

4. Current Land Uses

4.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site:

11

The following records are represented as points on the Current Land Uses map:

ID	Distance [m]	Direction	Company	Address	Activity	Category
1	24.0	N	P & G Motors Ltd	13, Hill Street, Rhosllanerchrugog, Wrexham, LL14 1LN	Vehicle Repair, Testing and Servicing	Repair and Servicing
2A	84.0	W	Alexanya Curtains	87, Market Street, Rhosllanerchrugog, Wrexham, LL14 2LB	Curtains and Blinds	Consumer Products
3	88.0	NE	Electricity Sub Station	LL14	Electrical Features	Infrastructure and Facilities
4A	94.0	W	The Co-operative Pharmacy	85, Market Street, Rhosllanerchrugog, Wrexham, LL14 2LB	Chemists and Pharmacies	Health Practitioners and Establishments
5	97.0	W	Electricity Sub Station	LL14	Electrical Features	Infrastructure and Facilities
6	104.0	NW	Telephone Exchange	LL14	Telecommunications Features	Infrastructure and Facilities
7	122.0	NE	Baker Scaffolding Ltd	Tryfan, Windsor Road, Rhosllanerchrugog, Wrexham, LL14 1ST	Construction and Tool Hire	Hire Services
8	168.0	NW	The Co-operative Pharmacy	57, Market Street, Rhosllanerchrugog, Wrexham, LL14 2LA	Chemists and Pharmacies	Health Practitioners and Establishments
9	174.0	SE	Shaft	LL14	Unspecified Quarries Or Mines	Extractive Industries
10	221.0	NW	Rhos Radio	23, Market Street, Rhosllanerchrugog, Wrexham, LL14 1AH	Electrical Equipment Repair and Servicing	Repair and Servicing
11	228.0	S	Electricity Sub Station	LL14	Electrical Features	Infrastructure and Facilities

4.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site:

1

The following petrol or fuel site records provided by Catalist are represented as points on the Current Land Use map:

ID	Distance [m]	Direction	NGR	Company	Address	LPG	Status
12	449.0	E	329785, 346289	Obsolete	The Garage, Hill Street, Hill Street, Rhosllanerchrugog, Wrexham, Clwyd, LL14 1LN	Not Applicable	Obsolete

4.3 Underground High Pressure Oil and Gas Pipelines

Records of high pressure underground pipelines within 500m of the study site:

0

Database searched and no data found.

5. Geology

5.1 Artificial Ground and Made Ground

Database searched and no data found.
 The database has been searched on site, including a 50m buffer.

5.2 Superficial Ground and Drift Geology

The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON

(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

5.3 Bedrock and Solid Geology

The database has been searched on site, including a 50m buffer.

LEX Code	Description	Rock Type
PLMC-SDST	PENNINE LOWER COAL MEASURES FORMATION AND PENNINE MIDDLE COAL MEASURES FORMATION (UNDIFFERENTIATED)	SANDSTONE
PLMC-SDST	PENNINE LOWER COAL MEASURES FORMATION AND PENNINE MIDDLE COAL MEASURES FORMATION (UNDIFFERENTIATED)	SANDSTONE

(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

For more detailed geological and ground stability data please refer to the "GroundSure Geology and Ground Stability Report". Available from our website.

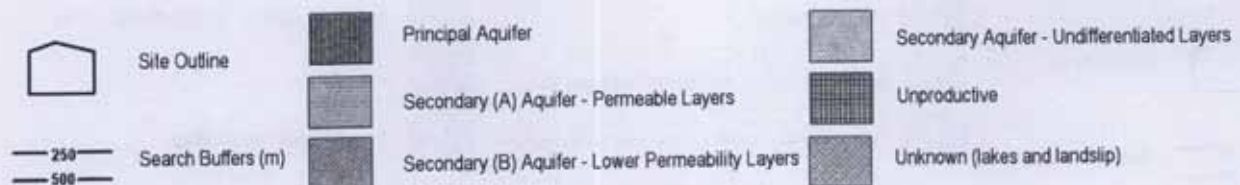
6a. Hydrogeology - Aquifer Within Superficial Geology



Aquifer Within Superficial Geology Legend

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6b. Hydrogeology - Aquifer Within Bedrock Geology and Abstraction Licenses

NW

N

NE

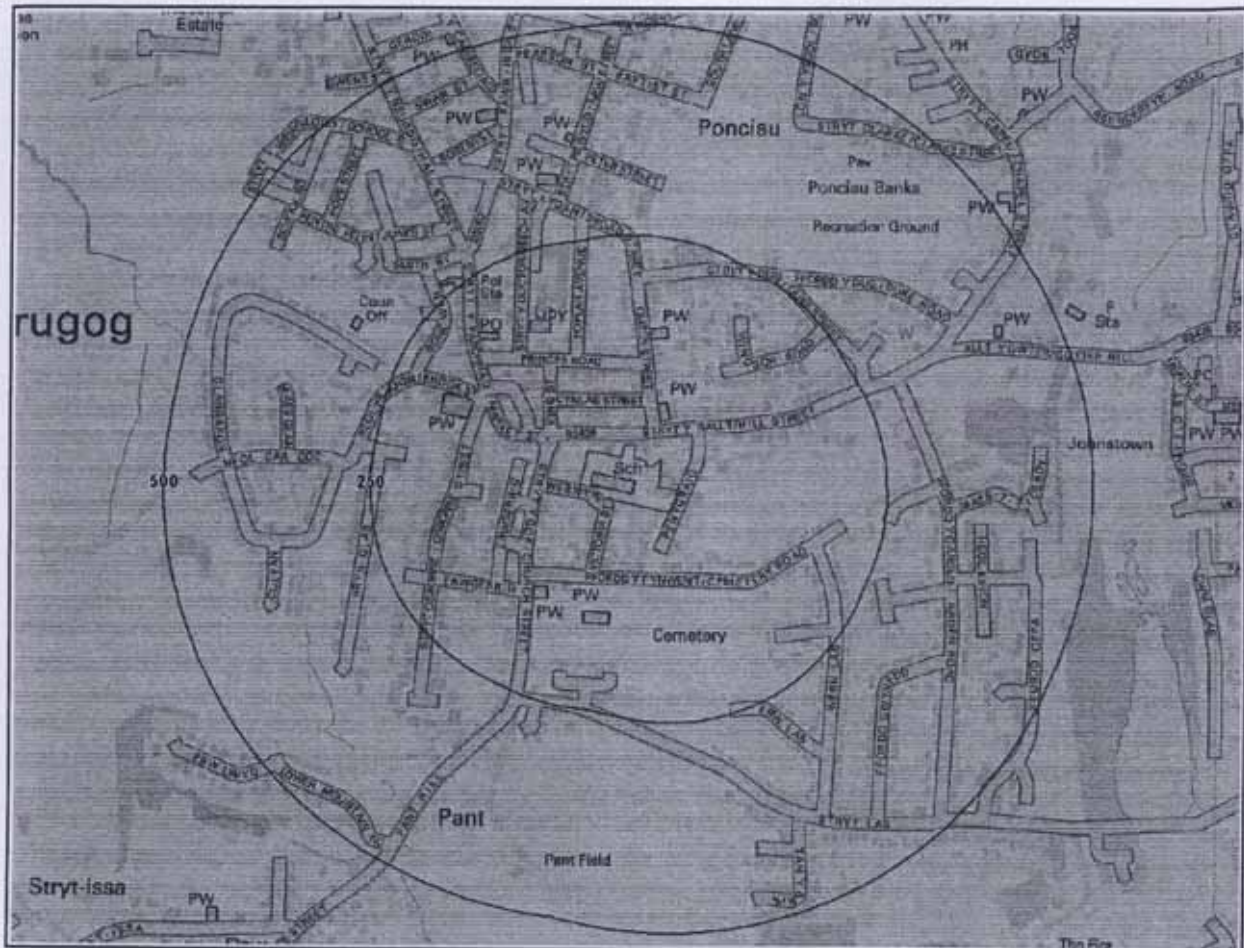
W

E

SW

S

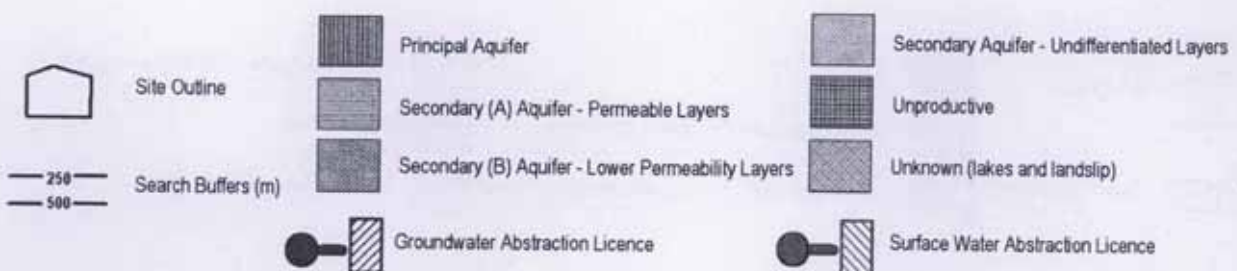
SE



Aquifer Within Bedrock Geology Legend

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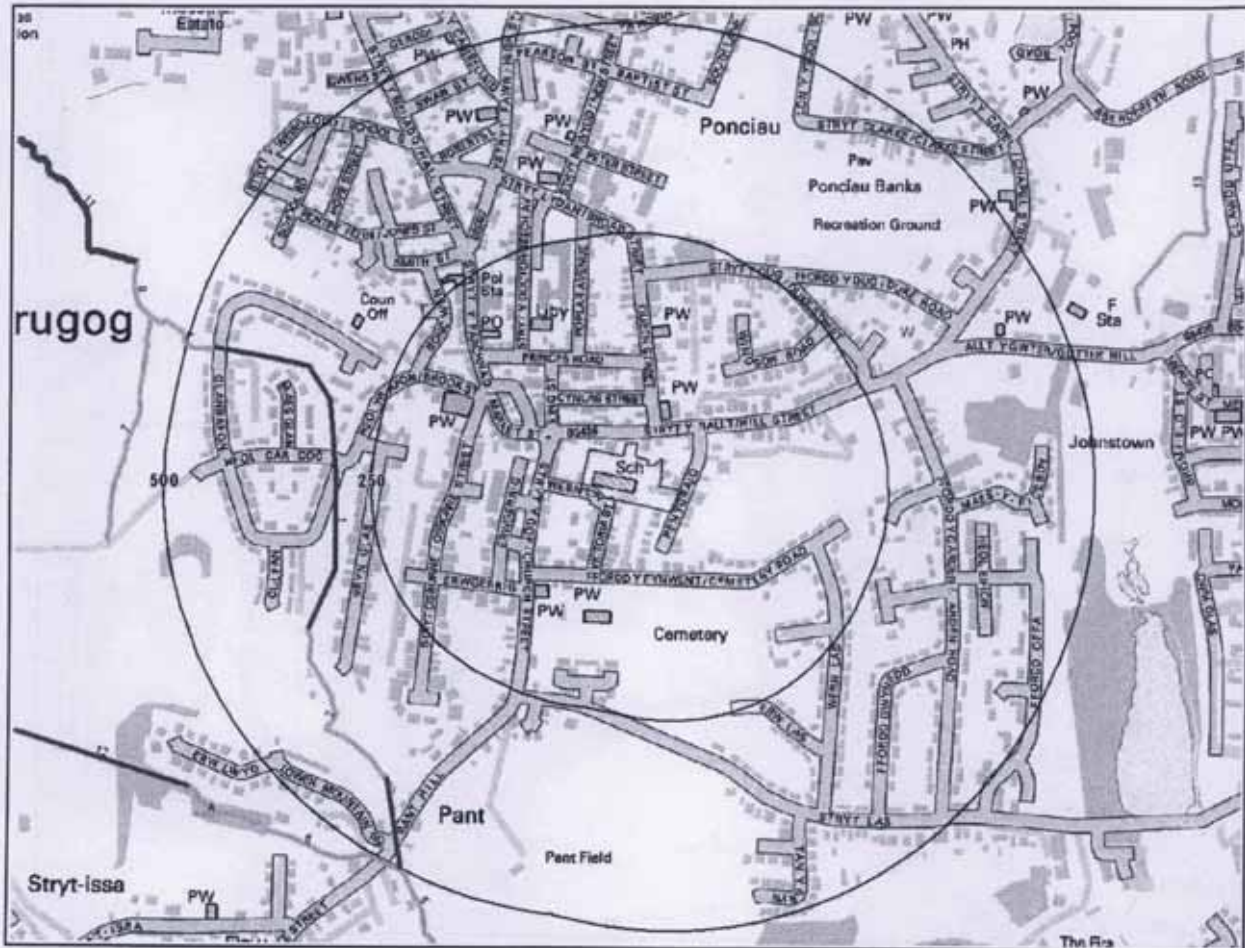


6d. Hydrology – Detailed River Network and River Quality

NW

N

NE



W

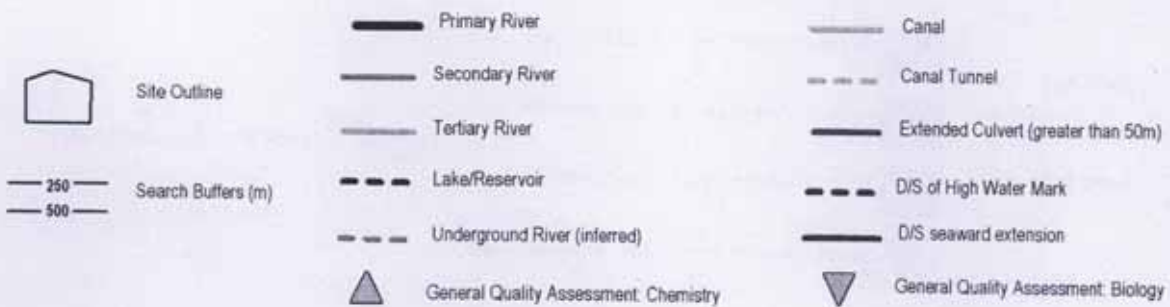
E

SW

S

SE

Hydrology Legend



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6. Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

Are there records of productive strata within the superficial geology at or in proximity to the property? **Yes**

From 1 April 2010, the Environment Agency's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the GroundSure User Guide.

The following aquifer records are shown on the Aquifer within Superficial Geology Map (6a):

ID	Distance [m]	Direction	Designation	Description
3	0.0	On Site	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

6.2 Aquifer within Bedrock Deposits

Are there records of productive strata within the bedrock geology at or in proximity to the property? **Yes**

From 1 April 2010, the Environment Agency's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the GroundSure User Guide.

The following aquifer records are shown on the Aquifer within Bedrock Geology Map (6b):

ID	Distance [m]	Direction	Designation	Description
1	0.0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

6.3 Groundwater Abstraction Licences

Are there any Groundwater Abstraction Licences within 1000m of the study site? **No**

Database searched and no data found.

6.4 Surface Water Abstraction Licences

Are there any Surface Water Abstraction Licences within 1000m of the study site? **No**

Database searched and no data found.

6.5 Potable Water Abstraction Licences

Report Reference: 00071671-11

Are there any Potable Water Abstraction Licences within 2000m of the study site?

Yes

The following Potable Water Abstraction Licences records are represented as points, lines and regions on the SPZ and Potable Water Abstraction Licences Map (6c):

ID	Distance	Direction	NGR	Details	
Not shown	1502.0	N	328960, 347700	Licence No: 24/67/7/0037 Details: Potable Water Supply - Direct Direct Source: Eaw Groundwater Point: Talwrn Borehole Data Type: Point	Annual Volume (m³): 272760 Max Daily Volume (m³): 1431.99 Original Application No: 295 Original Start Date: 5/7/1966 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:
Not shown	1997.0	SW	327390, 345400	Licence No: 24/67/5/0003 Details: Potable Water Supply - Direct Direct Source: Eaw Surface Water Point: Penycaebottom Reservoir Data Type: Point	Annual Volume (m³): 909200 Max Daily Volume (m³): 3409.5 Original Application No: 4/9(b) Original Start Date: 5/7/1966 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:

6.6 Source Protection Zones

Are there any Source Protection Zones within 500m of the study site?

No

Database searched and no data found.

6.7 River Quality

Is there any Environment Agency information on river quality within 1500m of the study site?

Yes

Biological Quality:

Biological Quality data describes water quality in terms of 83 groups of macroinvertebrates, some of which are pollution sensitive. The results are graded from A ('Very Good') to F ('Bad').

The following Biological Quality records are shown on the Hydrology Map (6d):

ID	Distance [m]	Direction	NGR	River Details	Biological Quality Grade				
					2005	2006	2007	2008	2009
Not shown	1455.0	SW	328000, 345400	River Name: Eitha Reach: Conf.r.dee W.park - Conf.trib.nr.penycae End/Start of Stretch: Start of Stretch NGR	A	A	A	A	A

Chemical Quality:

Chemical quality data is based on the General Quality Assessment Headline Indicators scheme (GQAH). In England, each chemical sample is measured for ammonia and dissolved oxygen. In Wales, the samples are measured for biological oxygen demand (BOD), ammonia and dissolved oxygen. The results are graded from A ('Very Good') to F ('Bad').

The following Chemical Quality records are shown on the Hydrology Map (6d):

ID	Distance [m]	Direction	NGR	River Details	Chemical Quality Grade (Headline Indicator)				
					2005	2006	2007	2008	2009

Report Reference: 00071671-11

Not shown	1455.0	SW	328000, 345400	River Name: Eitha Reach: Conf.r.dee W.park - Conf.trib.nr.penycae End/Start of Stretch: Start of Stretch NGR	A	A	A	A	-
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6.8 Detailed River Network

Are there any Detailed River Network entries within 500m of the study site?

Yes

The following Detailed River Network records are represented on the Hydrology Map (6d):

ID	Distance	Direction		Details
1	293.0	W	River Name: - Water Course Name: - Welsh River Name: - Alternative Name: -	River Type: Extended Culvert (greater than 50m) Catchment: - Drain: NO Main River Status: Currently Undefined
2	367.0	SW	River Name: - Water Course Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Catchment: - Drain: NO Main River Status: Currently Undefined
3	413.0	SW	River Name: - Water Course Name: - Welsh River Name: - Alternative Name: -	River Type: Extended Culvert (greater than 50m) Catchment: - Drain: NO Main River Status: Currently Undefined
4	467.0	W	River Name: - Water Course Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Catchment: - Drain: NO Main River Status: Currently Undefined

6.9 Surface Water Features

Are there any surface water features within 250m of the study site?

No

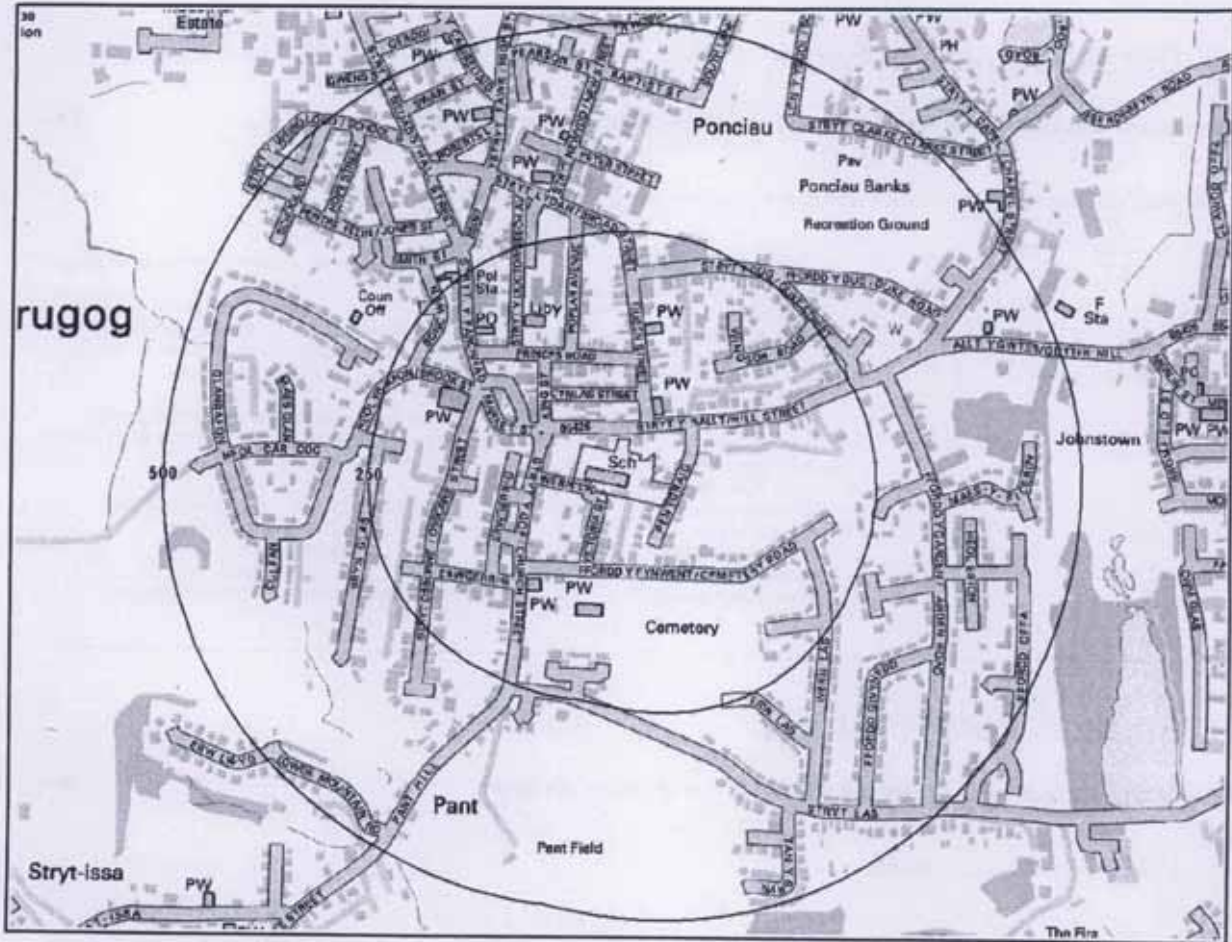
Database searched and no data found.

7. River and Tidal Flood Map

NW

N

NE



SW

E

SW

S

SE

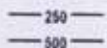
River and Tidal Flood Legend

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Site Outline



Search Buffers (m)



Zone 2 Floodplain



Zone 3 Floodplain



Flood Storage Area



Area Benefiting from Flood Defences



Flood Defences

7. Flooding

7.1 Zone 2 Flooding

Zone 2 floodplain estimates the annual probability of flooding as one in one thousand (0.1%) or greater from rivers and the sea but less than 1% from rivers or 0.5% from the sea. Alternatively, where information is available they may show the highest known flood level.

Is the site within 250m of an Environment Agency indicative Zone 2 floodplain?

No

Guidance: More detailed information on flooding may be available by ordering a GroundSure Floodview report. Please contact GroundSure for further details.

Database searched and no data found.

7.2 Zone 3 Flooding

Zone 3 estimates the annual probability of flooding as one in one hundred (1%) or greater from rivers and a one in two hundred (0.5%) or greater from the sea. Alternatively, where information is available they may show the highest known flood level.

Is the site within 250m of an Environment Agency indicative Zone 3 floodplain?

No

Guidance: More detailed information on flooding may be available by ordering a GroundSure Floodview report. Please contact GroundSure for further details.

Database searched and no data found.

7.3 Flood Defences

Are there any Flood Defences within 250m of the study site ?

No

7.4 Areas benefiting from Flood Defences

Are there any areas benefiting from Flood Defences within 250m of the study site?

No

Guidance: More detailed information on flooding may be available by ordering a GroundSure Floodview report. Please contact GroundSure for further details.

7.5 Areas used for Flood Storage

Are there any areas used for Flood Storage within 250m of the study site?

No

Guidance: More detailed information on flooding may be available by ordering a GroundSure Floodview report. Please contact GroundSure for further details.

7.6 Groundwater Flooding Susceptibility Areas

Report Reference: 00071671-11

Are there any British Geological Survey groundwater flooding susceptibility flood areas within 50m of the boundary of the study site?

Yes

What is the highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions?

Very Low

Guidance:

Where very low susceptibility is indicated this means that you need take no further action in relation to groundwater hazard in this area.

7.7 Groundwater Flooding Confidence Areas

What is the British Geological Survey confidence rating in this result?

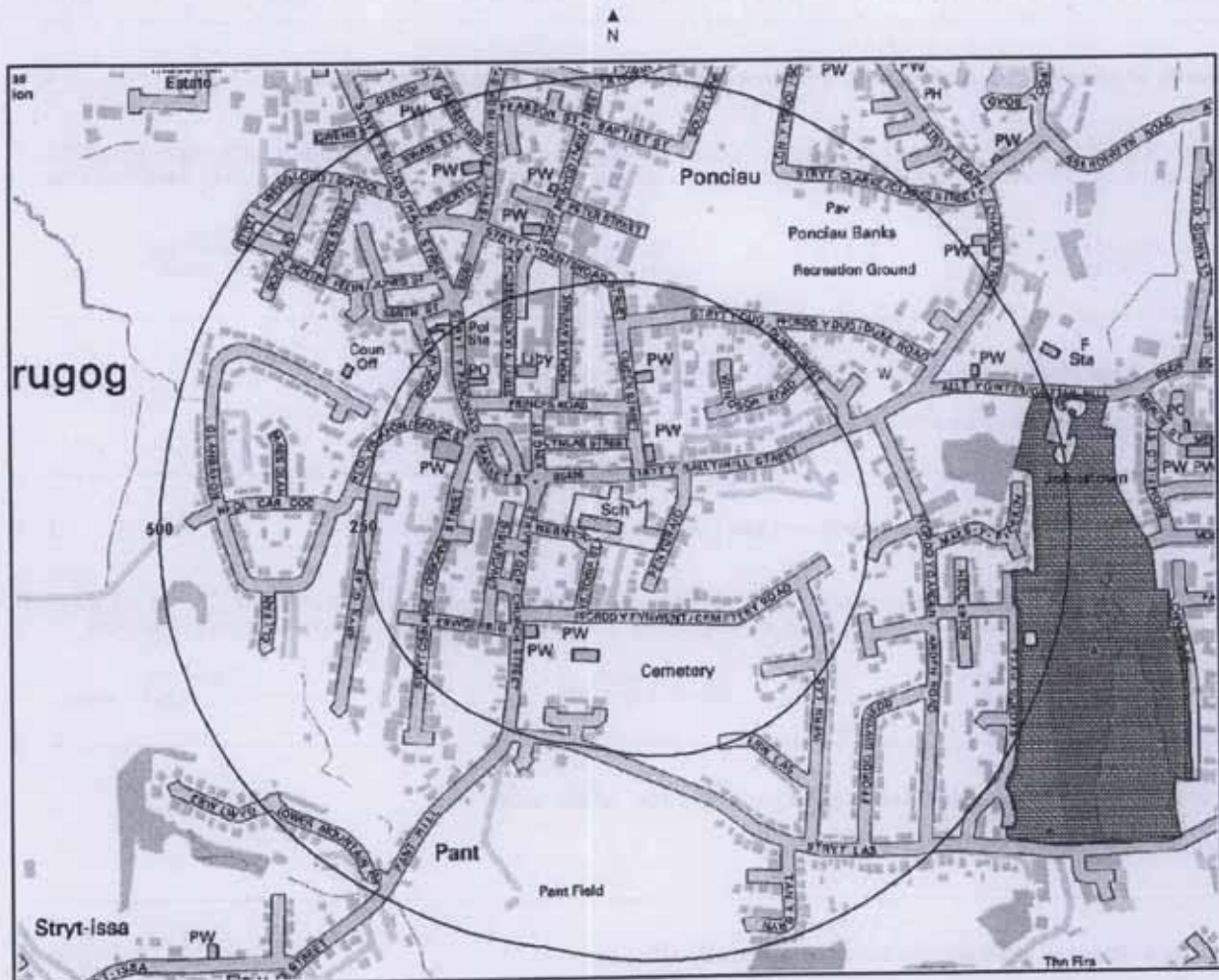
Low

Notes:

Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

The **confidence rating** is on a threefold scale - Low, Moderate and High. This provides a relative indication of the BGS confidence in the accuracy of the susceptibility result for groundwater flooding. This is based on the amount and precision of the information used in the assessment. In areas with a relatively lower level of confidence the susceptibility result should be treated with more caution. In other areas with higher levels of confidence the susceptibility result can be used with more confidence.

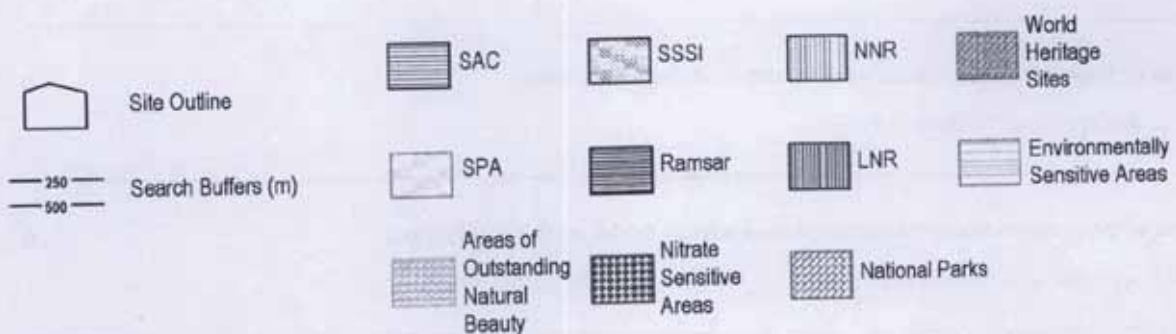
8. Designated Environmentally Sensitive Sites Map



Designated Environmentally Sensitive Sites Legend

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8. Designated Environmentally Sensitive Sites

Presence of Designated Environmentally Sensitive Sites within 500m of the study site: Yes

Records of Sites of Special Scientific Interest (SSSI) within 500m of the study site: 1

The following Site of Special Scientific Interest (SSSI) records provided by Natural England/Countryside Council for Wales and Scottish Natural Heritage are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance [m]	Direction	SSSI Name	Data Source
2A	430.0	E	Stryt Las A'r Hafod	Countryside Council for Wales

Records of National Nature Reserves (NNR) within 500m of the study site: 0

Database searched and no data found.

Records of Special Areas of Conservation (SAC) within 500m of the study site: 1

The following Special Area of Conservation (SAC) records provided by Natural England/Countryside Council for Wales and Scottish Natural Heritage are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance [m]	Direction	SAC Name	Data Source
1A	430.0	E	Johnstown Newt Sites	Countryside Council for Wales

Records of Special Protection Areas (SPA) within 500m of the study site: 0

Database searched and no data found.

Records of Ramsar sites within 500m of the study site: 0

Database searched and no data found.

Records of Local Nature Reserves (LNR) within 500m of the study site: 0

Database searched and no data found.

Records of World Heritage Sites within 500m of the study site: 0

Database searched and no data found.

Records of Environmentally Sensitive Areas within 500m of the study site: 0

Database searched and no data found.

Records of Areas of Outstanding Natural Beauty (AONB) within 500m of the study site: 0

Report Reference: 00071671-11

Database searched and no data found.

Records of National Parks (NP) within 500m of the study site:

0

Database searched and no data found.

Records of Nitrate Sensitive Areas within 500m of the study site:

0

Database searched and no data found.

9. Additional Information

9.1 Mobile Phone Transmitter Locations

GroundSure's unique mobile phone transmitter database.

Have any mobile phone transmitters been identified within 250m of the study site?

No

Database searched and no data found.

9.2 Existing and potential OfCom Telecommunication Mast Locations

OfCom telecommunication base station and mast data, which details the height and proposed location of masts over 30 metres in height or with a power level exceeding 17dBW.

Have any OfCom telecommunication masts been identified within 250m of the study site?

No

Database searched and no data found.

9.3 Pylons and Electricity Transmission Lines

Have any overhead transmission lines or pylons been identified in proximity to the study site?

No

Guidance: Please be aware that the findings contained within overhead power transmission lines and pylons dataset relates to Ordnance Survey Point X data, which identifies points along the transmission network. Therefore sometimes certain features may not appear in the report. The database is searched up to 500m.

10. Natural Hazards Findings

10.1 Detailed BGS GeoSure Data

BGS GeoSure Data has been searched to 50m. The data is included in tabular format. If you require further information, please obtain a GroundSure Geology and Ground Stability Report. Available from our website. The following information has been found:

10.1.1 Shrink Swell

What is the maximum Shrink-Swell* hazard rating identified on the study site?

Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.

10.1.2 Landslides

What is the maximum Landslide* hazard rating identified on the study site?

Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

10.1.3 Soluble Rocks

What is the maximum Soluble Rocks* hazard rating identified on the study site?

Null - Negligible

Soluble rocks are not present in the search area. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

10.1.4 Compressible Ground

What is the maximum Compressible Ground* hazard rating identified on the study site?

Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

10.1.5 Collapsible Rocks

What is the maximum Collapsible Rocks* hazard rating identified on the study site?

Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

10.1.6 Running Sand

What is the maximum Running Sand* hazard rating identified on the study site?

Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

* This indicates an automatically generated 50m buffer and site.

10.2 Radon

What is the maximum radon potential at the study site?

The property is in a Radon Affected Area, as between 5 and 10% of properties are above the Action Level

Is the property in an area where radon protection measures are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?

Basic radon protective measures are necessary

Guidance: The responses given on the level of radon protective measures required are based on a joint radon potential dataset from the Health Protection Agency (HPA) and the British Geological Survey (BGS). Basic radon protective measures need to be installed for new dwellings or extensions to existing dwellings, where between 3% but less than 10% of homes are estimated to exceed the Action Level. The joint HPA-BGS radon potential data forms the basis for the Building Research Establishment guidance on radon protective measures for new dwellings (BR211 2007).

11. Non CON29M Mining Information

11.1 Coal Mining

Are there any coal mining areas within 75m of the study site?

Yes

A Coal Authority CON29M Coal Mining and Brine Subsidence Claim Report is provided in Appendix 1 at the end of this report.

11.2 Shallow Mining

What is the hazard of subsidence relating to shallow mining on site (including a 150m buffer) ? **Moderate**

Guidance: Where moderate potential is indicated, this means that the rocks underlying the area are of a type known to have been mined at shallow depth in some parts of the UK, and that such working may be possible in your area. In these cases it is recommended that you seek further advice from a Royal Institute Chartered Surveyor (RICS), the local Building Control Officer, or by ordering a Geological Report from the BGS. It is also recommended that you obtain a Coal Authority mining search, which will provide a comprehensive search of former mining activity, including coal mining at deeper levels.

11.3 Brine Affected Areas

Are there any brine affected areas within 75m of the study site?

No

A Coal Authority CON29M Coal Mining and Brine Subsidence Claim Report is provided in Appendix 1 at the end of this report.

12. Contacts

The Coal Authority Property Search Services
 200 Lichfield Lane, Berry Hill, Mansfield, Nottinghamshire,
 NG18 4RG
 Email: groundstability@coal.gov.uk
 Web: www.groundstability.com



British Geological Survey (England & Wales)
 Kingsley Dunham Centre
 Keyworth, Nottingham NG12 5GG
 Tel: 0115 936 3143. Fax: 0115 936 3276. Email:
enquiries@bgs.ac.uk
 Web: www.bgs.ac.uk
 BGS Geological Hazards Reports and general geological
 enquiries



Environment Agency
 Tel: 08708 506 506
 North
 Llwyn Brain - Fford Penlan, Bangor, LL57 4DE
 Web: www.environment-agency.gov.uk
 Email: enquiries@environment-agency.gov.uk



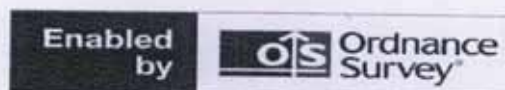
Health Protection Agency
 Chilton, Didcot, Oxon, OX11 0RQ
 Tel: 01235 822622 www.hpa.org.uk/radiation
 Radon measures and general radon information and
 guidance



The Coal Authority
 200 Lichfield Lane, Mansfield, Notts NG18 4RG
 Tel: 0845 762 6848. DX 716176 Mansfield 5
www.groundstability.com
 Coal mining reports and related enquiries



Ordnance Survey
 Romsey Road
 Southampton SO16 4GU
 Tel: 08456 050505



Local Authority
 Authority: Wrexham County Borough Council
 Phone: 01978 292000
 Web: www.wrexham.gov.uk
 Address: The Guildhall, Wrexham, LL11 1AY

Get Mapping PLC
 Virginia Villas, High Street, Hartley Witney, Hampshire RG27
 8NW
 Tel: 01252 845444



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Standard Terms and Conditions

1 Definitions

In these conditions unless the context otherwise requires:

"Beneficiary" means the Client or the customer of the Client for whom the Client has procured the Services.

"Commercial" means any building which is not Residential.

"Commission" means an order for Consultancy Services submitted by a Client.

"Consultancy Services" mean consultancy services provided by GroundSure including, without limitation, carrying out interpretation of third party and in-house environmental data, provision of environmental consultancy advice, undertaking environmental audits and assessments, Site investigation, Site monitoring and related items.

"Content" means any data, database or other information contained in a Report or Mapping which is provided to GroundSure by a Data Provider.

"Contract" means the contract between GroundSure and the Client for the performance of the Services which arises upon GroundSure's acceptance of an Order or Commission and which shall incorporate these conditions, the relevant GroundSure User Guide, proposal by GroundSure and the content of any subsequent report, and any agreed amendments in accordance with clause 11.

"Client" means the party that submits an Order or Commission.

"Data Provider" means any third party providing Content to GroundSure.

"Data Report" means reports comprising factual data with no professional interpretation in respect of the level of likely risk and/or liability available from GroundSure.

"GroundSure" means GroundSure Limited, a company registered in England and Wales under number 03421028 and whose registered office is at Greater London House, Hampstead Road, London NW1 7EJ.

"Intellectual Property" means any patent, copyright, design rights, service marks, moral rights, data protection rights, know-how, trademark or any other intellectual property rights.

"Mapping" an historical map or a combination of historical maps of various ages, time periods and scales available from GroundSure.

"Order" means an order form submitted by the Client requiring Services from GroundSure in respect of a specified Site.

"Order Website" means online platform via which Orders may be placed.

"Report" means a Risk Screening Report or Data Report for commercial or residential property available from GroundSure relating to the Site prepared in accordance with the specifications set out in the relevant User Guide.

"Residential" means any building used as or suitable for use as an individual dwelling.

"Risk Screening Report" means one of GroundSure's risk screening reports, comprising factual data with interpretation in respect of the level of likely risk and/or liability, excluding "Consultancy Services".

"Services" means the provision of any Report, Mapping or Consultancy Services which GroundSure has agreed to carry out for the Client/Beneficiary on these terms and conditions in respect of the Site.

"Site" means the landsite in respect of which GroundSure provides the Services.

"User Guide" means the relevant current version of the user guide, available upon request from GroundSure.

2 Scope of Services

2.1 GroundSure agrees to carry out the Services in accordance with the Contract and to the extent set out therein.

2.2 GroundSure shall exercise all the reasonable skill, care and diligence to be expected of experienced environmental consultants in the performance of the Services.

2.3 The Client acknowledges that it has not relied on any statement or representation made by or on behalf of GroundSure which is not set out and expressly agreed in the Contract.

2.4 Terms and conditions appearing on a Client's order form, printed stationery or other communication, including invoices, to GroundSure, its employees, servants, agents or other representatives or any terms implied by custom, practice or course of dealing shall be of no effect and these terms and conditions shall prevail over all others.

2.5 In the event that a Client/Beneficiary opts to take out insurance in conjunction with or as a result of the Services, such insurance shall be subject solely to the terms of any policy issued to it in that respect and GroundSure will have no liability therefore.

2.6 GroundSure's quotations/proposals are valid for a period of 30 days only. GroundSure reserves the right to withdraw any quotation at any time before GroundSure accepts an Order or Commission. GroundSure's acceptance of an Order or Commission shall be effective only where such acceptance is in writing and signed by GroundSure's authorised representative or where accepted via GroundSure's Order Website.

3 The Client's obligations

3.1 The Client shall ensure the Beneficiary complies with and is bound by the terms and conditions set out in the Contract and shall provide that GroundSure may in its own right enforce such terms and conditions against the Beneficiary pursuant to the Contracts (Rights of Third Parties) Act 1999. The Client shall be liable for all breaches of the Contract by the Beneficiary as if they were breaches by the Client. The Client shall be solely responsible for ensuring that the Report/Mapping ordered is appropriate and suitable for the Beneficiary's needs.

3.2 The Client shall (or shall procure that the Beneficiary shall) supply to GroundSure as soon as practicable and without charge all information necessary and accurate relevant data including any specific and/or unusual environmental information relating to the Site known to the Client/Beneficiary which may pertain to the Services and shall give such assistance as GroundSure shall reasonably require in the performance of the Services (including, without limitation, access to a Site, facilities and equipment as agreed in the Contract).

3.3 Where Client/Beneficiary approval or decision is required, such approval or decision shall be given or procured in reasonable time as not to delay or disrupt the performance of any other part of the Services.

3.4 The Client shall not and shall not knowingly permit the Beneficiary to, save as expressly permitted by these terms and conditions, re-sell, alter, add to, amend or use out of context the content of any Report, Mapping or, in respect of any Services, information given by GroundSure. For the avoidance of doubt, the Client and Beneficiary may make the Report, Mapping or GroundSure's findings available to a third party who is considering acquiring the whole or part of the Site, or providing funding in relation to the Site, but such third party cannot rely on the same unless expressly permitted under clause 4.

3.5 The Client is responsible for maintaining the confidentiality of its user name and password if using GroundSure's internet ordering service and accepts responsibility for all activity that occurs under such account and password.

4 Reliance

4.1 Upon full payment of all relevant fees and subject to the provisions of these terms and conditions, the Client and Beneficiary are granted an irrevocable royalty-free licence to access the information contained in a Report, Mapping or in a report prepared by GroundSure in respect of or arising out of Consultancy Services. The Services may only be used for the benefit of the Client and those persons listed in clauses 4.2 and 4.3.

4.2 In relation to Data Reports, Mapping and Risk Screening Reports, the Client shall be entitled to make Reports available to (i) the Beneficiary, (ii) the Beneficiary's professional advisers, (iii) any person providing funding to the Beneficiary in relation to the Site (whether directly or as part of a lending syndicate), (iv) the first purchaser or first tenant of the Site (v) the professional advisers and lenders of the first purchaser or tenant of the Site. Accordingly GroundSure shall have the same duties and obligations to those persons in respect of the Services as it has to the Client and those persons shall have the benefit of any of the Client's rights under the Contract as if those persons were parties to the Contract. For the avoidance of doubt, the limitations of GroundSure's liability as set out in clauses 7 and 11.6 shall apply.

4.3 In relation to Consultancy Services, reliance shall be limited to the Client, Beneficiary and named parties on the Report.

4.4 Save as set out in clauses 4.2 and 4.3 and unless otherwise agreed in writing with GroundSure, any other party considering the information supplied by GroundSure as part of the Services, including (but not limited to) insurance underwriters, does so at their own risk and GroundSure has no legal obligations to such party unless otherwise agreed in writing.

4.5 The Client shall not and shall not knowingly permit any person (including the Beneficiary) who is provided with a copy of any Report, (except as permitted herein or by separate agreement with GroundSure) to: (a) remove, suppress or modify any trade mark, copyright or other proprietary marking from the Report or Mapping; (b) create any product which is derived directly or indirectly from the data contained in the Report or Mapping; (c) combine the Report or Mapping with, or incorporate the Report or Mapping into any other information data or service; or (d) re-format or otherwise change (whether by modification, addition or enhancement) data or images contained in the Report or Mapping.

4.6 Notwithstanding clause 4.5, if the Client acts in a professional capacity, it may make reasonable use of a Report and/or findings made as a result of Consultancy Services to advise Beneficiaries. However, GroundSure shall have no liability in respect of any opinion or report given to such Beneficiaries by the Client or a third party.

5 Fees and Disbursements

5.1 GroundSure shall charge the Client fees at the rate and frequency specified in the Contract together, in the case of Consultancy Services, with all proper disbursements incurred by GroundSure in performing the Services. For the avoidance of doubt, the fees payable for the Services are as set out in GroundSure's written proposal, Order Website or Order acknowledgement form. The Client shall in addition pay all value added tax or other tax payable on such fees and disbursements in relation to the provision of the Services.

5.2 Unless GroundSure requires prepayment, the Client shall promptly pay all fees disbursements and other monies due to GroundSure in full without deduction, counterclaim or set off together with such value added tax or other tax as may be required within 30 days from the date of GroundSure's invoice or such other period as may be agreed in writing between GroundSure and the Client ("Payment Date"). GroundSure reserves the right to charge interest which shall accrue on a daily basis from 30 days after the date of Payment.

5.3 Date until the date of payment (whether before or after judgment) at the rate of five per cent per annum above the Bank of England base rate from time to time. In the event that the Client disputes the amount payable in respect of GroundSure's invoice it shall notify GroundSure no later than 28 days after the date thereof that it is in dispute. In default of such notification the Client shall be deemed to have agreed the amount thereof. As soon as reasonably practicable following receipt of a notification in respect of any disputed invoice, a member of the management team at GroundSure shall contact the Client and the parties shall use all reasonable endeavours to resolve the dispute.

6 Intellectual Property

6.1 Subject to the provisions of clause 4.1, the Client and the Beneficiary hereby acknowledge that all Intellectual Property in the Services and Content are and shall remain owned by either GroundSure or the Data Providers and nothing in these terms purports to transfer or assign any rights to the Client or the Beneficiary in respect of the Intellectual Property.

6.2 The Client shall acknowledge the ownership of the Content where such Content is incorporated or used in the Client's own documents, reports, systems or services whether or not these are supplied to a third party.

6.3 Data Providers may enforce any breach of clauses 6.1 and 6.2 against the Client or Beneficiary.

6.4 The Client acknowledges that the proprietary rights subsisting in copyright, database rights and any other intellectual property rights in respect of any data and information contained in any Report are and shall remain (subject to clause 11.1) the property of GroundSure and/or any third party that has supplied data or information used to create a Report, and that these conditions do not purport to grant, assign or transfer any such rights in respect thereof to a Client and/or a Beneficiary.

6.5 The Client and each of the parties set out in clause 4.2 are permitted to make up to 8 (commercial) or 2 (residential) printed copies of the Report only. Further copies of the Report may not be made in whole or in part without the prior written permission of GroundSure who shall be entitled to make a charge for each additional copy.

6.6 The Client shall (and shall procure that any recipients of the Report as permitted under clause 4.2 shall):

(i) not remove, suppress or modify any trademark, copyright or other proprietary marking belonging to GroundSure or any third party from the Services;

(ii) use the information obtained as part of the Services in respect of the subject Site only, and shall not store or reuse any information obtained as part of the Services provided in respect of adjacent or nearby sites;

- (iii) not create any product or report which is derived directly or indirectly from the data contained in the Services (save that those acting in a professional capacity to the Beneficiary may provide advice based upon the Services);
- (iv) not combine the Services with or incorporate such Services into any other information data or service; and
- (v) not reformat or otherwise change (whether by modification, addition or enhancement), data contained in the Services (save that those acting in a professional capacity to the Beneficiary shall not be in breach of this clause 6.6(v) where such reformatting is in the normal course of providing advice based upon the Services), in each case of parts (iii) to (v) inclusive, whether or not such product or report is produced for commercial profit or not.
- 6.7 The Client and/or Beneficiary shall and shall procure that any party to whom the Services are made available shall notify GroundSure of any request or requirement to disclose, publish or disseminate any information contained in the Services in accordance with the Freedom of Information Act 2000, the Environmental Information Regulations 2004 or any associated legislation or regulations in force from time to time.
- 7. Liability**
- 7.1 Nothing in these terms and conditions shall limit GroundSure's liability for causing death or personal injury through negligence or wilful default.
- 7.2 Save as otherwise set out in these conditions, any information provided by one party ("Disclosing Party") to the other party ("Receiving Party") shall be treated as confidential except so far as authorised by the Disclosing Party to provide such information in whole or in part to a third party.
- 7.3 Nothing in these conditions shall affect the statutory rights of a consumer under the applicable consumer protection legislation from time to time.
- 7.4 In relation to Data Reports, Mapping and Risk Screening Reports, GroundSure's liability under the Contract shall cease upon the expiry of six years from the date when the Beneficiary became aware that it may have a claim against GroundSure in respect of the Services provided always that there shall be no liability at the expiration of twelve years from the completion of the Contract. For the avoidance of doubt, any claims in respect of which proceedings are notified to GroundSure in writing prior to the expiry of the time periods referred to in this clause shall survive the expiry of those time periods provided any such claim is actually commenced within six months of notification.
- 7.5 In relation to Consultancy Services GroundSure's liability under the Contract shall cease upon the expiry of six years from the date the Services were completed.
- 7.6 GroundSure shall not be liable to the Client or any person to whom the Client provides a copy of a Data Report, Mapping or Risk Screening Report in any circumstances whatsoever unless arising out of a breach on its part of the obligations set out in the Contract.
- 7.7 GroundSure shall not be liable if the Data Reports, Mapping or Risk Screening Report are used otherwise than as provided or referred to in these conditions and the relevant User Guide.
- 7.8 Subject to the provisions of clause 7.3, GroundSure makes no representation, warranties, express or implied, as to the accuracy, reliability, completeness, validity or fitness for purpose of any Content and shall not be liable for any omission, error or inaccuracy in relation thereto unless GroundSure should reasonably have been alerted to any omission, error or inaccuracy in the Content.
- 7.9 Subject to the provisions of clause 7.1 and irrespective of whether multiple parties make use of the same Services the total liability of GroundSure under or in connection with the Contract, whether in contract in tort for breach of statutory duty or otherwise shall not exceed £10 million per claim or series of connected claims.
- 7.10 Whilst GroundSure will use all reasonable endeavours to maintain operability of its internet ordering service it will not be liable for any loss or damages caused by a delay or loss of use of such service. The Client shall use GroundSure's internet ordering service at its own risk. GroundSure shall not be responsible for any damage to a Client or permitted assignee's computer, software, modem, telephone or other property resulting from the use of GroundSure's internet ordering service.
- 7.11 The Client accepts, and shall use all reasonable endeavours to procure that anyone who is provided with a copy of the Report accepts, that it has no claim or recourse to any Data Provider or to GroundSure in respect of the acts or omissions of such Data Providers including Content supplied by them.
- 7.12 GroundSure shall provide the Services using reasonable skill and care, however, GroundSure shall not be liable for any inaccurate statement or risk rating in a Report which resulted from a reasonable interpretation of the Content.
- 7.13 Subject to clause 7.1, GroundSure shall not be liable to the Client, the Beneficiary or any third party in contract, tort (including, without limitation, negligence) or for misrepresentation or breach of statutory duty or otherwise in respect of any loss of profits, goodwill, revenue or opportunity, or any indirect or consequential loss (even if such loss was reasonably foreseeable).
- 7.14 GroundSure undertakes for the duration of the liability periods referred to in clauses 7.4 and 7.5 to maintain professional indemnity insurance in respect of its liabilities under this Contract. GroundSure shall produce evidence of such insurance if requested by the Client. A greater level of cover may be available upon request and agreement with the Client.
- 8. GroundSure right to suspend or terminate**
- 8.1 In the event that GroundSure reasonably believes that the Client or Beneficiary as applicable has not provided the information or assistance required to enable the proper performance of the Services, GroundSure shall be entitled on fourteen days written notice to suspend all further performance of the Services until such time as any such deficiency has been made good.
- 8.2 GroundSure may additionally terminate the Contract immediately on written notice in the event that:
- (i) the Client shall fail to pay any sum due to GroundSure within 28 days of the Payment Date; or
- (ii) the Client (being an individual) has a bankruptcy order made against him or (being a company) shall enter into liquidation whether compulsory or voluntary or have an Administration Order made against it or if a Receiver shall be appointed over the whole or any part of its property assets or undertaking or if the Client is struck off the Register of Companies or dissolved; or
- (iii) the Client being a company is unable to pay its debts within the meaning of Section 123 of the Insolvency Act 1986 or being an individual appears unable to pay his debts within the meaning of Section 268 of the Insolvency Act 1986 or if the Client shall enter into a composition or arrangement with the Client's creditors or shall suffer distress or execution to be levied on his goods; or
- (iv) the Client or the Beneficiary breaches any material term of the Contract (including, but not limited to, the obligations in clause 4) incapable of remedy or if remediable, is not remedied within 14 days of notice of the breach.
- 9. Client's Right to Terminate and Suspend**
- 9.1 Subject to clause 10.2, the Client may at any time after commencement of the Services by notice in writing to GroundSure require GroundSure to terminate or suspend immediately performance of all or any of the Services.
- 9.2 The Client waives all and any right of cancellation it may have under the Consumer Protection (Distance Selling) Regulations 2000 (as amended) in respect of the Order of a Report/Mapping. This does not affect the Beneficiary's statutory rights.
- 10. Consequences of Withdrawal, Termination or Suspension**
- 10.1 Upon termination or any suspension of the Services, GroundSure shall take steps to bring to an end the Services in an orderly manner, vacate any Site with all reasonable speed and shall deliver to the Client/Beneficiary any property of the Client/Beneficiary in GroundSure's possession or control.
- 10.2 In the event of termination/suspension of the Contract under clauses 8 or 9, the Client shall pay to GroundSure all and any fees payable in respect of the performance of the Services up to the date of termination/suspension. In respect of any Consultancy Services provided, the Client shall also pay GroundSure any additional costs incurred in relation to the termination/suspension of the Contract.
- 11. General**
- 11.1 The mapping contained in the Services is protected by Crown copyright and must not be used for any purpose outside the context of the Services or as specifically provided in these terms.
- 11.2 GroundSure reserves the right to amend these terms and conditions. No variation to these terms shall be valid unless signed by an authorised representative of GroundSure.
- 11.3 No failure on the part of GroundSure to exercise and no delay in exercising, any right, power or provision under these terms and conditions shall operate as a waiver thereof.
- 11.4 Save as expressly provided in clauses 4.2, 4.3, 6.3 and 11.5, no person other than the persons set out therein shall have any right under the Contract (Rights of Third Parties) Act 1999 to enforce any terms of the Contract.
- 11.5 The Secretary of State for Communities and Local Government acting through Ordnance Survey may enforce breach of clause 6.1 of these terms and conditions against the Client in accordance with the provisions of the Contracts (Rights of Third Parties) Act 1999.
- 11.6 GroundSure shall not be liable to the Client if the provision of the Services is delayed or prevented by one or more of the following circumstances:
- (i) the Client or Beneficiary's failure to provide facilities, access or information;
- (ii) fire, storm, flood, tempest or epidemic;
- (iii) Acts of God or the public enemy;
- (iv) riot, civil commotion or war;
- (v) strikes, labour disputes or industrial action;
- (vi) acts or regulations of any governmental or other agency;
- (vii) suspension or delay of services at public registries by Data Providers; or
- (viii) changes in law.
- 11.7 Any notice provided shall be in writing and shall be deemed to be properly given if delivered by hand or sent by first class post, facsimile or by email to the address, facsimile number or email address of the relevant party as may have been notified by each party to the other for such purpose or in the absence of such notification the last known address.
- 11.8 Such notice shall be deemed to have been received on the day of delivery if delivered by hand, facsimile or email and on the second working day after the day of posting if sent by first class post.
- 11.9 The Contract constitutes the entire contract between the parties and shall supersede all previous arrangements between the parties.
- 11.10 Each of the provisions of the Contract is severable and distinct from the others and if one or more provisions is or should become invalid, illegal or unenforceable, the validity and enforceability of the remaining provisions shall not in any way be tainted or impaired.
- 11.11 These terms and conditions shall be governed by and construed in accordance with English law and any proceedings arising out of or connected with these terms and conditions shall be subject to the exclusive jurisdiction of the English courts.
- 11.12 If the Client or Beneficiary has a complaint about the Services, notice can be given in any format eg writing, phone, email to the Compliance Officer at GroundSure who will respond in a timely manner.
- ©GroundSure Limited – January 2011

Appendix 1

**The Coal Authority CON29M Coal
Mining and Brine Subsidence Claim
report**

APPENDIX D

Borehole Logs (Previous Investigation)



NATURAL ENVIRONMENT RESEARCH COUNCIL

Report an issue with this borehole

<< < Prev Page 1 of 3 Next > >>

JOINT LANCs. BORING CO. (U.K.) LTD.

CHapel STREET · PEMBERTON · WIGAN

Telephone — Wigan 83237/8

BOREHOLE RECORD SHEET

SJ 24 NE 44

2924 4618 B

Job No. 1972

Date 17.4.73

Location YSGOL Y WERN RHOSLLANERCHRUGOG

Carried out for JAMES WILLIAMSON & PARTNERS

Borehole No. 2

Diameter 4"

Ground Level

Scale 1:125

DESCRIPTION	O.S.D.	LEGEND	DEPTH	THICK- NESS	SAMPLE	S.P.T. VALUE	WATER LEVELS
Loose grey mudstone fragments			0.1	0.4			
Firm grey mudstone fragments			0.5	1.3			
Soft yellow silty stony CLAY			1.8	0.8			
Firm yellowish brown weathered MUDSTONE			2.6	1.1			
			3.7	3.3			
			7.0				
Hard light grey SILTSTONE				7.3			
			14.3				
Firm yellowish brown MUDSTONE				1.6			
			15.9				
Hard grey SILTSTONE with occasional 0.1-0.2m thick bands of firm brown mudstone.				3.9			
Soft black SHALE (OLD WORKINGS)			19.8	0.4			
Firm COAL (OLD WORKINGS)			20.0	0.4			
			20.4				
Firm black SHALE				1.9			
			22.3				
Firm dark grey MUDSTONE				1.2			
			23.5				
							END OF BORE

Undisturbed Sample



Disturbed Sample



Water Sample



Standard Penetration



SOUTH LANCs. BORING CO. (U.K.) LTD.

CHAPEL STREET · PEMBERTON · WIGAN

Telephone — Wigan 83437/8

BOREHOLE RECORD SHEET

Job No. 1972

Date 17.4.73

Location YS401 Y WERN RHOSLLANERCHDRUGOG

2926418

Carried out for JAMES WILLIAMSON & PARTNERS

Borehole No. 3

Diameter 4"

Ground Level

Scale 1:125

DESCRIPTION	O.S.D.	LEGEND	DEPTH	THICK- NESS	SAMPLE	S.P.T. VALUES	WATER LEVELS
MADE GROUND TARMACON			0-1	1-1			
Loose dark grey MUDSTONE fragments			1-2	1-2			
Firm grey CLAY			2-4	1-3			
Firm yellowish brown silty CLAY.			3-7	3-3			
Firm yellowish brown weathered MUDSTONE.			7-0	1-2			
Hard light grey SILTSTONE.			8-2	12-4			
Very hard light grey SILTSTONE with occasional thin bands of firm brown MUDSTONE.			20-6	0-4			
Soft black SHALE OLD WORKINGS			21-0	0-3			
Firm black COAL			21-3	1-9			
Firm black SHALE			23-2	1-2			
Firm grey MUDSTONE			24-4				END OF BORE

Undisturbed Sample



Disturbed Sample



Water Sample



Standard Penetration



SOUTH LANC'S BORING CO. (U.K.) LTD.

CHAPEL STREET · PEMBERTON · WIGAN

Telephone — Wigan 83237/8

BOREHOLE RECORD SHEET

Job No. 1972

Date 17.4.73

Location YSGOL Y WERN, RHOSLLANERCHRUOG

Carried out for JAMES WILLIAMSON & PARTNERS

Borehole No. 4

Diameter 4"

Ground Level

Scale 1:125

2928 408

DESCRIPTION	O.S.D.	LEGEND	DEPTH	THICK- NESS	SAMPLE	S.P.T. "N" VALUE	WATER LEVELS
TOP SOIL			0.3				
Soft yellowish brown, stony silty CLAY			2.1				
Firm yellowish brown weathered MUDSTONE			2.4	0.6			
Hard light grey MUDSTONE			3.0				
			4.9	1.9			
Hard light grey SILTSTONE			6.7				
			11.6				
Hard light grey SILTSTONE with occasional thin bands of firm brown mudstone.			7.3				
			18.9	0.6			
Soft mudstone and siltstone (BROKEN GOOD)			19.5	0.3			
Hard light grey SILTSTONE			19.8	0.6			
Coal fragments (OLD WORKINGS)			20.4				
Firm black shale.			22.4	2.0			
Firm grey MUDSTONE			3.2				
			25.6				
Firm crack SHALE with occasional thin bands of coal. (OLD WORKINGS?)			1.8				
			27.4				

Undisturbed Sample



Disturbed Sample



Water Sample



Standard Penetration



X

SOUTH LANCs. BORING CO. (U.K.) LTD.

CHAPEL STREET · PEMBERTON · WIGAN

Telephone — Wigan 83237/8

BOREHOLE RECORD SHEET

 SJ 24 NE/44
E

Job No. 1972

Date 17.4.73

Location YSGOL Y WERN RHOSLLANERCHUGOG

Carried out for JAMES WILLIAMSON & PARTNERS

2129408

Borehole No. 5

Diameter 4'

Ground Level

Scale 1:125

DESCRIPTION	O.S.D.	LEGEND	DEPTH	THICK- NESS	SAMP. E	S.P.T. VALUE	WATER LEVELS
TOP SOIL			0.3	0.3			
Firm yellowish brown stony silty CLAY.			2.1				
			2.4				
Firm yellowish brown weathered MUDESTONE			2.2				
			4.6				
Firm light grey MUDESTONE			5.8				
			7.6				
Hard light grey SILTSTONE with occasional thin bands of firm brown MUDESTONE			13.4				
			14.9				
Medium to hard grey SILTSTONE			15.2				
Soft brown MUDESTONE			5.7				
			20.9				
Hard grey SILTSTONE			22.9				
			23.6				
Firm black SHALE			0.9				
Firm grey MUDESTONE							
							END OF BORE

Undisturbed Sample



Disturbed Sample



Water Sample



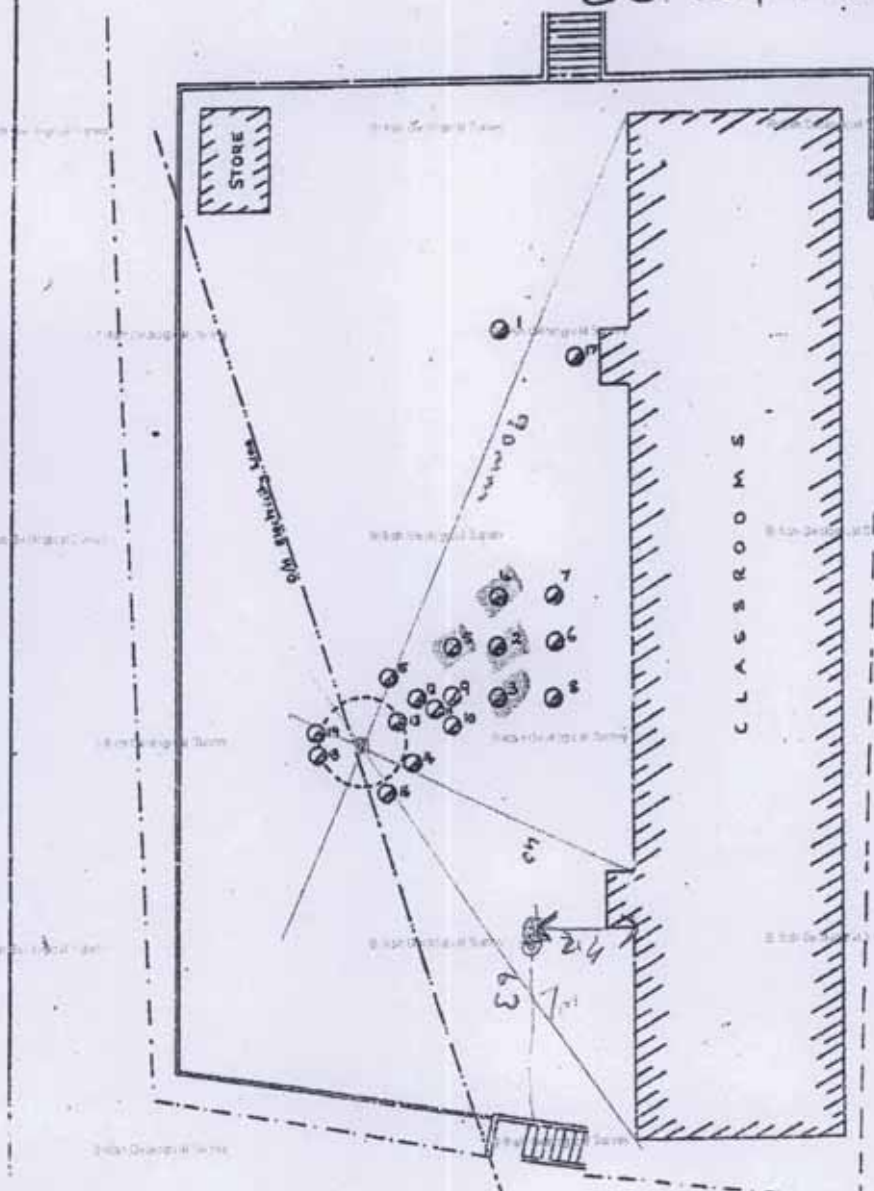
Standard Penetration



SOUTH LANC'S DORING CO. (U.K.) LTD.
CHapel STREET, PEMBERTON, WIGAN
JAMES WILLIAMSON AND PARTNERS
Ysgol y Wern, Rhosllanwrha, Rhyl
SHAFT LOCATION BOREHOLES

DRAWING No. 1772/4

SJ 24 NE 44 AG



SCALE

90m = 24.75
40m = 11.00
63m = 17.3

26m = 7.7m
= 18.275

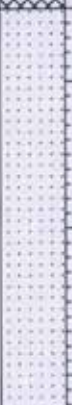
APPENDIX E

Borehole and Trial Pit Logs

GroundSolve Ltd
 Chester Road
 CH4 0DH
 Telephone: 01244 661361
 Fax: 01244 661289

DRILLHOLE LOG

Project Wern School, Rhos				DRILLHOLE No BH1	
Job No 1413	Date 10-01-13	Ground Level (m) 166.10	Co-Ordinates ()		
Contractor				Sheet 1	

RUN DETAILS						STRATA			Geology	Instrument/ Backfill
Depth	TCR (SCR)	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION				
Date	RQD					Discontinuities	Detail	Main		
			166.05		0.05			MADE GROUND: Tarmac MADE GROUND: Dark grey ashy SAND with brown clay		
					(2.45)					
			163.60		2.50			Light brown fine grained SANDSTONE with occasional bands of siltstone and mudstone		
					(2.90)			4.50 about 200mm dark brown		
			160.70		5.40			Light grey brown SILTSTONE with bands (100 to 300mm) of sandstone (harder drilling) and orange brown weathered bands (softer drilling)		

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing	Core Dia mm	Strike	Water Standing	From	To	Type	Returns		
												Logging based on flush returns from open hole drilling
All dimensions in metres Scale 1:50		Client Beech Developments			Method/ Plant Used Klemm KR709		Logged By TD					

AGS3 UK DH 1413 WERN SCHOOL, RHOS.GPJ GINT STD AGS 3_1.GDT 17/1/13

DRILLHOLE LOG

[illegible]

Drilling Progress and Water Observations							Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing	Core Dia mm	Strike	Water Standing	From	To	Type	Returns	
											Logging based on flush returns from open hole drilling
All dimensions in metres Scale 1:50			Client Beech Developments			Method/ Plant Used Klemm KR709			Logged By TD		

1008311K NH 1413 WERN SCHOOL RHOS.GPJ GINT STD AGS 3 1 GOT 17/1/13

GroundSolve Ltd
 Chester Road
 CH4 0DH
 Telephone: 01244 661361
 Fax: 01244 661289

DRILLHOLE LOG

Project Wern School, Rhos				DRILLHOLE No BH1	
Job No 1413	Date 10-01-13	Ground Level (m) 166.10	Co-Ordinates ()		
Contractor					Sheet 3

RUN DETAILS						STRATA			Geology	Instrument/ Backfill
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'ed Level	Legend	Depth (Thick- ness)	DESCRIPTION				
						Discontinuities	Detail	Main		
								Grey MUDSTONE (continued) 16.00 - 16.80 with thin bands of black mudstone and coal		
			149.30		16.80			Brown fine grained SANDSTONE		
			148.90		(0.40) 17.20			Grey MUDSTONE		
					(3.20)			19.00 drilling resistance reduced		
			145.70		20.40			Dark grey to black MUDSTONE and COAL. Soft drilling. Probable backfilled workings		
			145.10		(0.60) 21.00			20.50 slight reduction in flush returns Grey MUDSTONE		
					(2.60)					
			142.50		23.60					

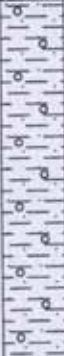
Drilling Progress and Water Observations							Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing	Core Dia mm	Water Strike	Water Standing	From	To	Type	Returns	
											Logging based on flush returns from open hole drilling
All dimensions in metres Scale 1:50			Client Beech Developments			Method/ Plant Used Klemm KR709			Logged By TD		

AGS3 UK OH 1413 WERN SCHOOL, RHOS.GPJ GINT STD AGS 3_1.GDT 17/1/13

GroundSolve Ltd
 Chester Road
 CH4 0DH
 Telephone: 01244 661361
 Fax: 01244 661289

DRILLHOLE LOG

Project Wern School, Rhos				DRILLHOLE No BH2	
Job No 1413	Date 10-01-13	Ground Level (m) 165.90	Co-Ordinates ()		
Contractor				Sheet 1	

RUN DETAILS						STRATA			Geology	Instrument/ Backfill
Depth	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION				
Date						Discontinuities	Detail	Main		
			165.85		0.05			MADE GROUND: Tarmac MADE GROUND: Brown and grey ashy sand with brown clay		
					(5.35)					
			160.50		5.40			Brown sandy gravelly CLAY. Probable made ground		
					(3.00)					

STD AGS 3_1.GDT 17/1/13

Drilling Progress and Water Observations							Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing	Core Dia mm	Strike	Water Standing	From	To	Type	Returns	
											Logging based on flush returns from open hole drilling

All dimensions in metres Scale 1:50	Client Beech Developments	Method/ Plant Used Klemm KR709	Logged By TD
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 CH4 0DH
 Telephone: 01244 661361
 Fax: 01244 661289

DRILLHOLE LOG

Project Wern School, Rhos				DRILLHOLE No BH2	
Job No 1413	Date 10-01-13	Ground Level (m) 165.90	Co-Ordinates ()		
Contractor				Sheet 2 of 3	

RUN DETAILS						STRATA			Geology	Instrument/ Backfill
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION				
						Discontinuities	Detail	Main		
			157.50		8.40			Brown sandy gravelly CLAY. Probable made ground (continued)		
					(1.80)			Brown sandy gravelly CLAY		
			155.70		10.20			Light grey brown SILTSTONE		
					(5.60)					
			150.10		15.80					
			149.90		16.00			Black MUDSTONE and COAL. Soft		

Drilling Progress and Water Observations							Rotary Flush				GENERAL REMARKS	
Date	Time	Depth	Casing	Core Dia mm	Strike	Water Standing	From	To	Type	Returns		
												Logging based on flush returns from open hole drilling
All dimensions in metres Scale 1:50				Client Beech Developments			Method/ Plant Used Klemm KR709			Logged By TD		

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 Fax: 01244 661289

DRILLHOLE LOG

Project Wern School, Rhos				DRILLHOLE No BH2	
Job No 1413	Date 10-01-13	Ground Level (m) 165.90	Co-Ordinates ()		
Contractor				Sheet 3	

RUN DETAILS						STRATA			Geology	Instrument/ Backfill
Depth	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION				
Date						Discontinuities	Detail	Main		
								drilling. Possible backfilled workings Dark grey and black MUDSTONE with coal stringers		
			148.50		(1.40) 17.40			Alternating bands of light grey and dark grey MUDSTONE		
					(3.00)					
			145.50		20.40					

STD AGS 3_1.GDT 17/1/13

Drilling Progress and Water Observations							Rotary Flush				GENERAL REMARKS		
Date	Time	Depth	Casing	Core Dia mm	Strike	Water Standing	From	To	Type	Returns			
All dimensions in metres Scale 1:50							Client		Beech Developments		Method/ Plant Used	Klemm KR709	Logged By TD

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DRILLHOLE LOG

Project Wern School, Rhos				DRILLHOLE No BH3	
Job No 1413	Date 10-01-13	Ground Level (m) 170.50	Co-Ordinates ()		
Contractor				Sheet 1 of 3	

RUN DETAILS						STRATA			Geology	Instrument/ Backfill
Depth	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION				
Date						Discontinuities	Detail	Main		
					(2.00) 2.00			MADE GROUND: Brown sandy gravelly CLAY		
			168.50		(7.50)			Light brown fine grained SANDSTONE with bands (100 to 200mm) of grey siltstone and orange brown weathered sandstone		

STD AGS 3.1.GDT 17/1/13

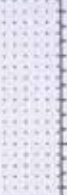
Drilling Progress and Water Observations							Rotary Flush				GENERAL REMARKS	
Date	Time	Depth	Casing	Core Dia mm	Strike	Water Standing	From	To	Type	Returns		
												Logging based on flush returns from open hole drilling
All dimensions in metres Scale 1:50			Client Beech Developments			Method/ Plant Used Klemm KR709		Logged By TD				

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DRILLHOLE LOG

Project Wern School, Rhos				DRILLHOLE No BH3	
Job No 1413	Date 10-01-13	Ground Level (m) 170.50	Co-Ordinates ()		
Contractor				Sheet 2 of 3	

RUN DETAILS						STRATA		Geology	Instrument/ Backfill
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION			
						Discontinuities	Main		
			161.00		9.50		Light brown fine grained SANDSTONE with bands (100 to 200mm) of grey siltstone and orange brown weathered sandstone (continued)		
					(2.50)		Grey SILTSTONE with bands of grey mudstone		
			158.50		12.00		Grey MUDSTONE. Locally becoming dark grey		

T STD AGS 3.1.GOT 17/1/13

Drilling Progress and Water Observations								Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing	Core Dia mm	Strike	Water Standing	From	To	Type	Returns		
												Logging based on flush returns from open hole drilling
All dimensions in metres Scale 1:50				Client Beech Developments			Method/ Plant Used Klemm KR709		Logged By TD			

AGS3 UK DH 1413 WERN SCHOOL, RHOS.GPJ GINT STD AGS 3, 1.GDT 17/1/13

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DRILLHOLE LOG

Project Wern School, Rhos				DRILLHOLE No BH3	
Job No 1413	Date 10-01-13	Ground Level (m) 170.50	Co-Ordinates ()		
Contractor				Sheet 3	

RUN DETAILS						STRATA			Geology	Instrument/ Backfill
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION				
						Discontinuities	Detail	Main		
					(8.00)			Grey MUDSTONE. Locally becoming dark grey (continued)		
			150.50		20.00			Black MUDSTONE and COAL		
					(1.00)					
			149.50		21.00			Black COAL. Old workings. 21.00 Loss of flush returns		
					(1.00)					
			148.50		22.00			Dark brown to black MUDSTONE		
			148.20		22.30			22.00 Flush returns restored		
					(0.70)			Grey MUDSTONE		
			147.50		23.00					

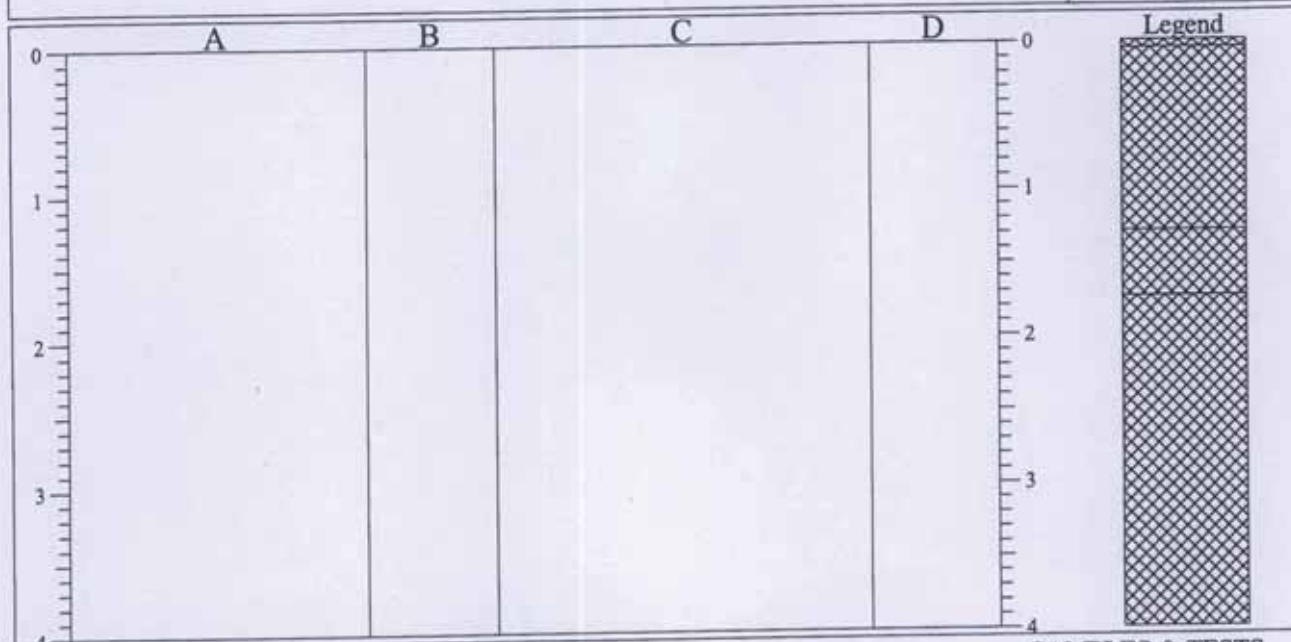
Drilling Progress and Water Observations							Rotary Flush				GENERAL REMARKS
Date	Time	Depth	Casing	Core Dia mm	Strike	Water Standing	From	To	Type	Returns	
											Logging based on flush returns from open hole drilling
All dimensions in metres Scale 1:50			Client Beech Developments			Method/ Plant Used		Klemm KR709		Logged By TD	

AGS3 UK DH 1413 WERN SCHOOL, RHOS.GPJ GINT STD AGS 3.1 GDT 17/1/13

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TRIAL PIT LOG

Project Wern School, Rhos				TRIAL PIT No TP1
Job No 1413	Date 09-01-13	Ground Level (m) 165.90	Co-Ordinates ()	
Contractor				Sheet 1 of 2

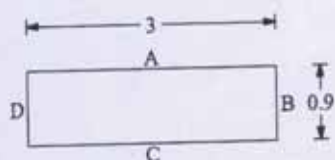


4

STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.05		MADE GROUND: Tarmac			
0.05-1.30		MADE GROUND: Loose whole and part bricks with some matrix of firm brown slightly sandy clay and black ash sand 0.05 - 0.95 over top of slab: MADE GROUND: Loose grey very sandy angular fine to coarse gravel sub-base with thin (60 - 140mm) layer of very soft pink grout on top of slab 1.05 Top of slab. Slab 600mm thick shuttered edge with visqueen at base over 100 to 200mm blinding layer	0.60	J X2	
1.30-1.75		MADE GROUND: Firm, locally soft, brown slightly sandy slightly gravelly CLAY with pockets of black ash sand, occasional part and whole bricks			
1.75-4.60		MADE GROUND: Loose black silty gravelly SAND of ash with fragments of ceramic, glass, bone. Occasional glass bottles. Locally becoming clayey			

IT STD AGS 3 1.GDT 17/1/13

Shoring/Support: None
 Stability: Minor collapsing of pit walls



GENERAL REMARKS

Dry

All dimensions in metres Scale 1:50	Client Beech Developments	Method/ Plant Used 13T tracked	Logged By TD
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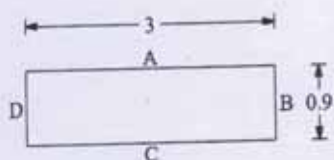
TRIAL PIT LOG

Project Wern School, Rhos				TRIAL PIT No TP1
Job No 1413	Date 09-01-13	Ground Level (m) 165.90	Co-Ordinates ()	
Contractor				Sheet 2 of 2

A		B		C		D		Legend 
4							4	
5							5	
6							6	
7							7	
8							8	

STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
		MADE GROUND: Loose black silty gravelly SAND of ash with fragments of ceramic, glass, bone. Occasional glass bottles. Locally becoming clayey (<i>continued</i>)			

Shoring/Support: None
 Stability: Minor collapsing of pit walls



GENERAL REMARKS

Dry

AGS3 UK TP 1413 WERN SCHOOL, RHOS.GPJ GINT STD AGS 3, 1.GDT 17/1/13

All dimensions in metres Scale 1:50	Client Beech Developments	Method/ Plant Used 13T tracked	Logged By TD
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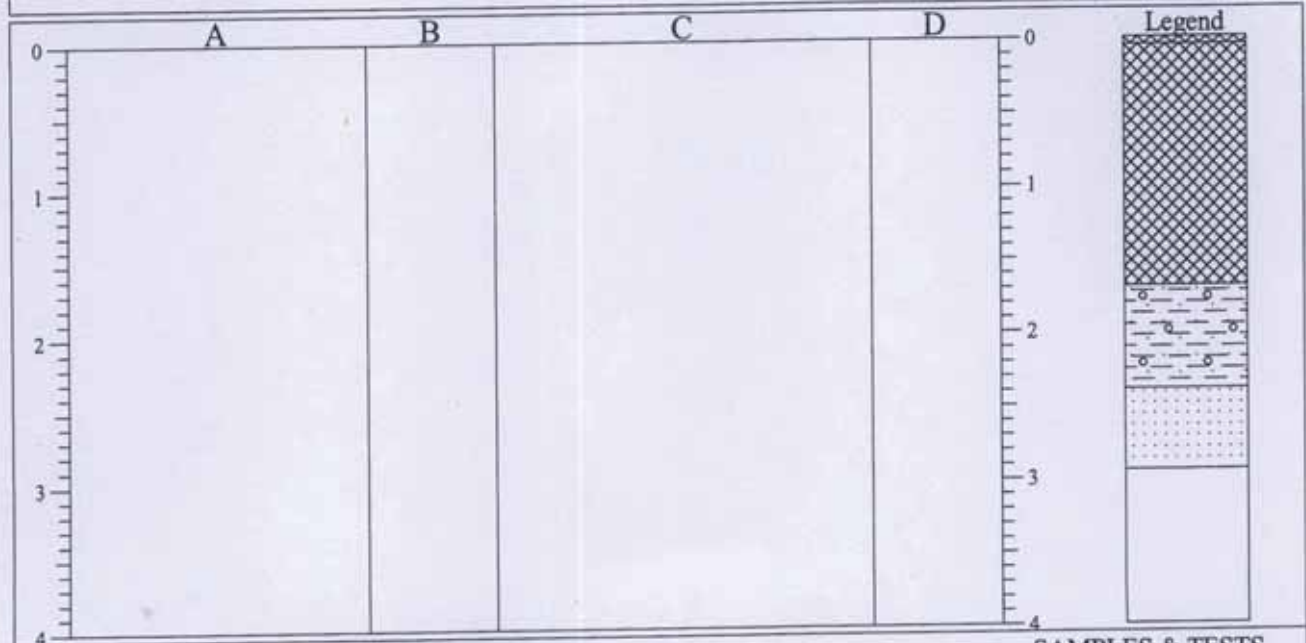
TRIAL PIT 1



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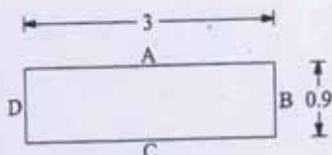
TRIAL PIT LOG

Project Wern School, Rhos				TRIAL PIT No TP2
Job No 1413	Date 09-01-13	Ground Level (m) 166.50	Co-Ordinates ()	
Contractor				Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.05		MADE GROUND: Tarmac	0.45	J X2	
0.05-1.70		(E side of pit) MADE GROUND: Loose black silty gravelly SAND of ash with fragments of ceramic, glass, bone. Occasional glass bottles. Locally becoming clayey. Pockets of brown slightly sandy clay 0.05 - 0.95 over top of slab: MADE GROUND: Loose grey very sandy angular fine to coarse gravel sub-base with thin (60 - 140mm) layer of very soft pink grout on top of slab 0.95 Top of slab. Slab 600mm thick shuttered edge with visqueen at base over 300mm blinding layer			
1.70-2.40		(E side of pit) Firm brown slightly sandy slightly gravelly CLAY 1.85 below slab: ash made ground continues to base of pit			
2.40-2.95		Moderately strong very thinly bedded brown mottled orange brown fine grained SANDSTONE with thin laminations of siltstone			

Shoring/Support: None
 Stability: Minor collapsing of pit walls



GENERAL REMARKS

Dry

All dimensions in metres Scale 1:50	Client Beech Developments	Method/ Plant Used 13T tracked	Logged By TD
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AGS3 UK TP 1413 WERN SCHOOL, RHOS.GPJ GMT STD AGS 3_1.GDT 17/1/13

TRIAL PIT 2

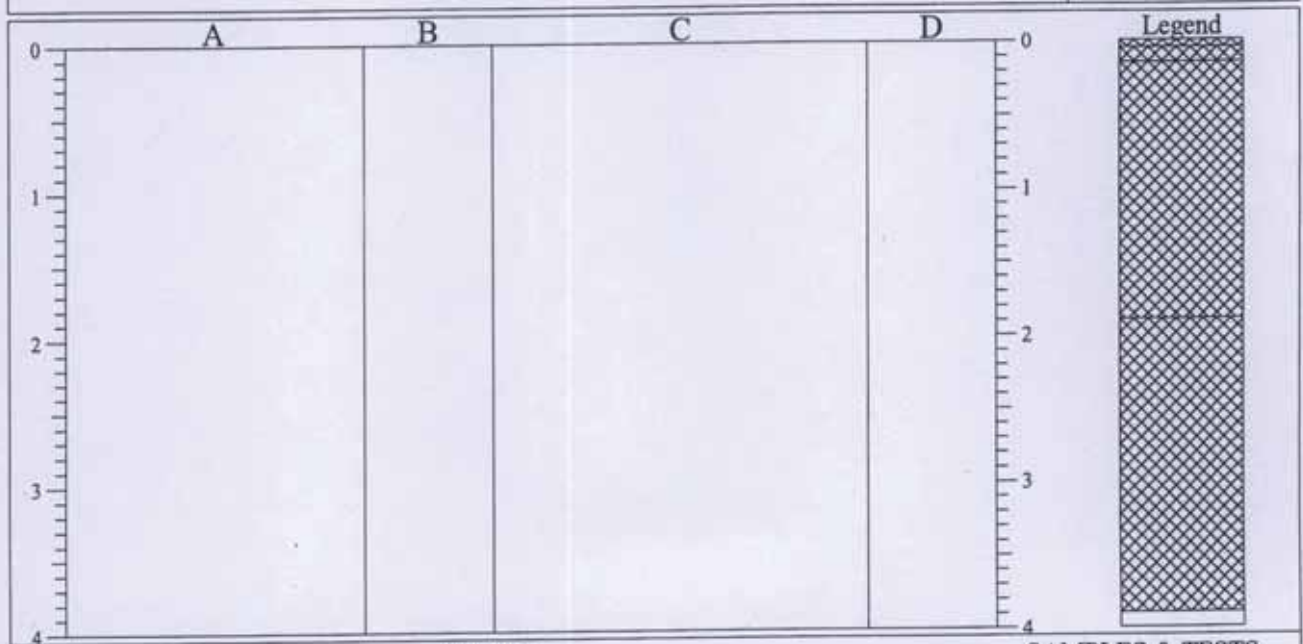




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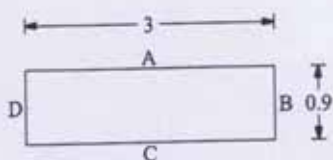
TRIAL PIT LOG

Project Wern School, Rhos				TRIAL PIT No TP3
Job No 1413	Date 09-01-13	Ground Level (m) 166.00	Co-Ordinates ()	
Contractor				Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.05		MADE GROUND: Tarmac			
0.05-0.15		MADE GROUND: Yellow brown sandy medium and coarse GRAVEL of limestone hardcore			
0.15-1.90		0.05 - 0.95 over top of slab: MADE GROUND: Loose grey very sandy angular fine to coarse gravel sub-base with thin (60 - 140mm) layer of very soft pink grout on top of slab MADE GROUND: Firm, locally soft, brown slightly sandy slightly gravelly CLAY with pockets of black ash sand, occasional part and whole bricks 0.95 Top of slab. Slab 600mm thick shuttered edge with visqueen at base over 250mm blinding layer			
1.90-3.90		MADE GROUND: Loose black silty gravelly SAND of ash with fragments of ceramic, glass, bone. Locally becoming clayey			

Shoring/Support: None
 Stability: Minor collapsing of pit



GENERAL REMARKS

Dry

All dimensions in metres Scale 1:50	Client Beech Developments	Method/ Plant Used 13T tracked	Logged By TD
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TRIAL PIT 3

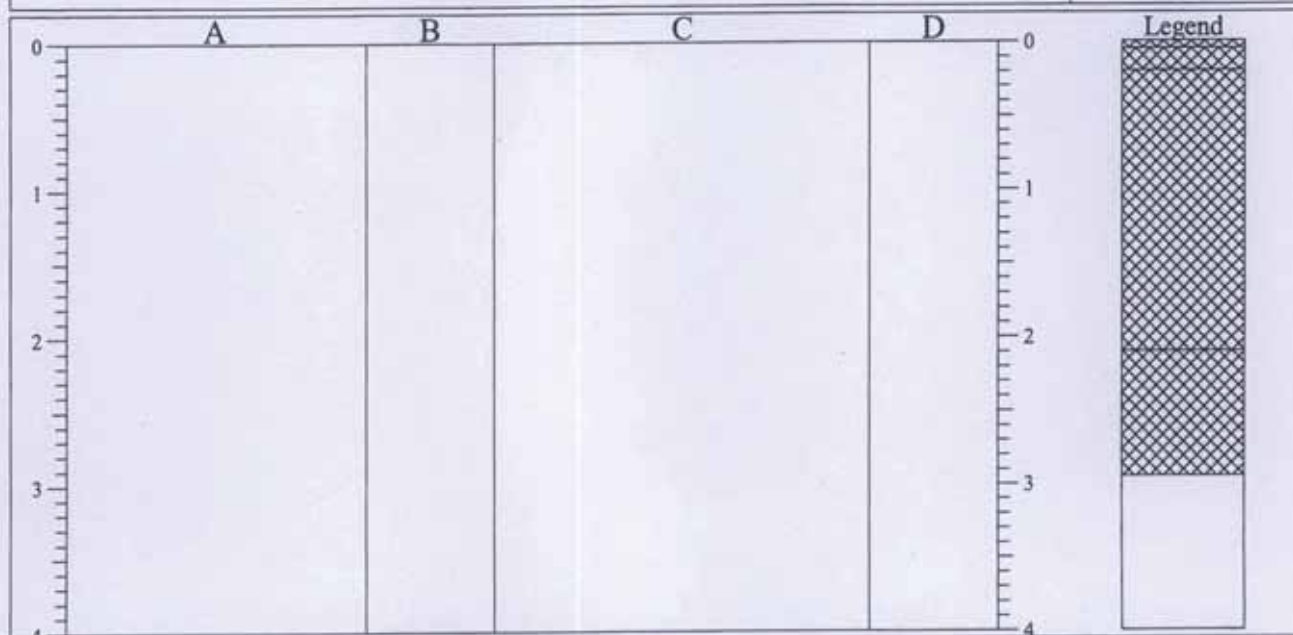




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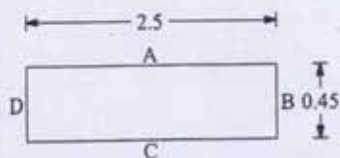
TRIAL PIT LOG

Project Wern School, Rhos				TRIAL PIT No TP4
Job No 1413	Date 09-01-13	Ground Level (m) 166.10	Co-Ordinates ()	
Contractor				Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.05		MADE GROUND: Tarmac			
0.05-0.20		MADE GROUND: Firm yellow brown sandy gravelly CLAY			
0.20-2.10		MADE GROUND: Loose black silty gravelly SAND of ash with fragments of ceramic, glass, bone. Locally becoming clayey			
2.10-2.95		MADE GROUND: Firm yellow brown slightly sandy slightly gravelly CLAY with fragments of brick and pockets of black ashy sand			

Shoring/Support: None
 Stability: Minor collapsing of pit walls



GENERAL
REMARKS

Dry

AGS3 UK TP 1413 WERN SCHOOL, RHOS.GPJ GINT STD AGS 3 1.GDT 17/1/13

All dimensions in metres
Scale 1:50

Client Beech Developments

Method/
Plant Used

13T tracked

Logged By

TD

TRIAL PIT 4

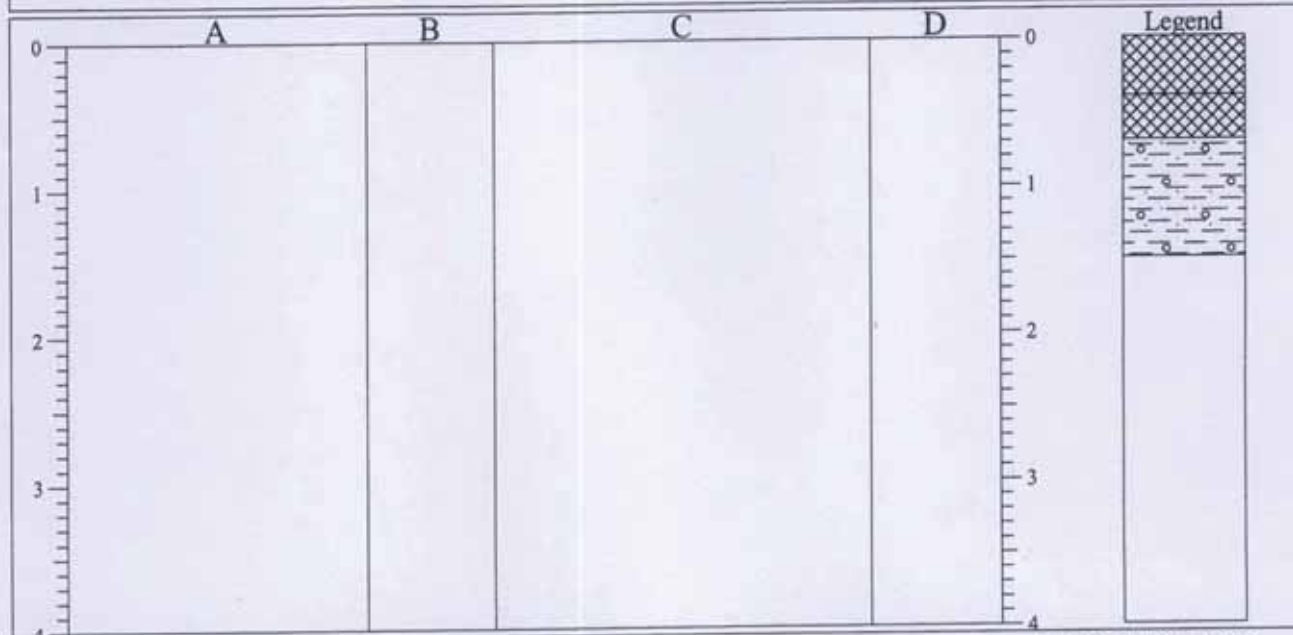




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TRIAL PIT LOG

Project Wern School, Rhos				TRIAL PIT No TP5
Job No 1413	Date 09-01-13	Ground Level (m) 170.50	Co-Ordinates ()	
Contractor				Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.40		MADE GROUND: Loose dark grey sandy angular fine to coarse GRAVEL of mudstone with occasional mudstone cobbles and coal fragments	0.35	J X2	
0.40-0.70		MADE GROUND: Brown gravelly angular COBBLES of sandstone with some matrix of firm brown sandy clay			
0.70-1.50		Firm locally stiff brown mottled orange brown slightly sandy slightly gravelly CLAY	0.75	D	

17/1/13 17/1/1

Shoring/Support: None Stability: Sides remained vertical 			GENERAL REMARKS Dry
All dimensions in metres Scale 1:50	Client Beech Developments	Method/ Plant Used 13T tracked	

AGS53 UK TP 1413 WERN SCHOOL, RHOS.GPJ GINT STD AGS 3_1.GDT 17/1/13

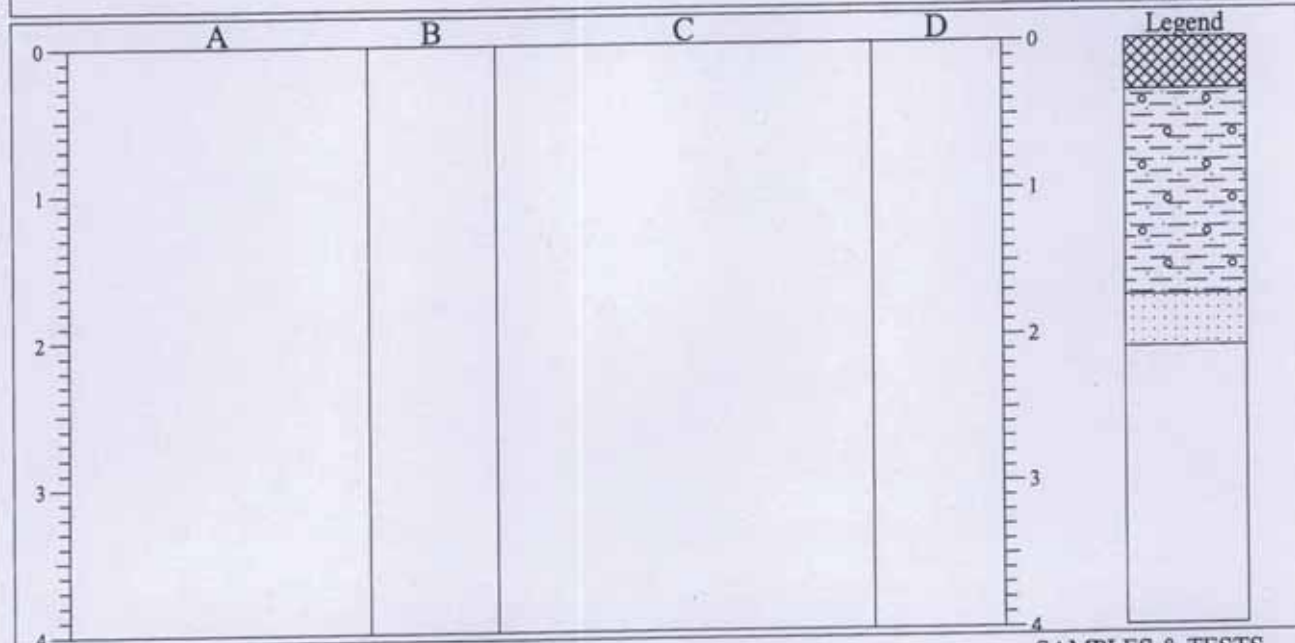
TRIAL PIT 5



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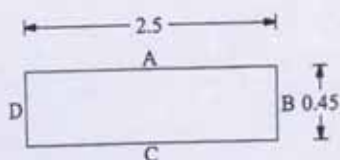
TRIAL PIT LOG

Project Wern School, Rhos				TRIAL PIT No TP6
Job No 1413	Date 09-01-13	Ground Level (m) 170.50	Co-Ordinates ()	
Contractor				Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.35		MADE GROUND: Loose dark grey sandy angular fine to coarse GRAVEL of mudstone with occasional mudstone cobbles and coal and brick fragments	0.35	D	
0.35-1.75		Stiff yellow brown mottled grey slightly sandy slightly gravelly CLAY 0.60 becoming brown			
1.75-2.10		Moderately weak very thinly bedded brown fine grained SANDSTONE with occasional laminations of grey mudstone			

Shoring/Support: None
 Stability: Sides remained vertical



GENERAL REMARKS

Dry

AGS3 UK TP 1413 WERN SCHOOL, RHOS.GPJ GINT STD AGS 3.1.GDT 17/1/13

All dimensions in metres
 Scale 1:50

Client **Beech Developments**

Method/
 Plant Used

13T tracked

Logged By
TD

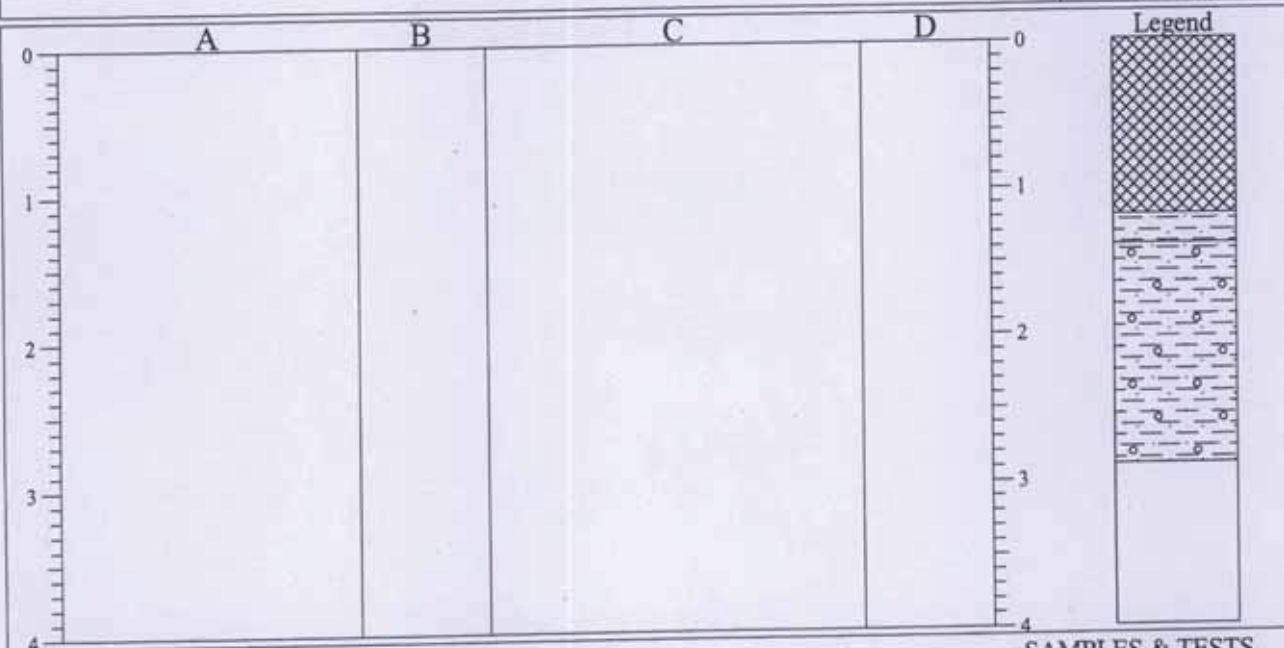
TRIAL PIT 6



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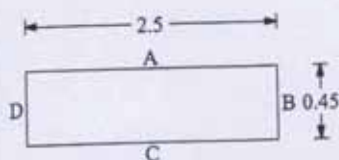
TRIAL PIT LOG

Project Wern School, Rhos				TRIAL PIT No TP7
Job No 1413	Date 09-01-13	Ground Level (m) 172.75	Co-Ordinates ()	
Contractor				Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-1.20		MADE GROUND: Loose dark grey sandy angular fine to coarse GRAVEL of mudstone with occasional mudstone cobbles and gravel of red brown burnt shale			
1.20-1.40		Soft greenish grey slightly sandy CLAY			
1.40-2.90		Firm locally stiff brown slightly sandy slightly gravelly CLAY			

Shoring/Support: None
 Stability: Collapsing in mudstone fill



GENERAL REMARKS

Dry

All dimensions in metres Scale 1:50	Client Beech Developments	Method/ Plant Used 13T tracked	Logged By TD
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AGS3 UK TP 1413 WERN SCHOOL RHOS GPJ GINT STD AGS 3.1.GDT 17/1/13

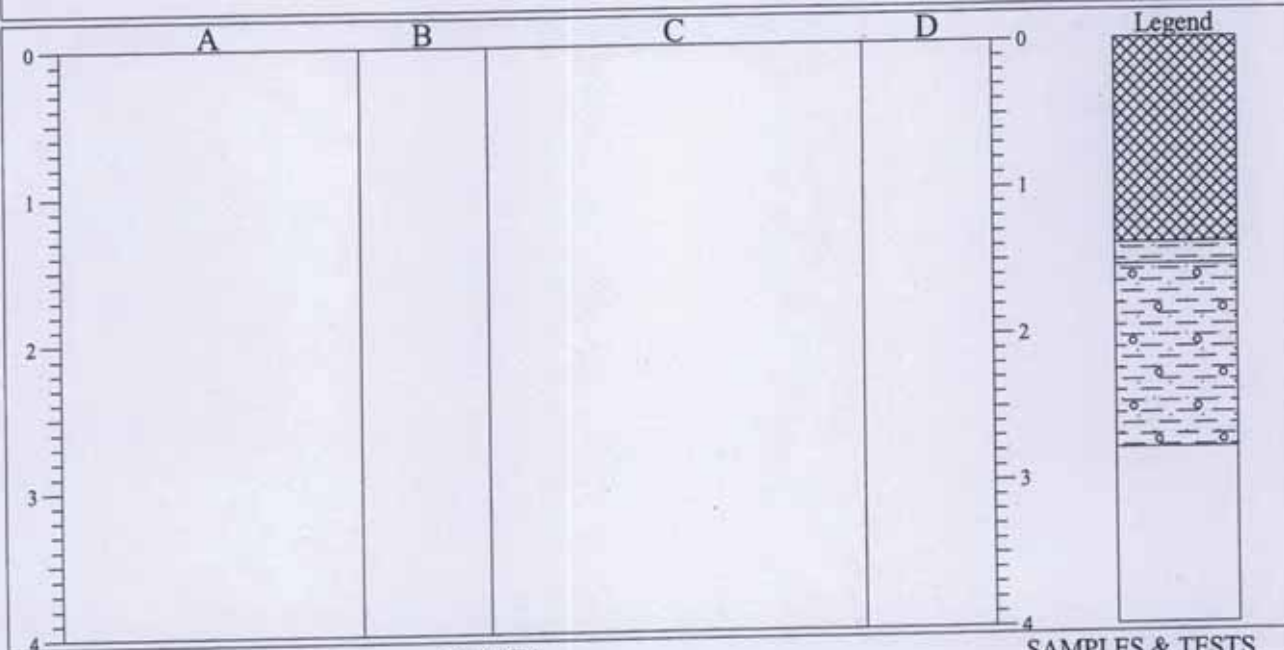
TRIAL PIT 7



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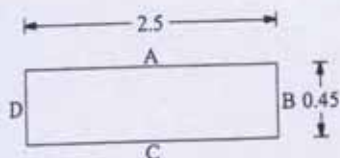
TRIAL PIT LOG

Project Wern School, Rhos				TRIAL PIT No TP8
Job No 1413	Date 09-01-13	Ground Level (m) 173.00	Co-Ordinates ()	
Contractor				Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-1.40		MADE GROUND: Loose dark grey sandy angular fine to coarse GRAVEL of mudstone with occasional mudstone cobbles and gravel of red brown burnt shale and coal fragments	0.50	J X2	
1.40-1.55		Soft greenish grey slightly sandy CLAY			
1.55-2.80		Stiff brown locally mottled grey slightly sandy slightly gravelly CLAY			

Shoring/Support: None
 Stability: Collapsing in mudstone fill



GENERAL REMARKS

Dry

AGS3 UK TP 1413 WERN SCHOOL, RHOS.GPJ GINT STD AGS 3.1.GDT 17/1/13

All dimensions in metres
 Scale 1:50

Client Beech Developments

Method/
 Plant Used

13T tracked

Logged By
 TD

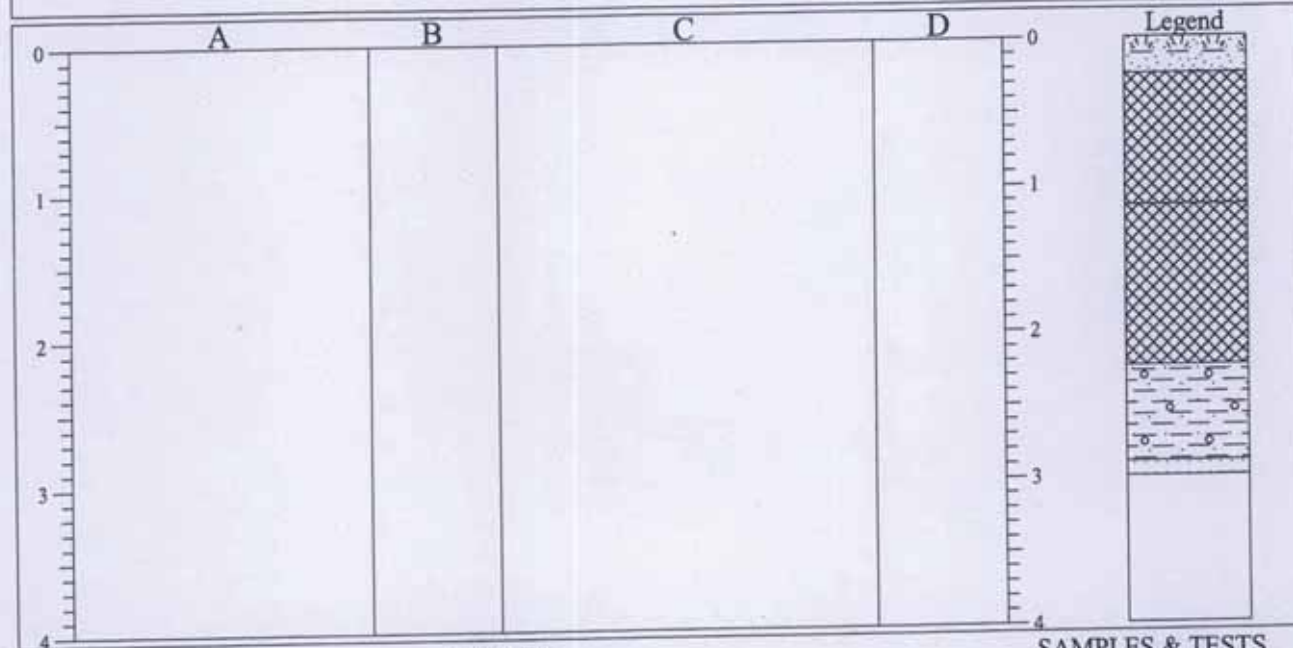
TRIAL PIT 8



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TRIAL PIT LOG

Project Wern School, Rhos				TRIAL PIT No TP9
Job No 1413	Date 09-01-13	Ground Level (m) 173.00	Co-Ordinates ()	
Contractor				Sheet 1 of 1

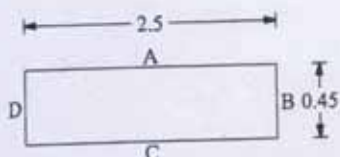


4

STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.25		TOPSOIL	0.40	J X2	
0.25-1.15		MADE GROUND: Loose dark grey sandy angular fine to coarse GRAVEL of mudstone with occasional mudstone cobbles and gravel of red brown burnt shale and coal fragments			
1.15-2.25		MADE GROUND: Stiff grey gravelly CLAY. Gravel is mudstone			
2.25-2.90		Firm orange brown slightly sandy slightly gravelly CLAY			
2.90-3.00		Brown highly weathered fine grained SANDSTONE			

STD AGS 3, 1.GOT 17/1/13

Shoring/Support: None
 Stability: Sides remained vertical



GENERAL REMARKS

Dry

AGS3 UK TP 1413 WERN SCHOOL, RHOS GP1 GINT STD AGS 3, 1 GDT 17/1/13

All dimensions in metres
 Scale 1:50

Client Beech Developments

Method/
 Plant Used

13T tracked

Logged By
 TD

TRIAL PIT 9



APPENDIX F
Physical Test Results

GroundSolve LTD
Unit 2, The Old School
Brynsiencyn
Llanfairpwll
Anglesey
LL61 6HZ
Contract: Ysgol Y Wern, Rhos

Date: 21 January 2013
Test Report Ref: STR 308357

Page 1 of 1

LABORATORY TEST REPORT

TEST REQUIREMENTS:

To determine the Moisture Content of a soil sample
(definitive oven-drying method) in accordance with
BS 1377 : Part 2 : 1990 : clause 3.2

SAMPLE DETAILS:

Certificate of sampling received:	No
Laboratory Ref. No:	S41453
Client Ref. No:	TP5 @ 0.75m
Date and Time of Sampling:	Unknown
Date of Receipt at Lab:	14/01/2013
Date of Start of Test:	16/01/2013
Sampling Location:	TP5 @ 0.75m
Name of Source:	Site Won
Method of Sampling:	Disturbed Tub Sample
Sampled By:	Client
Material Description:	Orange/brown sandy very silty CLAY
Target Specification:	N/A

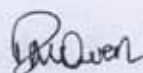
RESULTS:

Moisture Content (%) = 19.6

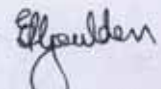
Comments

None

Certificate
Prepared by:-



Meical Owen
Assistant Laboratory Manager

Approved by: - 

Eric Goulden
Technical Manager

GroundSolve LTD
Unit 2, The Old School
Brynsiencyn
Llanfairpwll
Anglesey
LL61 6HZ
Contract: Ysgol Y Wern, Rhos

Date: 21 January 2013
Test Report Ref: STR 308358

Page 1 of 1

LABORATORY TEST REPORT

TEST REQUIREMENTS:

To determine the Plastic Limit, Liquid Limit, and Plasticity Index of sample in accordance with
BS 1377:Part 2:1990 Clause 5.3, Clause 4.3, and Clause 5.4.

SAMPLE DETAILS:

Certificate of sampling received:	No
Laboratory Ref. No:	S41453
Client Ref. :	TP5 @ 0.75m
Date and Time of Sampling:	Unknown
Date of Receipt at Lab:	14/01/2013
Date of Start of Test:	16/01/2013
Sampling Location:	TP5 @ 0.75m
Name of Source:	Site Won
Method of Sampling:	Disturbed Tub Sample
Sampled By:	Client
Soil Description:	Orange/brown sandy very silty CLAY
Target Specification:	N/A

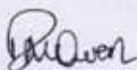
RESULTS:

History of sample:	:	Natural state/After wet sieving
% Materials passing 425µm	=	98
Plastic Limit	=	19
Liquid Limit	=	35
Plasticity Index	=	16

Comments

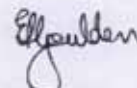
None

Certificate
Prepared by:-



Meical Owen
Assistant Laboratory Manager

Approved by:



Eric Goulden
Technical Manager

GroundSolve LTD
Unit 2, The Old School
Brynsiencyn
Llanfairpwll
Anglesey
LL61 6HZ
Contract: Ysgol Y Wern, Rhos

Date: 21 January 2013
Test Report Ref: STR 308359

Page 1 of 1

LABORATORY TEST REPORT

TEST REQUIREMENTS:

To determine the Moisture Content of a soil sample
(definitive oven-drying method) in accordance with
BS 1377 : Part 2 : 1990 : clause 3.2

SAMPLE DETAILS:

Certificate of sampling received:	No
Laboratory Ref. No:	S41453
Client Ref. No:	TP6 @ 0.35m
Date and Time of Sampling:	Unknown
Date of Receipt at Lab:	14/01/2013
Date of Start of Test:	16/01/2013
Sampling Location:	TP6 @ 0.35m
Name of Source:	Site Won
Method of Sampling:	Disturbed Tub Sample
Sampled By:	Client
Material Description:	Orange/brown sandy very silty CLAY
Target Specification:	N/A

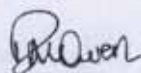
RESULTS:

Moisture Content (%) = 16.8

Comments

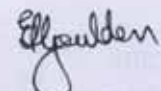
None

Certificate
Prepared by:-



Meical Owen
Assistant Laboratory Manager

Approved by: -



Eric Goulden
Technical Manager

GroundSolve LTD
Unit 2, The Old School
Brynsiencyn
Llanfairpwll
Anglesey
LL61 6HZ
Contract: Ysgol Y Wern, Rhos

Date: 21 January 2013
Test Report Ref: STR 308360

Page 1 of 1

LABORATORY TEST REPORT

TEST REQUIREMENTS:

To determine the Plastic Limit, Liquid Limit, and Plasticity Index of sample in accordance with
BS 1377:Part 2:1990 Clause 5.3, Clause 4.3, and Clause 5.4.

SAMPLE DETAILS:

Certificate of sampling received:	No
Laboratory Ref. No:	S41453
Client Ref. :	TP6 @ 0.35m
Date and Time of Sampling:	Unknown
Date of Receipt at Lab:	14/01/2013
Date of Start of Test:	16/01/2013
Sampling Location:	TP6 @ 0.35m
Name of Source:	Site Won
Method of Sampling:	Disturbed Tub Sample
Sampled By:	Client
Soil Description:	Orange/brown sandy very silty CLAY
Target Specification:	N/A

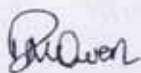
RESULTS:

History of sample:	:	Natural state/After wet-sieving
% Materials passing 425µm	=	91
Plastic Limit	=	17
Liquid Limit	=	29
Plasticity Index	=	12

Comments

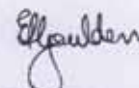
None

Certificate
Prepared by:-



Meical Owen
Assistant Laboratory Manager

Approved by:



Eric Goulden
Technical Manager



APPENDIX G

Chemical test Results



Ground Solve
Unit 7
Well House Barns
Chester Road
Bretton
Cheshire
CH4 0DH

Attention: Mike Scott

CERTIFICATE OF ANALYSIS

Date:	04 February 2013
Customer:	H_GRSOLVE_BRE
Sample Delivery Group (SDG):	130113-21
Your Reference:	1413
Location:	Wern School
Report No:	210835

We received 6 samples on Friday January 11, 2013 and 6 of these samples were scheduled for analysis which was completed on Monday February 04, 2013. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Approved By:

Sonia McWhan

Operations Manager





CERTIFICATE OF ANALYSIS

SDG: 130113-21
Job: H_GRSOLVE_BRE-62
Client Reference: 1413

Location: Wern School
Customer: Ground Solve
Attention: Mike Scott

Order Number: 1413tjd
Report Number: 210835
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
6765539	TP1		0.60	
6765540	TP2		0.45	
6765541	TP5		0.35	
6765542	TP8		0.50	
6765543	TP9		0.40	
6765544	WAC			

Only received samples which have had analysis scheduled will be shown on the following pages.



SDG: 130113-21
 Job: H_GRSOLVE_BRE-62
 Client Reference: 1413

Location: Wern School
 Customer: Ground Solve
 Attention: Mike Scott

Order Number: 1413tjd
 Report Number: 210835
 Superseded Report:

SOLID

Results Legend



Test

No Determination
Possible

Lab Sample No(s)

Customer
Sample Reference

AGS Reference

Depth (m)

Container

6765544	WAG		250g Amber Jar (AL)
6765543	TP9	0.40	250g Amber Jar (AL)
6765542	TP8	0.50	250g Amber Jar (AL)
6765541	TP5	0.35	250g Amber Jar (AL)
6765540	TP2	0.45	250g Amber Jar (AL)
6765539	TP1	0.60	250g Amber Jar (AL)

ANC at pH4 and ANC at pH 6	All	NDPs: 0 Tests: 1							X
Anions by Ion Chromatography	All	NDPs: 0 Tests: 3	X	X	X				
Anions by Kone (w)	All	NDPs: 0 Tests: 1							X
CEN 2:1 Readings	All	NDPs: 0 Tests: 1							X
CEN 8:1 Readings	All	NDPs: 0 Tests: 1							X
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 6	X	X	X	X	X	X	X
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 1							X
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 1							X
Easily Liberated Sulphide	All	NDPs: 0 Tests: 6	X	X	X	X	X	X	X
Elemental Sulphur	All	NDPs: 0 Tests: 5	X	X	X	X	X		
EPH by FID	All	NDPs: 0 Tests: 1							X
Fluoride	All	NDPs: 0 Tests: 1							X
GRO by GC-FID (S)	All	NDPs: 0 Tests: 1							X
Loss on Ignition in soils	All	NDPs: 0 Tests: 1							X
Mercury Dissolved	All	NDPs: 0 Tests: 1							X



CERTIFICATE OF ANALYSIS

Validated

SDG: 130113-21
 Job: H_GRSOLVE_BRE-82
 Client Reference: 1413

Location: Wern School
 Customer: Ground Solve
 Attention: Mike Scott

Order Number: 1413tjd
 Report Number: 210835
 Superseded Report:

SOLID

Results Legend



Test

No Determination
Possible

Lab Sample No(s)

Customer
Sample Reference

AGS Reference

Depth (m)

Container

6765544	WAC		250g Amber Jar (AL)
6765543	TP9	0.40	250g Amber Jar (AL)
6765542	TP6	0.50	250g Amber Jar (AL)
6765541	TP9	0.35	250g Amber Jar (AL)
6765440	TP2	0.45	250g Amber Jar (AL)
6765339	TP1	0.60	250g Amber Jar (AL)

Metals by ICap-OES (Soil)

Arsenic

NDPs: 0
Tests: 6

X X X X X X

Boron

NDPs: 0
Tests: 5

X X X X X

Cadmium

NDPs: 0
Tests: 6

X X X X X X

Chromium

NDPs: 0
Tests: 6

X X X X X X

Copper

NDPs: 0
Tests: 6

X X X X X X

Lead

NDPs: 0
Tests: 6

X X X X X X

Mercury

NDPs: 0
Tests: 6

X X X X X X

Nickel

NDPs: 0
Tests: 6

X X X X X X

Selenium

NDPs: 0
Tests: 6

X X X X X X

Zinc

NDPs: 0
Tests: 6

X X X X X X

Mineral Oil

All

NDPs: 0
Tests: 1

X

PAH by GCMS

All

NDPs: 0
Tests: 6

X X X X X X

PAH Value of soil

All

NDPs: 0
Tests: 6

X X X X X X

PCBs by GCMS

All

NDPs: 0
Tests: 1

X

pH

All

NDPs: 0
Tests: 6

X X X X X X



CERTIFICATE OF ANALYSIS

SDG: 130113-21
 Job: H_GRSOLVE_BRE-62
 Client Reference: 1413

Location: Wern School
 Customer: Ground Solve
 Attention: Mike Scott

Order Number: 1413tjd
 Report Number: 210835
 Superseded Report:

SOLID

Results Legend



Test

No Determination
Possible

Lab Sample No(s)

Customer
Sample Reference

AGS Reference

Depth (m)

Container

6765544	WAC		250g Amber Jar (AL)
6765543	TP9	0.40	250g Amber Jar (AL)
6765542	TP8	0.50	250g Amber Jar (AL)
6765541	TP5	0.35	250g Amber Jar (AL)
6765540	TP2	0.45	250g Amber Jar (AL)
6765539	TP1	0.60	250g Amber Jar (AL)

Phenols by HPLC (S)

All

NDPs: 0
Tests: 6

X X X X X X

Phenols by HPLC (W)

All

NDPs: 0
Tests: 1

X

Sample description

All

NDPs: 0
Tests: 5

X X X X X

Total Dissolved Solids

All

NDPs: 0
Tests: 1

X

Total Organic Carbon

All

NDPs: 0
Tests: 6

X X X X X X

Total Sulphate

All

NDPs: 0
Tests: 1

X



CERTIFICATE OF ANALYSIS

Validated

SDG: 130113-21
Job: H_GRSOLVE_BRE-62
Client Reference: 1413

Location: Wern School
Customer: Ground Solve
Attention: Mike Scott

Order Number: 1413tjd
Report Number: 210835
Superseded Report:

Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm
-----------	----------	------	-----------------	--------	-------------	--------	------------	-------------	-------

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Grain size	Inclusions	Inclusions 2
6765539	TP1	0.60	Dark Brown	Clay Loam	<0.063 mm	Stones	None
6765540	TP2	0.45	Dark Brown	Sand	0.1 - 2 mm	Stones	N/A
6765541	TP5	0.35	Dark Brown	Sandy Loam	0.1 - 2 mm	Stones	None
6765542	TP8	0.50	Dark Brown	Clay	<0.063 mm	None	None
6765543	TP9	0.40	Dark Brown	Sandy Loam	0.1 - 2 mm	Stones	None
6765544	WAC		Dark Brown	Sandy Clay Loam	0.1 - 2 mm	Stones	None

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

CERTIFICATE OF ANALYSIS

SDG: 130113-21
 Job: H_GRSOLVE_BRE-62
 Client Reference: 1413

Location: Wern School
 Customer: Ground Solve
 Attention: Mike Scott

Order Number: 1413tjd
 Report Number: 210835
 Superseded Report:

Results Legend			Customer Sample R	TP1	TP2	TP3	TP4	TP5	WAC
#	ISO17025 accredited.		Depth (m)	0.50	0.45	0.35	0.50	0.40	
M	inCERTS accredited.		Sample Type	Sol/Sol	Sol/Sol	Sol/Sol	Sol/Sol	Sol/Sol	Sol/Sol
aq	Aqueous / settled sample.		Date Sampled	-	-	-	-	-	-
dis.flt	Dissolved / filtered sample.		Sample Time	-	-	-	-	-	-
tot.unflt	Total / unfiltered sample.		Date Received	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013	11/01/2013
*	Subcontracted test.		SDG Ref	130113-21	130113-21	130113-21	130113-21	130113-21	130113-21
-	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery trigger breach confirmed		Lab Sample No. (s)	6765539	6765540	6765541	6765542	6765543	6765544
(F)	Sample deviation (see appendix)		AGS Reference						
1-44									
Component	LOD/Units	Method							
Moisture content ratio	%	PM024							12 \$
Loss on ignition	<0.7 %	TM018							13.9 \$ M
Sulphate, 2:1 water soluble	<0.002 g/l	TM019	0.0176 \$ M		0.0579 \$ M		0.0344 \$ M		
Mineral oil >C10-C40	<1 mg/kg	TM061							249 \$ #
EPH Surrogate % recovery**	%	TM061							119 \$ M
EPH Band >C28-C40	<35 mg/kg	TM061							231 \$
EPH Band >C35-C40	<35 mg/kg	TM061							62.2 \$
EPH Band >C10-C28	<35 mg/kg	TM061							624 \$
EPH Range >C10 - C40	<35 mg/kg	TM061							932 \$ M
Phenol	<0.01 mg/kg	TM062 (S)	<0.01 \$ M	<0.01 \$ M	<0.01 \$ M	<0.01 \$ M	<0.01 \$ M	<0.01 \$ M	<0.01 \$ M
Cresols	<0.01 mg/kg	TM062 (S)	<0.01 \$ M	<0.01 \$ M	<0.01 \$ M	<0.01 \$ M	<0.01 \$ M	<0.01 \$ M	
Xylenols	<0.015 mg/kg	TM062 (S)	<0.015 \$ M	<0.015 \$ M	<0.015 \$ M	<0.015 \$ M	<0.015 \$ M	<0.015 \$ M	
2,3,5-Trimethylphenol	<0.01 mg/kg	TM062 (S)	<0.01 \$ M	<0.01 \$ M	<0.01 \$ M	<0.01 \$ M	<0.01 \$ M	<0.01 \$ M	
2-Isopropylphenol	<0.015 mg/kg	TM062 (S)	<0.015 \$ M	<0.015 \$ M	<0.015 \$ M	<0.015 \$ M	<0.015 \$ M	<0.015 \$ M	
Phenols, Total Detected monohydric	<0.035 mg/kg	TM062 (S)							<0.035 \$ M
Phenols, Total Detected 5 speciated	<0.06 mg/kg	TM062 (S)	<0.06 \$ M	<0.06 \$ M	<0.06 \$ M	<0.06 \$ M	<0.06 \$ M	<0.06 \$ M	
Organic Carbon, Total	<0.2 %	TM132	3.64 \$ #	21.3 \$ #	31.6 \$ #	0.723 \$ #	7.28 \$ #	6.8 \$ #	8.17 \$ #
pH	1 pH Units	TM133	8.09 \$ M	8.32 \$ M	7.25 \$ M	8.29 \$ M	8.42 \$ M		
Sulphur, Elemental	<10 mg/kg	TM136	10.7 \$ M	14.5 \$ M	51.2 \$ M	<10 \$ M	<10 \$ M		
Cyanide, Total	<1 mg/kg	TM153	<1 \$ M	<1 \$ M	<1 \$ M	<1 \$ M	<1 \$ M	<1 \$ M	
PCB congener 28	<3 µg/kg	TM168							<3 \$ M
PCB congener 52	<3 µg/kg	TM168							<3 \$ M
PCB congener 101	<3 µg/kg	TM168							<3 \$ M
PCB congener 118	<3 µg/kg	TM168							<3 \$ M
PCB congener 138	<3 µg/kg	TM168							<3 \$ M
PCB congener 153	<3 µg/kg	TM168							<3 \$ M
PCB congener 180	<3 µg/kg	TM168							<3 \$ M
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168							<21 \$
Sulphide, Easily liberated	<15 mg/kg	TM180	<15 \$ #	<15 \$ #	<15 \$ #	<15 \$ #	<15 \$ #	<15 \$ #	<15 \$ #
Arsenic	<0.6 mg/kg	TM181	10.6 \$ M	15.4 \$ M	16.9 \$ M	7.06 \$ M	14.4 \$ M	11.3 \$ M	
Boron	<0.7 mg/kg	TM181	3.01 \$ #	33.7 \$ #	6.49 \$ #	2.09 \$ #	3.67 \$ #		
Cadmium	<0.02 mg/kg	TM181	1.43 \$ M	3.74 \$ M	0.326 \$ M	0.414 \$ M	4.21 \$ M	1.55 \$ M	

CERTIFICATE OF ANALYSIS

SDG: 130113-21
Job: H_GRSOLVE_BRE-62
Client Reference: 1413

Location: Wern School
Customer: Ground Solve
Attention: Mike Scott

Order Number: 1413tjd
Report Number: 210835
Superseded Report:

GRO by GC-FID (S)

Project Legend		Customer Sample R		WAC					
#	ISO17025 accredited.	Depth (m)	Sample Type	Soil/Solid					
M	acCERTS accredited.	Sample Type	Date Sampled						
W	Aqueous / settled sample.	Date Sampled	Sample Time						
dis. Sn	Disturbed / filtered sample.	Date Received	SDG Ref						
tot. wt (g)	Total / unfiltered sample.	Lab Sample No. (s)	AGB Reference						
*	Subcontracted test.								
-	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery								
(F)	Trigger breach confirmed								
1-45-49	Sample deviation (see appendix)								
Component	LOD/Units	Method							
GRO Surrogate % recovery**	%	TM089	48	2 §					
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5	2 § M					
Benzene	<10 µg/kg	TM089	<10	2 § M					
Toluene	<2 µg/kg	TM089	<2	2 § M					
Ethylbenzene	<3 µg/kg	TM089	<3	2 § M					
m,p-Xylene	<6 µg/kg	TM089	<6	2 § M					
o-Xylene	<3 µg/kg	TM089	<3	2 § M					
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9	2 §					
sum of detected BTEX by GC	<24 µg/kg	TM089	<24	2 §					
GRO >C5-C10	<10 µg/kg	TM089	16	§					

SDG: 130113-21
Job: H_GRSOLVE_BRE-62
Client Reference: 1413

Location: Wern School
Customer: Ground Solve
Attention: Mike Scott

Order Number: 14131jd
Report Number: 210835
Superseded Report:

PAH by GCMS

[illegible]



CERTIFICATE OF ANALYSIS

SDG: 130113-21
Job: H_GRSOLVE_BRE-62
Client Reference: 1413

Location: Wern School
Customer: Ground Solve
Attention: Mike Scott

Order Number: 1413tjd
Report Number: 210835
Superseded Report:

Extractable Petroleum Hydrocarbons (EPH) By GC-FID

EPH (DRO) (C10-C40)

Sample No	Customer Sample Ref.	Depth	Matrix (mg/kg)	EPH	Interpretation
6795765	WAC		SOLID	932	Fuel oil.

Extractable Petroleum Hydrocarbons (formally Diesel Range Organics) :- Any compound extractable in n-hexane within the carbon range C10-C40, includes Aliphatic (Min Oil), Aromatic (PAHs) and naturally occurring compounds.

SDG: 130113-21
 Job: H_GRSOLVE_BRE-62
 Client Reference: 1413

Location: Wern School
 Customer: Ground Solve
 Attention: Mike Scott

Order Number: 14131jd
 Report Number: 210835
 Superseded Report:

CEN 10:1 CUMULATIVE TWO STAGE BATCH TEST

WAC ANALYTICAL RESULTS

REF : BS EN 12457/3

Client Reference

Site Location

Wern School

Mass Sample taken (kg) 0.213

Moisture Content Ratio (%) 22

Mass of dry sample (kg) 0.175

Dry Matter Content Ratio (%) 82

Particle Size <4mm >95%

Case

SDG 130113-21

Lab Sample Number(s) 6765544

Sampled Date

Customer Sample Ref. WAC

Depth (m)

Landfill Waste Acceptance
Criteria Limits

Inert Waste Landfill	Stable Non-reactive Hazardous Waste in Non- Hazardous Landfill	Hazardous Waste Landfill
-------------------------	---	-----------------------------

Solid Waste Analysis

Total Organic Carbon (%)	5.8
Loss on Ignition (%)	13.9
Sum of BTEX (mg/kg)	<0.024
Sum of 7 PCBs (mg/kg)	<0.021
Mineral Oil (mg/kg)	249
PAH Sum of 17 (mg/kg)	<10
pH (pH Units)	8.17
ANC to pH 6 (mol/kg)	0.0591
ANC to pH 4 (mol/kg)	0.0978

3	5	5
-	-	10
6	-	-
1	-	-
500	-	-
100	-	-
-	<6 or >9	-
-	-	-
-	-	-

Eluate Analysis

C2	Conc ^a in 2:1 eluate	C8	Conc ^a in 8:1 eluate	A2	2:1 conc ^a leached	A2-10	Cumulative conc ^a leached
mg/l				mg/kg			

Limit values for compliance leaching test
using BS EN 12457-3 at L/S 10 l/kg

Arsenic	0.00112	0.000771	0.00225	0.00812	0.5	2	25
Barium	0.046	0.00724	0.0922	0.118	20	100	300
Cadmium	<0.0001	0.000108	<0.0002	<0.001	0.04	1	5
Chromium	0.00239	0.00148	0.00478	0.0158	0.5	10	70
Copper	0.00484	0.00134	0.00969	0.0175	2	50	100
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.00002	<0.0001	0.01	0.2	2
Molybdenum	0.0023	0.00382	0.0046	0.0364	0.5	10	30
Nickel	0.00103	0.000606	0.00205	0.00856	0.4	10	40
Lead	0.000238	0.000249	0.000477	0.00248	0.5	10	50
Antimony	0.000308	0.00063	0.000617	0.0589	0.06	0.7	5
Selenium	0.00409	0.00105	0.00819	0.0141	0.1	0.5	7
Zinc	0.00486	0.000841	0.00933	0.0129	4	50	200
Chloride	3.4	<2	6.81	<20	800	15000	25000
Fluoride	1.02	0.699	2.04	7.37	10	150	500
Sulphate (soluble)	64.6	<2	129	75.7	1000	20000	50000
Total Dissolved Solids	241	58.6	483	800	4000	60000	100000
Total Monohydric Phenols (W)	<0.016	<0.016	<0.032	<0.16	1	-	-
Dissolved Organic Carbon	3.55	<3	7.1	<30	500	800	1000

Leach Test Information

2:1 8:1

Date Prepared	18-Jan-2013	30-Jan-2013
pH (pH Units)	8.458	7.534
Conductivity (µS/cm)	314.00	72.40
Temperature (°C)	18.00	18.60
Volume Leachant (Litres)	0.312	1.400
Volume of Eluate VE1 (Litres)	0.205	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation

Meets Certification does not apply to leachates

04/02/2013 11:43:50

11:43:24 04/02/2013



CERTIFICATE OF ANALYSIS

SDG: 130113-21
 Job: H_GRSOLVE_BRE-62
 Client Reference: 1413

Location: Wern School
 Customer: Ground Solve
 Attention: Mike Scott

Order Number: 14131jd
 Report Number: 210835
 Superseded Report:

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample ¹	Surrogate Corrected
PM001		Preparation of Samples for Metals Analysis		
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material		
PM114		Leaching Procedure for CEN Two Stage Batch Test 2:1/8:1 Cumulative		
TM018	BS 1377: Part 3 1990	Determination of Loss on Ignition		
TM019	Modified: US EPA Method 9056	Determination of Anions in Soils using Ion Chromatography		
TM061	Method for the Determination of EPH, Massachusetts Dept of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)		
TM062 (S)	National Grid Property Holdings: Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC		
TM089	Modified: US EPA Methods 8020 & 802	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)		
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water		
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser		
TM123	BS 2690: Part 121:1981	The Determination of Total Dissolved Solids in Water		
TM132	In - house Method	ELTRA CS800 Operators Guide		
TM133	BS 1377: Part 3 1990; BS 6068-2.5	Determination of pH in Soil and Water using the GLPH pH Meter		
TM136	Method 17.10, Second Site property, March 2003	Determination of Sulphur by HPLC		
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS		
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser		
TM168	EPA Method 8082, Polychlorinated Biphenyls by Gas Chromatography	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils		
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique		
TM181	US EPA Method 8010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES		
TM182	CEN/TC 292 - WI 292046-characterization of waste-leaching Behaviour Tests- Acid and Base Neutralization Capacity Test	Determination of Acid Neutralisation Capacity (ANC) Using Autotitration in Soils		
TM183	BS EN 23506 2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry		
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers		
TM213	In-house Method	Rapid Determination of PAHs by GC-FID		
TM218	Microwave extraction - EPA method 3546	Microwave extraction - EPA method 3546		
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid extractable Sulphate in Soils by IRIS Emission Spectrometer		
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC		

¹ Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

SDG: 130113-21
Job: H_GRSOLVE_BRE-62
Client Reference: 1413

Location: Wern School
Customer: Ground Solve
Attention: Mike Scott

Order Number: 1413tjd
Report Number: 210835
Superseded Report:

Test Completion Dates

Lab Sample No(s)	6765539	6765540	6765541	6765542	6765543	6765544
Customer Sample Ref.	TP1	TP2	TP3	TP4	TP5	WAC
AGS Ref.						
Depth	0.60	0.45	0.35	0.50	0.40	
Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
ANC at pH4 and ANC at pH 6						29-Jan-2013
Anions by Ion Chromatography	23-Jan-2013		23-Jan-2013		23-Jan-2013	
Anions by Kone (w)						01-Feb-2013
CEN 2-1 Leachate (2 Stage)						29-Jan-2013
CEN 2-1 Readings						31-Jan-2013
CEN 8-1 Leachate (2 Stage)						31-Jan-2013
CEN 8-1 Readings						01-Feb-2013
Cyanide Comp/Free/Total/Thiocyanate	22-Jan-2013	22-Jan-2013	22-Jan-2013	22-Jan-2013	22-Jan-2013	22-Jan-2013
Dissolved Metals by ICP-MS						04-Feb-2013
Dissolved Organic/Inorganic Carbon						01-Feb-2013
Easily Liberated Sulphide	21-Jan-2013	21-Jan-2013	21-Jan-2013	21-Jan-2013	21-Jan-2013	21-Jan-2013
Elemental Sulphur	23-Jan-2013	23-Jan-2013	23-Jan-2013	23-Jan-2013	23-Jan-2013	
EPH by FID						22-Jan-2013
Fluoride						01-Feb-2013
GRO by GC-FID (S)						01-Feb-2013
Loss on Ignition in soils						30-Jan-2013
Mercury Dissolved						04-Feb-2013
Metals by iCap-OES (Soil)	22-Jan-2013	22-Jan-2013	22-Jan-2013	22-Jan-2013	22-Jan-2013	22-Jan-2013
Mineral Oil						01-Feb-2013
PAH by GCMS	31-Jan-2013	31-Jan-2013	30-Jan-2013	31-Jan-2013	30-Jan-2013	24-Jan-2013
PAH Value of soil	22-Jan-2013	22-Jan-2013	22-Jan-2013	22-Jan-2013	22-Jan-2013	31-Jan-2013
PCBs by GCMS						31-Jan-2013
pH	21-Jan-2013	21-Jan-2013	21-Jan-2013	21-Jan-2013	21-Jan-2013	22-Jan-2013
Phenols by HPLC (S)	22-Jan-2013	22-Jan-2013	22-Jan-2013	22-Jan-2013	22-Jan-2013	23-Jan-2013
Phenols by HPLC (W)						01-Feb-2013
Sample description	18-Jan-2013	18-Jan-2013	18-Jan-2013	18-Jan-2013	18-Jan-2013	18-Jan-2013
Total Dissolved Solids						01-Feb-2013
Total Organic Carbon	23-Jan-2013	23-Jan-2013	22-Jan-2013	22-Jan-2013	22-Jan-2013	30-Jan-2013
Total Sulphate						21-Jan-2013

SDG: 130113-21
 Job: H_GRSOLVE_BRE-62
 Client Reference: 1413

Location: Wern School
 Customer: Ground Solve
 Attention: Mike Scott

Order Number: 1413tjd
 Report Number: 210835
 Superseded Report:

Appendix General

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICS and SVOC TICS.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 2 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible. The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP -No determination possible due to insufficient/unusable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals -total metals must be requested separately.

11. Results relate only to the items tested.

12. LODs for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** -Most of our organic methods include surrogates, the recovery of which is monitored and reported. For EPH, MO, PAH, GRO and VOCs on soils the result is not surrogate corrected, but a percentage recovery is quoted. Acceptable limits for most organic methods are 70 -130 %.

14. **Product analyses** -Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

Sample Deviations

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Sampled on date not provided
6	Sample holding time exceeded in laboratory
7	Sample holding time exceeded due to sampled on date
8	Sample Holding Time exceeded - Late arrival of instructions.

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anorthosite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than -

Trace -Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

GroundSolve Ltd

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