



DESK STUDY & SITE WALKOVER REPORT

BONC WEN, RHOS, AFFORDABLE HOUSING



Prepared for :

Wrexham County Borough Council
Guild Hall,
Wrexham,
Ynys Mon
LL11 1LW

Prepared by:

Datrys
Yr Aelwyd
3-5 Church Street
Caernarfon
Gwynedd
LL55 1SW

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- A Desk study checklist
- B Ground sure report
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10.3 **INTRODUCTION**

The project involves the construction of affordable housing on the grounds of a car park and associated land at Bonc Wen, Rhosllanerchrugog.

The study has been undertaken with reference to guidance in the 'Development of Land Affected by Contamination : A Guide for Developers' prepared by the Welsh Local Government Association & Environment Agency Wales 2012, 'Model Procedures for the Management of Land Contamination (CLR11) and the BSI publication 'Investigation of Potentially Contaminated Sites – Code of Practice (BS10175). This report presents the findings of the preliminary risk assessment, detailing the particular site characteristics and identifying potential contamination, environmental and geo-environmental factors which could impact upon the site development.

This report details the investigations that were undertaken into the site and provides a general background to the sites history, discusses any concerns that there are with the ground and the likely causes and recommends suitable intrusive investigation methods that will be necessary in order to be able to carry out appropriate foundation design.

This report has been prepared for the sole use of the Client, for the purposes described and no extended duty of care applies to other parties. The comments given, and opinions expressed, in this report are based on the available information at the time of the study, however there may be outstanding information and data which becomes available at a later date which has an impact on the overall conclusions.

2.0 DESK STUDY

A desk study is a means of obtaining important site information prior to undertaking a walkover survey and intrusive site investigation. The principal aims of the desk study are to:

- Identify service locations.
- Determine the likely ground strata so an appropriate machine and method can be selected for the intrusive site investigation.
- Ascertain the presence of any existing hazards and assess their risk.
- Understand how the site history may affect the performance of the new structures.
- Highlight particulars to look out for when carrying out the walkover survey and intrusive investigation.
- Determine the most appropriate methods for further site investigation.
- Determine the likely presence of any contamination on the site and the location of any potential sources of contamination close to the site.
- Determine the requirement for Radon and/or Methane protection under the proposed structures.

Information was obtained from a variety of sources such as Ground sure data, ordnance survey maps, BGS geological maps the Welsh Assembly Government development advice maps, the local council and well-founded anecdotal evidence. Statutory undertakers have been consulted to obtain the locations of any services and apparatus within or near to the site (see appendix C).

2.1 SITE LOCATION & AERIAL PLAN



Figure 1. Site location plan



Figure 2. Site location aerial map.

2.2 SITE HISTORY

Maps of the site have been obtained spanning the period between 1875 and the present day with key maps displayed below (for rest of maps see Ground Sure report). Principal observations concerning the site are described below.

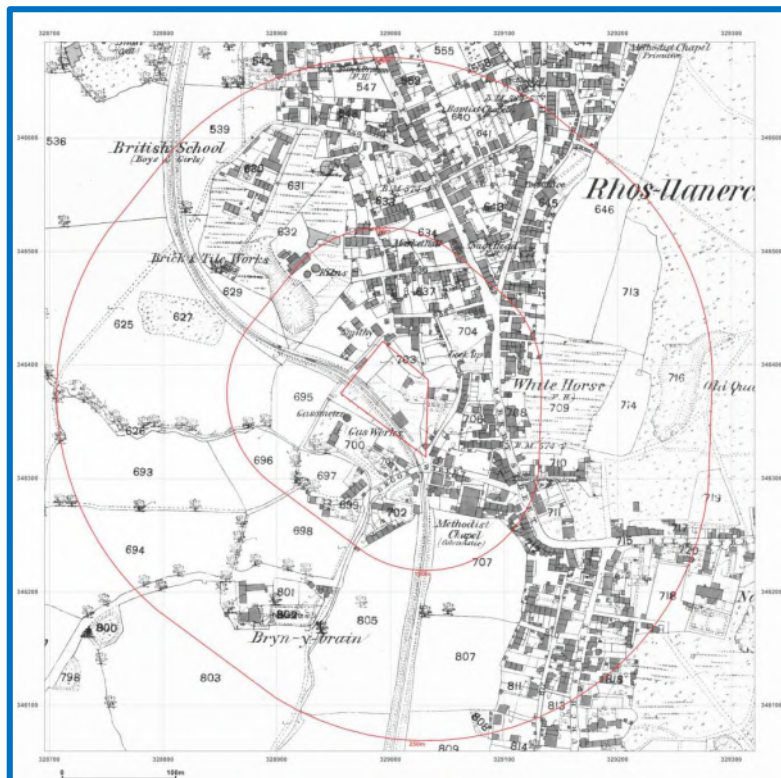


Figure 3. 1875:- The site is developed and appears to part of a railway station goods yard. The site is also close to a gas works.



Figure 4. 1912:- The site has been developed further with the addition of a side track and changes to the yard. The gas works have been removed from the site to the south of the site.



Figure 5. 1959: The train yard remains the same. Large residential development has occurred to the south

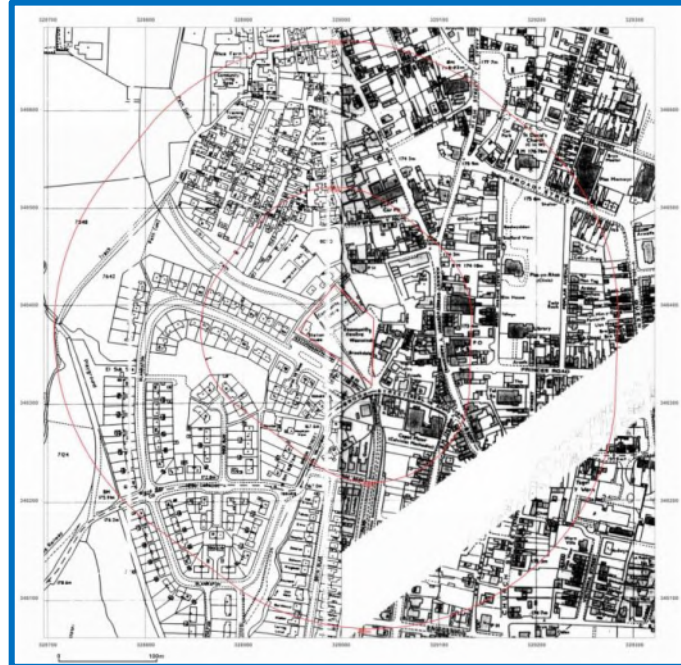


Figure 6. 1899:-. The train yard has been removed and replaced by a community centre with a large car park to the south-east of the building.

The maps indicate that the site has been through different phases of development and uses; the first development relates to the construction of the train yard prior to 1875 and the second relates to when the train yard was redeveloped between 1875 and 1912 with the addition of a new track. The train yard and tracks were demolished and removed between 1959 and 1989. The site was redeveloped and a community centre was founded on the site which remained on site until after 1989. It is likely that made ground from the demolition works will be found during the intrusive investigation. Possible contamination of the made ground within the site may have occurred during the past use as a Railway goods yard.

10.3 DESK STUDY CHECKLIST OUTPUT

A checklist of potential issues has been completed for the site. The main potential hazards are detailed below. The full checklist is given in appendix A.

1. Water course on or near site.

Secondary minor aquifers are shown to be within the site boundary (Ground sure report). However a high leaching potential is shown for the ground which could be of concern for the pathway of contamination from shallow and deep sources.

The site is part of land which is on high ground and is unlikely to have problems associated with flood water. The development advice maps provided by the Welsh Assembly Government indicate that the proposed development lies within an area which is not considered vulnerable to flooding. However the ground sure report indicates that the area is susceptible to groundwater flooding with a high potential at the surface.

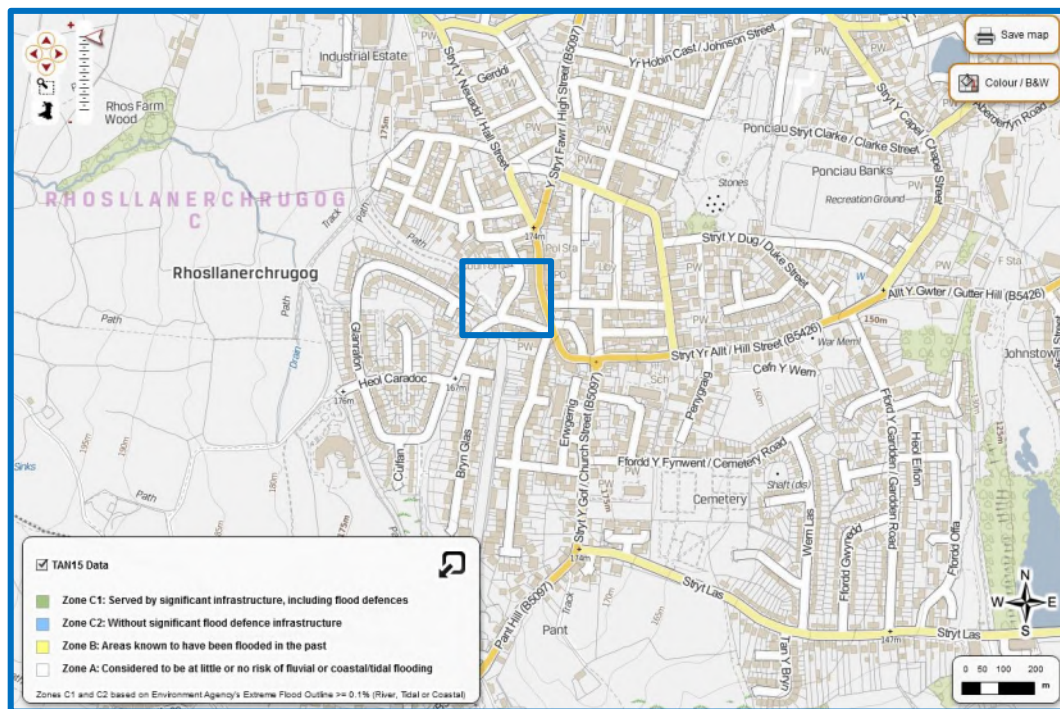


Figure 7. Development Advice Maps flood map.

2. Trees within the vicinity of the site.

There are a few trees situated on the perimeter of the site. However given the age and species of the trees it is unlikely that they will have any effect on the site.

3. Changes in ground level

Ground has been filled and developed over so one would expect there to be a depth of made ground.

4. Likely problems with foundations associated with the ground material

Geological maps suggest alluvial deposits of Till formed through previous ice ages will overlie the bedrock. Bedrock is expected to be Pennine lower and middle coal measures formation which formed during the Westphalian epoch over 303- 315 million years ago. Rock is anticipated within 20m of the surface.

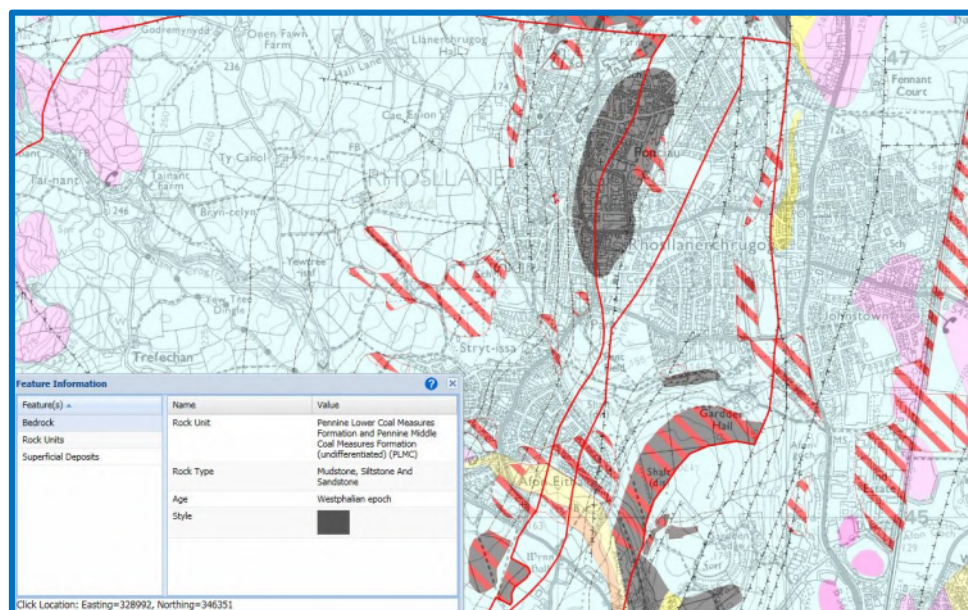


Figure 8. Geological Bedrock map

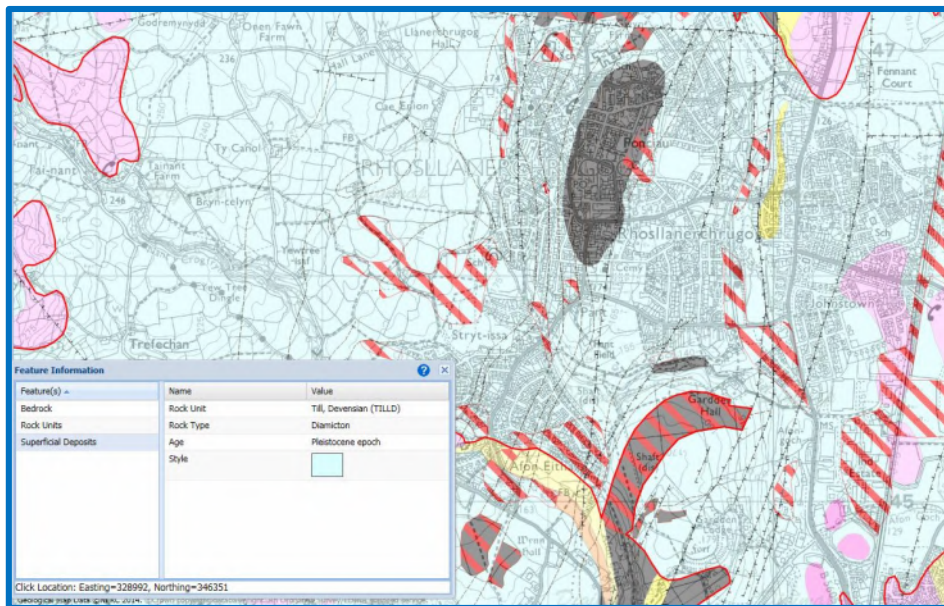


Figure 9. Superficial geology map

5. Soft deposits

Topsoil and fill material shall be stripped from the site.

6. Is the ground water likely to attack concrete within the site?

Groundwater is unlikely to have a high chloride and sulphate content.
Laboratory testing of soils to confirm

7. Mining or Quarrying

Past mining activity has been identified directly below the site at around 21m deep. The historical borehole records held by the BGS show that records SJ24NE487-491 indicate coal seams at varying depths below 20m with old working also shown to be found in two of the boreholes.

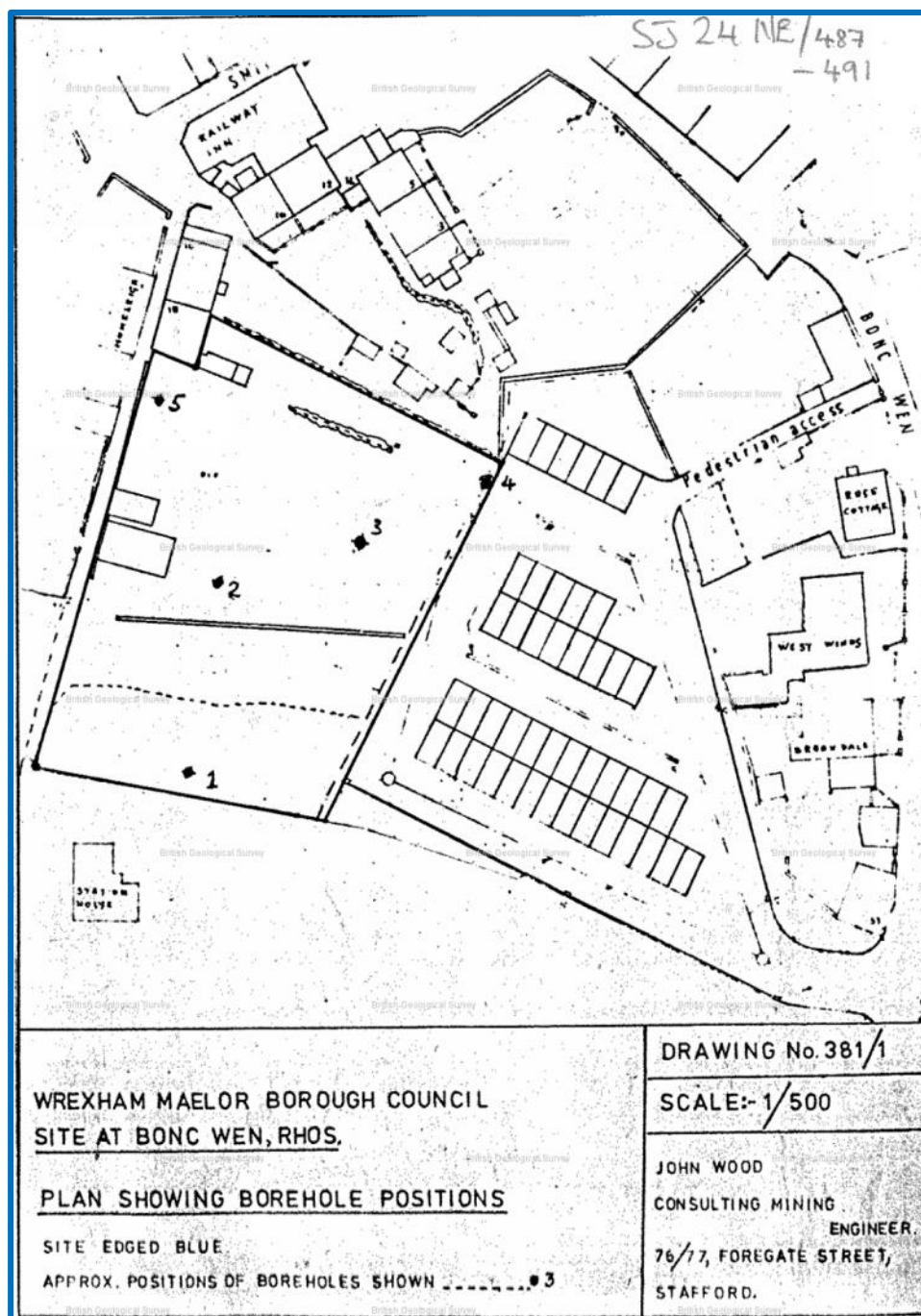


Figure 10. BGS borehole location data for land at Bonc Wen.

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BOROUGH OF WREXHAM MAELOR SS2UNE/487

BOROUGH OF WREXHAM MAELOR SS2UNE/488

Borehole Details				Borehole Details			
Borehole Number	From	To	Description	Borehole Number	From	To	Description
			Metres				Metres
1	0	1.20	Made Up Ground	2	0	.40	Made Up Ground
/487	1.20	2.80	Soil	/488	.40	.90	Soil
	2.80	15.05	Boulder Clay		.90	14.20	Boulder Clay
	15.05	15.30	Fireclay		14.20	14.35	Fireclay
	15.30	17.90	Siltstone		14.35	14.60	Mudstone
	17.90	19.80	Mudstone		14.60	16.05	Siltstone
	19.80	20.90	Shale		16.05	20.85	Mudstone
	20.90	21.40	Coal		20.85	21.35	Coal
	21.40	21.85	Fireclay		21.35	21.70	Fireclay
	21.85	22.20	Mudstone		21.70	23.20	Mudstone
	22.20	22.40	Coal		23.20	23.45	Coal
	22.40	22.95	Fireclay		23.45	24.00	Fireclay
	22.95	25.20	Mudstone		24.00	24.15	Mudstone
	25.20	25.40	Coal		24.15	25.50	Siltstone
	25.40	25.50	Mudstone		25.50	27.10	Mudstone
	25.50	25.65	Coal		27.10	27.40	Coal
	25.65	26.90	Mudstone		27.40	28.10	Mudstone
	26.90	27.20	Coal		28.10	28.35	Coal
	27.20	27.90	Mudstone		28.35	30.00	Mudstone
	27.90	30.00	Siltstone				Bore Dry
			Bore Dry				Bore Complete
			Bore Complete				

- 3 -

BOROUGH OF WREXHAM MAELOR SS2UNE/489-490

BOROUGH OF WREXHAM MAELOR SS2UNE/491

Borehole Details				Borehole Details			
Borehole number	From	To	Description	Borehole Number	From	To	Description
			Metres				Metres
3	0	1.20	Made Up Ground	5	0	1.60	Made Up Ground
/489	1.20	1.40	Soil	/491	1.60	2.20	Soil
	1.40	12.35	Boulder Clay		2.20	14.50	Boulder Clay
	12.35	13.10	Fireclay		14.50	14.90	Fireclay
	13.10	13.45	Mudstone		14.90	15.20	Mudstone
	13.45	19.70	Siltstone		15.20	19.70	Siltstone
	19.70	20.30	Fireclay		19.70	21.40	Push Down (Packed Waste)
	20.30	20.95	Push Down (Cavity) Lost Air		21.40	22.05	Fireclay
	20.95	21.60	Packed Waste		22.05	22.15	Mudstone
	21.60	23.00	Pavement		22.15	22.40	Shale
			Bore Dry		22.40	22.65	Coal
			Bore Complete		22.65	23.10	Mudstone
					23.10	23.50	Coal
4	0	.50	Made Up Ground		23.50	23.60	Fireclay
/490	.50	1.05	Soil		23.60	24.40	Mudstone
	1.05	12.60	Boulder Clay		24.40	27.00	Siltstone
	12.60	13.45	Mudstone		27.00	27.25	Coal
	13.45	13.60	Coal		27.25	27.40	Mudstone
	13.60	14.20	Mudstone		27.40	27.65	Coal
	14.20	17.90	Siltstone		27.65	30.00	Mudstone
	17.90	19.20	Mudstone				
	19.20	20.00	Lost Air (Waste?)				
			Bore Wet				

Figure 11. BGS borehole data for land at Bonc Wen.

8. Foundation loads

Loads are likely to be fairly low as the buildings are mainly residential and can be timber frame construction. The Ground is likely to be strong at a shallow depth due to considerable depth of boulder Clay and therefore improvement or piling is not likely to be required.

9. The presence of utility services.

Combined surface water Sewerage pipes run through the road to the south east along the southern edge of the site. Information from Wales and West and Scottish power has not been returned in time for the production of the report. A CAT scanner should be used prior to any excavation to verify potential services on site.

10. Radon affected area.

The ground sure report indicates the land is in a Radon affected area as between 3 -5% of properties are above the action level. Therefore basic Radon protection methods are required

3.0 WALKOVER REPORT

A walkover survey of the site was undertaken in September 2014. The purpose was to gather information on the surrounding area in order to determine if there are any potential issues within the ground. The walkover survey provided an opportunity to address the issues raised by this desk study and to uncover any other issues that may prove to have a bearing upon the design of the foundations or warrant further more detailed investigation.

The walkover revealed that the site has shallow slope and is mainly tarmacadam surface.

There is currently one vehicle access point to the site which is the main entrance off Bonc wen Road

4.0 DISCUSSION

The output from the desk study indicates that the site exhibits two significant hazards which are likely to affect continuation of the works or the design of the structures and their foundations.

The ground is likely to be suitable for conventional footings and therefore a raft, ground improvement or piles are unlikely to be required. However there is uncertainty as to the stability of ground at depth where coal seams and old mine workings were identified in the BGS borehole data.

There are previous buildings on the site which means that there could be buried structures. The historical maps also show that the site was previously used as a goods yard for trains. Possible contamination may have occurred at shallow depths within the made ground and upper layers of the boulder clay.

The natural progression from this desk study is to design and carry out an intrusive site investigation. This will provide greater detail on the ground type and groundwater level.

5.0 CONCEPTUAL MODEL

In accordance with current guidance the information collated during the preliminary site assessment has been reviewed to establish the conceptual model for the site. The conceptual model is based upon the identification and assessment of potential 'hazards', identified or suspected from the results of the preliminary assessment; the potential 'receptors' that may be affected; and the anticipated 'pathways' to those receptors.

The 'Conceptual Model' takes into consideration the proposed development of the site with a residential development and the sites environmental setting.

Potential On-Site Contamination Sources and Hazards

The main data source for the hazard identification is the site development history, information on the historical activities both on and off site and neighbouring land uses. From the assessment of this data, information on the potential source, type and location of contamination hazard has been identified.

The only known previous use of the site was being part an old railway station/depot. All evidence of its past use has now been demolished.

Based on the interpretation of the desk based study and the historical maps of the site there is evidence of potential sources of contamination on the site. Such potential sources include:

- Fuel oils, lubricating oils and greases from trains (Historic leaks)
- Railway Lines and Sidings (Historic) - In some areas, herbicides may have been used on the tracks and immediate trackside margins. Contamination is also possible through spillages of the cargoes (the nature of the contamination will depend on the types of cargoes handled) and through leaks.

-
- Made Ground / Filled Material across the site – The made ground may include demolition and construction materials such as bricks and tarmac. These materials may pose a risk of contamination.

Potential Off-site Contamination Sources and Hazards

Based on the desk based study and the historical maps of the site there is evidence of potential sources of contamination on land surrounding the site. These potentially contaminating sources include:

- All the above On-site Contamination sources
- Goods Shed (Historic) - Contamination is also possible through spillages of the cargoes (the nature of the contamination will depend on the types of cargoes handled) and through leaks. Other contaminants may also include asbestos, PCBs, acids and alkalis. In addition, there is the potential for contamination from fuel oils used for on-site power generation and traffic, through leaks and spills.
- Coal Merchants (Active) – coal residues from ‘coal yard activities’
- Engine Shed (Historic) - The most common contaminants may include oils, solvents, hydrocarbon fuels and metals. Other contaminants may also include asbestos, PCBs, acids and alkalis. In addition, there is the potential for contamination from fuel oils used for on-site power generation and traffic, through leaks and spills.
- Tanks (Historic) - A wide range of contaminants may be present depending upon the material stored. Contamination may have occurred through leakage and spillage during the delivery, storage and / or transfer.

Potential Pathways

There are a number of potential pathways by which contamination may migrate and impact a particular receptor. The following pathways have been identified for the study area:

-
- *Migration through semi-permeable soils / Made Ground* – The Made Ground / shallow soil at the site is likely to be of medium to high permeability. This material may have the potential to allow migration of contaminants in gaseous or aqueous form.
 - *Groundwater within Aquifer* – The solid and drift deposits indicated to underlie the site are shown to constitute aquifers of high susceptibility to groundwater flooding (BGS source). Should contaminants reach the groundwater within these strata, they may affect the quality of the aquifer and / or migrate to potential receptors.
 - *Direct contact with contaminants* – Ingestion or dermal contact of contaminants that may be at or near the surface or which become exposed through excavation.
 - *Direct and indirect inhalation of contaminants* – From airborne particles, ground gases and vapours, which might be present on site or migrate through services.
 - *Direct and indirect Ingestion of contaminants* – From consuming affected ground material, soil, dust or water.
 - *Migration through underground service trenches & drains* – Contaminants may migrate off site to local receptors through permeable service trenches or through the site drainage system. This is particularly the case for more mobile contaminants such as oils and solvents.

Potential Receptors

The following potential receptors have been identified and considered as relevant for the whole site. The receptors that may be significantly harmed or polluted by potential contaminative materials (if present) are considered to be:

- *Human health (site workers)* – are considered to be sensitive receptor due to the close proximity in which they are required to work, during the construction process, with contaminated ground/soils and / or contaminated surfaces (if present)

-
- *Humans (future site users)* – are considered to be a high sensitive receptor as it is proposed to develop the site to accommodate residential units. Future users are potentially at risk via direct contact (dermal), ingestion or inhalation of contaminants (if present) in shallow surface/soil, water or vapours.
 - *Groundwater within Aquifer* – is considered to be a low sensitive (unlikely) receptor. The groundwater within 250m of the site is not used for abstraction and the site does not lie within a Groundwater Protection Zone.
 - *Surface water* – is considered to be of very low sensitivity as there are no watercourses near the site.
 - *Neighbouring properties & land use* – the site is located within an residential area. The nearest residential properties are 10 m to the west. As such neighbouring land users are considered to be of medium sensitivity.
 - *Ecological receptors (i.e. fauna and flora)* – considered to be low sensitive receptor during and post construction as the site is within an existing urban area.
 - *Building and structures* – considered to be of high sensitivity should chemically aggressive ground conditions or soil gas pose a risk to the future development.

6.0 **RECOMMENDATIONS**

The following is a list of actions that we consider to be required for the site.

1. It is recommended that a coal mining report is purchased from the coal mining authority at www.groundstability.com. This report will provide greater detail as to ground stability in the local vicinity and provide background information attaining to local coal mining.
2. Undertake 4 Boreholes to 25m in order to establish any potential threat from old mine workings
3. 2 Trial pit test to aid design of foundations.
4. Undertake gas monitoring of CH₄, CO, CO₂ and H₂S as well as ambient pressure and flow rate at 4 localities. Gas wells will be placed within top 10m in order to quantify gases being passed through upper boulder clay to surface.
5. Undertake porosity and CBR testing for the proposed car parking and entrance road.
6. Undertake Laboratory testing of soil samples to determine the following:
 - M-CERTS laboratory suite testing of soils in order to create CLEA Model within Phase II study
 - Chloride content
 - Liquid limits
 - Moisture content
 - Plasticity limits

The last three stated above would allow the foundations to be designed appropriately for the conditions.

APPENDICES

Appendix A

Desk study checklist

SITE INVESTIGATION DESK STUDY: CHECKLIST OF ISSUES TO CONSIDER FOR EACH DEVELOPMENT

The issues below are taken from the recommendations for site investigation listed in the NHBC standards.

SITE: **Bonc Wen, Rhos, Affordable Housing.**

Ref:	Issue:	Yes:	No:	Notes:
1	Is the site sloping?	✓		Gentle slope from North-West to South-East
2	Is there a watercourse on or near to the site?		✓	There are surface water drainage over the site.
3	Are there trees in the vicinity of the development?		✓	
4	Are there likely to have been any changes within the ground level due to fill or demolition of old structures?	✓		The site is situated on a former Train goods yard
5	Is there any information on the type of subsoil's that lie below ground level?	✓		Five historical boreholes records are available and discussed within the report
6	Is the subsoil material likely to cause foundation problems?	✓		Old coal workings are shown on historical boreholes leading to the possibility of ground instability
7	Are there likely to be soft deposits over the site?	✓		Historical borehole data indicates considerable depth of made ground and Till
8	Is there any information on the strength or compressibility of the ground at the proposed bearing level?		✓	To be obtained from GI and lab testing.
9	Is the subsoil likely to be a type of shrinkable clay?		✓	Not in this location.
10	Is the groundwater likely to attack buried concrete?		✓	Site is on high ground.
11	Is there any evidence of ground slipping within or near to the site?		✓	No
12	Has there been any mining or quarrying within or near to the site?	✓		Mining activity is indicated directly beneath site

13	Are there coal seams under the site?	✓		Coal seams found within five historical boreholes
14	Will the footprint of the building have a significant affect on the ground strata?	✓		Foundations will be designed using appropriate methods and values from the intrusive site investigation.
15	Are the foundation loads likely to be high in magnitude and pose a concern?		✓	Low loads, however ground stability uncertain at current time. Risk uncertain
16	Is the proposed structure likely to be sensitive to differential settlements?		✓	
17	Are there any utility services on or near to the site?	✓		Services are likely to run underground along the entrance road.
18	Is there a high water table indicated?		✓	Water table unknown
19	Are there any signs of flooding?		✓	NRW development advice maps show area to be at low or no risk to flooding
20	Is there evidence of defects within existing structures?		✓	Currently used as Car park
21	Is there likely to be contamination of the ground?	✓		Potentially due to previous use as goods yard for trains

Appendix B

Groundsure reports

Datrys Consulting Engineers

3-5 DATRYS CONSULTING ENGINEERS, STRYD
YR EGLWYS,
CAERNARFON, LL55 1SW

GroundSure
Reference:

GS-1644733

Your Reference:

Bonc wen, Rhos 14186

Report Date

3 Sep 2014

Report Delivery
Method:

Email - pdf

GroundSure EnviroInsight

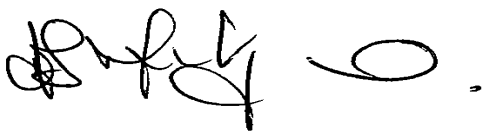
Address: BROOKDALE,BONC WEN,RHOSLLANERCHRUGOG,WRECSAM, LL14 2EE

Dear Sir/ Madam,

Thank you for placing your order with GroundSure. Please find enclosed the **GroundSure Enviroinsight** as requested.

If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above GroundSure reference number.

Yours faithfully,



Managing Director
Groundsure Limited

Enc.
GroundSure EnviroInsight



GroundSure EnviroInsight

Address: BROOKDALE, BONC WEN, RHOSLLANERCHRUGOG, WRECSAM, LL14 2EE
Date: 3 Sep 2014
Reference: GS-1644733
Client: Datrys Consulting Engineers

NW

N

NE

W

E



SW

S

SE

Aerial Photograph Capture date: 01-Jun-2009
Grid Reference: 329008,346372
Site Size: 0.42ha

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Overview of Findings

For further details on each dataset, please refer to each individual section in the main report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Environmental Permits, Incidents and Registers		On-site	0-50m	51-250	251-500		
1.1 Industrial Sites Holding Environmental Permits and/or Authorisations							
1.1.1	Records of historic IPC Authorisations	0	0	0	0		
1.1.2	Records of Part A(1) and IPPC Authorised Activities	0	0	0	0		
1.1.3	Records of Water Industry Referrals (potentially harmful discharges to the public sewer)	0	0	0	0		
1.1.4	Records of Red List Discharge Consents (potentially harmful discharges to controlled waters)	0	0	0	0		
1.1.5	Records of List 1 Dangerous Substances Inventory sites	0	0	0	0		
1.1.6	Records of List 2 Dangerous Substances Inventory sites	0	0	0	0		
1.1.7	Records of Part A(2) and Part B Activities and Enforcements	0	0	0	0		
1.1.8	Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0		
1.1.9	Records of Licensed Discharge Consents	0	0	0	3		
1.1.10	Records of Planning Hazardous Substance Consents and Enforcements	0	0	0	0		
1.2	Records of COMAH and NIHHS sites	0	0	0	0		
1.3 Environment Agency Recorded Pollution Incidents							
1.3.1	National Incidents Recording System, List 2	0	0	2	0		
1.3.2	National Incidents Recording System, List 1	0	0	0	0		
1.4	Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0		
Section 2: Landfill and Other Waste Sites		On-site	0-50m	51-250	251-500	501-1000	1000-5000
2.1 Landfill Sites							
2.1.1	Environment Agency Registered Landfill Sites	0	0	0	0	0	Not searched
2.1.2	Environment Agency Historic Landfill Sites	0	0	0	0	5	4
2.1.3	BGS/DoE Landfill Site Survey	0	0	0	0	0	0
2.1.4	GroundSure Local Authority Landfill Sites Data	0	0	0	0	4	4
2.2 Landfill and Other Waste Sites Findings							
2.2.1	Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	Not searched	Not searched
2.2.2	Environment Agency Licensed Waste Sites	0	0	0	0	3	2

Section 3: Current Land Use	On-site	0-50m	51-250	251-500
3.1 Current Industrial Sites Data	0	0	5	Not searched
3.2 Records of Petrol and Fuel Sites	0	0	0	0
3.3 Underground High Pressure Oil and Gas Pipelines	0	0	0	0

Section 4: Geology	
4.1 Are there any records of Artificial Ground and Made Ground present beneath the study site?	No
4.2 Are there any records of Superficial Ground and Drift Geology present beneath the study site?	Yes
4.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 5: Hydrogeology and Hydrology	0-500m					
5.1 Are there any records of Strata Classification in the Superficial Geology within 500m of the study site?	Yes					
5.2 Are there any records of Strata Classification in the Bedrock Geology within 500m of the study site?	Yes					
	On-site	0-50m	51-250	251-500	501-1000	1000-2000
5.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	2
5.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	1
5.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	2
5.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
5.7 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	1	0	1	0	Not searched	Not searched
	On-site	0-50m	51-250	251-500	501-1000	1000-1500
5.8 Is there any Environment Agency information on river quality within 1500m of the study site?	No	No	No	No	No	Yes
5.9 Detailed River Network entries within 500m of the site	0	0	4	3	Not searched	Not searched
5.10 Surface water features within 250m of the study site	No	No	Yes	Not searched	Not searched	Not searched

Section 6: Flooding	
6.1 Are there any Environment Agency Zone 2 floodplains within 250m of the study site?	No
6.2 Are there any Environment Agency Zone 3 floodplains within 250m of the study site?	No
6.3 Are there any Flood Defences within 250m of the study site?	No
6.4 Are there any areas benefiting from Flood Defences within 250m of the study site?	No
6.5 Are there any areas used for Flood Storage within 250m of the study site?	No
6.6 What is the maximum BGS Groundwater Flooding susceptibility within 50m of the study site?	Potential at Surface
6.7 What is the BGS confidence rating for the Groundwater Flooding susceptibility areas?	High

Section 7: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
7.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	1	1
7.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
7.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	1	1
7.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
7.5 Records of Ramsar sites	0	0	0	0	0	0
7.6 Records of Ancient Woodlands	0	0	0	0	0	4
7.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	0
7.8 Records of World Heritage Sites	0	0	0	0	0	0
7.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0
7.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
7.11 Records of National Parks	0	0	0	0	0	0
7.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
7.13 Records of Nitrate Vulnerable Zones	0	0	0	0	0	0

Section 8: Natural Hazards

8.1 What is the maximum risk of natural ground subsidence?	Very Low
8.1.1 What is the maximum Shrink-Swell hazard rating identified on the study site?	Very Low
8.1.2 What is the maximum Landslides hazard rating identified on the study site?	Very Low
8.1.3 What is the maximum Soluble Rocks hazard rating identified on the study site?	Negligible
8.1.4 What is the maximum Compressible Ground hazard rating identified on the study site?	Negligible
8.1.5 What is the maximum Collapsible Rocks hazard rating identified on the study site?	Very Low
8.1.6 What is the maximum Running Sand hazard rating identified on the study site?	Very Low

Section 9: Mining

9.1 Are there any coal mining areas within 75m of the study site?	Yes
9.2 What is the risk of subsidence relating to shallow mining within 150m of the study site?	Low-Moderate
9.3 Are there any brine affected areas within 75m of the study site?	No

Using this report

The following report is designed by Environmental Consultants for Environmental Professionals bringing together the most up-to-date market leading environmental data. This report is provided under and subject to the Terms & Conditions agreed between GroundSure and the Client. The document contains the following sections:

1. Environmental Permits, Incidents and Registers

Provides information on Regulated Industrial Activities and Pollution Incidents as recorded by Regulatory Authorities, and sites determined as Contaminated Land. This search is conducted using radii up to 500m.

2. Landfills and Other Waste Sites

Provides information on landfills and other waste sites that may pose a risk to the study site. This search is conducted using radii up to 1500m.

3. Current Land Uses

Provides information on current land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. These searches are conducted using radii of up to 500m. This includes information on potentially contaminative industrial sites, petrol stations and fuel sites as well as high pressure underground oil and gas pipelines.

4. Geology

Provides information on artificial and superficial deposits and bedrock beneath the study site.

5. Hydrogeology and Hydrology

Provides information on productive strata within the bedrock and superficial geological layers, abstraction licenses, Source Protection Zones (SPZs) and river quality. These searches are conducted using radii of up to 2000m.

6. Flooding

Provides information on surface water flooding, flood defences, flood storage areas and groundwater flood areas. This search is conducted using radii of up to 250m.

7. Designated Environmentally Sensitive Sites

Provides information on the Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, Local Nature Reserves (LNR), Areas of Outstanding Natural Beauty (AONB), National Parks (NP), Environmentally Sensitive Areas, Nitrate Sensitive Areas, Nitrate Vulnerable Zones and World Heritage Sites and Scheduled Ancient Woodland. These searches are conducted using radii of up to 2000m.

8. Natural Hazards

Provides information on a range of natural hazards that may pose a risk to the study site. These factors include natural ground subsidence.

9. Mining

Provides information on areas of coal and shallow mining.

10. Contacts

This section of the report provides contact points for statutory bodies and data providers that may be able to provide further information on issues raised within this report. Alternatively, GroundSure provide a free Technical Helpline (08444 159000) for further information and guidance.

Note: Maps

Only certain features are placed on the maps within the report. All features represented on maps found within this search are given an identification number. This number identifies the feature on the mapping and correlates it to the additional information provided below. This identification number precedes all other information and takes the following format -Id: 1, Id: 2, etc. Where numerous features on the same map are in such close proximity that the numbers would obscure each other a letter identifier is used instead to represent the features. (e.g. Three features which overlap may be given the identifier "A" on the map and would be identified separately as features 1A, 3A, 10A on the data tables provided).

Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as "Not Shown".

All distances given in this report are in Metres (m). Directions are given as compass headings such as N: North, E: East, NE: North East from the nearest point of the study site boundary.

1. Environmental Permits, Incidents and Registers Map

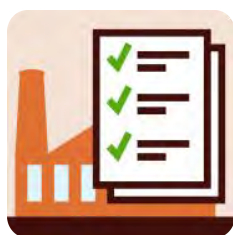


Environmental Permits,
Incidents and Registers Legend



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- | | | |
|-----------------------------|---------------------------------------|--|
| Site Outline | Recorded Pollution Incident | RAS 3 & 4 Authorisations |
| Search Buffers (m) | Dangerous Substances (List 1) | Part A(1) Authorised Processes and Historic IPC Authorisations |
| 250m and 500m | Dangerous Substances (List 2) | Part A(2) and Part B Authorised Processes |
| Water Industry Referrals | Licenced Discharge Consents | COMAH / NIHS Sites |
| Red List Discharge Consents | Sites Determined as Contaminated Land | Hazardous Substance Consents and Enforcements |



1. Environmental Permits, Incidents and Registers

1.1 Industrial Sites Holding Licences and/or Authorisations

Searches of information provided by the Environment Agency and Local Authorities reveal the following information:

1.1.1 Records of historic IPC Authorisations within 500m of the study site:

0

Database searched and no data found.

1.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site:

0

Database searched and no data found.

1.1.3 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site:

0

Database searched and no data found.

1.1.4 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site:

0

Database searched and no data found.

1.1.5 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site:

0

Database searched and no data found.

1.1.6 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site:

0

Database searched and no data found.

1.1.7 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site:

0

Database searched and no data found.

1.1.8 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

1.1.9 Records of Licensed Discharge Consents within 500m of the study site:

3

The following Licensed Discharge Consents records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance	Direction	NGR	Details
3	291.0	SW	328906 346056	Address: Bryn Y Brain Cso, Bryn Glas, Rhosllanerchgrugog, Wrexham, Wales, LL14 2EB Effluent Type: Sewage Discharges - Sewer Storm Overflow - Water Company Permit Number: CM0176001 Permit Version: 2 Receiving Water: Pant Brook Avon Soch Status: Varied By Application - (wra 91 Sched 10 - As Amended By Env Act 1995) Issue date: 19/3/2004 Effective Date: 31/3/2004 Revocation Date: -
4	345.0	S	328900 346000	Address: Rhosllanerchgrugog Bryn Y Brai, Rhosllanerchgrugog Bryn Y Brai Effluent Type: Unspecified Permit Number: CM0176001 Permit Version: 1 Receiving Water: Pant Brook Avon Soch Status: New Consent, By Application (wra 91, Section 88) Issue date: - Effective Date: - Revocation Date: 30/3/2004
5	499.0	S	329010 345820	Address: Rhos Osborne Street, Rhos Osborne Street, Osborne Street Effluent Type: Unspecified Permit Number: CM0057901 Permit Version: 1 Receiving Water: Trib.of Goch Status: Consent Expired - Time Limit Issue date: 27/6/1969 Effective Date: 27/6/1969 Revocation Date: 5/4/1995

1.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site:

0

Database searched and no data found.

1.2 Dangerous or Hazardous Sites

Records of COMAH & NIHHS sites within 500m of the study site:

0

Database searched and no data found.

1.3 Environment Agency Recorded Pollution Incidents

1.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site:

2

The following NIRS List 2 records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance	Direction	NGR	Details
1	157.0	SW	328950 346184	Incident Date: 01/09/2003 Incident Identification: 186385 Pollutant: Sewage Materials Pollutant Description: Crude Sewage Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
2	170.0	S	328966 346162	Incident Date: 11/08/2003 Incident Identification: 180955 Pollutant: Sewage Materials Pollutant Description: Crude Sewage Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

1.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site:

0

Database searched and no data found.

1.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

How many records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site?

0

Database searched and no data found.

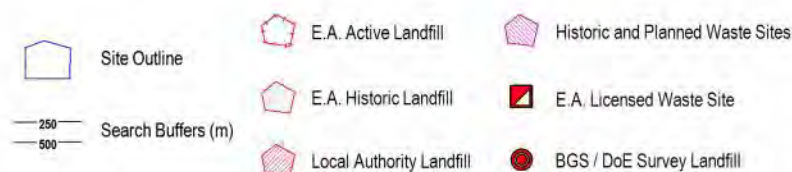
2. Landfill and Other Waste Sites Map



Landfill and Other Waste Sites Legend



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2. Landfill and Other Waste Sites

2.1 Landfill Sites

2.1.1 Records from Environment Agency landfill data within 1000m of the study site:

0

Database searched and no data found.

2.1.2 Records of Environment Agency historic landfill sites within 1500m of the study site:

9

The following landfill records are represented as either points or polygons on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details
Not shown	578.0	N	329000 347000	Site Address: Cae Dwr Old Tip, Cae Dwr Waste Licence: - Site Reference: - Waste Type: Inert, Industrial, Commercial, Household, Special, Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Hold Address: - Operator: -
Not shown	763.0	N	328800 347200	Site Address: Railway Cutting Fill, Cae Dwr Waste Licence: - Site Reference: - Waste Type: Industrial, Special, Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Hold Address: - Operator: -
Not shown	787.0	E	329800 346100	Site Address: Stryt Las, Stryd Las, Johnstown, Wrexham Waste Licence: Yes Site Reference: NOW-513-L, WMBC L75 Waste Type: Inert, Environmental Permitting Regulations (Waste) Reference: WW1/L/WAT001 Licence Issue: 22-Jul-1993 Licence Surrendered: 17-Aug-2005 Licence Hold Address: - Operator: -
Not shown	897.0	N	328800 347300	Site Address: Llwyneinion Acid Tar Lagoon, Llwyneinion Waste Licence: - Site Reference: - Waste Type: Industrial, Special, Liquid sludge, Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Hold Address: - Operator: -
Not shown	947.0	N	328700 347300	Site Address: Llwyneinion Brick Works Small Quarry, Llwyneinion Waste Licence: - Site Reference: - Waste Type: Inert, Industrial, Commercial, Household, Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Hold Address: - Operator: -

ID	Distance (m)	Direction	NGR	Details
Not shown	1047.0	N	328800 347500	Site Address: Cae Dwr Brickworks, Cae Dwr Waste Licence: Yes Site Reference: - Waste Type: Industrial, Commercial, Household, Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Hold Address: - Operator: -
Not shown	1054.0	N	328900 347500	Site Address: Llwyneinion Old Refuse Tip No.1, Llwyneinion Waste Licence: - Site Reference: - Waste Type: Inert, Industrial, Commercial, Household, Special, Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Hold Address: - Operator: -
Not shown	1115.0	N	328700 347600	Site Address: Monsanto Chemical Tip, Cae Dwr Waste Licence: - Site Reference: - Waste Type: Special, Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Hold Address: - Operator: -
Not shown	1305.0	N	328900 347800	Site Address: Llwyneinion Old Refuse Tip No.2, Llwyneinion Waste Licence: - Site Reference: - Waste Type: Commercial, Household, Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Hold Address: - Operator: -

2.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site:

0

Database searched and no data found.

2.1.4 Records of Local Authority landfill sites within 1500m of the study site:

8

The following landfill records are represented as points or polygons on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Site Address	Source	Data Type
Not shown	898.0	N		Refuse Tip	1962 mapping	Polygon
Not shown	898.0	N		Refuse Tip	1962 mapping	Polygon
Not shown	947.0	N		Refuse Tip	1962 mapping	Polygon
Not shown	947.0	N		Refuse Tip	1962 mapping	Polygon
Not shown	1056.0	N		Refuse Tip	1962 mapping	Polygon
Not shown	1056.0	N		Refuse Tip	1962 mapping	Polygon
Not shown	1085.0	S		Refuse Tip	1975 mapping	Polygon

ID	Distance (m)	Direction	NGR	Site Address	Source	Data Type
Not shown	1295.0	N		Refuse Tip	1962 mapping	Polygon

2.2 Other Waste Sites

2.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site:

0

Database searched and no data found.

2.2.2 Records of Environment Agency licensed waste sites within 1500m of the study site:

5

The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details
Not shown	846.0	E	329878 346325	Site Address: Stryd Las, Johnstown, Wrexham, Clwyd, LL14 2AN Type: Landfill taking Non-Biodegradable Wastes Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WAT001 EPR reference: EA/EPR/GP3694FY/S002 Operator: Watkin Jones & Son Ltd Waste Management licence No: 37077 Annual Tonnage: 150000.0 Issue Date: 22/07/1993 Effective Date: - Modified: 31/03/2003 Surrendered Date: 17/08/2005 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Stryd Las Correspondence Address: -, -
Not shown	846.0	E	329878 346325	Site Address: Stryd Las, Johnstown, Wrexham, LL14 2AN Type: Landfill taking Non-Biodegradable Wastes Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WAT001 EPR reference: - Operator: Watkin Jones & Sons Waste Management licence No: 37077 Annual Tonnage: 0.0 Issue Date: 22/07/1993 Effective Date: - Modified: 31/03/2003 Surrendered Date: 17/08/2005 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Stryt Las Correspondence Address: -, Unit 21, Llandegai Ind Est, Bangor, Gynedd, LL57 4YH
Not shown	846.0	E	329878 346325	Site Address: Stryd Las, Johnstown, Wrexham, LL14 2AN Type: Landfill taking Non-Biodegradable Wastes Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WAT001 EPR reference: - Operator: Watkin Jones & Sons Waste Management licence No: 37077 Annual Tonnage: 0.0 Issue Date: 22/07/1993 Effective Date: - Modified: 31/03/2003 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Stryt Las Correspondence Address: -, Unit 21, Llandegai Ind Est, Bangor, Gynedd, LL57 4YH

ID	Distance (m)	Direction	NGR	Details	
Not shown	1287.0	N	328888 347704	Site Address: Esclusham Mill, Llwyneinon Road, Legacy, Wrexham, Clwyd, LL14 4ET Type: Metal Recycling Site (Vehicle Dismantler) Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: KEL001 EPR reference: EA/EPR/EP3094FG/V002 Operator: Kelly David Ithel Waste Management licence No: 37154 Annual Tonnage: 602.0	Issue Date: 16/06/1998 Effective Date: - Modified: 15/03/2005 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Legacy Car Dismantlers Correspondence Address: -, -
Not shown	1410.0	SE	330100 345400	Site Address: Brother Industries (U K) Ltd, Vauxhall Industrial Estate, Ruabon, Wrexham, Clwyd, LL14 6HA Type: Material Recycling Treatment Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: BRO197 EPR reference: EA/EPR/FB3234AY/A001 Operator: Brother Industries (U K) Ltd Waste Management licence No: 103896 Annual Tonnage: 300.0	Issue Date: 06/08/2012 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Brother Industries (U K) Ltd Correspondence Address: -, -

3. Current Land Use Map



Current Land Use Legend



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3. Current Land Uses

3.1 Current Industrial Data

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

5

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	56.0	E	Rhos Radio	329088 346385	23, Market Street, Rhosllanerchrugog, Wrexham, LL14 1AH	Electrical Equipment Repair and Servicing	Repair and Servicing
2	142.0	E	Telephone Exchange	329172 346303	LL14	Telecommunications Features	Infrastructure and Facilities
3	149.0	SE	Electricity Sub Station	329139 346216	LL14	Electrical Features	Infrastructure and Facilities
4	181.0	W	Electricity Sub Station	328779 346335	LL14	Electrical Features	Infrastructure and Facilities
5	220.0	NE	Electricity Sub Station	329222 346500	LL14	Electrical Features	Infrastructure and Facilities

3.2 Petrol and Fuel Sites

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

0

Database searched and no data found.

3.3 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.



4. Geology

4.1 Artificial Ground and Made Ground

Database searched and no data found.

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

4.2 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

4.3 Bedrock and Solid Geology

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

Lex Code	Description	Rock Type
PLMC-MDSS	PENNINE LOWER COAL MEASURES FORMATION AND PENNINE MIDDLE COAL MEASURES FORMATION (UNDIFFERENTIATED)	MUDSTONE, SILTSTONE AND SANDSTONE

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

5. Hydrogeology and Hydrology

5a. Aquifer Within Superficial Geology

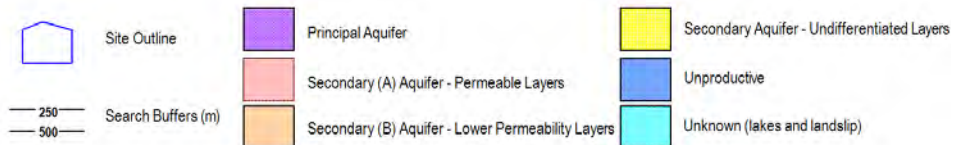


Map Legend

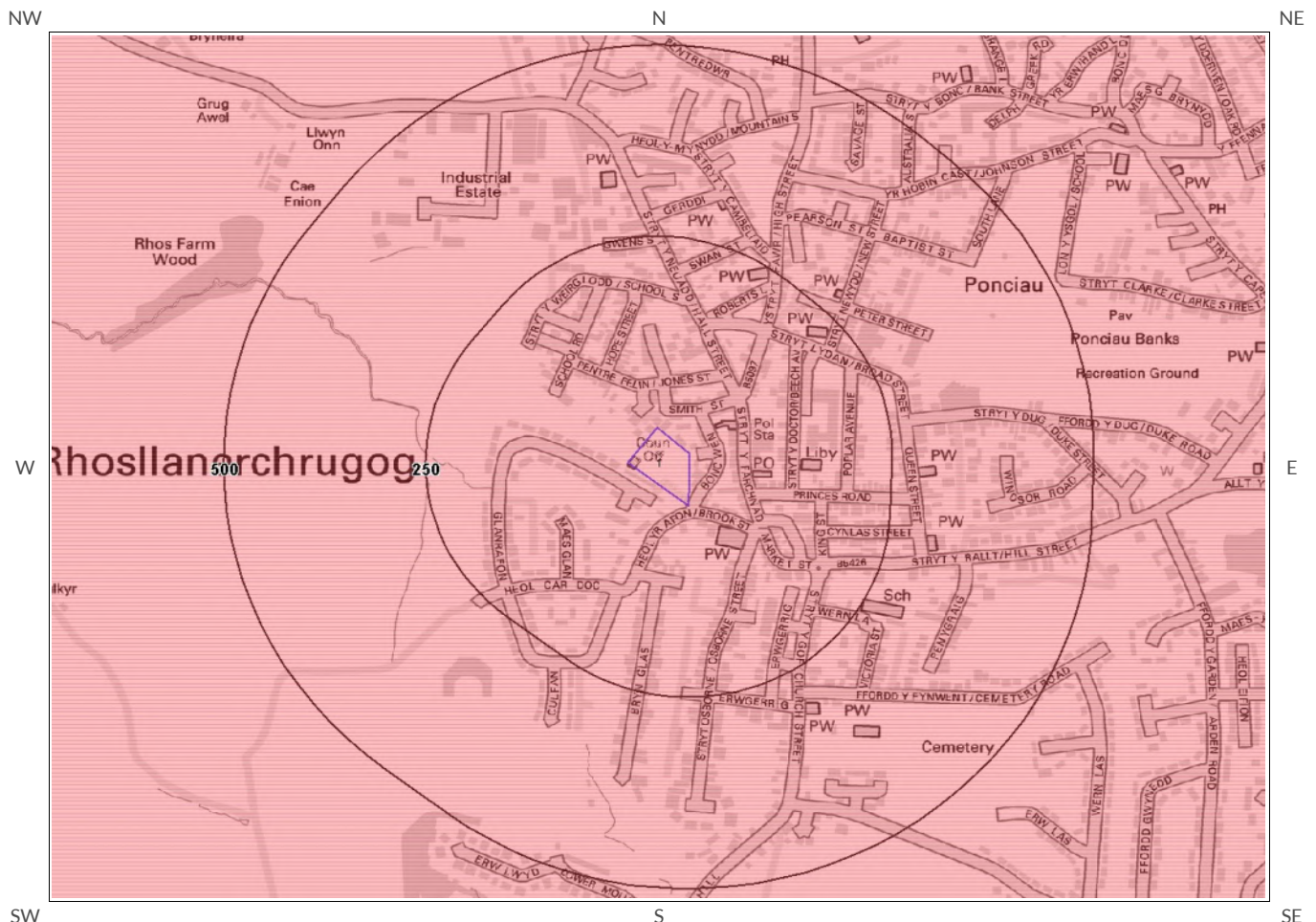
Mapping
sourced from

**Ordnance
Survey**

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5b. Aquifer Within Bedrock Geology and Abstraction Licenses

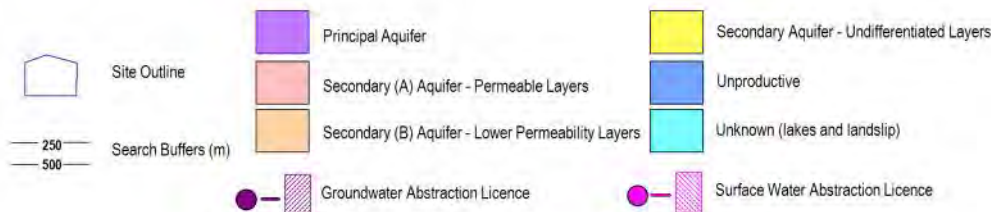


Map Legend

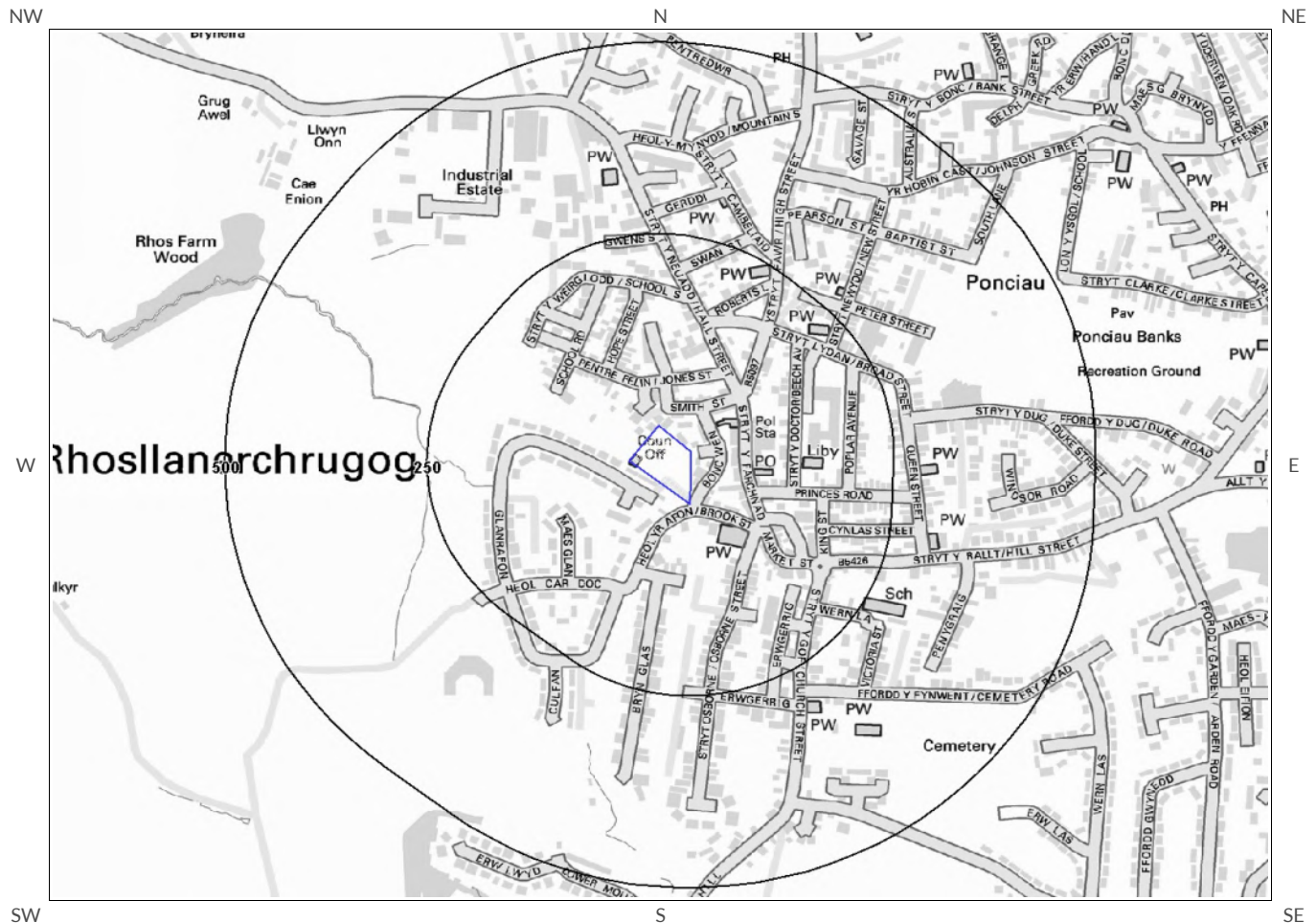
Mapping
sourced from

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5c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences



Map Legend

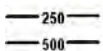
Mapping
sourced from

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Site Outline



Search Buffers (m)



Source Protection Zone 1 - Inner Catchment



Source Protection Zone 2 - Outer Catchment



Source Protection Zone 3 - Total Catchment

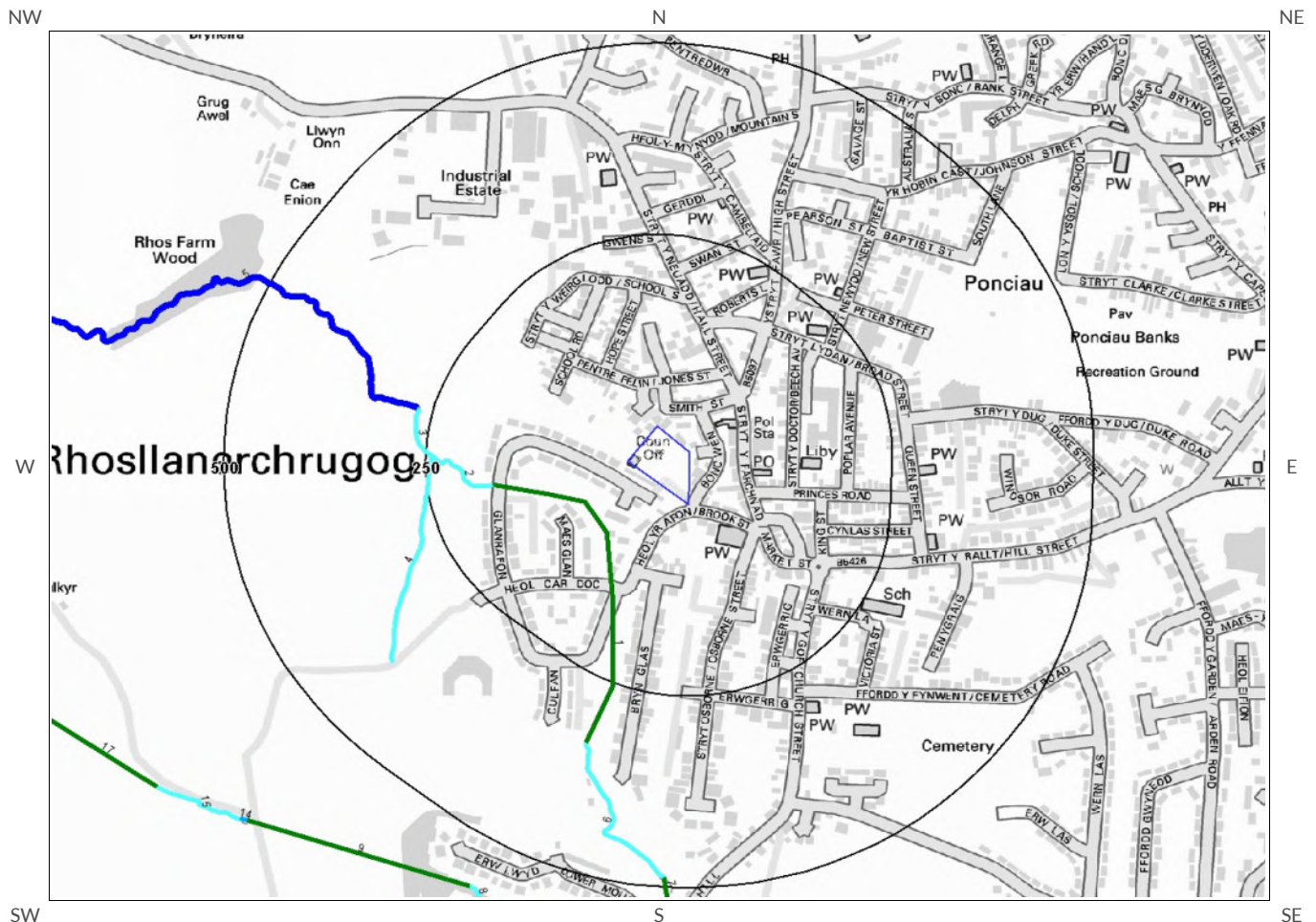


Source Protection Zone 4 - Zone of Special Interest



Potable Water Abstraction Licence

5d. Hydrology – Detailed River Network and River Quality



Map Legend



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- | | | | | | |
|--|--------------------|--|---------------------------------------|--|-------------------------------------|
| | Site Outline | | Primary River | | Canal |
| | Search Buffers (m) | | Secondary River | | Canal Tunnel |
| | | | Tertiary River | | Culvert |
| | | | Lake/Reservoir | | Multiple Channel Culvert |
| | | | Underground River (inferred) | | Underground River (Potential Sewer) |
| | | | General Quality Assessment: Biology | | Underground River (local knowledge) |
| | | | General Quality Assessment: Chemistry | | |



5. Hydrogeology and Hydrology

5.1 Aquifer within Superficial Deposits

Are there records of strata classification 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 Enviroinsight User Guide.

The following aquifer records are shown on the Aquifer within Superficial Geology Map (5a):

ID	Distance (m)	Direction	Designation	Description
1	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

5.2 Aquifer within Bedrock Deposits

Are there records of strata classification 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 Enviroinsight User Guide.

The following aquifer records are shown on the Aquifer within Bedrock Geology Map (5b):

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

5.3 Groundwater Abstraction Licences

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

Yes

The following Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (5b):

ID	Distance (m)	Direction	NGR	Details
Not shown	1279.0	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: 1/4/2007 Version End Date:
Not shown	1782.0	SW	328100 344800	Licence No: 24/67/5/0046 Details: General Farming & Domestic Direct Source: Eaw Groundwater Point: 35 Ft Deep, 8ft Dia. Well Data Type: Point Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: N124 Original Start Date: 12/10/1973 Expiry Date: - Issue No: 100 Version Start Date: 12/10/1973 Version End Date:

5.4 Surface Water Abstraction Licences

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

Yes

The following Surface Water Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (5b):

ID	Distance (m)	Direction	NGR	Details
Not shown	1845.0	SW	327390 345400	Licence No: 24/67/5/0003 Details: Potable Water Supply - Direct Direct Source: Eaw Surface Water Point: Penrycaebottom Reservoir Data Type: Point Annual Volume (m³): 909200 Max Daily Volume (m³): 3409.5 Application No: 4/9(b) Original Start Date: 5/7/1966 Expiry Date: - Issue No: 100 Version Start Date: 5/7/1966 Version End Date:

5.5 Potable Water Abstraction Licences

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 (5c):

ID	Distance (m)	Direction	NGR	Details
Not shown	1279.0	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	1845.0	SW	327390 345400	Licence No: 24/67/5/0003 Details: Potable Water Supply - Direct Direct Source: Eaw Surface Water Point: Penycabottom 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:

5.6 Source Protection Zones

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

No

Database searched and no data found.

5.7 Groundwater Vulnerability and Soil Leaching Potential

Is there any Environment Agency information on groundwater vulnerability and soil leaching potential within 500m of the study site?

Yes

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Minor Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.
222	W	Minor Aquifer/Low Leaching Potential	L	Soils in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants.

5.8 River Quality

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

Yes

5.8.1 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 (5d):

ID	Distance (m)	Direction	NGR	River Quality Grade	Biological Quality Grade				
					2005	2006	2007	2008	2009
Not shown	1365.0	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

5.8.2 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 (5d):

ID	Distance (m)	Direction	NGR	River Quality Grade	Chemical Quality Grade				
					2005	2006	2007	2008	2009
Not shown	1365.0	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	-

5.9 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 (5d):

ID	Distance (m)	Direction	Details
1	75.0	SW	River Name: - Welsh River Name: - Alternative Name: - River Type: Culvert Main River Status: Currently Undefined
2	170.0	W	River Name: - Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
3	242.0	W	River Name: - Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
4	242.0	W	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
5	268.0	W	River Name: - Welsh River Name: - Alternative Name: - River Type: Primary River Main River Status: Currently Undefined
6	335.0	S	River Name: - Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
7	486.0	S	River Name: - Welsh River Name: - Alternative Name: - River Type: Culvert Main River Status: Currently Undefined

5.10 Surface Water Features

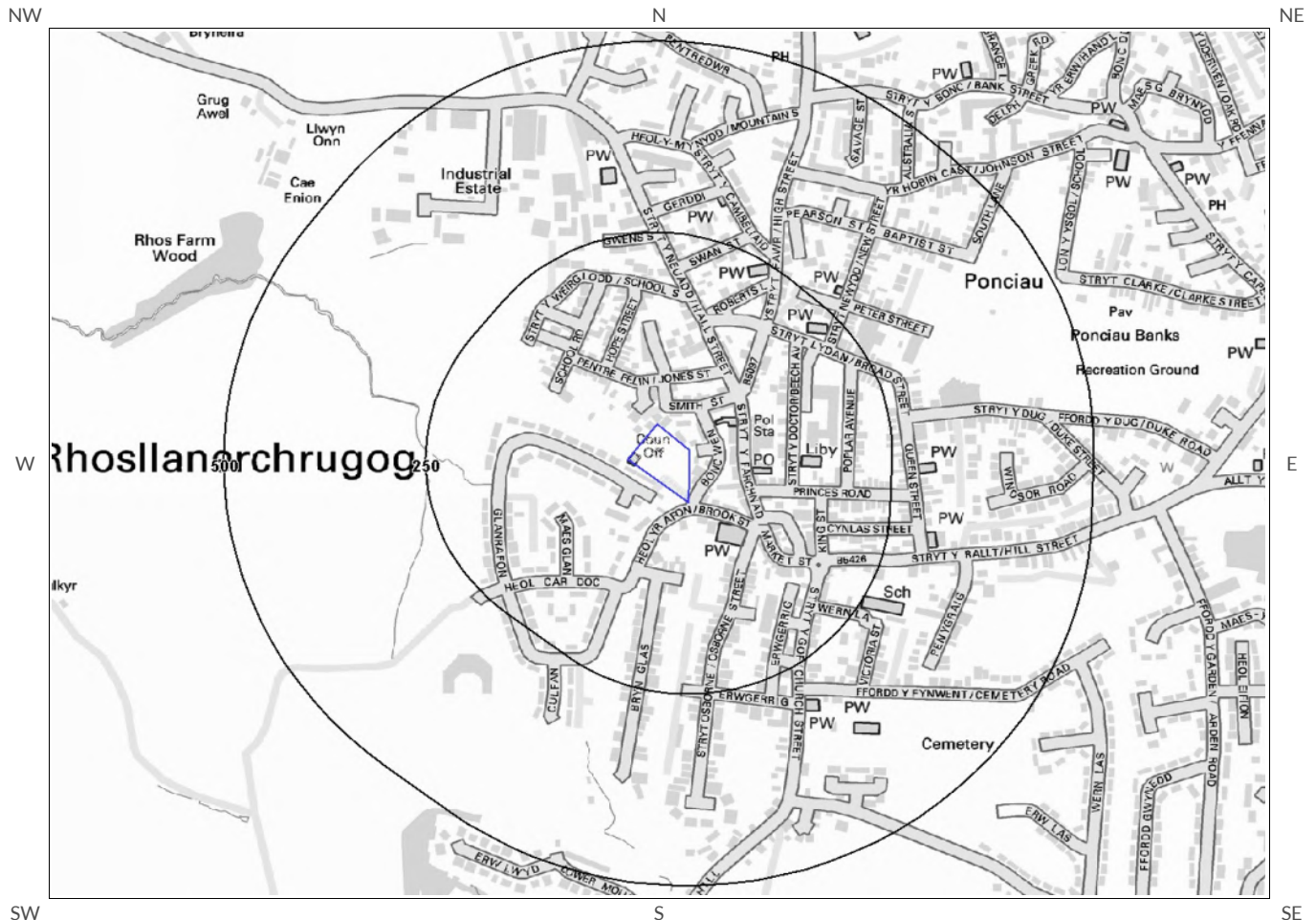
Are there any surface water features within 250m of the study site?

Yes

The following surface water records are not represented on mapping:

Distance (m)	Direction
170.0	W
248.0	W
248.0	W

6. Environment Agency Flood Map for planning (from rivers and the sea)



Map 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



6. Flooding

6.1 Zone 2 Flooding

Environment Agency Zone 2 floodplains estimate the annual probability of flooding as between 1 in 1000 (0.1%) and 1 in 100 (1%) from rivers and between 1 in 1000 (0.1%) and 1 in 200 (0.5%) from the sea. Any relevant data is represented on Map 1 – Environment Agency Flood Map for Planning:

Is the site within 250m of an Environment Agency Zone 2 floodplain? No

Database searched and no data found.

6.2 Zone 3 Flooding

Zone 3 shows the extent of a river flood with a 1 in 100 (1%) or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year. Any relevant data is represented on Map 1 – Environment Agency Flood Map for Planning.

Is the site within 250m of an Environment Agency Zone 3 floodplain? No

Database searched and no data found.

6.3 Flood Defences

Are there any Flood Defences within 250m of the study site? No

Database searched and no data found.

6.4 Areas benefiting from Flood Defences

Are there any areas benefiting from Flood Defences within 250m of the study site? No

6.5 Areas benefiting from Flood Storage

Are there any areas used for Flood Storage within 250m of the study site? No

6.6 Groundwater Flooding Susceptibility Areas

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

Yes

Does this relate to Clearwater Flooding or Superficial Deposits Flooding?

Superficial Deposits Flooding

Notes: Groundwater flooding may either be associated with shallow unconsolidated sedimentary aquifers which overlie unproductive aquifers (Superficial Deposits Flooding), or with unconfined aquifers (Clearwater Flooding).

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

Potential at Surface

Where potential for groundwater flooding to occur at surface is indicated, this means that given the geological conditions in the area groundwater flooding hazard should be considered in all land-use planning decisions. It is recommended that other relevant information e.g. records of previous incidence of groundwater flooding, rainfall, property type, and land drainage information be investigated in order to establish relative, but not absolute, risk of groundwater flooding.

6.7 Groundwater Flooding Confidence Areas

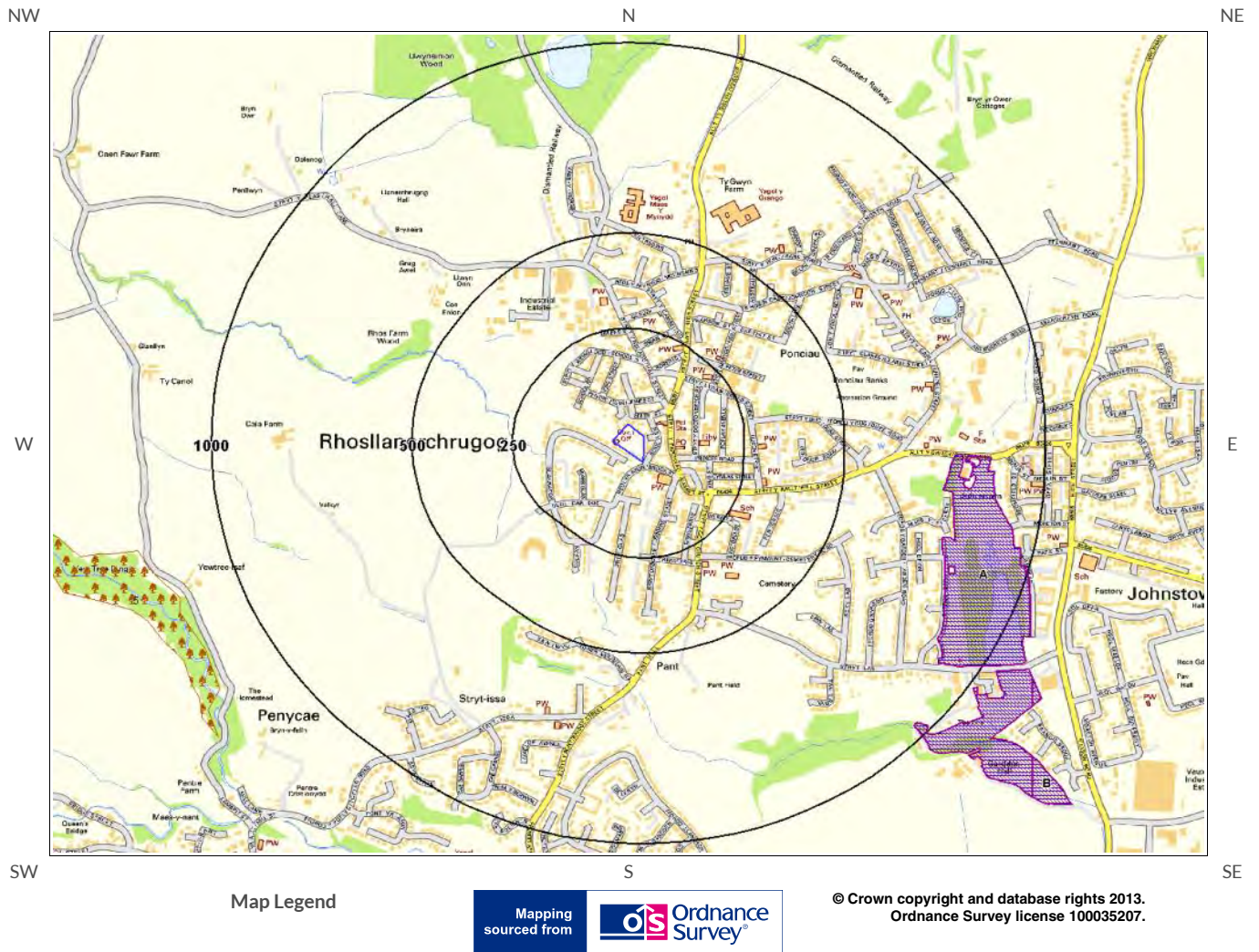
What is the British Geological Survey confidence rating in this result?

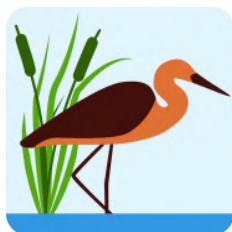
High

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.

7. Designated Environmentally Sensitive Sites Map





7. Designated Environmentally Sensitive Sites

Presence of Designated Environmentally Sensitive Sites within 2000m of the study site? Yes

7.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:

2

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
3A	752.0	E	Stryt Las A'r Hafod	Countryside Council for Wales
4B	1121.0	SE	Stryt Las A'r Hafod	Countryside Council for Wales

7.2 Records of National Nature Reserves (NNR) within 2000m of the study site:

0

Database searched and no data found.

7.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:

2

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	752.0	E	Johnstown Newt Sites	Countryside Council for Wales
2B	1121.0	SE	Johnstown Newt Sites	Countryside Council for Wales

7.4 Records of Special Protection Areas (SPA) within 2000m of the study site:

0

Database searched and no data found.

7.5 Records of Ramsar sites within 2000m of the study site:

0

Database searched and no data found.

7.6 Records of Ancient Woodland within 2000m of the study site:

4

The following Ancient Woodland records are supplied by English Nature/Scottish Natural Heritage/Countryside Council for Wales and are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
5	1151.0	SW	YEW TREE DINGLE	Ancient and Semi-Natural Woodland
Not shown	1287.0	NE	Unknown	Ancient and Semi-Natural Woodland
Not shown	1947.0	NW	Unknown	Ancient and Semi-Natural Woodland
Not shown	1988.0	NW	Unknown	Ancient Replanted Woodland

7.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:

0

Database searched and no data found.

7.8 Records of World Heritage Sites within 2000m of the study site:

0

Database searched and no data found.

7.9 Records of Environmentally Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

7.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:

0

Database searched and no data found.

7.11 Records of National Parks (NP) within 2000m of the study site:

0

Database searched and no data found.

7.12 Records of Nitrate Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

7.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:

0

Database searched and no data found.



8. Natural Hazards Findings

8.1 Detailed BGS GeoSure Data

BGS GeoSure Data has been searched to 50m. The data is included in tabular format. If you require further information on geology and ground stability, please obtain a **GroundSure GeoInsight**, available from [our website](#). The following information has been found:

8.1.1 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.

8.1.2 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.

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

8.1.3 Soluble Rocks

What is the maximum Soluble Rocks* 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

Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. 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.

8.1.4 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.

8.1.5 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.

8.1.6 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.



9. Mining

9.1 Coal Mining

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

Yes

The following coal mining information provided by the Coal Authority is not represented on Mapping:

Distance	Direction	Details
0.0	On Site	The study site is located within the specified search distance of an identified mining area. Further details concerning this can be obtained from the Coal Authority Helpline on 0845 762 6848.

9.2 Shallow Mining

What is the subsidence hazard relating to shallow mining on-site*?

Low-Moderate

*Please note this data is searched with a 150m buffer.

9.3 Brine Affected Areas

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

No

Guidance: No Guidance Required.

Contact Details

GroundSure Helpline
 Telephone: 08444 159 000
 info@groundsurre.com



British Geological Survey Enquiries

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

National Customer Contact Centre, PO Box 544
 Rotherham, S60 1BY
 Tel: 08708 506 506
 Web: www.environment-agency.gov.uk
 Email: enquiries@environment-agency.gov.uk



Public Health England

Public information access office
 Public Health England, Wellington House
 133-155 Waterloo Road, London, SE1 8UG
<https://www.gov.uk/government/organisations/public-health-england>
 Email: enquiries@phe.gov.uk
 Main switchboard: 020 7654 8000



The Coal Authority

200 Lichfield Lane
 Mansfield
 Notts NG18 4RG
 Tel: 0345 7626 848
 DX 716176 Mansfield 5
www.coal.gov.uk



Ordnance Survey

Adanac Drive, Southampton
 SO16 0AS
 Tel: 08456 050505



Local Authority

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

Gemapping PLC

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



Acknowledgements: Site of Special Scientific Interest, National Nature Reserve, Ramsar Site, Special Protection Area, Special Area of Conservation data is provided by, and used with the permission of, English Nature who retain the Copyright and Intellectual Property Rights for the data. PointX © Database Right/Copyright, Thomson Directories Limited © Copyright Link Interchange Network Limited © Database Right/Copyright and Ordnance Survey © Crown Copyright and/or Database Right. All Rights Reserved. Licence Number [03421028].
 This report has been prepared in accordance with the GroundSure Ltd standard Terms and Conditions of business for work of this nature.

Standard Terms and Conditions

1 Definitions

In these terms and conditions unless the context otherwise requires:

“Beneficiary” means the person or entity for whose benefit the Client has obtained the Services.

“Client” means the party or parties entering into a Contract with GroundSure.

“Commercial” means any building or property which is not Residential.

“Confidential Information” means the contents of this Contract and all information received from the Client as a result of, or in connection with, this Contract other than

(i) information which the Client can prove was rightfully in its possession prior to disclosure by GroundSure and

(ii) any information which is in the public domain (other than by virtue of a breach of this Contract).

“Support Services” means Support Services provided by GroundSure including, without limitation, interpreting third party and in-house environmental data, providing environmental support advice, undertaking environmental audits and assessments, Site investigation, Site monitoring and related items.

“Contract” means the contract between GroundSure and the Client for the provision of the Services, and which shall incorporate these terms and conditions, the Order, and the relevant User Guide.

“Third Party Data Provider” means any third party providing Third Party Content to GroundSure.

“Data Reports” means reports comprising factual data with no accompanying interpretation.

“Fees” has the meaning set out in clause 5.1.

“GroundSure” means GroundSure Limited, a company registered in England and Wales under number 03421028.

“GroundSure Materials” means all materials prepared by GroundSure and provided as part of the Services, including but not limited to Third Party Content, Data Reports, Mapping, and Risk Screening Reports.

“Intellectual Property” means any patent, copyright, design rights, trade or service mark, moral rights, data protection rights, know-how or trade mark in each case whether registered or not and including applications for the same or any other rights of a similar nature anywhere in the world.

“Mapping” means a map, map data or a combination of historical maps of various ages, time periods and scales.

“Order” means an electronic, written or other order form submitted by the Client requesting Services from GroundSure in respect of a specified Site.

“Ordnance Survey” means the Secretary of State for Business, Innovation and Skills, acting through Ordnance Survey, Adanac Drive, Southampton, SO16 0AS, UK.

“Order Website” means the online platform through which Orders may be placed by the Client and accepted by GroundSure.

“Report” means a Risk Screening Report or Data Report for Commercial or Residential property.

“Residential” means any building or property used as or intended to be used as a single dwelling.

“Risk Screening Report” means a risk screening report comprising factual data with an accompanying interpretation by GroundSure.

“Services” means any Report, Mapping and/or Support Services which GroundSure has agreed to provide by accepting an Order pursuant to clause 2.6.

“Site” means the area of land in respect of which the Client has requested GroundSure to provide the Services.

“Third Party Content” means data, database information or other information which is provided to GroundSure by a Third Party Data Provider.

“User Guide” means the user guide, as amended from time to time, available upon request from GroundSure and on the website (www.GroundSure.com) and forming part of this Contract.

2 Scope of Services, terms and conditions, requests for insurance and quotations

2.1 GroundSure agrees to provide the Services in accordance with the Contract.

2.2 GroundSure shall exercise reasonable skill and care in the provision of the Services.

2.3 Subject to clause 7.3 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 writing in the Contract and all such statements and representations are hereby excluded to the fullest extent permitted by law.

2.4 The Client acknowledges that terms and conditions appearing on a Client's order form, printed stationery or other communication, or any terms or conditions

implied by custom, practice or course of dealing shall be of no effect, and that this Contract shall prevail over all others in relation to the Order.

2.5 If the Client or Beneficiary requests insurance in conjunction with or as a result of the Services, GroundSure shall use reasonable endeavours to recommend such insurance, but makes no warranty that such insurance shall be available from insurers or that it will be offered on reasonable terms. Any insurance purchased by the Client or Beneficiary shall be subject solely to the terms of the policy issued by insurers and GroundSure will have no liability therefor. In addition you acknowledge and agree that GroundSure does not act as an agent or broker for any insurance providers. The Client should take (and ensure that the Beneficiary takes) independent advice to ensure that the insurance policy requested or offered is suitable for its requirements.

2.6 GroundSure's quotations or proposals are valid for a period of 30 days only unless an alternative period of time is explicitly stipulated by GroundSure. GroundSure reserves the right to withdraw any quotation or proposal at any time before an Order is accepted by GroundSure. GroundSure's acceptance of an Order shall be binding only when made in writing and signed by GroundSure's authorised representative or when accepted through the Order Website.

3 The Client's obligations

3.1 The Client shall comply with the terms of this Contract and

(i) procure that the Beneficiary or any third party relying on the Services complies with and acts as if it is bound by the Contract and

(ii) be liable to GroundSure for the acts and omissions of the Beneficiary or any third party relying on the Services as if such acts and omissions were those of the Client.

3.2 The Client shall be solely responsible for ensuring that the Services are appropriate and suitable for its and/or the Beneficiary's needs.

3.3 The Client shall supply to GroundSure as soon as practicable and without charge all requisite information (and the Client warrants that such information is accurate, complete and appropriate), including without limitation any environmental information relating to the Site and shall give such assistance as GroundSure shall reasonably require in the provision of the Services including, without limitation, access to the Site, facilities and equipment.

3.4 Where the Client's approval or decision is required to enable GroundSure to carry out work in order to provide the Services, such approval or decision shall be given or procured in reasonable time and so as not to delay or disrupt the performance of the Services.

3.5 Save as expressly permitted by this Contract the Client shall not, and shall procure that the Beneficiary shall not, re-sell, alter, add to, or amend the GroundSure Materials, or use the GroundSure Materials in a manner for which they were not intended. The Client may make the GroundSure Materials available to a third party who is considering acquiring some or all of, or providing funding in relation to, the Site, but such third party cannot rely on the same unless expressly permitted under clause 4.

3.6 The Client is responsible for maintaining the confidentiality of its user name and password if using the Order Website and the Client acknowledges that GroundSure accepts no liability of any kind for any loss or damage suffered by the Client as a consequence of using the Order Website.

4 Reliance

4.1 The Client acknowledges that the Services provided by GroundSure consist of the presentation and analysis of Third Party Content and other content and that information obtained from a Third Party Data Provider cannot be guaranteed or warranted by GroundSure to be reliable.

4.2 In respect of Data Reports, Mapping and Risk Screening Reports, the following classes of person and no other are entitled to rely on their contents;

- (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, and
- (v) the professional advisers and lenders of the first purchaser or tenant of the Site.

4.3 In respect of Support Services, only the Client, Beneficiary and parties expressly named in a Report and no other parties are entitled to rely on its contents.

4.4 Save as set out in clauses 4.2 and 4.3 and unless otherwise expressly agreed in writing, no other person or entity of any kind is entitled to rely on any Services or Report issued or provided by GroundSure. Any party considering such Reports and Services does so at their own risk.

5 Fees and Disbursements

5.1 GroundSure shall charge and the Client shall pay fees at the rate and frequency specified in the written proposal, Order Website or Order acknowledgement form, plus (in the case of Support Services) all proper disbursements incurred by GroundSure. 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 (together “Fees”).

5.2 The Client shall pay all outstanding Fees to GroundSure in full without deduction, counterclaim or set off within 30 days of the date of GroundSure's invoice or such other period as may be agreed in writing between GroundSure and the Client ("Payment Date"). Interest on late payments will accrue on a daily basis from the Payment Date until the date of payment (whether before or after judgment) at the rate of 8% per annum.

5.3 The Client shall be deemed to have agreed the amount of any invoice unless an objection is made in writing within 28 days of the date of the invoice. As soon as reasonably practicable after being notified of an objection, without prejudice to clause 5.2 a member of GroundSure's management team will contact the Client and the parties shall then use all reasonable endeavours to resolve the dispute within 15 days.

6 Intellectual Property and Confidentiality

6.1 Subject to

(i) full payment of all relevant Fees and

(ii) compliance with this Contract, the Client is granted (and is permitted to sub-licence to the Beneficiary) a royalty-free, worldwide, non-assignable and (save to the extent set out in this Contract) non-transferable licence to make use of the GroundSure Materials.

6.2 All Intellectual Property in the GroundSure Materials are and shall remain owned by GroundSure or GroundSure's licensors (including without limitation the Third Party Data Providers) the Client acknowledges, and shall procure acknowledgement by the Beneficiary of, such ownership. Nothing in this Contract purports to transfer or assign any rights to the Client or the Beneficiary in respect of such Intellectual Property.

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

6.4 The Client shall, and shall procure that any recipients of the GroundSure Materials shall:

(i) not remove, suppress or modify any trade mark, 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 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;

(v) not reformat or otherwise change (whether by modification, addition or enhancement), the Services (save that those acting for the Beneficiary in a professional capacity shall not be in breach of this clause 6.4(v) where such reformatting is in the normal course of providing advice based upon the Services);

(vi) where a Report and/or Mapping contains material belonging to Ordnance Survey, acknowledge and agree that such content is protected by Crown Copyright and shall not use such content for any purpose outside of receiving the Services; and

(vii) not copy in whole or in part by any means any map prints or run-on copies containing content belonging to Ordnance Survey (other than that contained within Ordnance Survey's OS Street Map) without first being in possession of a valid Paper Map Copying Licence from Ordnance Survey,

6.5 Notwithstanding clause 6.4, the Client may make reasonable use of the GroundSure Materials in order to advise the Beneficiary in a professional capacity. However, GroundSure shall have no liability in respect of any advice, opinion or report given or provided to Beneficiaries by the Client.

6.6 The Client shall procure that any person 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: Particular Attention Should Be Paid To This Clause

7.1 This Clause 7 sets out the entire liability of GroundSure, including any liability for the acts or omissions of its employees, agents, consultants, subcontractors and Third Party Content, in respect of:

(i) any breach of contract, including any deliberate breach of the Contract by GroundSure or its employees, agents or subcontractors;

(ii) any use made of the Reports, Services, Materials or any part of them; and

(iii) any representation, statement or tortious act or omission (including negligence) arising under or in connection with the Contract.

7.2 All warranties, conditions and other terms implied by statute or common law are, to the fullest extent permitted by law, excluded from the Contract.

7.3 Nothing in the Contract limits or excludes the liability of the Supplier for death

or personal injury resulting from negligence, or for any damage or liability incurred by the Client or Beneficiary as a result of fraud or fraudulent misrepresentation.

7.4 GroundSure shall not be liable for

- (i) loss of profits;
- (ii) loss of business;
- (iii) depletion of goodwill and/or similar losses;
- (iv) loss of anticipated savings;
- (v) loss of goods;
- (vi) loss of contract;
- (vii) loss of use;
- (viii) loss or corruption of data or information;
- (ix) business interruption;
- (x) any kind of special, indirect, consequential or pure economic loss, costs, damages, charges or expenses;

(xi) loss or damage that arise as a result of the use of all or part of the GroundSure Materials in breach of the Contract;

(xii) loss or damage arising as a result of any error, omission or inaccuracy in any part of the GroundSure Materials where such error, omission or inaccuracy is caused by any Third Party Content or any reasonable interpretation of Third Party Content;

(xiii) loss or damage to a computer, software, modem, telephone or other property; and

(xiv) loss or damage caused by a delay or loss of use of GroundSure's internet ordering service.

7.5 GroundSure's total liability in relation to or under the Contract shall be limited to £10 million for any claim or claims.

7.6 GroundSure shall procure that the Beneficiary shall be bound by limitations and exclusions of liability in favour of GroundSure which accord with those detailed in clauses 7.4 and 7.5 (subject to clause 7.3) in respect of all claims which the Beneficiary may bring against GroundSure in relation to the Services or other matters arising pursuant to the Contract.

8 GroundSure's right to suspend or terminate

8.1 If GroundSure reasonably believes that the Client or Beneficiary has not provided the information or assistance required to enable the proper provision of the Services, GroundSure shall be entitled to suspend all further performance of the Services until such time as any such deficiency has been made good.

8.2 GroundSure shall be entitled to terminate the Contract immediately on written notice in the event that:

(i) the Client fails to pay any sum due to GroundSure within 30 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 term of the Contract (including, but not limited to, the obligations in clause 4) which is incapable of remedy or if remediable, is not remedied within five days of notice of the breach.

9. Client's Right to Terminate and Suspend

9.1 Subject to clause 10.1, the Client may at any time upon written notice terminate or suspend the provision of all or any of the Services.

9.2 In any event, where the Client is a consumer (and not a business) he/she hereby expressly acknowledges and agrees that:

(i) the supply of Services under this Contract (and therefore the performance of this Contract) commences immediately upon GroundSure's acceptance of the Order; and

- (ii) the Reports and/or Mapping provided under this Contract are
 - (a) supplied to the Client's specification(s) and in any event
 - (b) by their nature cannot be returned.

10 Consequences of Withdrawal, Termination or Suspension

10.1 Upon termination of the Contract:

(i) 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 and/or Beneficiary any property of the Client and/or Beneficiary in

GroundSure's possession or control; and

(ii) 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 or suspension. In respect of any Support Services provided, the Client shall also pay GroundSure any additional costs incurred in relation to the termination or suspension of the Contract.

11 Anti-Bribery

11.1 The Client warrants that it shall:

(i) comply with all applicable laws, statutes and regulations relating to anti-bribery and anti-corruption including but not limited to the Bribery Act 2010;

(ii) comply with such of GroundSure's anti-bribery and anti-corruption policies as are notified to the Client from time to time; and

(iii) promptly report to GroundSure any request or demand for any undue financial or other advantage of any kind received by or on behalf of the Client in connection with the performance of this Contract.

11.2 Breach of this Clause 11 shall be deemed a material breach of this Contract.

12 General

12.1 The Mapping contained in the Services is protected by Crown copyright and must not be used for any purpose other than as part of the Services or as specifically provided in the Contract.

12.2 The Client shall be permitted to make one copy only of each Report or Mapping Order. Thereafter the Client shall be entitled to make unlimited copies of the Report or Mapping Order only in accordance with an Ordnance Survey paper map copy license available through GroundSure.

12.3 GroundSure reserves the right to amend or vary this Contract. No amendment or variation to this Contract shall be valid unless signed by an authorised representative of GroundSure.

12.4 No failure on the part of GroundSure to exercise, and no delay in exercising, any right, power or provision under this Contract shall operate as a waiver thereof.

12.5 Save as expressly provided in this Contract, 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.

12.6 The Secretary of State for Business, Innovation and Skills ("BIS") or BIS' successor body, as the case may be, acting through Ordnance Survey may enforce a breach of clause 6.4(vi) and clause 6.4(vii) of these terms and conditions against the Client in accordance with the provisions of the Contracts (Rights of Third Parties) Act 1999.

12.7 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 Third Party Data Providers;
- (viii) changes in law; or
- (ix) any other reason beyond GroundSure's reasonable control.

In the event that GroundSure is prevented from performing the Services (or any part thereof) in accordance with this clause 12.6 for a period of not less than 30 days then GroundSure shall be entitled to terminate this Contract immediately on written notice to the Client.

12.8 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.

12.9 Such notice shall be deemed to have been received on the day of delivery if delivered by hand, facsimile or email (save to the extent such day is not a working day where it shall be deemed to have been delivered on the next working day) and on the second working day after the day of posting if sent by first class post.

12.10 The Contract constitutes the entire agreement between the parties and shall supersede all previous arrangements between the parties relating to the subject matter hereof.

12.11 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.

12.12 This Contract shall be governed by and construed in accordance with English

law and any proceedings arising out of or connected with this Contract shall be subject to the exclusive jurisdiction of the English courts.

12.13 GroundSure is an executive member of the Council of Property Search Organisation (CoPSO) and has signed up to the Search Code administered by the Property Codes Compliance Board (PCCB). All Risk Screening Reports shall be supplied in accordance with the provisions of the Search Code.

12.14 If the Client or Beneficiary has a complaint about the Services, written notice should be given to the Compliance Officer at GroundSure who will respond in a timely manner.

12.15 The Client agrees that it shall, and shall procure that each Beneficiary shall, treat in confidence all Confidential Information and shall not, and shall procure that each Beneficiary shall not (i) disclose any Confidential Information to any third party other than in accordance with the terms of this Contract; and (ii) use Confidential Information for a purpose other than the exercise of its rights and obligations under this Contract. Subject to clause 6.6, nothing shall prevent the Client or any Beneficiary from disclosing Confidential Information to the extent required by law. © GroundSure Limited June 2013

Datrys Consulting Engineers

3-5 DATRYS CONSULTING ENGINEERS, STRYD
YR EGLWYS,
CAERNARFON, LL55 1SW

GroundSure
Reference:

GS-1644734

Your Reference:

Bonc wen, Rhos 14186

Report Date

3 Sep 2014

Report Delivery
Method:

Email - pdf

GroundSure Geoinsight

Address: BROOKDALE, BONC WEN, RHOSLLANERCHRUGOG, WRECSAM, LL14 2EE

Dear Sir/ Madam,

Thank you for placing your order with GroundSure. Please find enclosed the **GroundSure GeoInsight** as requested.

If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above GroundSure reference number.

Yours faithfully,



Managing Director
Groundsure Limited

Enc.
GroundSure GeoInsight



GroundSure GeoInsight

Address: BROOKDALE, BONC WEN, RHOSLLANERCHRUGOG, WRECSAM, LL14 2EE

Date: 3 Sep 2014

Reference: GS-1644734

Client: Datrys Consulting Engineers

NW N NE



SW S SE

Aerial Photograph Capture date: 01-Jun-2009

Grid Reference: 329008,346372

Site Size: 0.42ha

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Overview of Findings

The GroundSure GeoInsight provides high quality geo-environmental information that allows geo-environmental professionals and their clients to make informed decisions and be forewarned of potential ground instability problems that may affect the ground investigation, foundation design and possibly remediation options that could lead to possible additional costs.

The report is based on the BGS 1:50,000 Digital Geological Map of Great Britain, BGS Geosure data; BRITPITS database; Shallow Mining data and Borehole Records, Coal Authority data including brine extraction areas, PBA non-coal mining and natural cavities database, Johnson Poole and Bloomer mining data and GroundSure's unique database including historical surface ground and underground workings.

For further details on each dataset, please refer to each individual section in the report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1:Geology

1.1 Artificial Ground	1.1.1 Is there any Artificial Ground/ Made Ground present beneath the study site?	No
	1.1.2 Are there any records relating to permeability of artificial ground within the study site* boundary?	No
1.2 Superficial Geology and Landslips	1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?	Yes
	1.2.2 Are there any records relating to permeability of superficial geology within the study site boundary?	Yes
	1.2.3 Are there any records of landslip within 500m of the study site boundary?	No
	1.2.4 Are there any records relating to permeability of landslips within the study site boundary?	No
1.3 Bedrock, Solid Geology & Faults	1.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	1.3.2 Are there any records relating to permeability of bedrock within the study site boundary?	Yes
	1.3.3 Are there any records of faults within 500m of the study site boundary?	Yes
1.4 Radon data	1.4.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is in a Radon Affected Area, as between 3 and 5% of properties are above the Action Level
	1.4.2 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

Section 2:Ground Workings	On-site	0-50m	51-250	251-500	501-1000
2.1 Historical Surface Ground Working Features from Small Scale Mapping	0	2	7	Not Searched	Not Searched
2.2 Historical Underground Workings from Small Scale Mapping	0	0	0	15	54
2.3 Current Ground Workings	0	0	0	4	28
Section 3:Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000

3.1 Historical Mining	0	0	0	15	54
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Section 3: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
3.2 Coal Mining	1	0	0	0	0
3.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
3.4 Non-Coal Mining	1	0	0	0	0
3.5 Non-Coal Mining Cavities	0	0	0	0	0
3.6 Natural Cavities	0	0	0	0	0
3.7 Brine Extraction	0	0	0	0	0
3.8 Gypsum Extraction	0	0	0	0	0
3.9 Tin Mining	0	0	0	0	0
3.10 Clay Mining	0	0	0	0	0

Section 4: Natural Ground Subsidence	On-site
4.1 Shrink Swell Clay	Very Low
4.2 Landslides	Very Low
4.3 Ground Dissolution of Soluble Rocks	Negligible
4.4 Compressible Deposits	Negligible
4.5 Collapsible Deposits	Very Low
4.6 Running Sand	Very Low

Section 5: Borehole Records	On-site	0-50m	51-250
5 BGS Recorded Boreholes	8	3	59

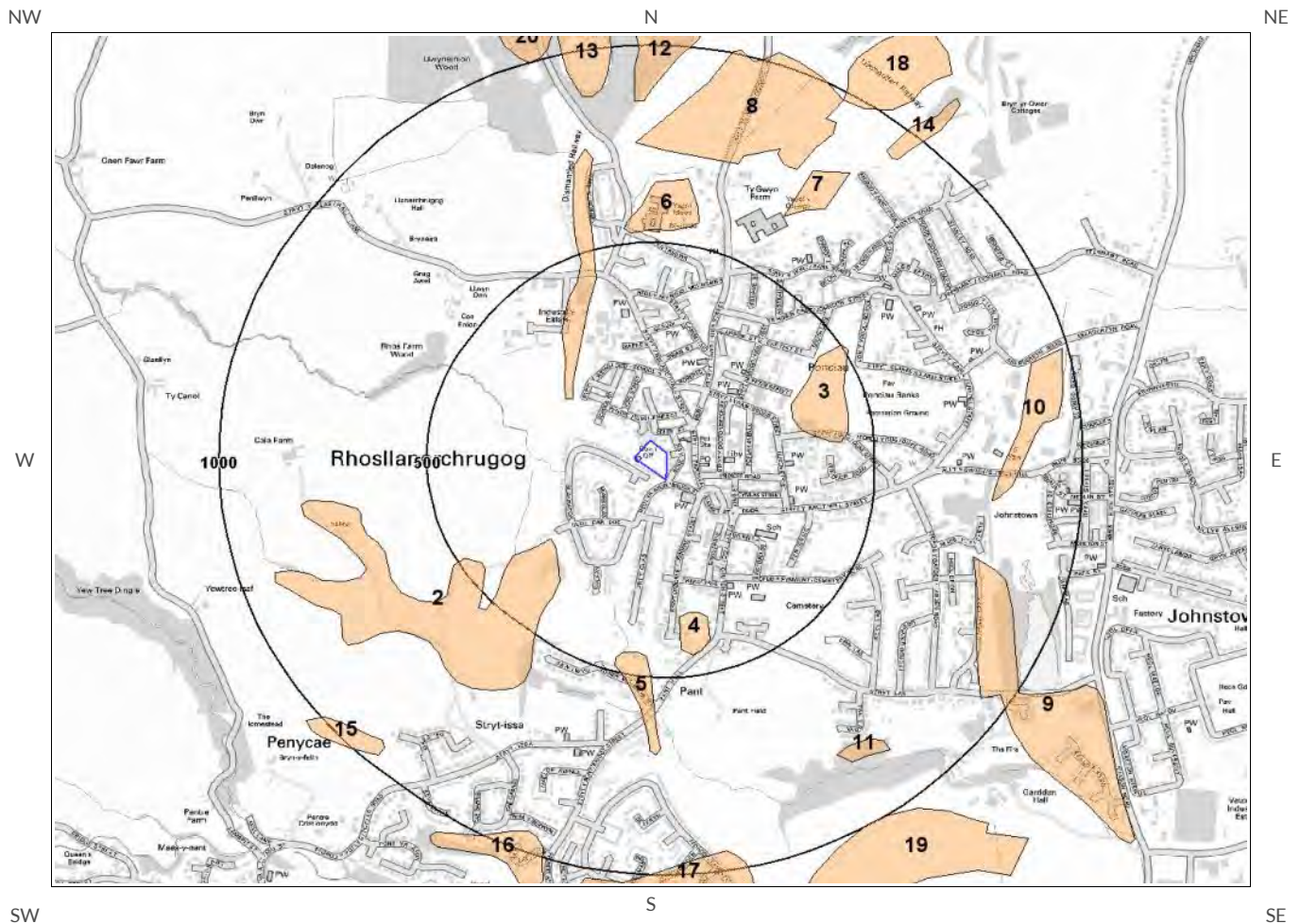
Section 6: Estimated Background Soil Chemistry	On-site	0-50m	51-250
6 Records of Background Soil Chemistry	2	1	1

Section 7: Railways and Tunnels	On-site	0-50m	51-250	251-500
7.1 Tunnels	0	0	0	Not Searched
7.2 Historical Railway and Tunnel Features	9	0	9	Not Searched
7.3 Historical Railways	2	0	0	Not Searched
7.4 Active Railways	0	0	0	Not Searched

Section 7: Railways and Tunnels	On-site	0-50m	51-250	251-500
7.5 Railway Projects	0	0	0	0

1 Geology

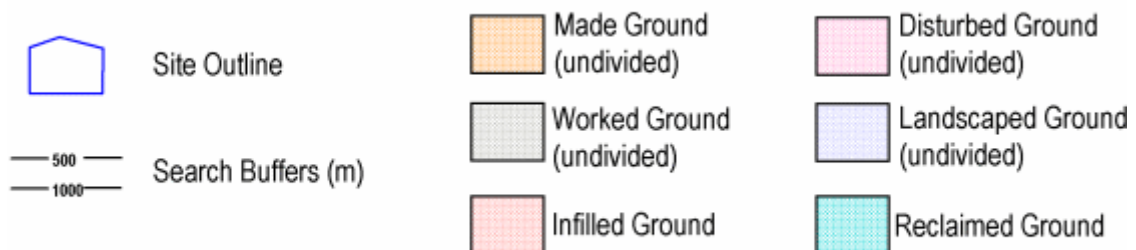
1.1 Artificial Ground Map



Artificial Ground Legend



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1 Geology

1.1 Artificial Ground

1.1.1 Artificial/ Made Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No:121

Are there any records of Artificial/Made Ground within 500m of the study site boundary? Yes

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	211.0	NW	WGR-OPEN	WORKED GROUND (UNDIVIDED)	VOID
2	288.0	SW	MGR-MGRD	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
3	314.0	E	MGR-MGRD	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
4	339.0	S	MGR-MGRD	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
5	439.0	S	MGR-MGRD	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

1.1.2 Permeability of Artificial Ground

Are there any records relating to permeability of artificial ground within the study site boundary? No

Database searched and no data found.

1.2 Superficial Deposits and Landslips Map



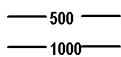
Superficial Deposits and Landslips Legend



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Site Outline



Search Buffers (m)

1.2 Superficial Deposits and Landslips

1.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary? Yes

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	TILLD-DMTN	TILL, DEVENSAN	DIAMICTON

1.2.2 Permeability of Superficial Ground

Are there any records relating to permeability of superficial ground within the study site boundary? Yes

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Mixed	High	Low

1.2.3 Landslip

Are there any records of Landslip within 500m of the study site boundary? No

Database searched and no data found.

This Geology shows the main components as discrete layers, these are: Artificial / Made Ground, Superficial / Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

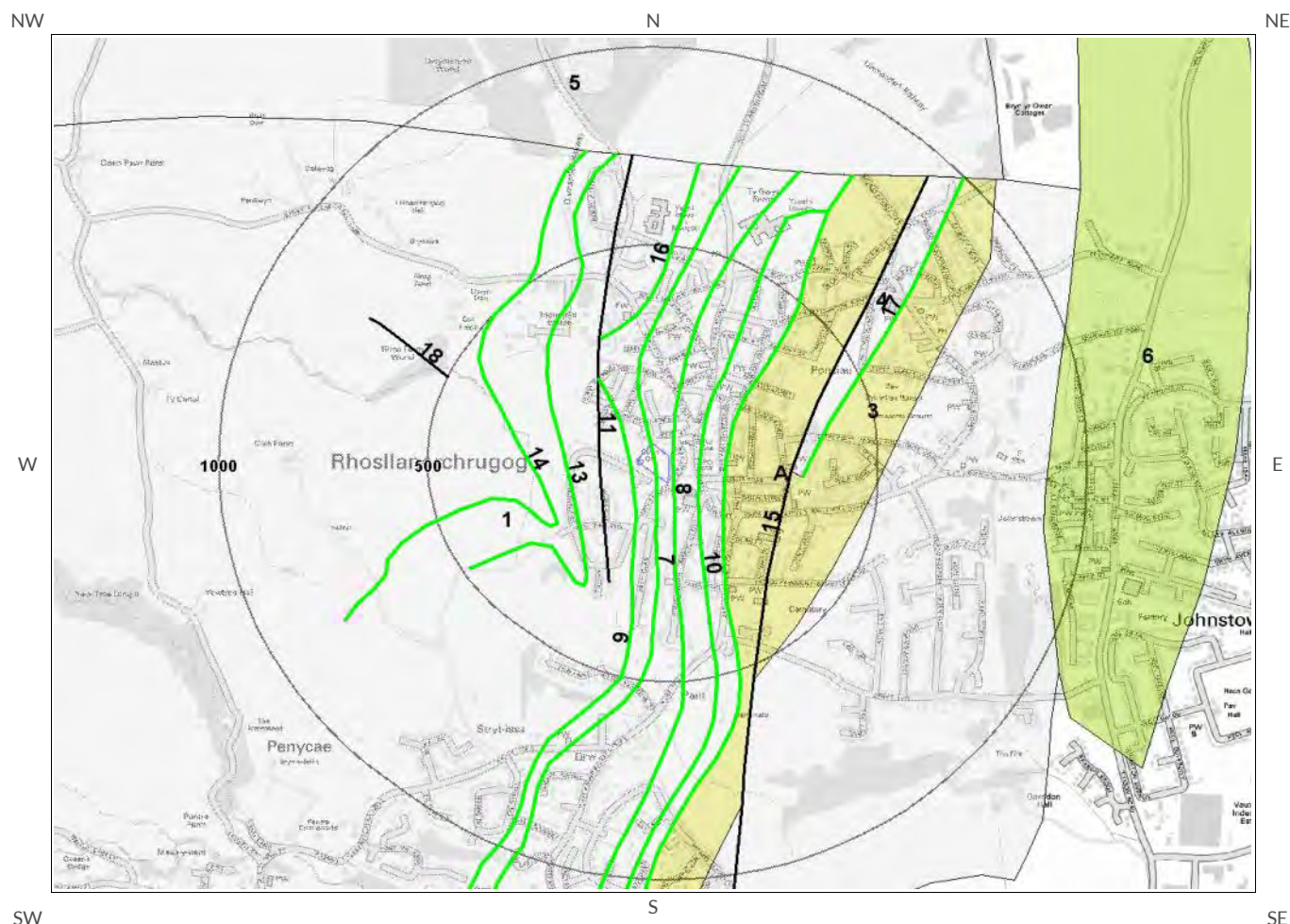
1.2.4 Landslip Permeability

Are there any records relating to permeability of landslips within the study site** boundary? No

Database searched and no data found.

* This includes an automatically generated 50m buffer zone around the site

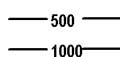
1.3 Bedrock and Faults Map



Bedrock and Faults Legend



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Site Outline

Search Buffers (m)

1.3 Bedrock, Solid Geology & Faults

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No:121

1.3.1 Bedrock/ Solid Geology

Records of Bedrock/ Solid Geology within 500m of the study site boundary:

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	0.0	On Site	PLMC-MDSS	Pennine Lower Coal Measures Formation And Pennine Middle Coal Measures Formation (undifferentiated) - Mudstone, Siltston	Bolsovian (westphalian C) / Langsettian (westphalian A)
2A	135.0	E	PLMC-SDST	Pennine Lower Coal Measures Formation And Pennine Middle Coal Measures Formation (undifferentiated) - Sandstone	Bolsovian (westphalian C) / Langsettian (westphalian A)
3	282.0	E	PLMC-SDST	Pennine Lower Coal Measures Formation And Pennine Middle Coal Measures Formation (undifferentiated) - Sandstone	Bolsovian (westphalian C) / Langsettian (westphalian A)
4	294.0	E	PLMC-MDSS	Pennine Lower Coal Measures Formation And Pennine Middle Coal Measures Formation (undifferentiated) - Mudstone, Siltston	Bolsovian (westphalian C) / Langsettian (westphalian A)

1.3.2 Permeability of Bedrock Ground

Are there any records relating to permeability of bedrock ground within the study site* boundary? Yes

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Fracture	Moderate	Low

1.3.3 Faults

Are there any records of Faults within 500m of the study site boundary? Yes

ID	Distance (m)	Direction	Category Description	Feature Description
7	0.0	On Site	ROCK	Coal seam, inferred
8	9.0	E	ROCK	Coal seam, inferred
9	16.0	W	ROCK	Coal seam, inferred
10	74.0	E	ROCK	Coal seam, inferred
11	88.0	W	FAULT	Normal fault, inferred
12A	135.0	E	ROCK	Coal seam, inferred
13	166.0	W	ROCK	Coal seam, inferred
14	232.0	SW	ROCK	Coal seam, inferred
15	282.0	E	FAULT	Normal fault, inferred
16	289.0	NW	ROCK	Coal seam, inferred
17	321.0	E	ROCK	Coal seam, inferred

* This includes an automatically generated 50m buffer zone around the site

ID	Distance (m)	Direction	Category Description	Feature Description
18	497.0	NW	FAULT	Normal fault, inferred

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/ Solid Geology and linear features such as Faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

1.4 Radon Data

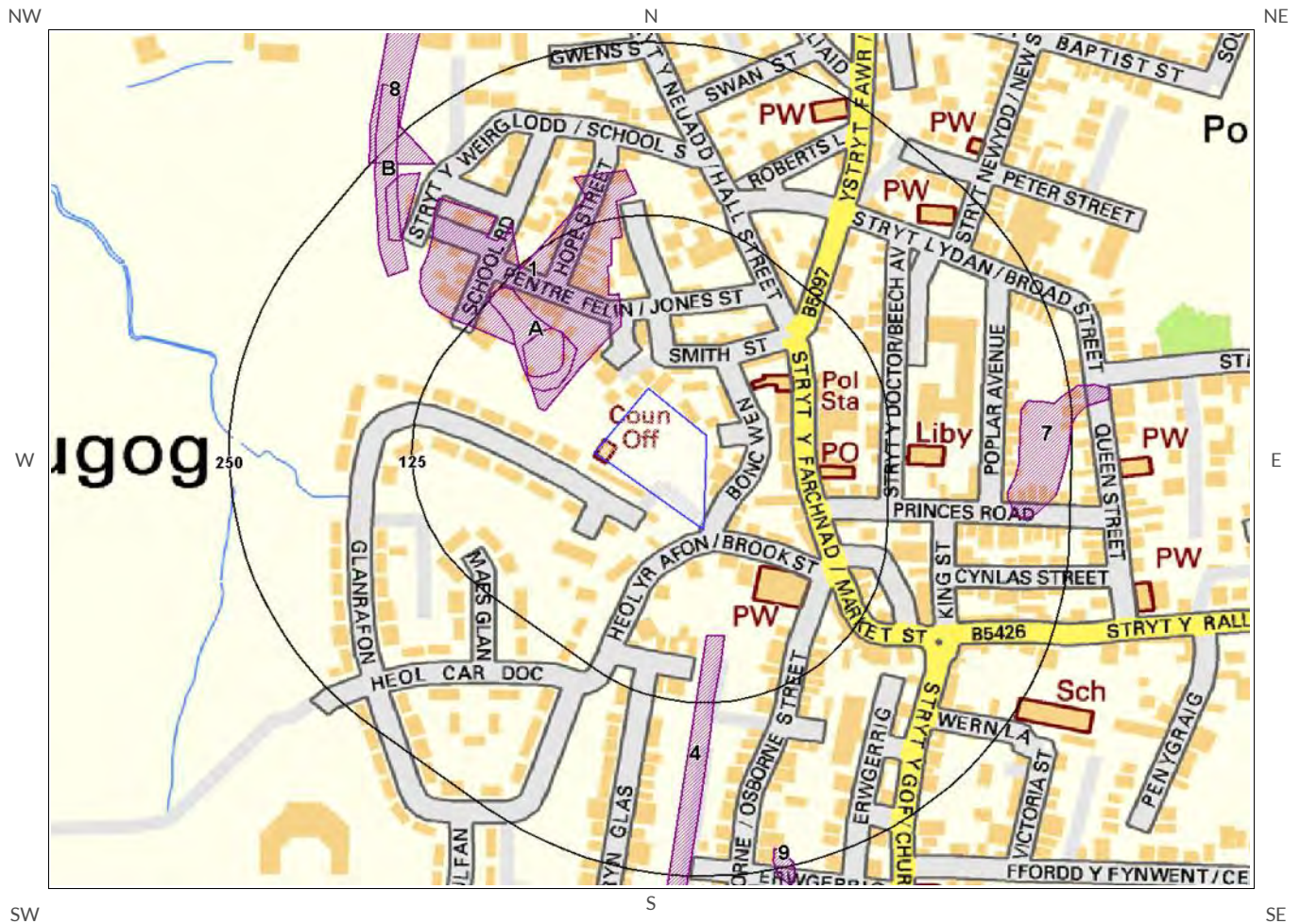
1.4.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is in a Radon Affected Area, as between 3 and 5% of properties are above the Action Level

1.4.2 Radon Protection

Is the property in an area where Radon Protection 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

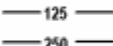
2 Ground Workings Map



Ground Workings Legend



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-  Site Outline
-  Historic Surface Ground Workings
-  Historic Underground Workings
-  Current Ground Workings
-  Search Buffers (m)



2 Ground Workings

2.1 Historical Surface Ground Working Features derived from Historical Mapping

This dataset is based on GroundSure's unique Historical Land Use Database derived from 1:10,560 and 1:10,000 scale historical mapping.

Are there any Historical Surface Ground Working Features within 250m of the study site boundary? **Yes**

The following Historical Surface Ground Working Features are provided by GroundSure:

ID	Distance (m)	Direction	NGR	Use	Date
1	45.0	NW	328911 346505	Brick and Tile Works	1873
2A	49.0	NW	328914 346457	Unspecified Pit	1873
3A	57.0	NW	328921 346447	Unspecified Pit	1898
4	77.0	S	329012 346075	Cuttings	1873
5B	183.0	NW	328817 346571	Cuttings	1873
6B	199.0	NW	328825 346552	Unspecified Heap	1974
7	207.0	E	329274 346375	Unspecified Heap	1873
8	218.0	NW	328834 346707	Cuttings	1974
9	235.0	S	329086 346076	Unspecified Ground Workings	1873

2.2 Historical Underground Working Features derived from Historical Mapping

This data is derived from the GroundSure unique Historical Land Use Database. It contains data derived from 1:10,000 and 1:10,560 historical Ordnance Survey Mapping and includes some natural topographical features (Shake Holes for example) as well as manmade features that may have implications for ground stability. Underground and mining features have been identified from surface features such as shafts. The distance that these extend underground is not shown.

Are there any Historical Underground Working Features within 1000m of the study site boundary? **Yes**

The following Historical Underground Working Features are provided by GroundSure:

ID	Distance (m)	Direction	NGR	Use	Date
10	346.0	NW	328761 346679	Coal Shaft	1873
Not shown	387.0	S	329113 345937	Unspecified Old Shaft	1898
Not shown	390.0	S	329109 345933	Old Coal Shaft	1949

ID	Distance (m)	Direction	NGR	Use	Date
Not shown	391.0	S	329111 345933	Unspecified Old Shaft	1960
Not shown	393.0	NW	328734 346723	Unspecified Disused Shaft	1974
Not shown	432.0	S	328882 345912	Coal Shaft	1873
Not shown	453.0	NW	328644 346713	Coal Shaft	1873
Not shown	453.0	NW	328647 346719	Unspecified Old Shaft	1960
Not shown	454.0	NW	328648 346724	Unspecified Disused Shaft	1974
Not shown	455.0	NW	328648 346724	Unspecified Old Shaft	1898
Not shown	455.0	NW	328648 346724	Old Coal Shaft	1949
Not shown	494.0	SE	329354 345941	Unspecified Old Shaft	1898
Not shown	495.0	S	329169 345840	Unspecified Old Shaft	1898
Not shown	496.0	S	329166 345838	Old Coal Shaft	1949
Not shown	499.0	S	329168 345835	Unspecified Old Shaft	1960
Not shown	525.0	SE	329487 346049	Unspecified Disused Shaft	1974
Not shown	526.0	SE	329487 346050	Unspecified Old Shaft	1898
Not shown	581.0	SE	329290 345794	Unspecified Old Shafts	1898
Not shown	587.0	SE	329286 345787	Old Coal Shafts	1949
Not shown	588.0	S	329209 345754	Old Coal Shaft	1949
Not shown	589.0	SE	329288 345786	Unspecified Old Shafts	1960
Not shown	590.0	S	329212 345753	Unspecified Old Shaft	1960
Not shown	592.0	SE	329341 345810	Old Coal Shafts	1949
Not shown	593.0	SE	329346 345814	Unspecified Old Shafts	1898
Not shown	596.0	SE	329346 345809	Unspecified Old Shafts	1960
Not shown	613.0	S	329253 345744	Unspecified Old Shaft	1898
Not shown	677.0	W	328323 346126	Unspecified Shaft	1960
Not shown	693.0	SW	328353 346030	Coal Shaft	1873
Not shown	699.0	W	328288 346157	Unspecified Shaft	1898
Not shown	703.0	W	328289 346147	Coal Shaft	1873
Not shown	719.0	W	328257 346187	Clay Shaft	1949
Not shown	721.0	W	328255 346186	Unspecified Shaft	1960
Not shown	733.0	W	328240 346207	Coal Shaft	1873

ID	Distance (m)	Direction	NGR	Use	Date
Not shown	735.0	W	328243 346179	Unspecified Shaft	1949
Not shown	736.0	W	328241 346178	Unspecified Shaft	1960
Not shown	765.0	SW	328546 345722	Unspecified Old Shaft	1898
Not shown	765.0	SW	328546 345722	Old Coal Shaft	1949
Not shown	774.0	SW	328542 345713	Unspecified Old Shaft	1960
Not shown	781.0	SE	329567 345745	Unspecified Old Shaft	1898
Not shown	781.0	SE	329567 345745	Old Coal Shaft	1949
Not shown	787.0	SE	329568 345738	Unspecified Old Shaft	1960
Not shown	789.0	S	329308 345577	Old Coal Shaft	1949
Not shown	789.0	S	329308 345577	Unspecified Old Shafts	1898
Not shown	789.0	S	329307 345575	Unspecified Disused Shaft	1974
Not shown	791.0	W	328173 346238	Unspecified Old Shaft	1898
Not shown	791.0	W	328173 346238	Old Coal Shaft	1949
Not shown	795.0	S	329307 345571	Unspecified Old Shaft	1960
Not shown	796.0	W	328168 346234	Unspecified Old Shaft	1960
Not shown	797.0	SE	329394 345606	Unspecified Old Shafts	1898
Not shown	813.0	SE	329398 345591	Coal Shaft	1873
Not shown	882.0	W	328123 346075	Unspecified Old Shaft	1898
Not shown	882.0	W	328123 346075	Old Coal Shaft	1949
Not shown	890.0	W	328115 346072	Unspecified Old Shaft	1960
Not shown	917.0	S	329254 345425	Unspecified Disused Shaft	1974
Not shown	919.0	S	329255 345425	Old Coal Shaft	1949
Not shown	919.0	S	329255 345425	Unspecified Old Shaft	1898
Not shown	923.0	S	329252 345420	Unspecified Old Shaft	1960
Not shown	925.0	SE	329468 345500	Unspecified Old Shaft	1949
Not shown	929.0	SE	329472 345498	Unspecified Old Shaft	1960
Not shown	930.0	SE	329442 345480	Unspecified Old Shaft	1960
Not shown	970.0	SW	328408 345569	Unspecified Old Shaft	1898
Not shown	970.0	SW	328408 345569	Old Coal Shaft	1949
Not shown	972.0	E	329949 346725	Unspecified Disused Shaft	1974

ID	Distance (m)	Direction	NGR	Use	Date
Not shown	972.0	SW	328414 345563	Coal Shaft	1873
Not shown	973.0	E	329948 346729	Old Coal Shaft	1949
Not shown	977.0	E	329951 346728	Unspecified Old Shafts	1898
Not shown	977.0	SW	328405 345563	Unspecified Old Shaft	1960
Not shown	979.0	E	329954 346728	Unspecified Old Shaft	1960
Not shown	984.0	E	329951 346750	Unspecified Old Shafts	1898

2.3 Current Ground Workings

This dataset is derived from the BGS BRITPITS database covering active; inactive mines; quarries; oil wells; gas wells and mineral wharves; and rail deposits throughout the British Isles.

Are there any BGS Current Ground Workings within 1000m of the study site boundary? Yes

The following Current Ground Workings information is provided by British Geological Survey:

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	397.0	S	329111 345930	Coal, Deep	Pant	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	434.0	S	328881 345912	Coal, Deep	Pant Brick Works	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	460.0	NW	328643 346720	Coal, Deep	Rhosllanerchrugog	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	493.0	SE	329349 345942	Coal, Deep	Pant	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	506.0	S	329170 345832	Coal, Deep	Pant Colliery Pit	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	529.0	SE	329483 346045	Coal, Deep	Pant	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	540.0	SE	329287 345843	Coal, Deep	Brandie Pits Shaft	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	546.0	S	329236 345813	Coal, Deep	Pant Colliery Pit	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	547.0	S	329185 345794	Coal, Deep	Pant Colliery Pit	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	568.0	SE	329341 345843	Coal, Deep	Brandie Pits Shaft	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	587.0	SE	329290 345792	Coal, Deep	Brandie Pits Shaft	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	589.0	S	329212 345759	Coal, Deep	Brandie Pits Shaft	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	596.0	SE	329346 345813	Coal, Deep	Brandie Pits Shaft	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	631.0	SE	329390 345800	Coal, Deep	Brandie Pits Shaft	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	645.0	S	329228 345705	Coal, Deep	Brandie Pits Shaft	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	666.0	SW	328393 346019	Coal, Deep	Pant Brick Works	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	705.0	W	328287 346154	Coal, Deep	Pant Brick Works	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	719.0	W	328254 346218	Coal, Deep	Pant Brick Works	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	719.0	W	328254 346218	Clay & Shale	Pant Brick Works	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	773.0	SW	328545 345717	Coal, Deep	Stryt-issa	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	785.0	SE	329565 345744	Coal, Deep	Brandie Pits, No. 6 Pit	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	793.0	S	329308 345576	Coal, Deep	Brandie Pits, No. 2 Pit	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	798.0	W	328170 346236	Coal, Deep	Pant Brick Works	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	808.0	SE	329400 345600	Coal, Deep	Brandie Pits, Park No. 1 Pit	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	890.0	W	328119 346073	Coal, Deep	Pant Brick Works	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	925.0	S	329254 345421	Coal, Deep	Wheelwright's Arms	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	927.0	SE	329468 345501	Coal, Deep	Gardden Hall	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	974.0	N	328887 347389	Coal, Deep	Llwyn Ennion	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	978.0	E	329950 346726	Coal, Deep	Aber-derfyn	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	979.0	SW	328406 345564	Coal, Deep	Berwyn View	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	983.0	E	329947 346750	Coal, Deep	Aber-derfyn	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	996.0	S	328709 345377	Coal, Deep	Wynne Hall Colliery	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased

3 Mining, Extraction & Natural Cavities Map



Mining, Extraction and
Natural Cavities Legend

Mapping
sourced from
Ordnance Survey

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3 Mining, Extraction & Natural Cavities

3.1 Historical Mining

This dataset is derived from GroundSure unique Historical Land-use Database that are indicative of mining or extraction activities.

Are there any Historical Mining areas within 1000m of the study site boundary?

Yes

The following Historical Mining information is provided by GroundSure:

ID	Distance (m)	Direction	NGR	Details	Date
2	346.0	NW	328761 346679	Coal Shaft	1873
3A	387.0	S	329113 345937	Unspecified Old Shaft	1898
4A	390.0	S	329109 345933	Old Coal Shaft	1949
5A	391.0	S	329111 345933	Unspecified Old Shaft	1960
6	393.0	NW	328734 346723	Unspecified Disused Shaft	1974
7	432.0	S	328882 345912	Coal Shaft	1873
8B	453.0	NW	328644 346713	Coal Shaft	1873
9B	453.0	NW	328647 346719	Unspecified Old Shaft	1960
10B	454.0	NW	328648 346724	Unspecified Disused Shaft	1974
11B	455.0	NW	328648 346724	Old Coal Shaft	1949
12B	455.0	NW	328648 346724	Unspecified Old Shaft	1898
13	494.0	SE	329354 345941	Unspecified Old Shaft	1898
14C	495.0	S	329169 345840	Unspecified Old Shaft	1898
15C	496.0	S	329166 345838	Old Coal Shaft	1949
16C	499.0	S	329168 345835	Unspecified Old Shaft	1960
17D	525.0	SE	329487 346049	Unspecified Disused Shaft	1974
18D	526.0	SE	329487 346050	Unspecified Old Shaft	1898
Not shown	581.0	SE	329290 345794	Unspecified Old Shafts	1898
Not shown	587.0	SE	329286 345787	Old Coal Shafts	1949
Not shown	588.0	S	329209 345754	Old Coal Shaft	1949
Not shown	589.0	SE	329288 345786	Unspecified Old Shafts	1960

ID	Distance (m)	Direction	NGR	Details	Date
Not shown	590.0	S	329212 345753	Unspecified Old Shaft	1960
24E	592.0	SE	329341 345810	Old Coal Shafts	1949
25E	593.0	SE	329346 345814	Unspecified Old Shafts	1898
26E	596.0	SE	329346 345809	Unspecified Old Shafts	1960
Not shown	613.0	S	329253 345744	Unspecified Old Shaft	1898
28F	677.0	W	328323 346126	Unspecified Shaft	1960
29	693.0	SW	328353 346030	Coal Shaft	1873
30G	699.0	W	328288 346157	Unspecified Shaft	1898
31F	703.0	W	328289 346147	Coal Shaft	1873
32G	719.0	W	328257 346187	Clay Shaft	1949
33H	721.0	W	328255 346186	Unspecified Shaft	1960
34H	733.0	W	328240 346207	Coal Shaft	1873
35H	735.0	W	328243 346179	Unspecified Shaft	1949
36H	736.0	W	328241 346178	Unspecified Shaft	1960
Not shown	765.0	SW	328546 345722	Unspecified Old Shaft	1898
Not shown	765.0	SW	328546 345722	Old Coal Shaft	1949
Not shown	774.0	SW	328542 345713	Unspecified Old Shaft	1960
Not shown	781.0	SE	329567 345745	Old Coal Shaft	1949
Not shown	781.0	SE	329567 345745	Unspecified Old Shaft	1898
Not shown	787.0	SE	329568 345738	Unspecified Old Shaft	1960
Not shown	789.0	S	329308 345577	Unspecified Old Shafts	1898
Not shown	789.0	S	329308 345577	Old Coal Shaft	1949
Not shown	789.0	S	329307 345575	Unspecified Disused Shaft	1974
Not shown	791.0	W	328173 346238	Old Coal Shaft	1949
Not shown	791.0	W	328173 346238	Unspecified Old Shaft	1898
Not shown	795.0	S	329307 345571	Unspecified Old Shaft	1960
Not shown	796.0	W	328168 346234	Unspecified Old Shaft	1960
Not shown	797.0	SE	329394 345606	Unspecified Old Shafts	1898
Not shown	813.0	SE	329398 345591	Coal Shaft	1873
Not shown	882.0	W	328123 346075	Old Coal Shaft	1949

ID	Distance (m)	Direction	NGR	Details	Date
Not shown	882.0	W	328123 346075	Unspecified Old Shaft	1898
Not shown	890.0	W	328115 346072	Unspecified Old Shaft	1960
Not shown	917.0	S	329254 345425	Unspecified Disused Shaft	1974
Not shown	919.0	S	329255 345425	Unspecified Old Shaft	1898
Not shown	919.0	S	329255 345425	Old Coal Shaft	1949
Not shown	923.0	S	329252 345420	Unspecified Old Shaft	1960
Not shown	925.0	SE	329468 345500	Unspecified Old Shaft	1949
Not shown	929.0	SE	329472 345498	Unspecified Old Shaft	1960
Not shown	930.0	SE	329442 345480	Unspecified Old Shaft	1960
Not shown	970.0	SW	328408 345569	Old Coal Shaft	1949
Not shown	970.0	SW	328408 345569	Unspecified Old Shaft	1898
Not shown	972.0	E	329949 346725	Unspecified Disused Shaft	1974
Not shown	972.0	SW	328414 345563	Coal Shaft	1873
Not shown	973.0	E	329948 346729	Old Coal Shaft	1949
Not shown	977.0	E	329951 346728	Unspecified Old Shafts	1898
Not shown	977.0	SW	328405 345563	Unspecified Old Shaft	1960
Not shown	979.0	E	329954 346728	Unspecified Old Shaft	1960
Not shown	984.0	E	329951 346750	Unspecified Old Shafts	1898

3.2 Coal Mining

This dataset provides information as to whether the study site lies within a known coal mining affected area as defined by the coal authority.

Are there any Coal Mining areas within 1000m of the study site boundary? Yes

The following Coal Mining information provided by the Coal Authority is not represented on Mapping:

Distance (m)	Direction	Details
0.0	On Site	The study site is located within the specified search distance of an identified mining area. Further details concerning this can be obtained from the Coal Authority Helpline on 0845 762 6848.

3.3 Johnson Poole and Bloomer

This dataset provides information as to whether the study site lies within an area where JPB hold information relating to mining.

Are there any JPB Mining areas within 1000m of the study site boundary? No

The following information provided by JPB is not represented on mapping: Database searched and no data found.

3.4 Non-Coal Mining

This dataset provides information as to whether the study site lies within an area which may have been subject to non-coal historic mining.

Are there any Non-Coal Mining areas within 1000m of the study site boundary? Yes

The following non-coal mining information is provided by the BGS:

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
1	0.0	On Site	Not available	Iron Ore (Bedded)	Highly Unlikely - Localised small scale mining may have occurred but restricted in extent.

3.5 Non-Coal Mining Cavities

This dataset provides information from the Peter Brett Associates (PBA) mining cavities database (compiled for the national study entitled "Review of mining instability in Great Britain, 1990" PBA has also continued adding to this database) on mineral extraction by mining.

Are there any Non-Coal Mining cavities within 1000m of the study site boundary? No

Database searched and no data found.

3.6 Natural Cavities

This dataset provides information based on Peter Brett Associates natural cavities database.

Are there any Natural Cavities within 1000m of the study site boundary? No

Database searched and no data found.

3.7 Brine Extraction

This dataset provides information from the Brine Compensation Board which has been discontinued and is now covered by the Coal Authority.

Are there any Brine Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

3.8 Gypsum Extraction

This dataset provides information on Gypsum extraction from British Gypsum records.

Are there any Gypsum Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

3.9 Tin Mining

This dataset provides information on tin mining areas and is derived from tin mining records. This search is based upon postcode information to a sector level.

Are there any Tin Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

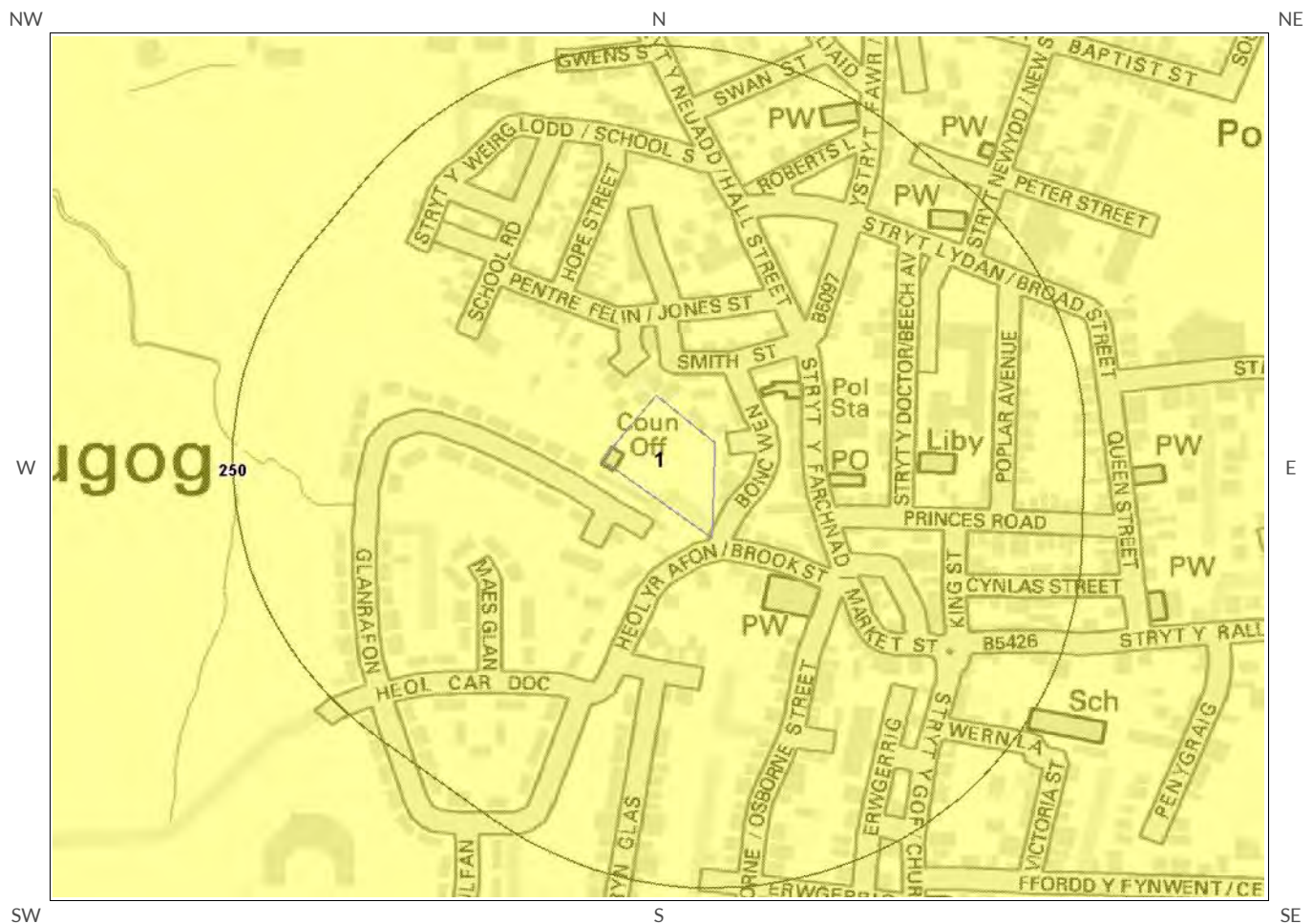
3.10 Clay Mining

This dataset provides information on Kaolin and Ball Clay mining from relevant mining records.

Are there any Clay Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

4.2 Landslides Map



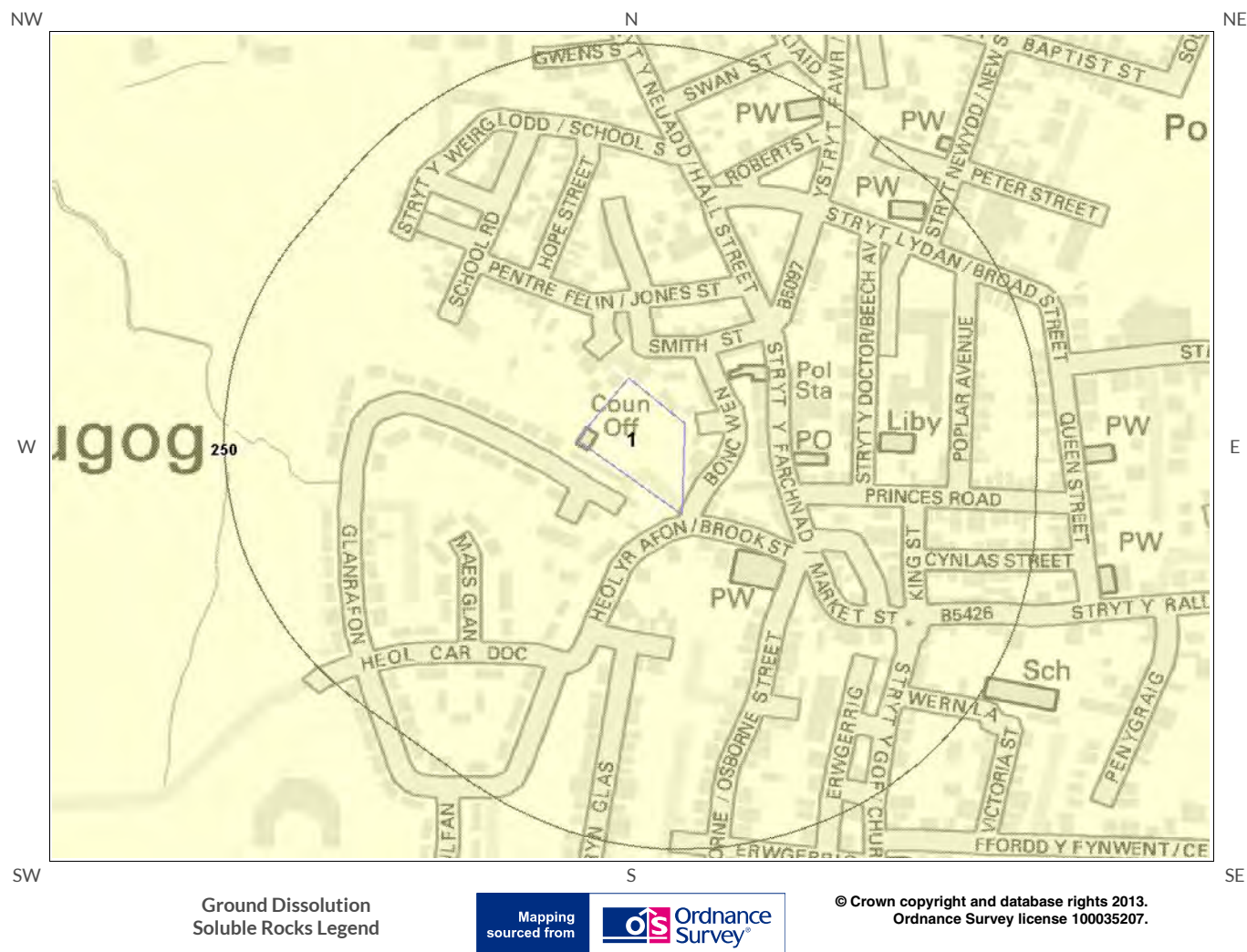
Landslides Legend

Mapping sourced from  Ordnance Survey®

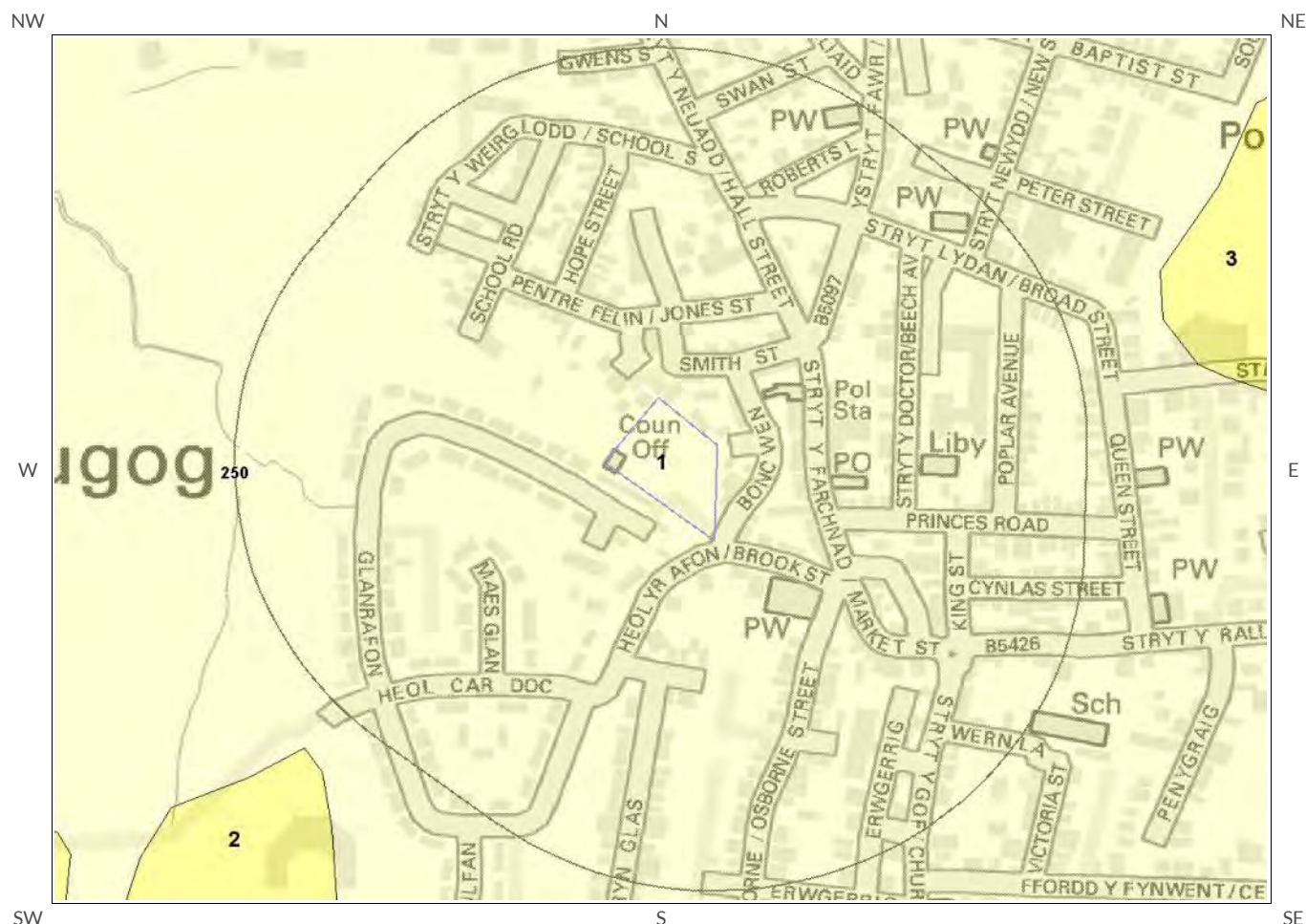
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4.3 Ground Dissolution Soluble Rocks Map



4.4 Compressible Deposits Map



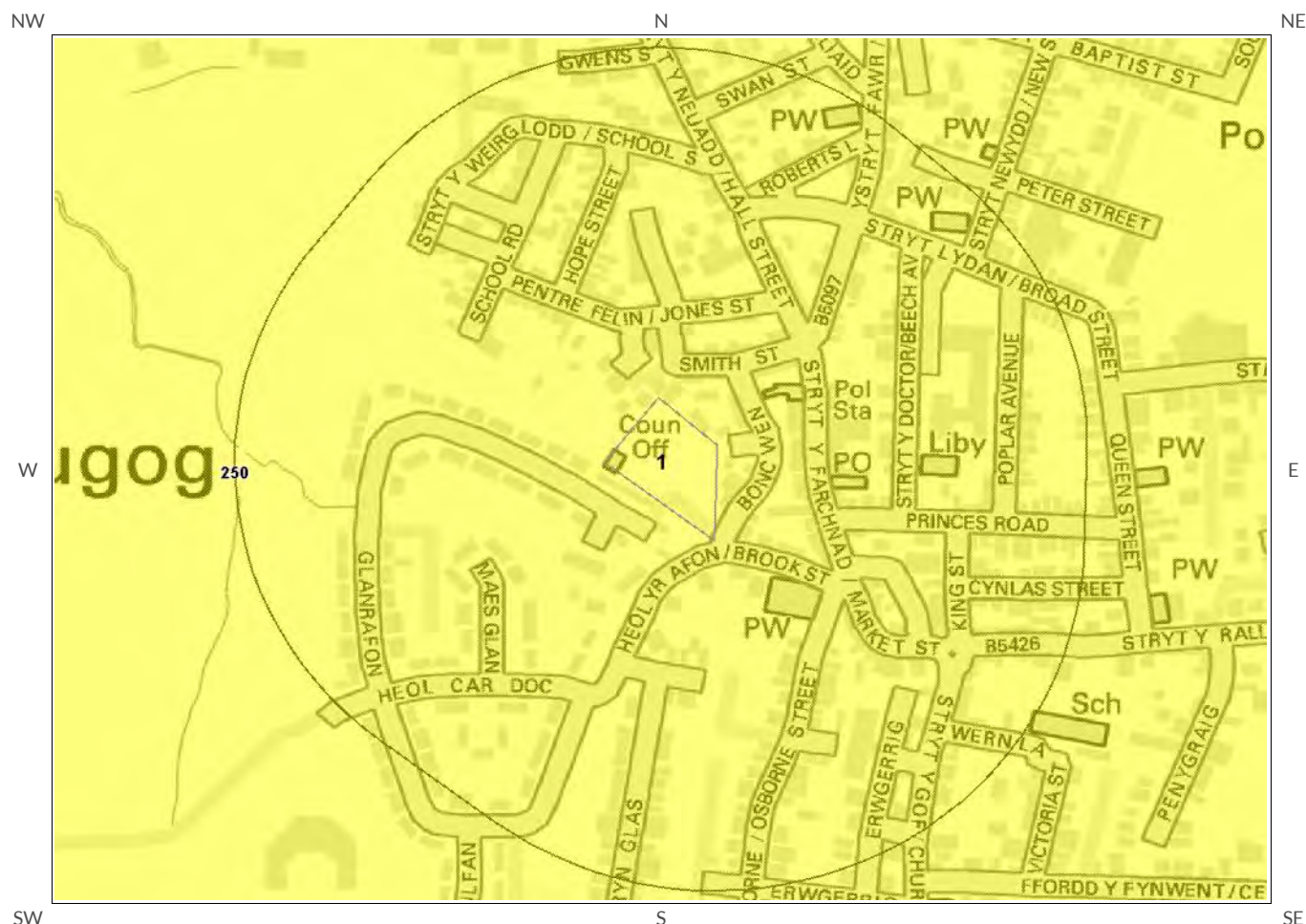
Compressible Deposits Legend



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4.5 Collapsible Deposits Map



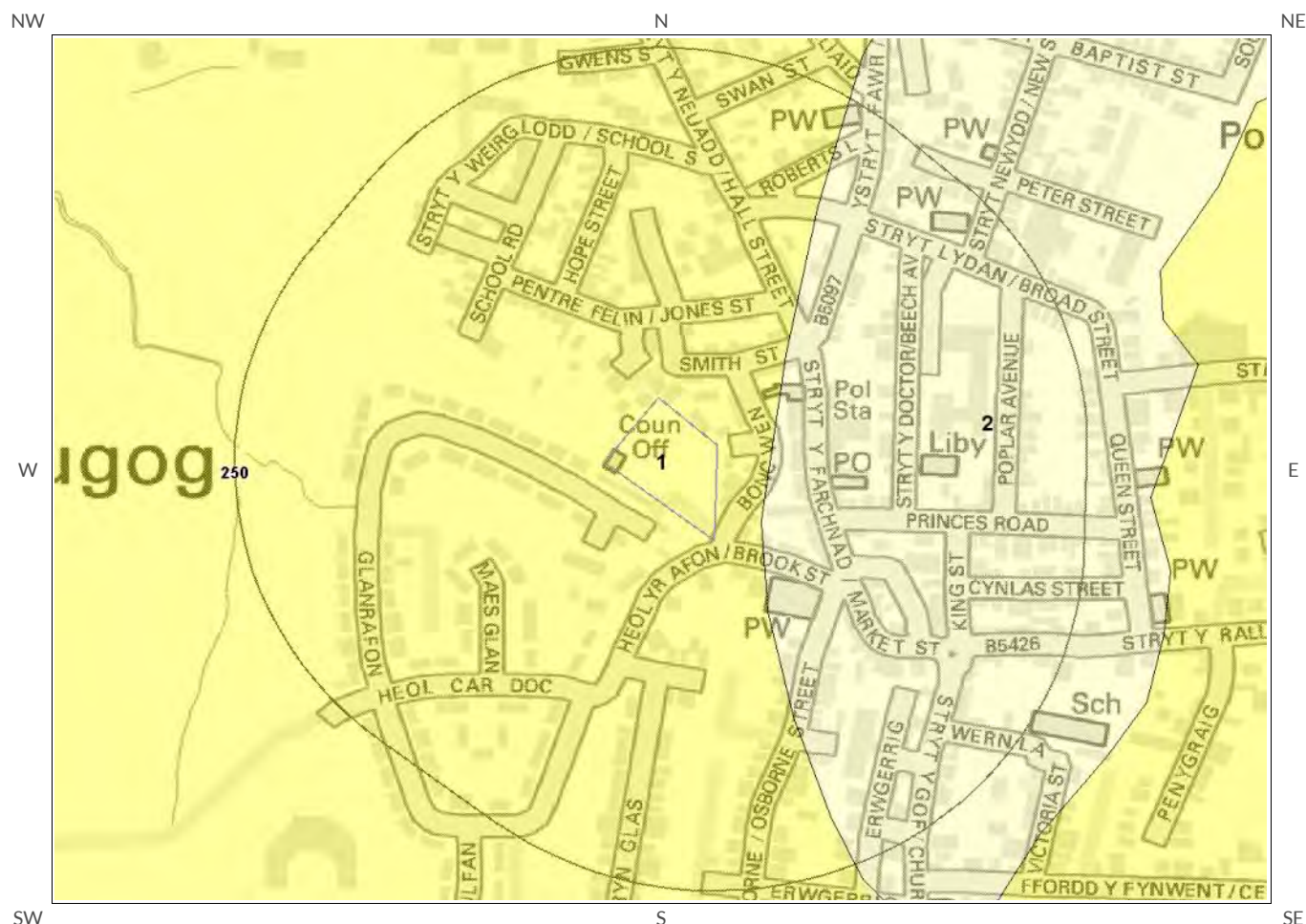
Collapsible Deposits Legend



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4.6 Running Sand Map



Running Sand Legend



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4 Natural Ground Subsidence

The National Ground Subsidence rating is obtained through the 6 natural ground stability hazard datasets, which are supplied by the British Geological Survey (BGS).

The following GeoSure data represented on the mapping is derived from the BGS Digital Geological map of Great Britain at 1:50,000 scale.

What is the maximum hazard rating of natural subsidence within the study site** boundary? **Very Low**

4.1 Shrink-Swell Clays

The following Shrink Swell information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	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.
2	31.0	E	Negligible	Ground conditions predominantly non-plastic. 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 likely due to potential problems with shrink-swell clays.

4.2 Landslides

The following Landslides information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	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.

4.3 Ground Dissolution of Soluble Rocks

The following Ground Dissolution information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. 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.

* This includes an automatically generated 50m buffer zone around the site

4.4 Compressible Deposits

The following Compressible Deposits information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	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.

4.5 Collapsible Deposits

The following Collapsible Rocks information provided by the British Geological Survey:

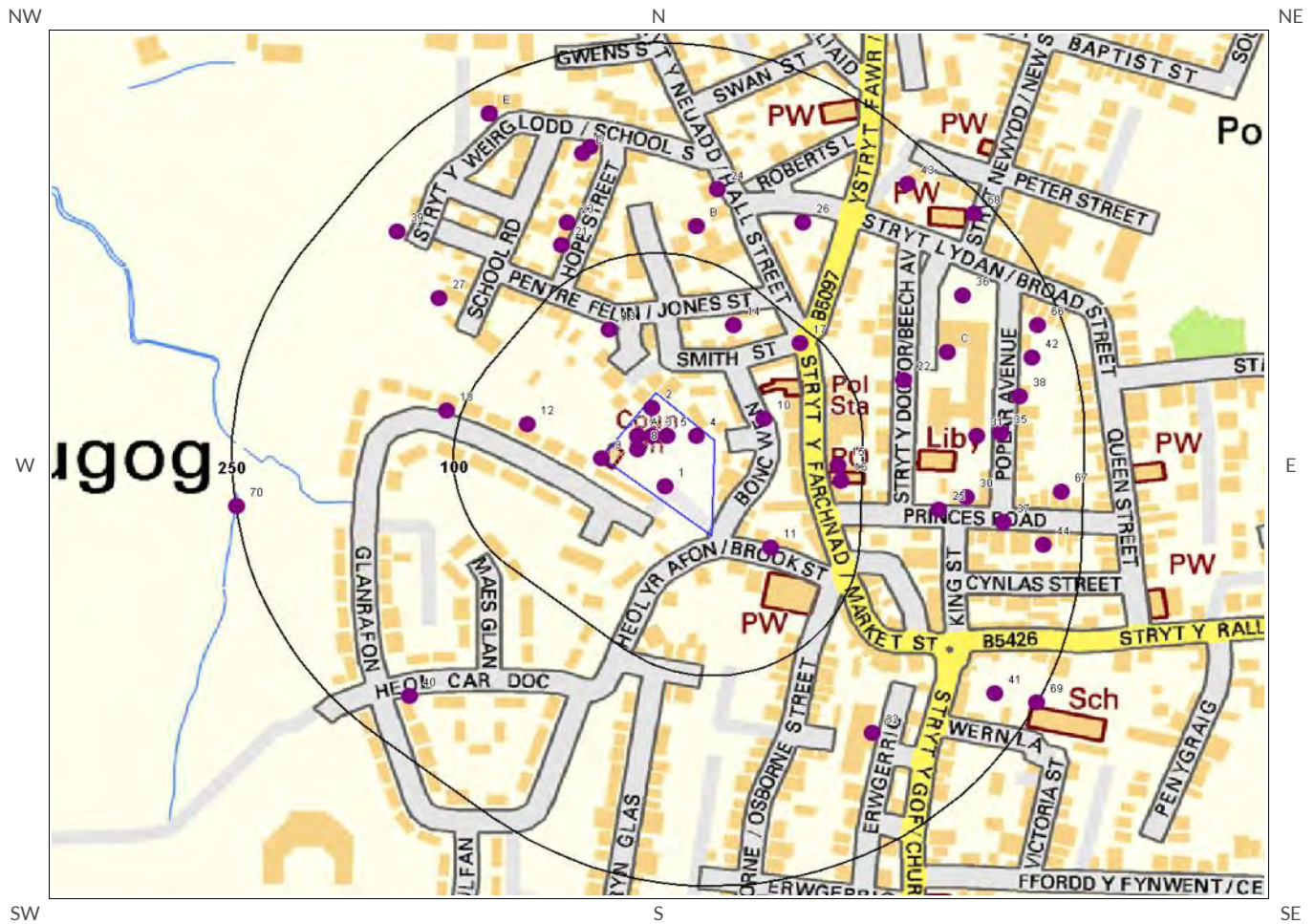
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

4.6 Running Sands

The following Running Sands information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	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.
2	31.0	E	Negligible	No indicators for running sand identified. 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.

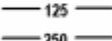
5 Borehole Records Map



Borehole Records Legend



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-  Site Outline
-  Borehole Locations
-  Search Buffers (m)



5 Borehole Records

The systematic analysis of data extracted from the BGS Borehole Records database provides the following information.

Records of boreholes within 250m of the study site boundary:

70

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1	0.0	On Site	328999 346354	SJ24NE828	-1.0	RHOS COLL. SHAFT
2	0.0	On Site	328990 346410	SJ24NE491	30.0	RHOS,BONC WEN 5
3	0.0	On Site	328990 346390	SJ24NE488	30.0	RHOS,BONC WEN 2
4	0.0	On Site	329020 346390	SJ24NE490	20.0	RHOS,BONC WEN 4
5	0.0	On Site	329000 346390	SJ24NE489	23.0	RHOS,BONC WEN 3
6A	0.0	On Site	328980 346390	SJ24NE54	100.0	N WALES COKING COAL SURV. BH63
7A	0.0	On Site	328980 346390	SJ24NE55	50.2	N WALES COKING COAL SURV. BH64
8	0.0	On Site	328980 346380	SJ24NE487	30.0	RHOS,BONC WEN 1
9	1.0	SW	328956 346374	SJ24NE827	-1.0	RHOS COLL. SHAFT
10	36.0	NE	329066 346402	SJ24NE560	-1.0	RHOSLLANERCH.COLL. NO.3 SHAFT
11	40.0	E	329070 346310	SJ24NE35	21.7	BROOK ST RHOS IGS13
12	55.0	NW	328906 346398	SJ24NE848	-1.0	UNNAMED SHAFT
13	55.0	NW	328961 346466	SJ24NE1004	-1.0	UNNAMED SHAFT
14	70.0	NE	329045 346469	SJ24NE1005	-1.0	UNNAMED SHAFT
15	83.0	E	329116 346369	SJ24NE561	-1.0	RHOSLLANERCH.COLL. NO.2 SHAFT
16	86.0	E	329118 346358	SJ24NE562	-1.0	RHOSLLANERCH.COLL. NO.1 SHAFT
17	89.0	NE	329090 346456	SJ24NE850	-1.0	UNNAMED SHAFT
18	110.0	W	328851 346408	SJ24NE847	-1.0	UNNAMED SHAFT
19B	122.0	N	329020 346540	SJ24NE34/B	20.0	HALL ST RHOS IGS12B
20B	122.0	N	329020 346540	SJ24NE34/A	20.0	HALL ST RHOS IGS12A
21	123.0	NW	328929 346526	SJ24NE1003	-1.0	UNNAMED SHAFT
22	134.0	E	329160 346430	SJ24NE1121	-1.0	6 BEECH AVENUE RHOSLLANERCHRUGOG 1
23	135.0	NW	328933 346542	SJ24NE1036	-1.0	UNNAMED SHAFT
24	151.0	N	329034 346566	SJ24NE645	-1.0	RHOS COLL. NO.10 SHAFT
25	152.0	E	329184 346337	SJ24NE898	-1.0	PONKEY COLL., SHAFT
26	156.0	NE	329092 346542	SJ24NE558	-1.0	RHOSLLANERCH.COLL. NO.4 SHAFT
27	157.0	NW	328846 346488	SJ24NE679	-1.0	UNNAMED SHAFT
28C	169.0	E	329190 346450	SJ24NE48/B	12.0	PEN YN RHOS CLINIC BH2
29C	169.0	E	329190 346450	SJ24NE48/A	12.15	PEN YN RHOS CLINIC BH1

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
30	171.0	E	329203 346346	SJ24NE899	-1.0	PONKEY COLL., SHAFT
31	177.0	E	329210 346390	SJ24NE394/A	26.2	RHOS CLINIC 1
32	178.0	SE	329139 346178	SJ24NE1038	-1.0	UNNAMED SHAFT
33D	178.0	N	328943 346592	SJ24NE1002	-1.0	UNNAMED SHAFT
34D	181.0	N	328948 346596	SJ24NE1001	-1.0	UNNAMED SHAFT
35	193.0	E	329226 346392	SJ24NE887	-1.0	PONKEY COLL., SHAFT
36	196.0	NE	329200 346490	SJ24NE394/B	25.3	RHOS CLINIC 2
37	197.0	E	329228 346328	SJ24NE900	-1.0	PONKEY COLL., SHAFT
38	208.0	E	329239 346418	SJ24NE886	-1.0	PONKEY COLL., SHAFT
39	208.0	NW	328818 346536	SJ24NE839	-1.0	UNNAMED SHAFT
40	215.0	SW	328826 346204	SJ24NE550	-1.0	RHOS FARM COLL. SHAFT
41	222.0	SE	329222 346206	SJ24NE759	-1.0	UNNAMED SHAFT
42	222.0	E	329247 346446	SJ24NE885	-1.0	PONKEY COLL., SHAFT
43	224.0	NE	329163 346570	SJ24NE559	-1.0	RHOSLLANERCH.COLL. NO.5 SHAFT
44	224.0	E	329255 346312	SJ24NE902	-1.0	PONKEY COLL., SHAFT
45E	229.0	NW	328880 346620	SJ24NE32/B	-1.0	RHOS JUNIOR SCHOOL BH2
46E	229.0	NW	328880 346620	SJ24NE32/L	-1.0	RHOS JUNIOR SCHOOL BH12
47E	229.0	NW	328880 346620	SJ24NE32/D	-1.0	RHOS JUNIOR SCHOOL BH4
48E	229.0	NW	328880 346620	SJ24NE32/K	-1.0	RHOS JUNIOR SCHOOL BH11
49E	229.0	NW	328880 346620	SJ24NE32/Q	11.55	RHOS JUNIOR SCHOOL BH17
50E	229.0	NW	328880 346620	SJ24NE32/M	5.8	RHOS JUNIOR SCHOOL BH13
51E	229.0	NW	328880 346620	SJ24NE32/C	-1.0	RHOS JUNIOR SCHOOL BH3
52E	229.0	NW	328880 346620	SJ24NE32/I	-1.0	RHOS JUNIOR SCHOOL BH9
53E	229.0	NW	328880 346620	SJ24NE32/J	-1.0	RHOS JUNIOR SCHOOL BH10
54E	229.0	NW	328880 346620	SJ24NE32/U	11.3	RHOS JUNIOR SCHOOL BH21
55E	229.0	NW	328880 346620	SJ24NE32/A	11.3	RHOS JUNIOR SCHOOL BH1
56E	229.0	NW	328880 346620	SJ24NE32/O	14.65	RHOS JUNIOR SCHOOL BH15
57E	229.0	NW	328880 346620	SJ24NE32/P	12.1	RHOS JUNIOR SCHOOL BH16
58E	229.0	NW	328880 346620	SJ24NE32/F	-1.0	RHOS JUNIOR SCHOOL BH6
59E	229.0	NW	328880 346620	SJ24NE32/E	-1.0	RHOS JUNIOR SCHOOL BH5

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
60E	229.0	NW	328880 346620	SJ24NE32/N	5.45	RHOS JUNIOR SCHOOL BH14
61E	229.0	NW	328880 346620	SJ24NE32/H	-1.0	RHOS JUNIOR SCHOOL BH8
62E	229.0	NW	328880 346620	SJ24NE32/G	-1.0	RHOS JUNIOR SCHOOL BH7
63E	229.0	NW	328880 346620	SJ24NE32/R	11.2	RHOS JUNIOR SCHOOL BH18
64E	229.0	NW	328880 346620	SJ24NE32/T	7.3	RHOS JUNIOR SCHOOL BH20
65E	229.0	NW	328880 346620	SJ24NE32/S	10.4	RHOS JUNIOR SCHOOL BH19
66	233.0	E	329251 346469	SJ24NE713	-1.0	PONKEY COLL., SHAFT
67	235.0	E	329267 346350	SJ24NE901	-1.0	PONKEY COLL., SHAFT
68	238.0	NE	329208 346549	SJ24NE711	-1.0	PONKEY COLL., SHAFT
69	249.0	SE	329250 346200	SJ24NE44/A	23.5	YSGOL Y WERN RHOS 1
70	249.0	W	328709 346340	SJ24NE842	-1.0	UNNAMED SHAFT

Additional online information is available for the following boreholes listed above:

#1: scans.bgs.ac.uk/sobi_scans/boreholes/143365
 #2: scans.bgs.ac.uk/sobi_scans/boreholes/143028
 #3: scans.bgs.ac.uk/sobi_scans/boreholes/143025
 #4: scans.bgs.ac.uk/sobi_scans/boreholes/143027
 #5: scans.bgs.ac.uk/sobi_scans/boreholes/143026
 #6A: scans.bgs.ac.uk/sobi_scans/boreholes/142543
 #7A: scans.bgs.ac.uk/sobi_scans/boreholes/142544
 #8: scans.bgs.ac.uk/sobi_scans/boreholes/143024
 #9: scans.bgs.ac.uk/sobi_scans/boreholes/143364
 #10: scans.bgs.ac.uk/sobi_scans/boreholes/143097
 #11: scans.bgs.ac.uk/sobi_scans/boreholes/142439
 #12: scans.bgs.ac.uk/sobi_scans/boreholes/143385
 #13: scans.bgs.ac.uk/sobi_scans/boreholes/143541
 #14: scans.bgs.ac.uk/sobi_scans/boreholes/143542
 #15: scans.bgs.ac.uk/sobi_scans/boreholes/143098
 #16: scans.bgs.ac.uk/sobi_scans/boreholes/143099
 #17: scans.bgs.ac.uk/sobi_scans/boreholes/143387
 #18: scans.bgs.ac.uk/sobi_scans/boreholes/143384
 #19B: scans.bgs.ac.uk/sobi_scans/boreholes/142438
 #20B: scans.bgs.ac.uk/sobi_scans/boreholes/142437
 #21: scans.bgs.ac.uk/sobi_scans/boreholes/143540
 #23: scans.bgs.ac.uk/sobi_scans/boreholes/143573
 #24: scans.bgs.ac.uk/sobi_scans/boreholes/143182
 #25: scans.bgs.ac.uk/sobi_scans/boreholes/143435
 #26: scans.bgs.ac.uk/sobi_scans/boreholes/143095
 #27: scans.bgs.ac.uk/sobi_scans/boreholes/143216
 #28C: scans.bgs.ac.uk/sobi_scans/boreholes/142535
 #29C: scans.bgs.ac.uk/sobi_scans/boreholes/142534
 #30: scans.bgs.ac.uk/sobi_scans/boreholes/143436
 #31: scans.bgs.ac.uk/sobi_scans/boreholes/142930
 #32: scans.bgs.ac.uk/sobi_scans/boreholes/143575
 #33D: scans.bgs.ac.uk/sobi_scans/boreholes/143539

#34D: scans.bgs.ac.uk/sobi_scans/boreholes/143538
#35: scans.bgs.ac.uk/sobi_scans/boreholes/143424
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#70: scans.bgs.ac.uk/sobi_scans/boreholes/143379



6 Estimated Background Soil Chemistry

Records of background estimated soil chemistry within 250m of the study site boundary:

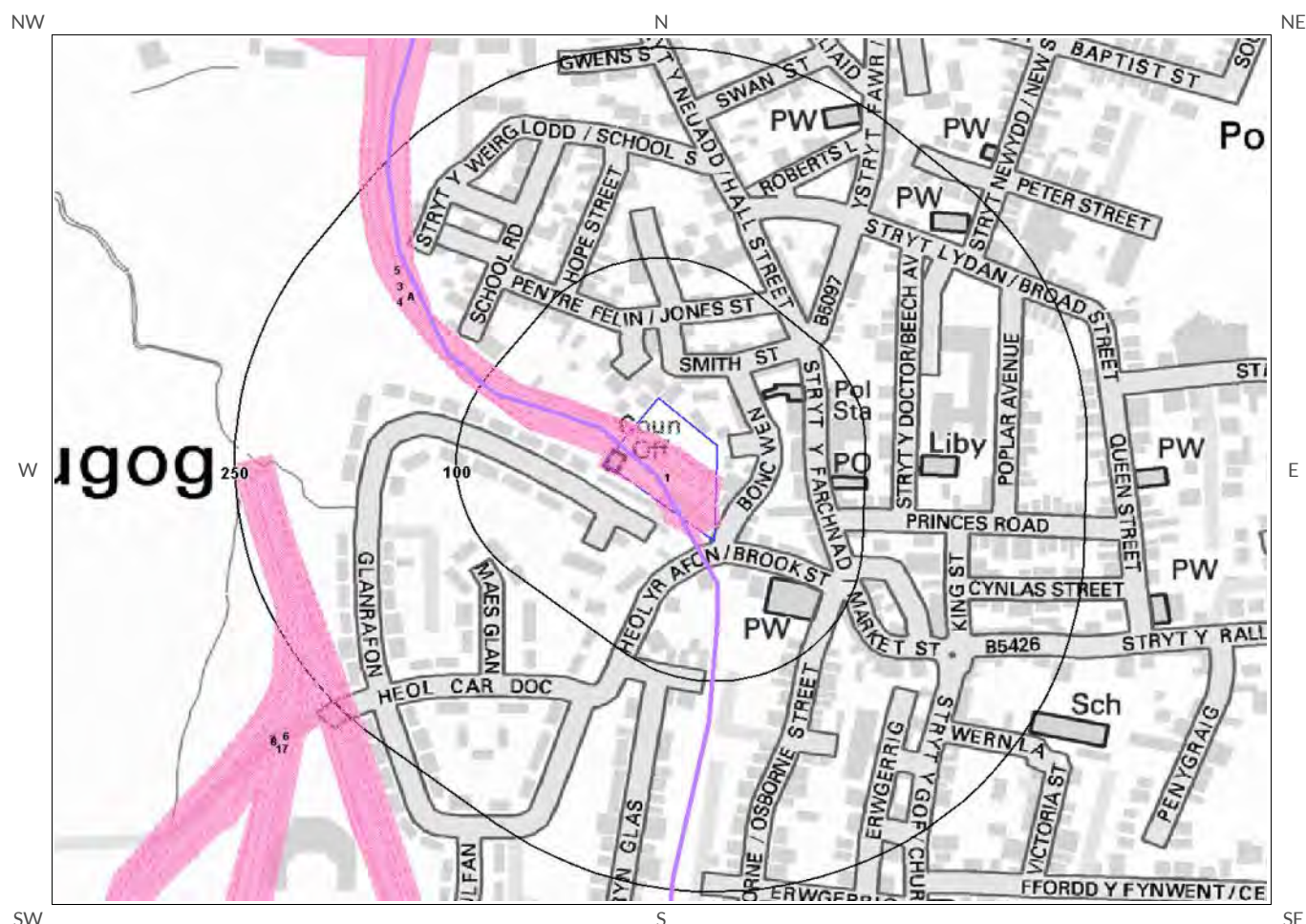
4

For further information on how this data is calculated and limitations upon its use, please see the GroundSure GeolInsight User Guide, available on request.

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	<15 mg/kg	150 - 300 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	<15 mg/kg	150 - 300 mg/kg
31.0	E	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<150 mg/kg
135.0	E	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<150 mg/kg

*As this data is based upon underlying 1:50,000 scale geological information, a 50m buffer has been added to the search radius.

7 Railways and Tunnels Map



Railways and Tunnels Legend



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	Underground or Partially Underground Railway / Subway System		Railway Track (OpenStreetMap)
	Railway Tunnel (OS Mapping)		High Speed 2
	Abandoned or Dismantled Railway (OpenStreetMap)		Crossrail
	Railway Track (OS Mapping)		Railway and/or Tunnel Feature from Historical Mapping
	Site Outline		
	Search Buffers (m)		



7 Railways and Tunnels

7.1 Tunnels

This data is derived from OpenStreetMap and provides information on the possible locations of underground railway systems in the UK - the London Underground, the Tyne & Wear Metro and the Glasgow Subway.

Have any underground railway lines been identified within the study site boundary? No

Have any underground railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels Map.

This data is derived from Ordnance Survey mapping and provides information on the possible locations of railway tunnels forming part of the UK overground railway network.

Have any other railway tunnels been identified within the site boundary? No

Have any other railway tunnels been identified within 250m of the site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels Map.

7.2 Historical Railway and Tunnel Features

This data is derived from GroundSure's unique Historical Land-use Database and contains features relating to tunnels, railway tracks or associated works that have been identified from historical Ordnance Survey mapping.

Have any historical railway or tunnel features been identified within the study site boundary? Yes

Have any historical railway or tunnel features been identified within 250m of the study site boundary? Yes

ID	Distance (m)	Direction	NGR	Details	Date
1	0	On Site	328994 346359	Railway Sidings	1898
2A	0	On Site	328809 346564	Disused Railway Sidings	1960
3	0	On Site	328799 346573	Railway Sidings	1909
4	0	On Site	328798 346568	Railway Sidings	1938
5	0	On Site	328602 346753	Tramway Sidings	1949
11B	0	On Site	328990 346369	Railway Sidings	1900
12	0	On Site	328973 346392	Mineral Railway Sidings	1962
13A	0	On Site	328800 346555	Railway Sidings	1912

ID	Distance (m)	Direction	NGR	Details	Date
14B	0	On Site	328990 346369	Railway Sidings	1875
15	152	NW	328804 346627	Mineral Railway Sidings	1962
6	216	W	328626 346057	Mineral Railway Sidings	1949
7	216	W	328634 346063	Mineral Railway Sidings	1960
8	219	W	328625 346054	Mineral Railway Sidings	1938
9	221	W	328746 346196	Mineral Railway Sidings	1898
10	223	W	328655 346097	Mineral Railway Sidings	1909
16	223	W	328732 346183	Mineral Railway Sidings	1962
17	226	W	328736 346163	Mineral Railway Sidings	1912
18	226	W	328718 346163	Mineral Railway Sidings	1900

Any records that have been identified are represented on the Railways and Tunnels Map.

7.3 Historical Railways

This data is derived from OpenStreetMap and provides information on the possible alignments of abandoned or dismantled railway lines in proximity to the study site.

Have any historical railway lines been identified within the study site boundary? Yes

Have any historical railway lines been identified within 250m of the study site boundary? Yes

Distance (m)	Direction	Status
0	On Site	Abandoned
0	On Site	Abandoned

Note: multiple sections of the same track may be listed in the detail above

Any records that have been identified are represented on the Railways and Tunnels Map.

7.4 Active Railways

These datasets are derived from Ordnance Survey mapping and OpenStreetMap and provide information on the possible locations of active railway lines in proximity to the study site.

Have any active railway lines been identified within the study site boundary? No

Have any active railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Note: multiple sections of the same track may be listed in the detail above

Any records that have been identified are represented on the Railways and Tunnels Map.

7.5 Railway Projects

These datasets provide information on the location of large scale railway projects High Speed 2 and Crossrail.

Is the study site within 5km of the route of the High Speed 2 rail project? No

Is the study site within 500m of the route of the Crossrail rail project? No

*Further information on proximity to these routes, the project construction status and associated works can be obtained through the purchase of a **GroundSure HS2 and Crossrail Report**.*

Contact Details

GroundSure Helpline
Telephone: 08444 159 000
info@groundsure.com



British Geological Survey Enquiries

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



British Gypsum

British Gypsum Ltd
East Leake
Loughborough
Leicestershire
LE12 6HX



The Coal Authority

200 Lichfield Lane
Mansfield
Notts NG18 4RG
Tel: 0345 7626 848
DX 716176 Mansfield 5
www.coal.gov.uk



Public Health England

Public information access office
Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
<https://www.gov.uk/government/organisations/public-health-england>
Email: enquiries@phe.gov.uk
Main switchboard: 020 7654 8000



Johnson Poole & Bloomer Limited

Harris and Pearson Building, Brettell Lane
Brierley Hill, West Midlands
DY5 3LH
Tel: +44 (0) 1384 262 000
Email: enquiries.gs@pb.co.uk
Website: www.jpb.co.uk



Ordnance Survey

Adanac Drive, Southampton
SO16 0AS

Tel: 08456 050505

Website: <http://www.ordnancesurvey.co.uk/>



Getmapping PLC

Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW
Tel: 01252 845444
Website: <http://www1.getmapping.com/>



Peter Brett Associates

Caversham Bridge House
Waterman Place
Reading
Berkshire RG1 8DN
Tel: +44 (0)118 950 0761 E-mail: reading@pba.co.uk
Website: <http://www.peterbrett.com/home>



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Report Reference: GS-1644734

Client Reference: Bonc wen, Rhos 14186

Standard Terms and Conditions

1 Definitions

In these terms and conditions unless the context otherwise requires:

"Beneficiary" means the person or entity for whose benefit the Client has obtained the Services.

"Client" means the party or parties entering into a Contract with GroundSure.

"Commercial" means any building or property which is not Residential.

"Confidential Information" means the contents of this Contract and all information received from the Client as a result of, or in connection with, this Contract other than

(i) information which the Client can prove was rightfully in its possession prior to disclosure by GroundSure and

(ii) any information which is in the public domain (other than by virtue of a breach of this Contract).

"Support Services" means Support Services provided by GroundSure including, without limitation, interpreting third party and in-house environmental data, providing environmental support advice, undertaking environmental audits and assessments, Site investigation, Site monitoring and related items.

"Contract" means the contract between GroundSure and the Client for the provision of the Services, and which shall incorporate these terms and conditions, the Order, and the relevant User Guide.

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

"Data Reports" means reports comprising factual data with no accompanying interpretation.

"Fees" has the meaning set out in clause 5.1.

"GroundSure" means GroundSure Limited, a company registered in England and Wales under number 03421028.

"GroundSure Materials" means all materials prepared by GroundSure and provided as part of the Services, including but not limited to Third Party Content, Data Reports, Mapping, and Risk Screening Reports.

"Intellectual Property" means any patent, copyright, design rights, trade or service mark, moral rights, data protection rights, know-how or trade mark in each case whether registered or not and including applications for the same or any other rights of a similar nature anywhere in the world.

"Mapping" means a map, map data or a combination of historical maps of various ages, time periods and scales.

"Order" means an electronic, written or other order form submitted by the Client requesting Services from GroundSure in respect of a specified Site.

"Ordnance Survey" means the Secretary of State for Business, Innovation and Skills, acting through Ordnance Survey, Adanac Drive, Southampton, SO16 0AS, UK.

"Order Website" means the online platform through which Orders may be placed by the Client and accepted by GroundSure.

"Report" means a Risk Screening Report or Data Report for Commercial or Residential property.

"Residential" means any building or property used as or intended to be used as a single dwelling.

"Risk Screening Report" means a risk screening report comprising factual data with an accompanying interpretation by GroundSure.

"Services" means any Report, Mapping and/or Support Services which GroundSure has agreed to provide by accepting an Order pursuant to clause 2.6.

"Site" means the area of land in respect of which the Client has requested GroundSure to provide the Services.

"Third Party Content" means data, database information or other information which is provided to GroundSure by a Third Party Data Provider.

"User Guide" means the user guide, as amended from time to time, available upon request from GroundSure and on the website (www.GroundSure.com) and forming part of this Contract.

2 Scope of Services, terms and conditions, requests for insurance and quotations

2.1 GroundSure agrees to provide the Services in accordance with the Contract.

2.2 GroundSure shall exercise reasonable skill and care in the provision of the Services.

2.3 Subject to clause 7.3 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 writing in the Contract and all such statements and representations are hereby excluded to the fullest extent permitted by law.

2.4 The Client acknowledges that terms and conditions appearing on a Client's order form, printed stationery or other communication, or any terms or conditions implied by custom, practice or course of dealing shall be of no effect, and that this Contract shall prevail over all others in relation to the Order.

2.5 If the Client or Beneficiary requests insurance in conjunction with or as a result of the Services, GroundSure shall use reasonable endeavours to recommend such insurance, but makes no warranty that such insurance shall be available from insurers or that it will be offered on reasonable terms. Any insurance purchased by the Client or Beneficiary shall be subject solely to the terms of the policy issued by insurers and GroundSure will have no liability therefor. In addition you acknowledge and agree that GroundSure does not act as an agent or broker for any insurance providers. The Client should take (and ensure that the Beneficiary takes) independent advice to ensure that the insurance policy requested or offered is suitable for its requirements.

2.6 GroundSure's quotations or proposals are valid for a period of 30 days only unless an alternative period of time is explicitly stipulated by GroundSure. GroundSure reserves the right to withdraw any quotation or proposal at any time before an Order is accepted by GroundSure. GroundSure's acceptance of an Order

shall be binding only when made in writing and signed by GroundSure's authorised representative or when accepted through the Order Website.

3 The Client's obligations

3.1 The Client shall comply with the terms of this Contract and

(i) procure that the Beneficiary or any third party relying on the Services complies with and acts as if it is bound by the Contract and

(ii) be liable to GroundSure for the acts and omissions of the Beneficiary or any third party relying on the Services as if such acts and omissions were those of the Client.

3.2 The Client shall be solely responsible for ensuring that the Services are appropriate and suitable for its and/or the Beneficiary's needs.

3.3 The Client shall supply to GroundSure as soon as practicable and without charge all requisite information (and the Client warrants that such information is accurate, complete and appropriate), including without limitation any environmental information relating to the Site and shall give such assistance as GroundSure shall reasonably require in the provision of the Services including, without limitation, access to the Site, facilities and equipment.

3.4 Where the Client's approval or decision is required to enable GroundSure to carry out work in order to provide the Services, such approval or decision shall be given or procured in reasonable time and so as not to delay or disrupt the performance of the Services.

3.5 Save as expressly permitted by this Contract the Client shall not, and shall procure that the Beneficiary shall not, re-sell, alter, add to, or amend the GroundSure Materials, or use the GroundSure Materials in a manner for which they were not intended. The Client may make the GroundSure Materials available to a third party who is considering acquiring some or all of, or providing funding in relation to, the Site, but such third party cannot rely on the same unless expressly permitted under clause 4.

3.6 The Client is responsible for maintaining the confidentiality of its user name and password if using the Order Website and the Client acknowledges that GroundSure accepts no liability of any kind for any loss or damage suffered by the Client as a consequence of using the Order Website.

4 Reliance

4.1 The Client acknowledges that the Services provided by GroundSure consist of the presentation and analysis of Third Party Content and other content and that information obtained from a Third Party Data Provider cannot be guaranteed or warranted by GroundSure to be reliable.

4.2 In respect of Data Reports, Mapping and Risk Screening Reports, the following classes of person and no other are entitled to rely on their contents;

- (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, and
- (v) the professional advisers and lenders of the first purchaser or tenant of the Site.

4.3 In respect of Support Services, only the Client, Beneficiary and parties expressly named in a Report and no other parties are entitled to rely on its contents.

4.4 Save as set out in clauses 4.2 and 4.3 and unless otherwise expressly agreed in writing, no other person or entity of any kind is entitled to rely on any Services or Report issued or provided by GroundSure. Any party considering such Reports and Services does so at their own risk.

5 Fees and Disbursements

5.1 GroundSure shall charge and the Client shall pay fees at the rate and frequency specified in the written proposal, Order Website or Order acknowledgement form, plus (in the case of Support Services) all proper disbursements incurred by GroundSure. 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 (together "Fees").

5.2 The Client shall pay all outstanding Fees to GroundSure in full without deduction, counterclaim or set off within 30 days of the date of GroundSure's invoice or such other period as may be agreed in writing between GroundSure and the Client ("Payment Date"). Interest on late payments will accrue on a daily basis from the Payment Date until the date of payment (whether before or after judgment) at the rate of 8% per annum.

5.3 The Client shall be deemed to have agreed the amount of any invoice unless an objection is made in writing within 28 days of the date of the invoice. As soon as reasonably practicable after being notified of an objection, without prejudice to clause 5.2 a member of GroundSure's management team will contact the Client and the parties shall then use all reasonable endeavours to resolve the dispute within 15 days.

6 Intellectual Property and Confidentiality

6.1 Subject to

- (i) full payment of all relevant Fees and
- (ii) compliance with this Contract, the Client is granted (and is permitted to sub-licence to the Beneficiary) a royalty-free, worldwide, non-assignable and (save to the extent set out in this Contract) non-transferable licence to make use of the GroundSure Materials.

6.2 All Intellectual Property in the GroundSure Materials are and shall remain owned by GroundSure or GroundSure's licensors (including without limitation the Third Party Data Providers) the Client acknowledges, and shall procure acknowledgement by the Beneficiary of, such ownership. Nothing in this Contract purports to transfer or assign any rights to the Client or the Beneficiary in respect of such Intellectual Property.

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

6.4 The Client shall, and shall procure that any recipients of the GroundSure Materials shall:

- (i) not remove, suppress or modify any trade mark, 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 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;
 - (v) not reformat or otherwise change (whether by modification, addition or enhancement), the Services (save that those acting for the Beneficiary in a professional capacity shall not be in breach of this clause 6.4(v) where such reformatting is in the normal course of providing advice based upon the Services);
 - (vi) where a Report and/or Mapping contains material belonging to Ordnance Survey, acknowledge and agree that such content is protected by Crown Copyright and shall not use such content for any purpose outside of receiving the Services; and
 - (vii) not copy in whole or in part by any means any map prints or run-on copies containing content belonging to Ordnance Survey (other than that contained within Ordnance Survey's OS Street Map) without first being in possession of a valid Paper Map Copying Licence from Ordnance Survey,
- 6.5 Notwithstanding clause 6.4, the Client may make reasonable use of the GroundSure Materials in order to advise the Beneficiary in a professional capacity. However, GroundSure shall have no liability in respect of any advice, opinion or report given or provided to Beneficiaries by the Client.

6.6 The Client shall procure that any person 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: Particular Attention Should Be Paid To This Clause

7.1 This Clause 7 sets out the entire liability of GroundSure, including any liability for the acts or omissions of its employees, agents, consultants, subcontractors and Third Party Content, in respect of:

- (i) any breach of contract, including any deliberate breach of the Contract by GroundSure or its employees, agents or subcontractors;
- (ii) any use made of the Reports, Services, Materials or any part of them; and
- (iii) any representation, statement or tortious act or omission (including negligence) arising under or in connection with the Contract.

7.2 All warranties, conditions and other terms implied by statute or common law are, to the fullest extent permitted by law, excluded from the Contract.

7.3 Nothing in the Contract limits or excludes the liability of the Supplier for death or personal injury resulting from negligence, or for any damage or liability incurred by the Client or Beneficiary as a result of fraud or fraudulent misrepresentation.

7.4 GroundSure shall not be liable for

- (i) loss of profits;
- (ii) loss of business;
- (iii) depletion of goodwill and/or similar losses;
- (iv) loss of anticipated savings;
- (v) loss of goods;
- (vi) loss of contract;
- (vii) loss of use;
- (viii) loss or corruption of data or information;
- (ix) business interruption;
- (x) any kind of special, indirect, consequential or pure economic loss, costs, damages, charges or expenses;
- (xi) loss or damage that arise as a result of the use of all or part of the GroundSure Materials in breach of the Contract;
- (xii) loss or damage arising as a result of any error, omission or inaccuracy in any part of the GroundSure Materials where such error, omission or inaccuracy is caused by any Third Party Content or any reasonable interpretation of Third Party Content;
- (xiii) loss or damage to a computer, software, modem, telephone or other property; and
- (xiv) loss or damage caused by a delay or loss of use of GroundSure's internet ordering service.

7.5 GroundSure's total liability in relation to or under the Contract shall be limited to £10 million for any claim or claims.

7.6 GroundSure shall procure that the Beneficiary shall be bound by limitations and exclusions of liability in favour of GroundSure which accord with those detailed in clauses 7.4 and 7.5 (subject to clause 7.3) in respect of all claims which the Beneficiary may bring against GroundSure in relation to the Services or other matters arising pursuant to the Contract.

8 GroundSure's right to suspend or terminate

8.1 If GroundSure reasonably believes that the Client or Beneficiary has not provided the information or assistance required to enable the proper provision of the Services, GroundSure shall be entitled to suspend all further performance of the Services until such time as any such deficiency has been made good.

8.2 GroundSure shall be entitled to terminate the Contract immediately on written notice in the event that:

- (i) the Client fails to pay any sum due to GroundSure within 30

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 term of the Contract (including, but not limited to, the obligations in clause 4) which is incapable of remedy or if remediable, is not remedied within five days of notice of the breach.

9. Client's Right to Terminate and Suspend

9.1 Subject to clause 10.1, the Client may at any time upon written notice terminate or suspend the provision of all or any of the Services.

9.2 In any event, where the Client is a consumer (and not a business) he/she hereby expressly acknowledges and agrees that:

- (i) the supply of Services under this Contract (and therefore the performance of this Contract) commences immediately upon GroundSure's acceptance of the Order; and
- (ii) the Reports and/or Mapping provided under this Contract are
 - (a) supplied to the Client's specification(s) and in any event
 - (b) by their nature cannot be returned.

10 Consequences of Withdrawal, Termination or Suspension

10.1 Upon termination of the Contract:

- (i) 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 and/or Beneficiary any property of the Client and/or Beneficiary in GroundSure's possession or control; and
- (ii) 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 or suspension. In respect of any Support Services provided, the Client shall also pay GroundSure any additional costs incurred in relation to the termination or suspension of the Contract.

11 Anti-Bribery

11.1 The Client warrants that it shall:

- (i) comply with all applicable laws, statutes and regulations relating to anti-bribery and anti-corruption including but not limited to the Bribery Act 2010;
- (ii) comply with such of GroundSure's anti-bribery and anti-corruption policies as are notified to the Client from time to time; and
- (iii) promptly report to GroundSure any request or demand for any undue financial or other advantage of any kind received by or on behalf of the Client in connection with the performance of this Contract.

11.2 Breach of this Clause 11 shall be deemed a material breach of this Contract.

12 General

12.1 The Mapping contained in the Services is protected by Crown copyright and must not be used for any purpose other than as part of the Services or as specifically provided in the Contract.

12.2 The Client shall be permitted to make one copy only of each Report or Mapping Order. Thereafter the Client shall be entitled to make unlimited copies of the Report or Mapping Order only in accordance with an Ordnance Survey paper map copy license available through GroundSure.

12.3 GroundSure reserves the right to amend or vary this Contract. No amendment or variation to this Contract shall be valid unless signed by an authorised representative of GroundSure.

12.4 No failure on the part of GroundSure to exercise, and no delay in exercising, any right, power or provision under this Contract shall operate as a waiver thereof.

12.5 Save as expressly provided in this Contract, 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.

12.6 The Secretary of State for Business, Innovation and Skills ("BIS") or BIS' successor body, as the case may be, acting through Ordnance Survey may enforce a breach of clause 6.4(vi) and clause 6.4(vii) of these terms and conditions against the Client in accordance with the provisions of the Contracts (Rights of Third Parties) Act 1999.

12.7 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 Third Party Data Providers;
- (viii) changes in law; or
- (ix) any other reason beyond GroundSure's reasonable control.

In the event that GroundSure is prevented from performing the Services (or any part thereof) in accordance with this clause 12.6 for a period of not less than 30 days then GroundSure shall be entitled to terminate this Contract immediately on written notice to the Client.

12.8 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.

12.9 Such notice shall be deemed to have been received on the day of delivery if delivered by hand, facsimile or email (save to the extent such day is not a working day where it shall be deemed to have been delivered on the next working day) and on the second working day after the day of posting if sent by first class post.

12.10 The Contract constitutes the entire agreement between the parties and shall supersede all previous arrangements between the parties relating to the subject matter hereof.

12.11 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.

12.12 This Contract shall be governed by and construed in accordance with English law and any proceedings arising out of or connected with this Contract shall be subject to the exclusive jurisdiction of the English courts.

12.13 GroundSure is an executive member of the Council of Property Search Organisation (CoPSO) and has signed up to the Search Code administered by the Property Codes Compliance Board (PCCB). All Risk Screening Reports shall be supplied in accordance with the provisions of the Search Code.

12.14 If the Client or Beneficiary has a complaint about the Services, written notice should be given to the Compliance Officer at GroundSure who will respond in a timely manner.

12.15 The Client agrees that it shall, and shall procure that each Beneficiary shall, treat in confidence all Confidential Information and shall not, and shall procure that each Beneficiary shall not (i) disclose any Confidential Information to any third party other than in accordance with the terms of this Contract; and (ii) use Confidential Information for a purpose other than the exercise of its rights and obligations under this Contract. Subject to clause 6.6, nothing shall prevent the Client or any Beneficiary from disclosing Confidential Information to the extent required by law

Site Details:

BROOKDALE, BONC
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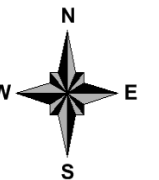
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Grid Ref: 329008, 346372

Map Name: County Series

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Surveyed 1875
Revised 1875
Edition N/A
Copyright N/A
Levelled N/A

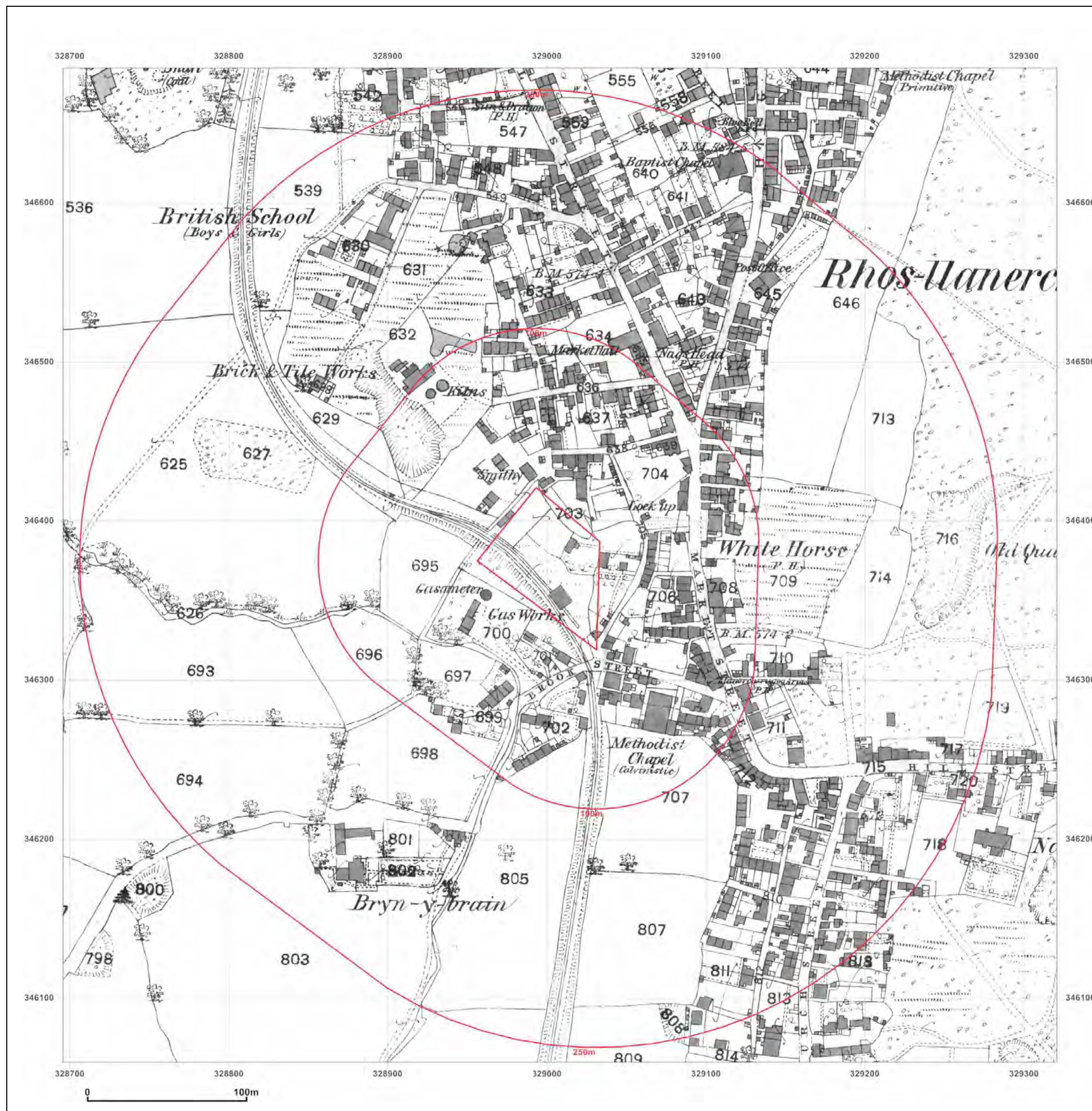


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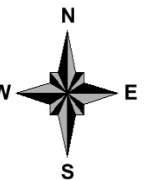
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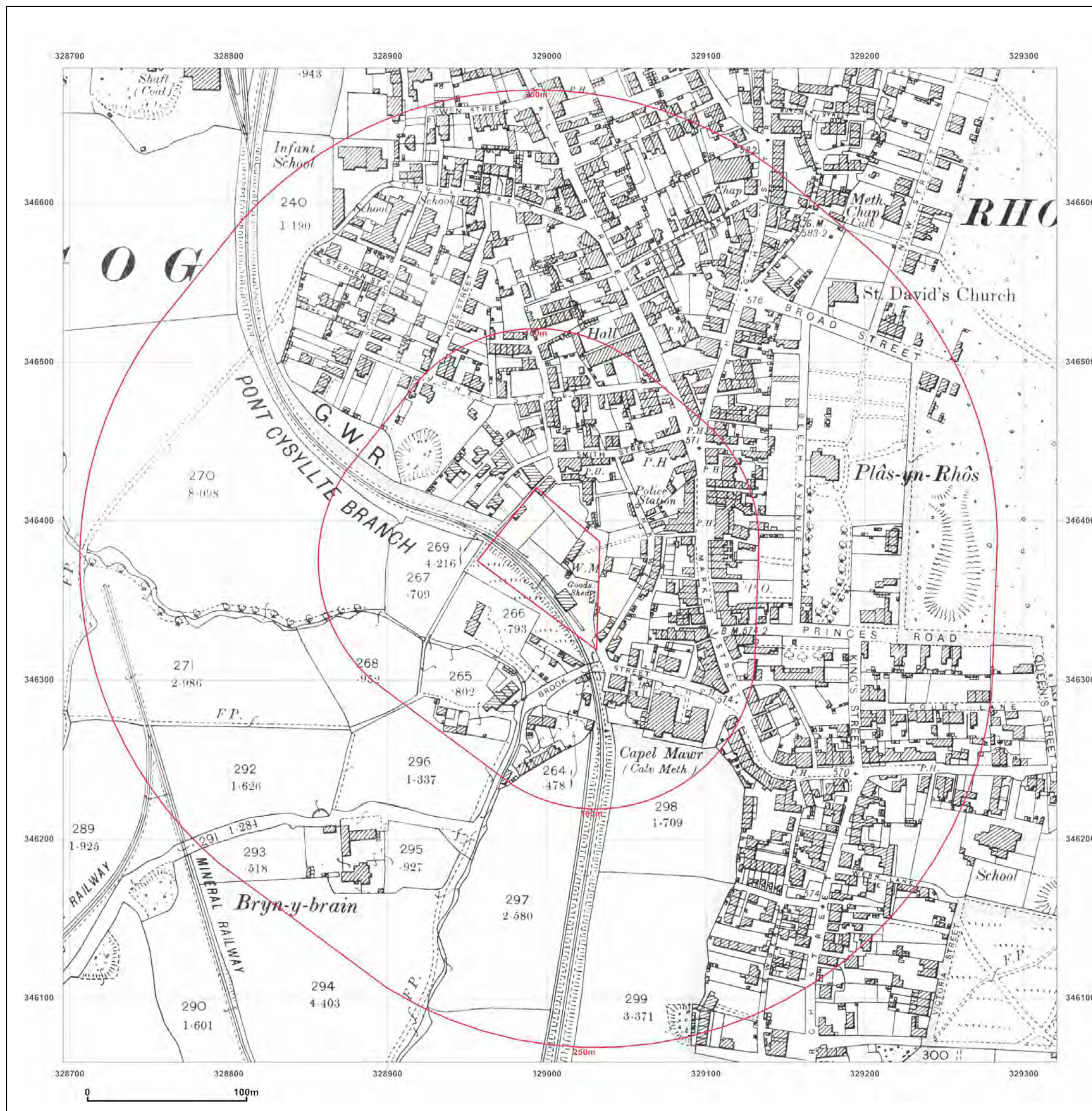


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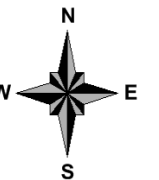
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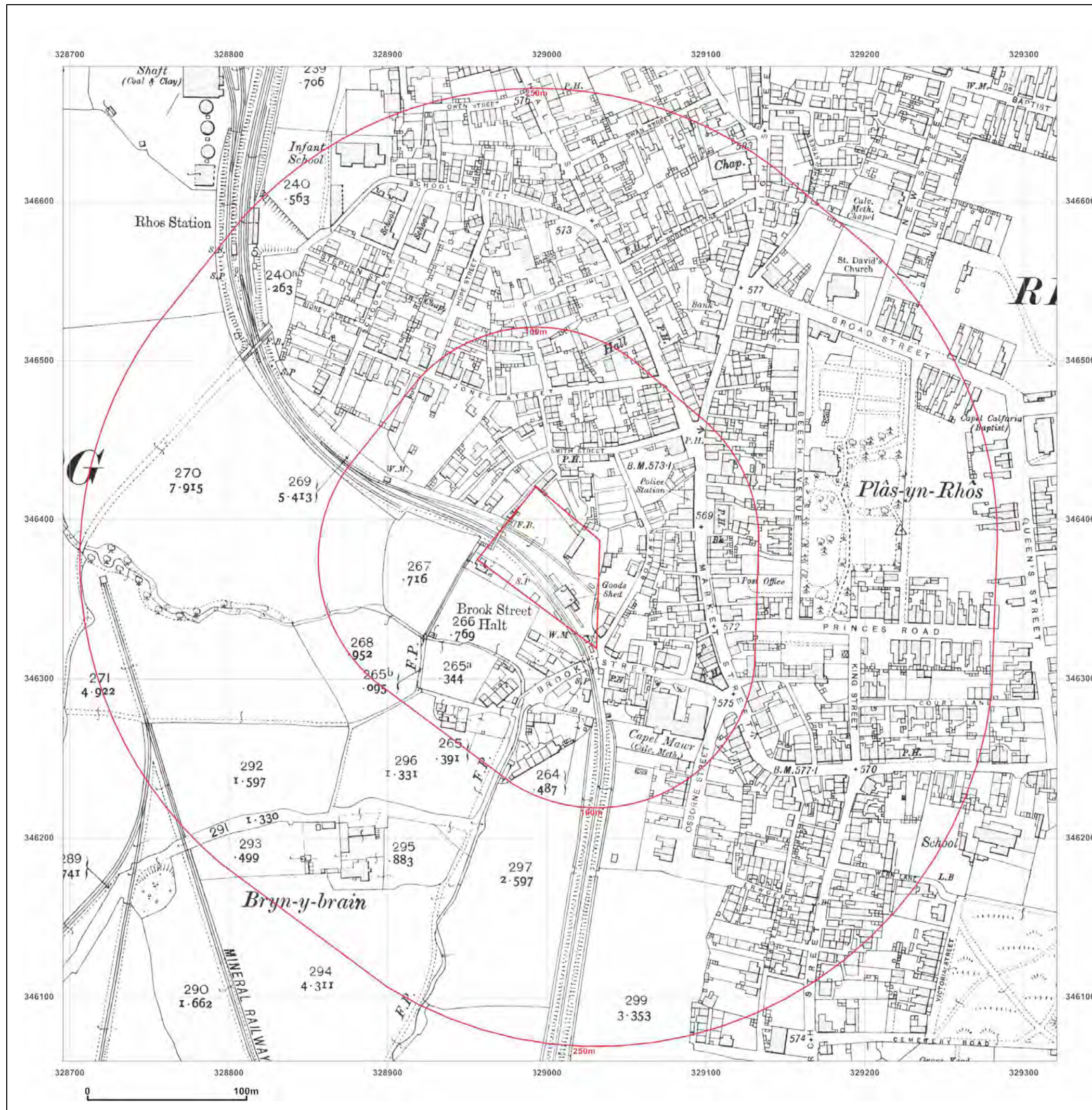


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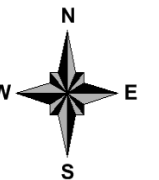
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Surveyed N/A
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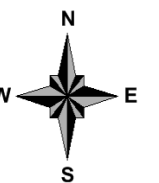
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Map Name: National Grid

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Surveyed 1962
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Levelled 1959

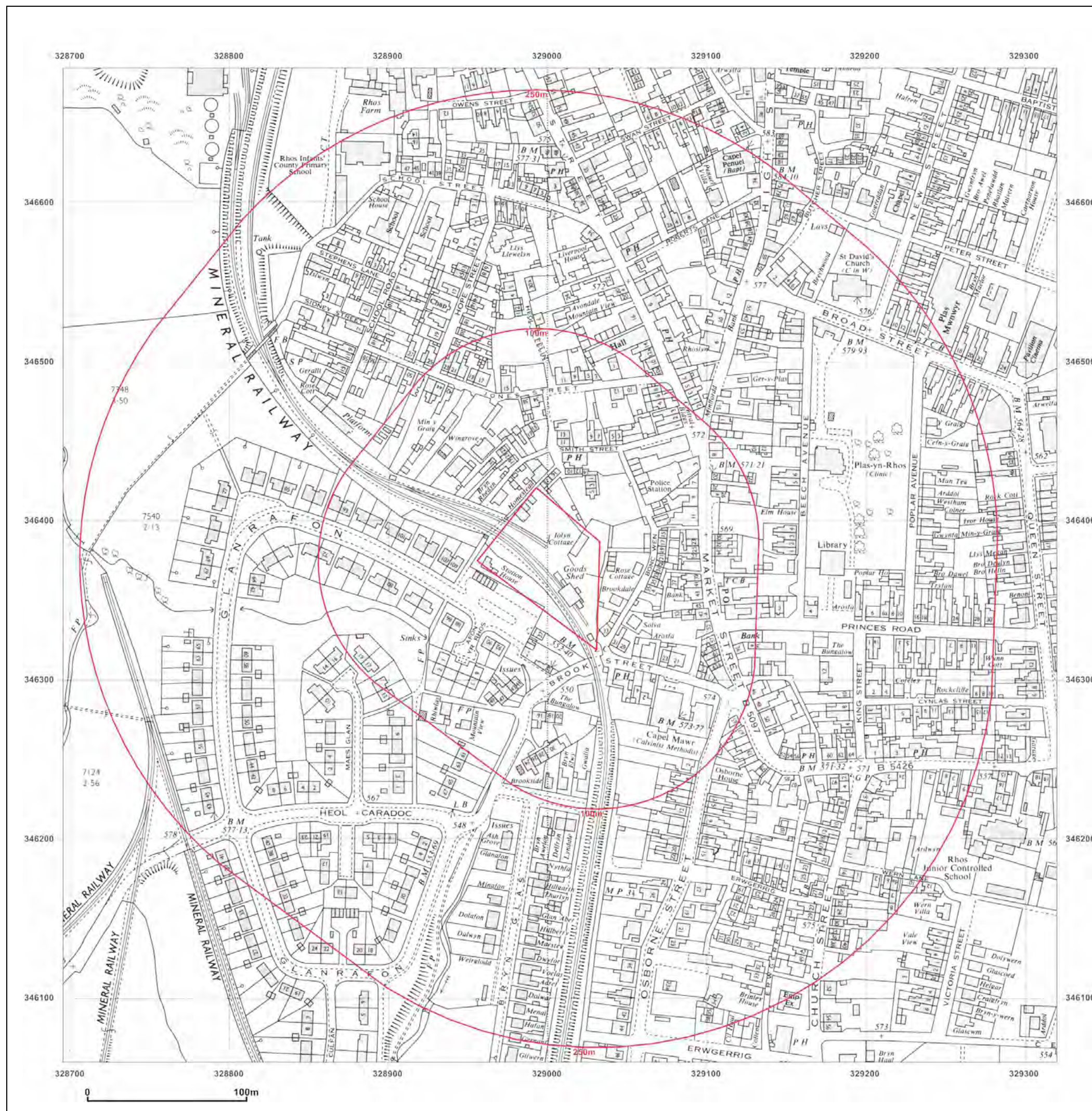


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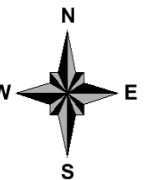
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Grid Ref: 329008, 346372

Map Name: National Grid

Map date: 1973

Scale: 1:2,500

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