlets
MTP11	2	1	633246	15/04/2014	Grey dark brown clayey gravelly SAND

Summary of Chemical Analysis

Soil Samples

Our Ref 14-03523

Client Ref 18582

Contract Title Peat Edge Farm, Thursdale Rd, Durham

Lab No	633237	633239	633240	633241	633242	633243	633244
Sample ID	MTP07	MTP08	MTP08	MTP09	MTP09	MTP10	MTP10
Depth	0.10	0.10	0.20	0.20	0.30	0.10	0.50
Other ID	1	1	2	1	2	1	2
Sample Type	ES	ES	ES	ES	ES	ES	ES
Sampling Date	10/04/14	10/04/14	10/04/14	10/04/14	10/04/14	10/04/14	10/04/14
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units	633237	633239	633240	633241	633242	633243	633244
Metals										
Arsenic	DETSC 2301#	0.2	mg/kg	24	7.2	7.2	16	6.9	6.5	25
Cadmium	DETSC 2301#	0.1	mg/kg	2.3	0.8	0.6	1.1	0.7	0.6	0.9
Chromium	DETSC 2301#	0.15	mg/kg	74	34	47	51	46	41	56
Hexavalent Chromium	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	110	27	20	62	21	23	62
Lead	DETSC 2301#	0.3	mg/kg	140	41	23	120	24	27	79
Mercury	DETSC 2325#	0.05	mg/kg	0.21	< 0.05	< 0.05	0.12	< 0.05	< 0.05	0.11
Nickel	DETSC 2301#	1	mg/kg	50	23	33	35	36	34	40
Selenium	DETSC 2301#	0.5	mg/kg	1.9	1.2	0.8	1.9	0.6	1.1	3.2
Zinc	DETSC 2301#	1	mg/kg	330	110	76	160	77	71	160
Inorganics										
pH	DETSC 2008#			7.2	7.5	7.6	6.0	7.7	7.5	8.1
Cyanide total	DETSC 2130#	0.1	mg/kg	0.3	0.3	< 0.1	0.3	< 0.1	< 0.1	< 0.1
Organic matter	DETSC 2002#	0.1	%	11	12	2.2	10	1.6	2.6	9.0
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	33	59	40	65	34	89	1800
Sulphide	DETSC 2024#	10	mg/kg	< 10	32	< 10	20	< 10	24	60
Petroleum Hydrocarbons										
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	3.6	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	1.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	5.7	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	19	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	26	< 10	< 10	< 10	< 10	< 10
TPH Ali/Aro	DETSC 3072*	10	mg/kg	< 10	30	< 10	< 10	< 10	< 10	< 10
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
MTBE	DETSC 3321	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PAHs										
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.18

Summary of Chemical Analysis

Soil Samples

Our Ref 14-03523

Client Ref 18582

Contract Title Peat Edge Farm, Thursdale Rd, Durham

Lab No	633237	633239	633240	633241	633242	633243	633244
Sample ID	MTP07	MTP08	MTP08	MTP09	MTP09	MTP10	MTP10
Depth	0.10	0.10	0.20	0.20	0.30	0.10	0.50
Other ID	1	1	2	1	2	1	2
Sample Type	ES	ES	ES	ES	ES	ES	ES
Sampling Date	10/04/14	10/04/14	10/04/14	10/04/14	10/04/14	10/04/14	10/04/14
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units	633237	633239	633240	633241	633242	633243	633244
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.08
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	0.07	0.24	< 0.03	0.04	< 0.03	< 0.03	0.09
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	0.04	0.23	< 0.03	< 0.03	< 0.03	< 0.03	0.04
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	0.07	0.37	< 0.03	0.04	< 0.03	< 0.03	0.06
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	0.11	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	0.17	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	0.09	0.28	< 0.03	0.04	< 0.03	< 0.03	0.08
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	0.04	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.20	0.50	< 0.03	0.08	< 0.03	< 0.03	0.32
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.08
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	0.03	0.18	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	0.14	0.14	< 0.03	0.05	< 0.03	< 0.03	0.34
Pyrene	DETSC 3303#	0.03	mg/kg	0.16	0.45	< 0.03	0.06	< 0.03	< 0.03	0.26
Total PAH - USEPA 16	DETSC 3303	0.1	mg/kg	0.73	2.7	< 0.10	0.27	< 0.10	< 0.10	1.5
Phenols										
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	1.1	< 0.3	0.6	< 0.3	< 0.3	< 0.3

Summary of Chemical Analysis

Soil Samples

Our Ref 14-03523

Client Ref 18582

Contract Title Peat Edge Farm, Thursdale Rd, Durham

Lab No	633245	633246
Sample ID	MTP11	MTP11
Depth	0.30	1.00
Other ID	1	2
Sample Type	ES	ES
Sampling Date	10/04/14	10/04/14
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Metals					
Arsenic	DETSC 2301#	0.2	mg/kg	7.2	36
Cadmium	DETSC 2301#	0.1	mg/kg	0.7	1.0
Chromium	DETSC 2301#	0.15	mg/kg	41	49
Hexavalent Chromium	DETSC 2204*	1	mg/kg	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	21	86
Lead	DETSC 2301#	0.3	mg/kg	30	160
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	0.15
Nickel	DETSC 2301#	1	mg/kg	30	44
Selenium	DETSC 2301#	0.5	mg/kg	0.6	3.9
Zinc	DETSC 2301#	1	mg/kg	72	190
Inorganics					
pH	DETSC 2008#			7.5	8.2
Cyanide total	DETSC 2130#	0.1	mg/kg	0.1	< 0.1
Organic matter	DETSC 2002#	0.1	%	2.8	15
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	67	680
Sulphide	DETSC 2024#	10	mg/kg	< 10	56
Petroleum Hydrocarbons					
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	1.9
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	2.6
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	7.7
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	12
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10
TPH Ali/Aro	DETSC 3072*	10	mg/kg	< 10	12
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
MTBE	DETSC 3321	0.01	mg/kg	< 0.01	< 0.01
PAHs					
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	0.38

Summary of Chemical Analysis

Soil Samples

Our Ref 14-03523

Client Ref 18582

Contract Title Peat Edge Farm, Thursdale Rd, Durham

Lab No	633245	633246
Sample ID	MTP11	MTP11
Depth	0.30	1.00
Other ID	1	2
Sample Type	ES	ES
Sampling Date	10/04/14	10/04/14
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	0.18
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	0.08
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03	0.15
Pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	0.03
Total PAH - USEPA 16	DETSC 3303	0.1	mg/kg	< 0.10	0.78
Phenols					
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	0.5	< 0.3

Summary of Asbestos Analysis

Soil Samples

Our Ref 14-03523

Client Ref 18582

Contract Title Peat Edge Farm, Thursdale Rd, Durham

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
633238	MTP07 2 0.50	SOIL	NAD	none	Andrew Little
633239	MTP08 1 0.10	SOIL	NAD	none	Andrew Little
633241	MTP09 1 0.20	SOIL	NAD	none	Andrew Little
633244	MTP10 2 0.50	SOIL	NAD	none	Andrew Little

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 14-03523
 Client Ref 18582
 Contract Peat Edge Farm, Thursdale Rd, Durham

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
633237	MTP07 0.10 SOIL	10/04/14	GJ 250ml (250ml), PT 1L (1kg)		
633238	MTP07 0.50 SOIL	10/04/14	GJ 250ml (250ml), PT 1L (1kg)		
633239	MTP08 0.10 SOIL	10/04/14	GJ 250ml (250ml), PT 1L (1kg)		
633240	MTP08 0.20 SOIL	10/04/14	GJ 250ml (250ml), PT 1L (1kg)		
633241	MTP09 0.20 SOIL	10/04/14	GJ 250ml (250ml), PT 1L (1kg)		
633242	MTP09 0.30 SOIL	10/04/14	GJ 250ml (250ml), PT 1L (1kg)		
633243	MTP10 0.10 SOIL	10/04/14	GJ 250ml (250ml), PT 1L (1kg)		
633244	MTP10 0.50 SOIL	10/04/14	GJ 250ml (250ml), PT 1L (1kg)		
633245	MTP11 0.30 SOIL	10/04/14	GJ 250ml (250ml), PT 1L (1kg)		
633246	MTP11 1.00 SOIL	10/04/14	GJ 250ml (250ml), PT 1L (1kg)		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time and/or inappropriate containers are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETS 2002	Organic matter	%	0.1	Air Dried	No	Yes	Yes
DETS 2003	Loss on ignition	%	0.01	Air Dried	No	Yes	Yes
DETS 2008	pH	pH Units	1	Air Dried	No	Yes	Yes
DETS 2024	Sulphide	mg/kg	10	Air Dried	No	Yes	Yes
DETS 2076	Sulphate Aqueous Extract as SO4	mg/l	10	Air Dried	No	Yes	Yes
DETS 2084	Total Carbon	%	0.5	Air Dried	No	Yes	Yes
DETS 2084	Total Organic Carbon	%	0.5	Air Dried	No	Yes	Yes
DETS 2119	Ammoniacal Nitrogen as N	mg/kg	0.5	Air Dried	No	Yes	Yes
DETS 2130	Cyanide free	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2130	Cyanide total	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2130	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETS 2130	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes
DETS 2321	Total Sulphate as SO4	%	0.01	Air Dried	No	Yes	Yes
DETS 2325	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETS 3049	Sulphur (free)	mg/kg	0.75	Air Dried	No	Yes	Yes
DETS2123	Boron (water soluble)	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS2301	Arsenic	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS2301	Barium	mg/kg	1.5	Air Dried	No	Yes	Yes
DETS2301	Beryllium	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS2301	Cadmium Available	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS2301	Cadmium	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS2301	Cobalt	mg/kg	0.7	Air Dried	No	Yes	Yes
DETS2301	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETS2301	Copper	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS2301	Manganese	mg/kg	20	Air Dried	No	Yes	Yes
DETS2301	Molybdenum	mg/kg	0.4	Air Dried	No	Yes	Yes
DETS2301	Nickel	mg/kg	1	Air Dried	No	Yes	Yes
DETS2301	Lead	mg/kg	0.3	Air Dried	No	Yes	Yes
DETS2301	Selenium	mg/kg	0.5	Air Dried	No	Yes	Yes
DETS2301	Zinc	mg/kg	1	Air Dried	No	Yes	Yes
DETS 3072	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETS 3072	Aliphatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETS 3072	Aliphatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETS 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETS 3072	Aromatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETS 3072	Aromatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETS 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETS 062	Benzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Ethylbenzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Toluene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	m+p Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	o Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3311	C10-C24 Diesel Range Organics (DRO)	mg/kg	10	As Received	No	Yes	Yes
DETS 3311	C24-C40 Lube Oil Range Organics (LORO)	mg/kg	10	As Received	No	Yes	Yes
DETS 3311	EPH (C10-C40)	mg/kg	10	As Received	No	Yes	Yes

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETS 3303	Acenaphthene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Acenaphthylene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(a)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(a)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(b)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(k)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Benzo(g,h,i)perylene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Dibenzo(a,h)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Indeno(1,2,3-c,d)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Naphthalene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Phenanthrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3303	Pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETS 3401	PCB 28 + PCB 31	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 52	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 101	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 118	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 153	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 138	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB 180	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3401	PCB Total	mg/kg	0.01	As Received	No	Yes	Yes

Method details are shown only for those determinands 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.



Certificate of Analysis

Certificate Number 14-03793

22-Apr-14

Client Merebrook Consulting Limited
Suite 2B
East Mill
Belper
DE56 2UA

Our Reference 14-03793

Client Reference 18582

Contract Title Acorn Business Park, Durham

Description 2 Soil samples.

Date Received 15-Apr-14

Date Started 15-Apr-14

Date Completed 16-Apr-14

Test Procedures Identified by prefix DETSn (details on request), Asbestos Analysis DETSC 1101.

Notes Opinions and interpretations are outside the scope of UKAS accreditation. 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. Observations and interpretations are outside the scope of ISO 17025. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Rob Brown
Business Manager



Summary of Chemical Analysis

Soil Samples

Our Ref 14-03793

Client Ref 18582

Contract Title Acorn Business Park, Durham

Lab No	634614	634615
Sample ID	MWS04	MWS04
Depth	0.10	0.40
Other ID		
Sample Type	SOIL	SOIL
Sampling Date	11/04/14	11/04/14
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Metals					
Arsenic	DETSC 2301#	0.2	mg/kg	11	3.6
Cadmium	DETSC 2301#	0.1	mg/kg	0.8	0.5
Chromium	DETSC 2301#	0.15	mg/kg	28	18
Hexavalent Chromium	DETSC 2204*	1	mg/kg	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	31	14
Lead	DETSC 2301#	0.3	mg/kg	63	21
Mercury	DETSC 2325#	0.05	mg/kg	0.07	< 0.05
Nickel	DETSC 2301#	1	mg/kg	21	15
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5
Zinc	DETSC 2301#	1	mg/kg	120	48
Inorganics					
pH	DETSC 2008#			7.4	7.8
Cyanide total	DETSC 2130#	0.1	mg/kg	0.4	< 0.1
Organic matter	DETSC 2002#	0.1	%	6.5	8.5
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	36	15
Sulphide	DETSC 2024#	10	mg/kg	< 10	12
Petroleum Hydrocarbons					
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	7.2	3.2
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	26	12
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	34	15
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	4.0	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	22	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	26	< 10
TPH Ali/Aro	DETSC 3072*	10	mg/kg	60	15
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
MTBE	DETSC 3321	0.01	mg/kg	< 0.01	< 0.01
PAHs					
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03

Summary of Chemical Analysis

Soil Samples

Our Ref 14-03793

Client Ref 18582

Contract Title Acorn Business Park, Durham

Lab No	634614	634615
Sample ID	MWS04	MWS04
Depth	0.10	0.40
Other ID		
Sample Type	SOIL	SOIL
Sampling Date	11/04/14	11/04/14
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	0.03	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	0.04	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	0.04	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.08	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	0.04	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	0.07	< 0.03
Total PAH - USEPA 16	DETSC 3303	0.1	mg/kg	0.15	< 0.10
Phenols					
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	0.5	< 0.3

Summary of Asbestos Analysis

Soil Samples

Our Ref 14-03793

Client Ref 18582

Contract Title Acorn Business Park, Durham

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
634614	MWS04 0.10	SOIL	NAD	none	Jeff Cruddas

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 14-03793
 Client Ref 18582
 Contract Acorn Business Park, Durham

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
634614	MWS04 0.10 SOIL	11/04/14	GJ 250ml (250ml), PT 1L (1kg)		
634615	MWS04 0.40 SOIL	11/04/14	GJ 250ml (250ml), PT 1L (1kg)		

Key: G-Glass P-Plastic J-Jar T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time and/or inappropriate containers are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months



APPENDIX 7 ▪ Surface Water Chemical Analysis Laboratory Certificates



Certificate of Analysis

Certificate Number 14-03795

22-Apr-14

Client Merebrook Consulting Limited
Suite 2B
East Mill
Belper
DE56 2UA

Our Reference 14-03795

Client Reference 18582

Contract Title Acorn Business Park, Durham

Description 3 Water samples.

Date Received 15-Apr-14

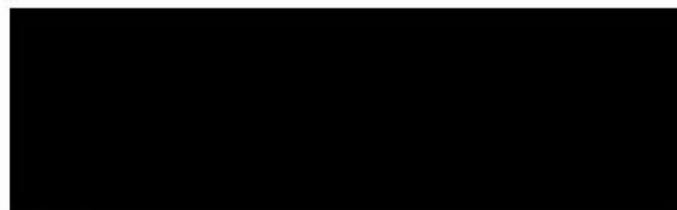
Date Started 15-Apr-14

Date Completed 22-Apr-14

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the scope of UKAS accreditation. 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. Observations and interpretations are outside the scope of ISO 17025. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Rob Brown
Business Manager



Summary of Chemical Analysis

Water Samples

Our Ref 14-03795

Client Ref 18582

Contract Title Acorn Business Park, Durham

Lab No	634617	634618	634619
Sample ID	W1 Up	W2 Centre	W3 Down
Depth			
Other ID			
Sample Type	WATER	WATER	WATER
Sampling Date	11/04/14	11/04/14	11/04/14
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
Metals						
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	0.61	0.65	0.50
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	0.08	0.07	0.06
Chromium, Dissolved	DETSC 2306	0.25	ug/l	0.30	0.43	0.35
Hexavalent Chromium	DETSC 2203	10	ug/l	< 10	< 10	< 10
Copper, Dissolved	DETSC 2306	0.4	ug/l	7.5	5.9	3.3
Lead, Dissolved	DETSC 2306	0.09	ug/l	1.1	1.2	0.61
Mercury, Dissolved	DETSC 2306	0.01	ug/l	< 0.01	< 0.01	< 0.01
Nickel, Dissolved	DETSC 2306	0.5	ug/l	3.5	3.6	3.1
Selenium, Dissolved	DETSC 2306	0.25	ug/l	1.7	1.4	1.1
Zinc, Dissolved	DETSC 2306	1.25	ug/l	68.5	57.4	56.0
Inorganics						
pH	DETSC 2008			7.9	8.0	8.0
Cyanide total	DETSC 2130	40	ug/l	< 40	< 40	< 40
Sulphate as SO4	DETSC 2055	0.1	mg/l	390	400	540
Sulphide	DETSC 2208	10	ug/l	< 10	< 10	< 10
Total Organic Carbon	DETSC 2033	2	mg/l	7.8	7.2	6.6
Petroleum Hydrocarbons						
Aliphatic C5-C6	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aliphatic C6-C8	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aliphatic C8-C10	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aliphatic C10-C12	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aliphatic C12-C16	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aliphatic C16-C21	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aliphatic C21-C35	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aliphatic C5-C35	DETSC 3072*	10	ug/l	< 10	< 10	< 10
Aromatic C5-C7	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aromatic C7-C8	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aromatic C8-C10	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1
Aromatic C10-C12	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aromatic C12-C16	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aromatic C16-C21	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aromatic C21-C35	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0
Aromatic C5-C35	DETSC 3072*	10	ug/l	< 10	< 10	< 10
TPH Ali/Aro	DETSC 3072*	10	ug/l	< 10	< 10	< 10
Benzene	DETSC 3322	1	ug/l	< 1.0	< 1.0	< 1.0
Toluene	DETSC 3322	1	ug/l	< 1.0	< 1.0	< 1.0
Ethylbenzene	DETSC 3322	1	ug/l	< 1.0	< 1.0	< 1.0
Xylene	DETSC 3322	1	ug/l	< 1.0	< 1.0	< 1.0
MTBE	DETSC 3322	1	ug/l	< 1.0	< 1.0	< 1.0

Summary of Chemical Analysis Water Samples

Our Ref 14-03795

Client Ref 18582

Contract Title Acorn Business Park, Durham

Lab No	634617	634618	634619
Sample ID	W1 Up	W2 Centre	W3 Down
Depth			
Other ID			
Sample Type	WATER	WATER	WATER
Sampling Date	11/04/14	11/04/14	11/04/14
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
PAHs						
Acenaphthene	DETSC 3304	0.03	ug/l	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETSC 3304	0.04	ug/l	< 0.04	< 0.04	< 0.04
Anthracene	DETSC 3304	0.02	ug/l	< 0.02	< 0.02	< 0.02
Benzo(a)anthracene	DETSC 3304	0.04	ug/l	< 0.04	< 0.04	< 0.04
Benzo(a)pyrene	DETSC 3304	0.05	ug/l	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	DETSC 3304	0.02	ug/l	< 0.02	0.07	< 0.02
Benzo(k)fluoranthene	DETSC 3304	0.03	ug/l	< 0.03	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3304	0.08	ug/l	< 0.08	< 0.08	< 0.08
Chrysene	DETSC 3304	0.03	ug/l	< 0.03	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3304	0.06	ug/l	< 0.06	< 0.06	< 0.06
Fluoranthene	DETSC 3304	0.07	ug/l	< 0.07	0.10	< 0.07
Fluorene	DETSC 3304	0.04	ug/l	< 0.04	< 0.04	< 0.04
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.05	ug/l	< 0.05	< 0.05	< 0.05
Naphthalene	DETSC 3304	0.06	ug/l	< 0.06	< 0.06	< 0.06
Phenanthrene	DETSC 3304	0.085	ug/l	< 0.085	< 0.085	< 0.085
Pyrene	DETSC 3304	0.06	ug/l	< 0.06	0.11	< 0.06
PAH	DETSC 3304	0.2	ug/l	< 0.20	0.28	< 0.20
Phenols						
Phenol	*	0.5	ug/l	< 0.50	< 0.50	< 0.50

Information in Support of the Analytical Results

Our Ref 14-03795
 Client Ref 18582
 Contract Acorn Business Park, Durham

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
634617	W1 Up WATER	11/04/14	PB 1L (1L)	Hexavalent Chromium (1 days)	Aliphatics/Aromatics, BTEX/PRO, Naphthalene, PAH MS, Phenols MS
634618	W2 Centre WATER	11/04/14	PB 1L (1L)	Hexavalent Chromium (1 days)	Aliphatics/Aromatics, BTEX/PRO, Naphthalene, PAH MS, Phenols MS
634619	W3 Down WATER	11/04/14	PB 1L (1L)	Hexavalent Chromium (1 days)	Aliphatics/Aromatics, BTEX/PRO, Naphthalene, PAH MS, Phenols MS

Key: P-Plastic B-Bottle

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time and/or inappropriate containers are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-
 Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months



APPENDIX 8 ▪ Field Monitoring Records

GAS MONITORING RECORD



Location Reference	Time	Flow and Pressure Measurements				Gas Measurements						VOC Measurements		Dip Measurements		Comments
		Flow		Atmospheric Pressure	Differential Pressure	Methane	Methane LEL	Carbon Dioxide	Oxygen	Carbon Monoxide	Hydrogen Sulphide	Hexane	PID	Depth to Water	Depth to Base	
		max	steady													
		l hr ⁻¹		mb	Pa	%	%	%	%	ppm	ppm	%	ppm	m	m	
MWS02	14:00	0	-	1015	-	nd	-	1.2	19.3	nd	nr	0.001	nr	1.41	1.47	-
MWS03	-	0	-	1015	-	nd	-	2.3	14.7	nd	nr	0.004	nr	1.74	3.01	-
MWS04	-	21	4	1015	-	nd	-	0.6	20.1	37	nr	0.002	nr	0.38	1.57	-
MWS05	-	0	-	1015	-	nd	-	3.4	16.9	nd	nr	0.002	nr	0.57	1.34	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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Weather:	Fair	nr = not recorded						Gas Analyser		PID		Site:				Acorn Business Park, Durham
								Model:		-		Project Number:				18582
								Serial Number:		11569		Monitored By:				SM
								Date of Last Calibration:		11/07/2013		Date:				14/04/2014



Merebrook Consulting Ltd

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email consulting@merebrook.co.uk

www.merebrook.co.uk



- APPENDIX 3**
- Exploratory Hole Logs
 - BGS Borehole Logs

87 NZ/23, NE

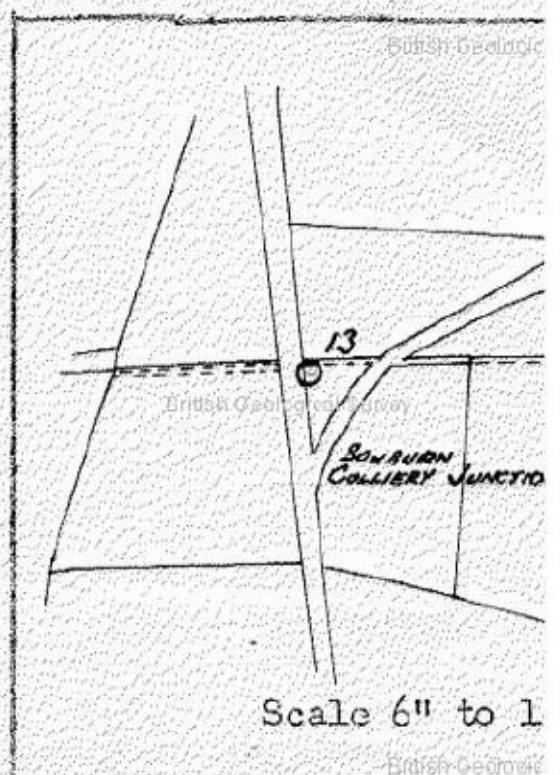
SECTION OF **Boutum Surface Borehole (No. 23 on site) 25 Feet East of
Leanside Branch Railway and 330 Feet North of Boutum
Junction**

6 inch
Registered
F
D.1

Exact Site
Lat. **54°-14'-01.2" N**
Long. **1°-32'-03.1" W**

Level at which bore commenced relative to O.D. **+ 283.13**
Date of sinking or boring **24.3.55** **12.4.55**
Sinker or Borer **N.C.B.**

One Inch Geological Map **103 N.E. (New Series Sheet 27)**
Six Inch Map (County and Quarter Sheet) **Durham NZ/23, NE**



Geologist's Notes	NATURE OF STRATA Borer's Journal	THICKNESS		Feet
		Feet	In.	
	Strong Light Brown Boulder Clay (good)	112	0	112
	Sand	3	0	3
	Soft Sandy Clay	35	0	35
	Strong Boulder Clay + 108.63	29	6	108.63
	Grey Shale	4	6	4.6
	Grey Sandstone	6	0	6
	Grey Shale	3	0	3
	Grey Sandstone with coal pipings	30	0	30
	Blue Shale	1	10	1.1667
	COAL (Low Main) + 60.63	2	8	2.1333
	Seggar (Lato)	2	6	2.5
	Bottom of Borehole + 53.13			53.13

(68/4028) Wt. 74179/81 8000 2/49 I. S. S., Ltd. 888

NZ33NW/54 NZ/33/NW

82 51

SECTION OF Boring in Vale Pit, Crawkeas, from the bottom of the
main seam.

32

Surface Level c 100'

Communicated by BGS. 2626

Date of boring or sinking BGS Borer

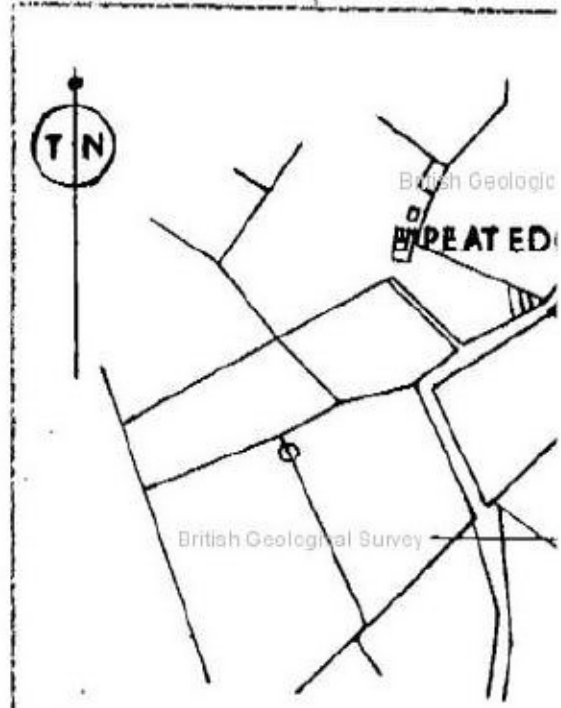
One-inch Map 27 Six-inch Map (County and Half-Quarter Sheet) Durham NZ/33/N

	Thickness.			Depth from	
	Fathoms.	feet.	ins.	Fathoms.	f
Shill		1	3		
metal pipe	3	2	0	3	
Grey metal stone, with post girdles.	3	2	0	6	
White post, with a little water near bottom.	4	4	0	11	
Grey metal stone, with iron stone girdles.	2	0	0	13	
White metal, mixed with coal		2	4	13	
Grey metal stone, with post girdles.	6	1	5	20	
White post	5	5	3	26	
Grey post mixed with coal			6	26	
Coarse, very coarse (has main)		2	6	26	
Grey metal, into.			4	26	

NZ/33/NW 143 43
 6 inch Map Registered
 G 22
 D 5.

SECTION OF..... **BORING SURFACE BOREHOLE (No. 1) NZ 33 NW 93**
 approximately 300 yds South West
 of. **Coor. Trees,**

Exact Site.....
 Lat. **N. 54° - 43' - 35.3"**
 Long. **E. 1° - 11' - 39"**



Level at which ~~slank~~ bore commenced relative to O.D. + **875 12**
 Date of sinking or boring ... **commenced 29.8.54** **Finished 29.9.54**
 Sinker or Borer..... **H.C.B**

One Inch Geological Map. **103 NS (New series Sheet 27)**
 Six Inch Map (County and Quarter Sheet). **Durban NZ 33 NW**

Scale 6" to 1 M

Geologist's Notes.	NATURE OF STRATA Borer's Journal	THICKNESS	
		Feet	In.
	Soil	1	0
	Clay	8	0
	Sand	1	6
	Clay	93	6
	Sandy clay with heavy coal traces	1	3
	Sandy clay with heavy boulders	48	9
	Sand	-	6
	Gravel	+119.37	1
	Soggy	4	3
	Foot (nto) bottom of borehole + 114.12	1	0

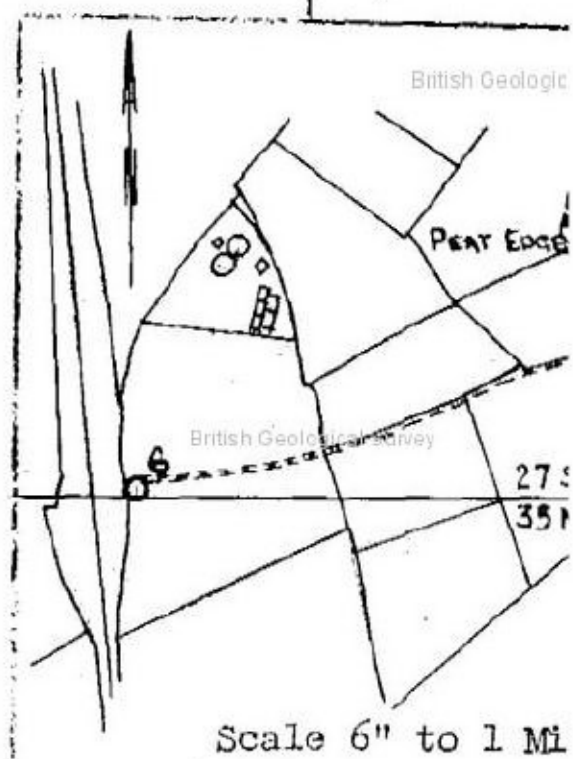
SAME LOG AS
NZ 33 NW/153!

NZ/33/NW/97

SECTION OF... **Justum Surface Borehole (No. 5)**
 Approx. 1100 Feet West South West of No. 1 Borehole (S. N. 3)
 and 1700 Feet South West of Peat Edge

6 inch Map
Registered

Exact Site.....
 Lat. $51^{\circ} - 43' - 33.4''$
 Long. $1^{\circ} - 31' - 57.3''$



Level at which shaft bore commenced relative to O.D. **+ 241.72**
drift
 Date of sinking or boring **Commenced 20.9.54 Completed 5.10.54**
 Sinker or Borer **H.C.B.**
 One Inch Geological Map **103 N.E. (New Series Sheet 27)**
 Six Inch Map (County and Quarter Sheet) **Durban 27 S.W.**

NZ/33/NW

NATURE OF STRATA Geologist's Notes.	Borer's Journal	THICKNESS		DE Fe
		Feet	In.	
Soil		1	0	1
Sandy Clay and Boulders	+ 153.72	87	0	88
Red Sandstone		4	0	92
Gray Sandstone		26	7	118
Soft Dark Shale with Coal Traces			11	119
Gray Sandstone with Coal Ripings		15	11	135
COAL (Low Main)	+ 103.99	2	5	137
Hard Sagger with Root Partings		4	2	142
Gray Post with Dark Metal Partings		11	2	153
Dark Gray Metal		5	4	158
Dark Gray Shale with Ironstone Nodules		5	2	163
Gray Sandstone		1	2	164
Dark Gray Shale with Ironstone Nodules		6	4	171
COAL (Dirg)		1	1	172

NZ33NW/97

GA

SECTION OF **Eastern Surface Borehole (No. 5) Continued**

6 inch Map
Regd.No.

Six Inch Map (County and Quarter Sheet) **Durham 27 S.W.**

NZ/33/NW

D

NATURE OF STRATA		THICKNESS		DEPTH
Geologist's Notes	Borer's Journal	Feet	In.	Feet
	Grey Shale	3	3	184
	COAL	-	3	185
	Grey metal	4	2	190
	Grey Post with Dark Metal Partings	12	6	202
	Dark Shale	1	9	204
	COAL. Top Hutton + 35.39	1	1	205
	Saggar	-	8	206
	Black Shale	2	7	208
	Canal Coal	-	9	209
	Saggar	-	8	210
	Grey Post (Intc) 29.9.54	1	4	211
	Grey Shale & Ironstone Nodules	18	9	230
	COAL	-	7	230
	Sand	-	2	230
	COAL Bottom Hutton + 10.14	-	9	231
	Black Shale	-	5	232
	Saggar	5	0	237
	Blue Shale	13	0	250
	Grey Shale & Post Partings	30	4	280
	Grey Post and Coal Partings (Intc)	12	8	293
	Bottom of Borehole - 51.28			

NZ/33/NW
 NZ 33NW/97

147
 6 inch M
 Registered
 9
 106

SECTION OF **borehole No. 5 at Rowburn.**

Exact Site **N. 54° 43' 33.4"**
S. 10 21' 51.3"

Level at which ^{shaft} ^{bore} ^{drift} commenced relative to O.D. **+ 2.2'**

Date of sinking or boring **Sept. - Oct. 1954.**

Sinker or Borer **M.C.B.**

One Inch Geological Map **27**

Six Inch Map (County and Quarter Sheet) **Durham 27 S.W.**

Attach tracing from a sketch map if possible

NZ/33/NW

NATURE OF STRATA		THICKNESS		D
Geologist's Notes	Borer's Journal	Feet	In.	
	Soil			
	Clay stiff med-brown with boulders.	3	3	0
+ 154'. Not cored.	Sandy clay & boulders.	11	0	0
	Sandstone, iron stained, fine grained.	4	4	0
	Sandstone, grey, fine grained, medium grained bands & scattered shale pellets.	2	2	7
	Shale grey silty micaceous			11
	Sandstone light grey micaceous partings & occasional coal scars.	2	3	11
+ 104'. COAL (recovery 3%)	Low Main Seam (J)		2	5
	Fireclay grey		1	2
	Shale sandy roety		1	1
	Fireclay grey albed-sided		1	11
	Sandstone grey argillaceous with dark shaly partings.	1	5	2
	Shale dark grey micaceous, sandy partings.		5	4
	Shale grey silty occasional mussels.		5	2
				27

Series 520

Form P.71

NZ 33NW/97

6
B
9

SECTION OF Borehole No. 5 at Bowburn (1954)

Six Inch Map (County and Quarter Sheet)

Durham 27 S.W.

NZ/33/NW

NATURE OF STRATA		THICKNESS		D
Geologist's Notes	Borer's Journal	Feet	In.	
				29
Shale silty & micaceous carbonaceous at base mussels at base.		3	2	30
+ 59". COAL (6" recovery)	Bottom Brass Hill Seam (L.2)	1	2	30
Fireclay			7	30
Shale grey rooty micaceous		2	7	30
COAL			3	30
Fireclay shaly			6	31
Shale grey sandy with argillaceous sandstone partings. Very sandy at base.		3	8	31
Sandstone light grey fine dark partings.		2	0 6	33
Shale dark, slightly sandy micaceous with plants.		1	9	34
+ 36". COAL	Top Hutton Seam (L.1)	1	1	34
Fireclay dark grey slickensided.			8	34
Fireclay dark grey shaly.		2	7	34
Shale conchoidal with pyritic films.			9	34
Fireclay grey slickensided.			8	35
Sandstone grey fine argillaceous.		1	4	35
Shale grey silty, fine sandy partings.		2	1 8	37
Shale grey, ironstone bands & mussels in basal inch.		5	1	38
+ COAL (recovery 3")	Bottom Hutton Seam (L.2)	1	11	38
This thickness considered to be more accurate than drillers record which records 1' 6".				
Fireclay light grey brown slickensided.		5	0	39
				41

149 98

N7/33/NW
NZ 33 NW/98

SECTION OF... **Bowburn Surface Borehole No. 6 1400ft South West of Peat Edge and 271 ft East of No. 5 Borehole (S.N.6)** 6 inch Map Registered 1

Exact Site.....

Lat. **N 54°-43'-34.4"**

Long. **W 1°-31'-52.9"**

Level at which bore commenced relative to O.D. **+ 255.02**

Date of sinking or boring **Commenced 13.10.54 Completed 20.10.54**

Sinker or Borer **N.C.B.**

One Inch Geological Map **103 N.E. (New Series Sheet 27)**

Six Inch Map (County and Quarter Sheet) **Durham 27 S.W. NZ/33/NW**

Scale 6" to 1 Mile



NATURE OF STRATA Geologist's Notes. Borer's Journal	THICKNESS		DEP
	Feet	In.	Feet
Soil	1	0	1
Clay	49	0	50
Boulder Clay	24	0	74
Sandy Clay with Ironstone Boulders	22	0	96
Sandy Loam + 151.69	7	4	103
Sandstone	48	4	151
COAL (Low Main) + 101.02	2	4	154
Seggar (Into)	12	0	166
Bottom of Borehole + 89.02			



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TRIAL PIT LOG

TrialPit No

CBR1

Sheet 1 of 1

offices London Kent Derby Cardiff Manchester Stirling

Project Name: Bowburn Estate

Project No.
18582q

Co-ords: -
Level:

Date
13/06/2016

Location: Durham, Northumberland

Dimensions (m):
4.50
1.20
Depth 3.45

Scale
1:25

Logged
CJB

Equipment: Volvo EX98

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.20			Grass over firm to stiff desiccated dark brown sandy TOPSOIL with frequent rootlets and occasional fine and medium angular and subangular gravel of sandstone and brick.
				0.80			Orangish brown mottled yellowish brown, brown and grey slightly silty fine and medium SAND with frequent subrounded fine and medium gravel spots/patches of strongly oxidized sand and occasional rootlets.
				1.00			Pale grey slightly clayey sandy GRAVEL of sandstone.
				1.30			Soft to firm brown/reddish brown slightly sandy CLAY with frequent partings of red silty fine sand.
				1.30			Dark yellowish brown mottled dark orangish brown strongly oxidized slightly silty fine and medium SAND.
				2.40			Thinly laminated yellowish brown speckled black fine and medium SAND with occasional fine and medium angular and subangular coal gravel.
				3.40 3.45			Soft to firm brown/reddish brown slightly sandy CLAY with frequent partings of red silty fine sand. End of Pit at 3.450m

D = small disturbed sample (tub)
 J = organic sample (amber glass jar)
 V = volatile sample (amber glass vial)
 B = bulk bag sample
 HSV = hand shear vane (kPa)
 PP = pocket penetrometer (kg.cm2)
 PID = photoionisation detector (ppm)

Stability
 Stable GL to 2.4m. Collapse 2.4m to 3.45m.

Remarks
 Groundwater moderate inflow at 2.4m.



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TRIAL PIT LOG

TrialPit No

CBR2

Sheet 1 of 1

offices London Kent Derby Cardiff Manchester Stirling

Project Name: Bowburn Estate

Project No.
18582q

Co-ords: -
Level:

Date
13/06/2016

Location: Durham, Northumberland

Dimensions (m):

4.50

Scale
1:25

Equipment: Volvo EX98

Depth
3.30

1.20

Logged
CJB

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
▼				0.20			Grass over firm to stiff desiccated dark brown sandy TOPSOIL with frequent rootlets and occasional fine and medium angular and subangular gravel of sandstone and brick.
							Firm brown mottled grey slightly gravelly CLAY. Gravel comprises angular sandstone.
							<i>From 0.7m becoming thinly laminated bluish grey mottled brown.</i>
				1.70			Dark yellowish brown speckled black fine and medium SAND with occasional fine and medium angular and subangular coal gravel.
				3.20 3.30			Firm brown/reddish brown slightly sandy CLAY with frequent lenses of red silty fine sand. End of Pit at 3.300m

D = small disturbed sample (tub)
 J = organic sample (amber glass jar)
 V = volatile sample (amber glass vial)
 B = bulk bag sample
 HSV = hand shear vane (kPa)
 PP = pocket penetrometer (kg.cm2)
 PID = photoionisation detector (ppm)

Stability

Stable GL to 1.7m. Collapse 1.7m to 3.2m.

Remarks

Groundwater moderate inflow at 2.2m.



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TRIAL PIT LOG

TrialPit No

CBR3

Sheet 1 of 1

offices London Kent Derby Cardiff Manchester Stirling

Project Name: Bowburn Estate

Project No.
18582q

Co-ords: -
Level:

Date
13/06/2016

Location: Durham, Northumberland

Dimensions (m):
 Depth 3.50
 1.20 4.50

Scale
1:25

Logged
CJB

Equipment: Volvo EX98

Water Strike	Samples & In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth	Type	Results				
				0.20			Grass over firm to stiff desiccated dark brown sandy TOPSOIL with frequent rootlets and occasional fine and medium angular and subangular gravel of sandstone and brick.
				0.80			Yellowish brown and dark yellowish brown mottled brown and orangish brown slightly silty fine and medium SAND with occasional lenses of firm yellowish brown mottled orangish brown and grey sandy clay and fine and medium subangular coal gravel.
							Firm grey mottled orangish brown slightly sandy CLAY with frequent lenses of orangish brown fine and medium sand and red rootlet tracks.
							<i>From 1.2m becoming fissured and greyish brown/brownish grey.</i>
				3.50			End of Pit at 3.500m

D = small disturbed sample (tub)
 J = organic sample (amber glass jar)
 V = volatile sample (amber glass vial)
 B = bulk bag sample
 HSV = hand shear vane (kPa)
 PP = pocket penetrometer (kg.cm2)
 PID = photoionisation detector (ppm)

Stability
 West face collapse 0.5m to 3.5m.

Remarks
 Groundwater moderate inflow at 2.1m.



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Borehole Log

Borehole No.

MBH102

Sheet 2 of 3

Project Name: Bowburn Estate

Project No.
18582q

Co-ords:

Hole Type
CP

Location: Durham, Northumberland

Level:

Scale
1:50

Equipment: Dando 2000

Dates: 07/06/2016

Logged By
CJB

Well	Wtr Strk	Sample and In Situ Testing			Coring				Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results	FI	TCR	SCR	RQD				
		11.00 11.00 - 11.45	SPT(S) D	N=11 (2,2/2,3,3,3)								11
		12.00	D									12
		12.50 - 12.95	U	Ublow=31								
		12.95 - 13.00	D									13
		14.00 14.00 - 14.45	SPT(S) D	N=12 (2,2/3,3,3,3)								14
		15.00	D									15
		15.50 - 15.95	U	Ublow=50								
		15.95 - 16.00	D									16
		17.00 17.00 - 17.45	SPT(S) D	N=34 (3,4/8,8,9,9)								17
		18.00	D									18
		18.50 - 18.95	U	Ublow=50								
		18.95 - 19.00	D									19
	20.00 20.00 - 20.45	SPT(S) D	N=32 (4,4/7,8,9,8)								20	

Continued on Next Sheet

D = small disturbed sample (tub)
 J = organic sample (amber glass jar)
 V = volatile sample (amber glass vial)
 B = bulk bag sample
 SPT(C) = Standard Penetration Test (Cone)
 SPT(S) = Standard Penetration Test (Split Spoon)

HSV = hand shear vane (kPa)
 PP = pocket penetrometer (kg.cm2)
 PID = photoionisation detector (ppm)
 FI = fracture index
 TCR = total core recovery
 SCR = solid core recovery
 RQD = rock quality designation

Remarks



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Borehole Log

Borehole No.

MBH102

Sheet 3 of 3

Project Name: Bowburn Estate
 Project No. 18582q

Co-ords:

Hole Type
 CP

Location: Durham, Northumberland

Level:

Scale
 1:50

Equipment: Dando 2000

Dates: 07/06/2016

Logged By
 CJB

Well	Wtr Strk	Sample and In Situ Testing			Coring				Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results	FI	TCR	SCR	RQD				
		21.00	D									21
		21.50 - 21.95	U	Ublow=50								
		21.95 - 22.00	D									22
		23.00 23.00 - 23.45	SPT(S) D	N=33 (4,5/7,9,8,9)								23
		24.00	D									24
		24.50 - 25.00	B									25
								25.00				25
											End of Borehole at 25.00m	26
												27
												28
												29
												30

D = small disturbed sample (tub)
 J = organic sample (amber glass jar)
 V = volatile sample (amber glass vial)
 B = bulk bag sample
 SPT(C) = Standard Penetration Test (Cone)
 SPT(S) = Standard Penetration Test (Split Spoon)

HSV = hand shear vane (kPa)
 PP = pocket penetrometer (kg.cm2)
 PID = photoionisation detector (ppm)
 FI = fracture index
 TCR = total core recovery
 SCR = solid core recovery
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Borehole Log

Borehole No.

MBH104

Sheet 1 of 3

Project Name: Bowburn Estate

Project No.
18582q

Co-ords:

Hole Type

CP

Location: Durham, Northumberland

Level:

Scale

1:50

Equipment: Dando 2000

Dates: 09/06/2016

Logged By

CJB

Well	Wtr Strk	Sample and In Situ Testing			Coring				Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results	FI	TCR	SCR	RQD				
		0.00 - 0.30	B								Grass over stiff friable slightly desiccated dark brown sandy slightly gravelly TOPSOIL with abundant rootlets. Gravels comprise angular to subrounded sandstone and brick fragments. Very soft greyish brown and brown silty slightly sandy CLAY with frequent black and pale brown fine sand lenses.	
		0.30 - 1.00	B					0.30				
		1.20	SPT(S)	N=2 (0,0/0,1,0,1)								
		1.80	D						1.80			
		2.00	SPT(S)	N=1 (0,1/0,0,1,0)					2.00			
		2.00 - 2.45	D									
		2.80	D									
		3.00	SPT(S)	N=2 (1,0/0,1,0,1)								
		3.00 - 3.45	D									
		3.80	D									
		4.00	SPT(S)	N=3 (1,0/1,1,0,1)								
		4.80	D									
		5.00 - 5.45	U	Ublow=13								
		5.45 - 5.50	D									
		6.00										
	6.50	SPT(S)	N=11 (2,2/3,3,3,2)									
	7.50	D										
	8.00 - 8.45	U	Ublow=24									
	8.45 - 8.50	D										
	9.50	SPT(S)	N=15 (3,3/3,4,4,4)									
	9.50 - 9.95	D										
Continued on Next Sheet												

D = small disturbed sample (tub)
 J = organic sample (amber glass jar)
 V = volatile sample (amber glass vial)
 B = bulk bag sample
 SPT(C) = Standard Penetration Test (Cone)
 SPT(S) = Standard Penetration Test (Split Spoon)

HSV = hand shear vane (kPa)
 PP = pocket penetrometer (kg.cm2)
 PID = photoionisation detector (ppm)
 FI = fracture index
 TCR = total core recovery
 SCR = solid core recovery
 RQD = rock quality designation

Remarks



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Borehole Log

Borehole No.

MBH104

Sheet 2 of 3

Project Name: Bowburn Estate

Project No.
18582q

Co-ords:

Hole Type
CP

Location: Durham, Northumberland

Level:

Scale
1:50

Equipment: Dando 2000

Dates: 09/06/2016

Logged By
CJB

Well	Wtr Strk	Sample and In Situ Testing			Coring				Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results	FI	TCR	SCR	RQD				
		10.50	D									
		11.00 - 11.45	U	Ublow=31								
		11.45 - 11.50	D									
		12.50 12.50 - 12.95	SPT(S) D	N=15 (3,3/4,4,3,4)								
		13.50	D									
		14.00 - 14.45	U	Ublow=30					13.80			
		14.45 - 14.50	D									
		15.50 15.50 - 15.95	SPT(S) D	N=27 (4,4/7,6,6,8)								
		16.50	D									
		17.00 - 17.45	U	Ublow=36								
		17.45 - 17.50	D									
		18.50 - 18.95	D									
		19.50 19.50	D SPT(S)	N=38 (3,8/10,9,9,10)								
		20.00 - 20.45	U	Ublow=41								

Stiff fissured brown slightly sandy slightly gravelly CLAY with frequent lenses of pale grey fine and medium sand. Gravels comprise angular and subangular sandstone and coal fragments.

Continued on Next Sheet

D = small disturbed sample (tub)
 J = organic sample (amber glass jar)
 V = volatile sample (amber glass vial)
 B = bulk bag sample
 SPT(C) = Standard Penetration Test (Cone)
 SPT(S) = Standard Penetration Test (Split Spoon)

HSV = hand shear vane (kPa)
 PP = pocket penetrometer (kg.cm2)
 PID = photoionisation detector (ppm)
 FI = fracture index
 TCR = total core recovery
 SCR = solid core recovery
 RQD = rock quality designation

Remarks



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Borehole Log

Borehole No.

MBH104

Sheet 3 of 3

Project Name: Bowburn Estate
 Project No. 18582q

Co-ords:

Hole Type

CP

Location: Durham, Northumberland

Level:

Scale

1:50

Equipment: Dando 2000

Dates: 09/06/2016

Logged By

CJB

Well	Wtr Strk	Sample and In Situ Testing			Coring				Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results	FI	TCR	SCR	RQD				
		20.45 - 20.50	D									
		21.50 21.50 - 21.95	SPT(S) D	N=32 (5,8/8,7,8,9)								
		22.50	D									
		23.00 - 23.45	U	Ublow=30								
		23.45 - 24.50	D									
		24.45 - 24.95 24.50	D SPT(S)	N=34 (4,7/8,8,9,9)								
								25.00				End of Borehole at 25.00m

D = small disturbed sample (tub)
 J = organic sample (amber glass jar)
 V = volatile sample (amber glass vial)
 B = bulk bag sample
 SPT(C) = Standard Penetration Test (Cone)
 SPT(S) = Standard Penetration Test (Split Spoon)

HSV = hand shear vane (kPa)
 PP = pocket penetrometer (kg.cm2)
 PID = photoionisation detector (ppm)
 FI = fracture index
 TCR = total core recovery
 SCR = solid core recovery
 RQD = rock quality designation

Remarks



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Borehole Log

Borehole No.

MBH107

Sheet 1 of 3

Project Name: Bowburn Estate

Project No.
18582q

Co-ords:

Hole Type
CP

Location: Durham, Northumberland

Level:

Scale
1:50

Equipment: Dando 2000

Dates: 10/06/2016

Logged By
CJB

Well	Wtr Strk	Sample and In Situ Testing			Coring				Depth (m)	Level (m)	Legend	Stratum Description			
		Depth (m)	Type	Results	FI	TCR	SCR	RQD							
		0.20 - 1.00	B						0.20			Grass over stiff friable slightly desiccated dark brown sandy slightly gravelly TOPSOIL with abundant rootlets. Gravels comprise angular to subrounded sandstone and brick fragments.	1		
		1.20 1.20 - 1.65	SPT(S) D	N=5 (1,1/1,2,1,1)								Soft orangish brown, brown and yellowish brown mottled grey silty slightly sandy CLAY with frequent lenses and partings of orangish brown silty fine sand.			
		1.80 - 2.50 2.00	B SPT(S)	N=3 (1,1/0,1,1,1)					1.80			Firm brown and reddish brown sandy slightly gravelly CLAY with frequent lenses of pale grey silty fine sand. Gravels comprise angular and subangular sandstone and coal.	2		
		2.80 - 3.00 3.00 - 3.45	D U	Ublow=14					2.80			Soft fissured brown silty slightly sandy CLAY with frequent lenses of pale brown fine sand.	3		
		3.45 - 3.50	D											4	
		4.00 - 4.45	D												5
		4.80 5.00 - 5.45	D U	Ublow=17											6
		5.45 - 5.50	D						5.45			Soft to firm reddish brown/brownish red silty slightly sandy CLAY with frequent partings and lenses of pale brown and red silty fine sand.		7	
		6.50 6.50 - 6.95	SPT(S) D	N=11 (2,2/3,3,2,3)											8
		7.50	D												9
		8.00 - 8.45 8.45 - 8.50	U D	Ublow=22											10
		9.45 - 9.50 9.50 9.50 - 9.95	D SPT(S) D	N=13 (2,2/3,3,3,4)											

Continued on Next Sheet

D = small disturbed sample (tub)
 J = organic sample (amber glass jar)
 V = volatile sample (amber glass vial)
 B = bulk bag sample
 SPT(C) = Standard Penetration Test (Cone)
 SPT(S) = Standard Penetration Test (Split Spoon)

HSV = hand shear vane (kPa)
 PP = pocket penetrometer (kg.cm2)
 PID = photoionisation detector (ppm)
 FI = fracture index
 TCR = total core recovery
 SCR = solid core recovery
 RQD = rock quality designation

Remarks



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Borehole Log

Borehole No.

MBH107

Sheet 2 of 3

Project Name: Bowburn Estate

Project No.
18582q

Co-ords:

Hole Type

CP

Location: Durham, Northumberland

Level:

Scale

1:50

Equipment: Dando 2000

Dates: 10/06/2016

Logged By

CJB

Well	Wtr Strk	Sample and In Situ Testing			Coring				Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results	FI	TCR	SCR	RQD					
		10.50	D										
		11.00 - 11.45	U	Ublow=24									11
		11.45 - 11.50	D										12
		12.50	SPT(S)	N=15 (3,3/4,3,4,4)									13
		12.50 - 12.95	D										
		13.50	D						13.70				
		14.00 - 14.45	U	Ublow=50									14
		14.45 - 14.50	D										15
		15.50	SPT(S)	N=38 (5,7/9,9,10,10)									16
		15.50 - 15.95	D										
		16.50	D										
		17.00 - 17.45	U	Ublow=50									17
		17.45 - 17.50	D										18
		18.50	SPT(S)	N=38 (7,9/8,9,10,11)									19
		18.50 - 19.00	D										
		20.00 - 20.45	U	Ublow=50									20

Stiff fissured brown slightly sandy slightly gravelly CLAY with frequent lenses of pale grey fine and medium sand. Gravels comprise angular and subangular sandstone and coal fragments.

Continued on Next Sheet

D = small disturbed sample (tub)
 J = organic sample (amber glass jar)
 V = volatile sample (amber glass vial)
 B = bulk bag sample
 SPT(C) = Standard Penetration Test (Cone)
 SPT(S) = Standard Penetration Test (Split Spoon)

HSV = hand shear vane (kPa)
 PP = pocket penetrometer (kg.cm2)
 PID = photoionisation detector (ppm)
 FI = fracture index
 TCR = total core recovery
 SCR = solid core recovery
 RQD = rock quality designation

Remarks



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Borehole Log

Borehole No.

MBH109

Sheet 1 of 3

Project Name: Bowburn Estate

Project No.
18582q

Co-ords:

Hole Type

CP

Location: Durham, Northumberland

Level:

Scale

1:50

Equipment: Pilcon 150

Dates: 13/06/2016

Logged By

CJB

Well	Wtr Strk	Sample and In Situ Testing			Coring				Depth (m)	Level (m)	Legend	Stratum Description		
		Depth (m)	Type	Results	FI	TCR	SCR	RQD						
		0.05	D									Grass over stiff friable slightly desiccated dark brown sandy slightly gravelly TOPSOIL with abundant rootlets. Gravels comprise angular to subrounded sandstone and brick fragments.		
		0.30	D					0.30						Soft to firm brown mottled orangish brown and grey silty slightly sandy CLAY with frequent lenses of orangish brown fine sand.
		1.00	D									Soft brown silty slightly sandy CLAY with frequent partings of grey silty fine sand.		
		1.20	SPT(S)	N=5 (1,1/1,2,1,1)					1.20					
		1.20 - 1.65	D											
		2.00	SPT(S)	N=4 (1,1/1,1,1,1)										
		2.00 - 2.45	D											
		3.00	SPT(S)	N=7 (1,1/2,1,2,2)										
		3.00 - 3.45	D											
		4.00	SPT(S)	N=6 (1,2/1,1,2,2)					4.00					Soft reddish brown silty slightly sandy CLAY with frequent partings of red and grey silty fine sand.
		4.00 - 4.45	D											
		5.00	SPT(S)	N=5 (1,2/1,1,1,2)										
		5.00 - 5.45	D											
		6.00	B											
	6.50 - 6.95	U	Ublow=17											
	7.00	D												7
	8.00	SPT(S)	N=11 (2,2/3,3,2,3)											8
	8.00 - 8.45	D												
	9.00	D												9
	9.50 - 9.95	B						9.50					Very soft reddish brown silty slightly sandy CLAY with frequent partings of red and grey silty fine sand and occasional angular and subangular sandstone gravel.	
	9.50 - 9.95	U	Ublow=31											
	10.00	D						10.00						10
										Continued on Next Sheet				

D = small disturbed sample (tub)
 J = organic sample (amber glass jar)
 V = volatile sample (amber glass vial)
 B = bulk bag sample
 SPT(C) = Standard Penetration Test (Cone)
 SPT(S) = Standard Penetration Test (Split Spoon)

HSV = hand shear vane (kPa)
 PP = pocket penetrometer (kg.cm2)
 PID = photoionisation detector (ppm)
 FI = fracture index
 TCR = total core recovery
 SCR = solid core recovery
 RQD = rock quality designation

Remarks



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Borehole Log

Borehole No.

MBH109

Sheet 2 of 3

Project Name: Bowburn Estate

Project No.
18582q

Co-ords:

Hole Type
CP

Location: Durham, Northumberland

Level:

Scale
1:50

Equipment: Pilcon 150

Dates: 13/06/2016

Logged By
CJB

Well	Wtr Strk	Sample and In Situ Testing			Coring				Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results	FI	TCR	SCR	RQD					
		11.00 11.00	D SPT(S)	N=12 (2,3/3,3,3,3)								Soft becoming firm from 11.0m reddish brown silty slightly sandy CLAY with frequent partings of red and grey silty fine sand.	11
		12.50 - 12.95	U	Ublow=39									12
		13.00	D									<i>Rare fine and medium platy and angular sandstone gravel.</i>	13
		14.00 14.00	D SPT(S)	N=27 (4,7/7,7,6,7)					13.90			Stiff fissured brown slightly sandy slightly gravelly CLAY with frequent lenses of pale grey fine and medium sand. Gravels comprise angular and subangular sandstone and coal fragments.	14
		15.00	D									<i>From 15.0m frequent pale grey fine and medium angular sandstone gravel.</i>	15
		15.50 - 15.95	U	Ublow=50									16
		16.00	D										17
		17.00 17.00 - 17.45	SPT(S) D	N=36 (8,7/9,9,9,9)									18
		18.00	D										19
		18.50 - 18.95	U	Ublow=50									19
		19.00	D						19.00			Stiff brown silty slightly sandy CLAY with frequent lenses/partings of pale brown fine silty sand and occasional fine and medium angular and subangular sandstone and coal gravel.	19
		20.00 20.00 - 20.45	SPT(S) D	N=48 (6,7/12,12,12,12)									20

Continued on Next Sheet

D = small disturbed sample (tub)
 J = organic sample (amber glass jar)
 V = volatile sample (amber glass vial)
 B = bulk bag sample
 SPT(C) = Standard Penetration Test (Cone)
 SPT(S) = Standard Penetration Test (Split Spoon)

HSV = hand shear vane (kPa)
 PP = pocket penetrometer (kg.cm2)
 PID = photoionisation detector (ppm)
 FI = fracture index
 TCR = total core recovery
 SCR = solid core recovery
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Borehole Log

Borehole No.

MBH109

Sheet 3 of 3

Project Name: Bowburn Estate
 Project No. 18582q

Co-ords:

Hole Type

CP

Location: Durham, Northumberland

Level:

Scale

1:50

Equipment: Pilcon 150

Dates: 13/06/2016

Logged By

CJB

Well	Wtr Strk	Sample and In Situ Testing			Coring				Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results	FI	TCR	SCR	RQD				
		21.00	B						25.00			21
		21.50 - 21.95	U	Ublow=50								22
		23.00	SPT(S)	N=50 (7,9/50 for 255mm)								23
		23.00 - 23.45	D									24
		24.50 - 24.95	U	Ublow=50								25
											26	
												27
												28
												29
												30

End of Borehole at 25.00m

D = small disturbed sample (tub)
 J = organic sample (amber glass jar)
 V = volatile sample (amber glass vial)
 B = bulk bag sample
 SPT(C) = Standard Penetration Test (Cone)
 SPT(S) = Standard Penetration Test (Split Spoon)

HSV = hand shear vane (kPa)
 PP = pocket penetrometer (kg.cm2)
 PID = photoionisation detector (ppm)
 FI = fracture index
 TCR = total core recovery
 SCR = solid core recovery
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Borehole Log

Borehole No.

MBH110

Sheet 1 of 3

Project Name: Bowburn Estate

Project No.
18582q

Co-ords:

Hole Type
CP

Location: Durham, Northumberland

Level:

Scale
1:50

Equipment: Dando 3000

Dates: 13/06/2016

Logged By
CJB

Well	Wtr Strk	Sample and In Situ Testing			Coring				Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results	FI	TCR	SCR	RQD					
Well	Wtr Strk	0.10	D						0.15		Legend	Grass over stiff friable slightly desiccated dark brown sandy slightly gravelly TOPSOIL with abundant rootlets. Gravels comprise angular to subrounded sandstone and brick fragments.	
		0.50	D									Firm orangish brown, yellowish brown and brown mottled grey slightly sandy CLAY.	
		1.20	SPT(S)	N=1 (0,0/0,0,1,0)						0.80			Very soft brown silty slightly sandy CLAY.
		1.20 - 1.65	D										
		1.70	D										
		2.00								2.00			Soft greyish brown silty slightly sandy CLAY.
		2.70	D										
		3.20	SPT(S)	N=6 (1,1/2,1,1,2)									
		3.20 - 3.65	D										
		3.70	D										
		4.20 - 4.65	U	Ublow=15						4.10			Soft brown sandy CLAY with occasional thin laminations.
		4.70	D										
		6.00	SPT(S)	N=9 (2,2/2,2,2,3)						6.00			Soft reddish brown slightly sandy CLAY with frequent partings of red silty fine sand.
		6.00 - 6.45	D										
6.50	D												
7.50 - 7.95	U	Ublow=25											
8.00	D							8.00		Firm reddish brown/brownish red silty slightly sandy CLAY with frequent partings and lenses of pale brown and red silty fine sand.			
9.00	SPT(S)	N=12 (2,2/3,3,3,3)											
9.00 - 9.45	D												
9.50	D												
Continued on Next Sheet													

D = small disturbed sample (tub)
 J = organic sample (amber glass jar)
 V = volatile sample (amber glass vial)
 B = bulk bag sample
 SPT(C) = Standard Penetration Test (Cone)
 SPT(S) = Standard Penetration Test (Split Spoon)

HSV = hand shear vane (kPa)
 PP = pocket penetrometer (kg.cm2)
 PID = photoionisation detector (ppm)
 FI = fracture index
 TCR = total core recovery
 SCR = solid core recovery
 RQD = rock quality designation

Remarks



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Borehole Log

Borehole No.

MBH110

Sheet 2 of 3

Project Name: Bowburn Estate

Project No.
18582q

Co-ords:

Hole Type

CP

Location: Durham, Northumberland

Level:

Scale

1:50

Equipment: Dando 3000

Dates: 13/06/2016

Logged By

CJB

Well	Wtr Strk	Sample and In Situ Testing			Coring				Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results	FI	TCR	SCR	RQD					
WATER TABLE		10.50 - 10.95	U	Ublow=30							CLAY		
		11.00	D						11.00			Soft brown silty slightly sandy CLAY with frequent lenses of grey and pale brown fine sand.	11
		12.00	SPT(S)	N=32 (5,6/7,8,8,9)					12.00		CLAY		
		12.00 - 12.45	D									Stiff fissured brown slightly sandy slightly gravelly CLAY with frequent lenses of pale grey fine and medium sand. Gravels comprise angular and subangular sandstone and coal fragments.	12
		12.50	D										13
		13.50 - 13.95	U	Ublow=50							CLAY		
		14.00	D										14
		15.00	SPT(S)	N=32 (6,6/7,8,8,9)							CLAY		
		15.00 - 15.45	D										15
		15.50	D										16
		16.50 - 16.95	U	Ublow=60							CLAY		
		17.00	D										17
	18.00	SPT(S)	N=40 (7,8/9,10,10,11)							CLAY			
	18.00 - 18.45	D										18	
	18.50	D										19	
	19.50 - 19.95	U	Ublow=75							CLAY			
	20.00	D										20	

Continued on Next Sheet

D = small disturbed sample (tub)
 J = organic sample (amber glass jar)
 V = volatile sample (amber glass vial)
 B = bulk bag sample
 SPT(C) = Standard Penetration Test (Cone)
 SPT(S) = Standard Penetration Test (Split Spoon)

HSV = hand shear vane (kPa)
 PP = pocket penetrometer (kg.cm2)
 PID = photoionisation detector (ppm)
 FI = fracture index
 TCR = total core recovery
 SCR = solid core recovery
 RQD = rock quality designation

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Borehole Log

Borehole No.

MBH111

Sheet 1 of 3

Project Name: Bowburn Estate

Project No.
18582q

Co-ords:

Hole Type
CP

Location: Durham, Northumberland

Level:

Scale
1:50

Equipment: Dando 2000

Dates: 14/06/2016

Logged By
CJB

Well	Wtr Strk	Sample and In Situ Testing			Coring				Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results	FI	TCR	SCR	RQD				
		0.00 - 1.00	B						0.30		Grass over stiff friable slightly desiccated dark brown sandy slightly gravelly TOPSOIL with abundant rootlets. Gravels comprise angular to subrounded sandstone and brick fragments.	
		1.00 - 2.00	B								MADE GROUND comprising medium dense black, pinkish red and brown sandy gravel of coal, brick and sandstone.	1
		1.20	SPT(C)	N=9 (1,2/2,2,3,2)								
		2.00	SPT(C)	N=11 (2,2/3,2,3,3)								
		2.00 - 2.45	B									
		3.00	D									
		3.00	SPT(C)	N=12 (2,2/3,3,3,3)								
		4.00	D						4.00		POSSIBLE MADE GROUND comprising medium dense brown slightly clayey sandy of angular, subangular and platy coal and sandstone.	4
		4.00	SPT(C)	N=10 (3,3/2,3,3,2)								
		5.00	D						5.00		Firm brownish red/reddish brown slightly sandy CLAY with frequent partings and lenses of red silty fine sand and occasional lenses of black/grey silty fine sand.	5
		5.00	SPT(S)	N=13 (2,2/3,3,3,4)								
		5.50 - 6.00	B									
		6.50 - 6.95	U									
				Ublow=22								
		7.00	D						7.00		Firm brown silty slightly sandy CLAY with frequent lenses of grey and pale brown fine sand.	7
		8.00	SPT(S)	N=15 (3,3/4,4,3,4)								
		8.00 - 8.45	D									
		9.00	D									
		9.50 - 9.95	U									
				Ublow=13								
		9.95 - 10.00	D									

Continued on Next Sheet

D = small disturbed sample (tub)
 J = organic sample (amber glass jar)
 V = volatile sample (amber glass vial)
 B = bulk bag sample
 SPT(C) = Standard Penetration Test (Cone)
 SPT(S) = Standard Penetration Test (Split Spoon)

HSV = hand shear vane (kPa)
 PP = pocket penetrometer (kg.cm2)
 PID = photoionisation detector (ppm)
 FI = fracture index
 TCR = total core recovery
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Remarks



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Borehole Log

Borehole No.

MBH111

Sheet 2 of 3

Project Name: Bowburn Estate

Project No.
18582q

Co-ords:

Hole Type
CP

Location: Durham, Northumberland

Level:

Scale
1:50

Equipment: Dando 2000

Dates: 14/06/2016

Logged By
CJB

Well	Wtr Strk	Sample and In Situ Testing			Coring				Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results	FI	TCR	SCR	RQD				
[Hatched Pattern]		11.00 11.00 - 11.45	SPT(S) D	N=11 (2,3/3,2,3,3)					12.50	[Hatched Pattern]	Firm fissured reddish brown/brownish red silty slightly sandy CLAY with frequent partings and lenses of pale brown and red silty fine sand.	11
		12.00	D									12
		12.50 - 12.95	U	Ublow=30								13
		12.95 - 13.00	D									14
		14.00 14.00	D SPT(S)	N=14 (3,3/4,4,4,2)								15
		15.00	D									16
		15.50 - 15.95	U	Ublow=29								17
		15.95 - 16.00	D									18
		17.00 17.00 - 17.45	SPT(S) D	N=12 (2,4/3,3,3,3)								19
		18.00	D									20
		18.50 - 18.95	U	Ublow=50								
		18.95 - 19.00	D									
	20.00 20.00 - 20.45	SPT(S) D	N=31 (5,6/8,8,7,8)								Continued on Next Sheet	

D = small disturbed sample (tub)
 J = organic sample (amber glass jar)
 V = volatile sample (amber glass vial)
 B = bulk bag sample
 SPT(C) = Standard Penetration Test (Cone)
 SPT(S) = Standard Penetration Test (Split Spoon)

HSV = hand shear vane (kPa)
 PP = pocket penetrometer (kg.cm2)
 PID = photoionisation detector (ppm)
 FI = fracture index
 TCR = total core recovery
 SCR = solid core recovery
 RQD = rock quality designation

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Borehole Log

Borehole No.

MBH111

Sheet 3 of 3

Project Name: Bowburn Estate
 Project No. 18582q

Co-ords:

Hole Type

CP

Location: Durham, Northumberland

Level:

Scale

1:50

Equipment: Dando 2000

Dates: 14/06/2016

Logged By

CJB

Well	Wtr Strk	Sample and In Situ Testing			Coring				Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results	FI	TCR	SCR	RQD				
		21.00	D									21
		21.50 - 21.95	U	Ublow=41								
		21.95 - 22.00	D									22
		23.00	SPT(S)	N=50 (5,7/50 for 255mm)								23
		23.00 - 23.45	D									
		24.00	D									24
		24.50 - 24.95	U	Ublow=50								
								25.00				25
End of Borehole at 25.00m												25
												26
												27
												28
												29
												30

D = small disturbed sample (tub)
 J = organic sample (amber glass jar)
 V = volatile sample (amber glass vial)
 B = bulk bag sample
 SPT(C) = Standard Penetration Test (Cone)
 SPT(S) = Standard Penetration Test (Split Spoon)

HSV = hand shear vane (kPa)
 PP = pocket penetrometer (kg.cm2)
 PID = photoionisation detector (ppm)
 FI = fracture index
 TCR = total core recovery
 SCR = solid core recovery
 RQD = rock quality designation

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Borehole Log

Borehole No.

MBH112

Sheet 1 of 3

Project Name: Bowburn Estate

Project No.
18582q

Co-ords:

Hole Type

CP

Location: Durham, Northumberland

Level:

Scale

1:50

Equipment: Pilcon 150

Dates: 14/06/2016

Logged By

CJB

Well	Wtr Strk	Sample and In Situ Testing			Coring				Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results	FI	TCR	SCR	RQD					
		0.05	D								Wheat over firm to stiff friable slightly desiccated dark brown sandy slightly gravelly TOPSOIL with abundant rootlets. Gravels comprise angular to subrounded sandstone and brick fragments.		
		0.60	D					0.60			Firm fissured brownish red slightly sandy CLAY with frequent lenses of red fine sand.	1	
		1.00	D					1.20			Soft brown slightly sandy CLAY with frequent lenses of grey silty fine sand.	2	
		1.20 - 1.65	SPT(S) D	N=8 (1,2/2,2,2,2)									
		2.00 - 2.45	U	Ublow=24									
		3.00	SPT(S)	N=10 (2,3/3,2,3,2)				3.00			Firm fissured brownish red slightly sandy CLAY with frequent lenses of red and black fine sand.	3	
		3.00 - 3.45	D										
		4.00 - 4.45	U	Ublow=21									
		5.00	SPT(S)	N=7 (1,2/2,1,2,2)									
		5.00 - 5.45	D										
		6.00	D										
		6.50 - 6.95	U	Ublow=25									
		7.00	D										
		8.00	SPT(S)	N=11 (2,2/3,3,3,2)									
		8.00 - 8.45	D										
		9.10						9.10			Stiff fissured brown slightly sandy CLAY with frequent lenses of brown silty fine sand and occasional fine and medium angular and subangular coal and sandstone gravel.	9	
		10.00	D										
												Continued on Next Sheet	10

D = small disturbed sample (tub)
 J = organic sample (amber glass jar)
 V = volatile sample (amber glass vial)
 B = bulk bag sample
 SPT(C) = Standard Penetration Test (Cone)
 SPT(S) = Standard Penetration Test (Split Spoon)

HSV = hand shear vane (kPa)
 PP = pocket penetrometer (kg.cm2)
 PID = photoionisation detector (ppm)
 FI = fracture index
 TCR = total core recovery
 SCR = solid core recovery
 RQD = rock quality designation

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Borehole Log

Borehole No.

MBH112

Sheet 2 of 3

Project Name: Bowburn Estate

Project No.
18582q

Co-ords:

Hole Type

CP

Location: Durham, Northumberland

Level:

Scale

1:50

Equipment: Pilcon 150

Dates: 14/06/2016

Logged By

CJB

Well	Wtr Strk	Sample and In Situ Testing			Coring				Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results	FI	TCR	SCR	RQD				
		11.00 11.00 - 11.45	SPT(S) D	N=30 (4,4/6,7,7,10)								11
		12.00	D									12
		12.50 - 12.95	U	Ublow=50								13
		13.00	D									13
		14.00 14.00 - 14.45	SPT(S) D	N=37 (5,5/8,9,10,10)								14
		15.00	D									15
		15.50 - 15.95	U	Ublow=50								16
		16.00	D									16
		17.00 17.00 - 17.45	SPT(S) D	N=39 (6,7/9,9,9,12)								17
		18.00	D									18
		18.50 - 18.95	U	Ublow=50								19
		19.00	D									19
		20.00 20.00 - 20.45	SPT(S) D	N=38 (6,7/8,7,10,13)								20

Lenses of yellowish brown medium sand.

Gravels are coarsening.

Lenses of yellowish brown medium sand.

Continued on Next Sheet

D = small disturbed sample (tub)
 J = organic sample (amber glass jar)
 V = volatile sample (amber glass vial)
 B = bulk bag sample
 SPT(C) = Standard Penetration Test (Cone)
 SPT(S) = Standard Penetration Test (Split Spoon)

HSV = hand shear vane (kPa)
 PP = pocket penetrometer (kg.cm2)
 PID = photoionisation detector (ppm)
 FI = fracture index
 TCR = total core recovery
 SCR = solid core recovery
 RQD = rock quality designation

Remarks



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Borehole Log

Borehole No.

MBH112

Sheet 3 of 3

Project Name: Bowburn Estate
 Project No. 18582q

Co-ords:

Hole Type
 CP

Location: Durham, Northumberland

Level:

Scale
 1:50

Equipment: Pilcon 150

Dates: 14/06/2016

Logged By
 CJB

Well	Wtr Strk	Sample and In Situ Testing			Coring				Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results	FI	TCR	SCR	RQD				
		21.50 - 21.95	U	Ublow=35								21
		22.00	D									22
		23.00 - 23.45	U	Ublow=37								23
		24.00	D									24
		24.50 - 24.95	U	Ublow=41								25
								25.00			End of Borehole at 25.00m	25
												26
												27
												28
												29
												30

D = small disturbed sample (tub)
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Borehole Log

Borehole No.

MBH113

Sheet 1 of 3

Project Name: Bowburn Estate

Project No.
18582q

Co-ords:

Hole Type
CP

Location: Durham, Northumberland

Level:

Scale
1:50

Equipment: Dando 3000

Dates: 14/06/2016

Logged By
CJB

Well	Wtr Strk	Sample and In Situ Testing			Coring				Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results	FI	TCR	SCR	RQD				
		0.10	D						0.20		Grass over stiff friable slightly desiccated dark brown sandy slightly gravelly TOPSOIL with abundant rootlets. Gravels comprise angular to subrounded sandstone and brick fragments.	
		0.50	D								Firm orangish brown, yellowish brown and brown mottled grey slightly sandy CLAY with frequent lenses of orangish brown and yellowish brown silty fine sand.	1
		1.20 - 1.65	U	Ublow=35					1.60		Firm brown gravelly CLAY. Gravels comprise angular and subangular sandstone. (DRILLERS DESCRIPTION).	2
		1.70	D									
		2.20	SPT(S)	N=14 (3,2/4,6,3,1)								
		2.70	D						2.90		Medium dense brown and orangish brown clayey/silty slightly gravelly fine and medium SAND. Gravels comprise angular and subangular sandstone.	3
		3.20	SPT(C)	N=16 (3,3/4,4,4,4)								
		3.20 - 3.70	D									
		4.20 - 4.65	U						4.10		Soft brown mottled reddish brown/brownish red silty CLAY with occasional partings of red silty fine sand.	4
		4.70	D									
		6.00	SPT(S)	N=11 (2,3/3,3,2,3)					6.00		Firm brown silty slightly sandy CLAY.	6
		6.00 - 6.45	D									
		6.50	D									
		7.50 - 7.95	U	Ublow=30								
		8.00	D									
		9.00	SPT(S)	N=12 (2,3/3,3,3,3)								
		9.00 - 9.45	D									
		9.50	D									
Continued on Next Sheet												

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 SPT(C) = Standard Penetration Test (Cone)
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HSV = hand shear vane (kPa)
 PP = pocket penetrometer (kg.cm2)
 PID = photoionisation detector (ppm)
 FI = fracture index
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Remarks