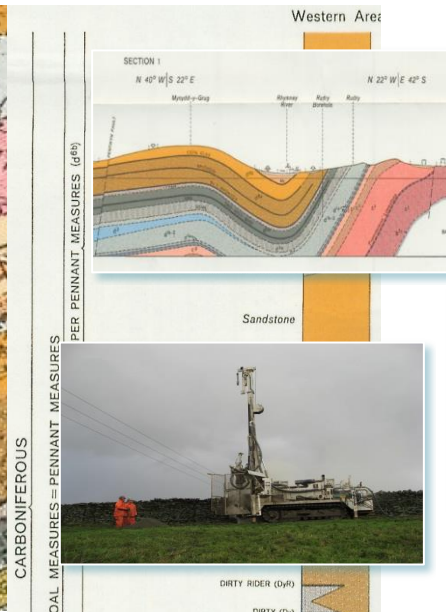
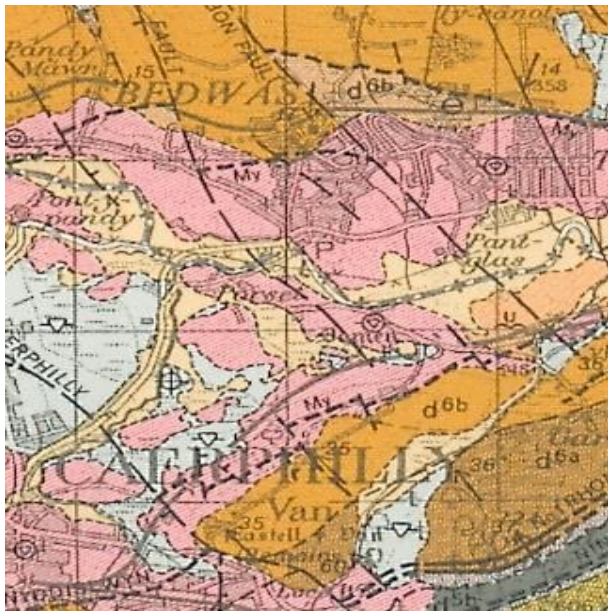


Coal Mining Risk Assessment Report

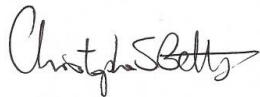
Residential Building Plot

Blaenafon Terrace, Tonmawr, Neath

On Behalf of

Mr and Mrs Terrell

Quality Management

Prepared by:	Mike Willis (BSc MSc FGS)	
Reviewed & Authorised by:	Chris Betts (BSc MSc FGS CGeol)	
Date:	July 2015	
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Hydrogeo Ltd
36 Lion Street
Abergavenny
Monmouthshire
NP7 5NT
T: 01873 856813
E: mike@hydrogeo.co.uk
W: hydrogeo.co.uk

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Appendices

Appendix 1 The Coal Authority - Non-Residential Ground Stability Report

1 Introduction

1.1 Background

Hydrgeo Limited (Hydrogeo) was instructed by Phillips-Griffiths Limited on behalf of Mr & Mrs Terrell (the client) to undertake a Coal Mining Risk Assessment (CMRA) pertaining to a parcel of land, located off Blaenafon Terrace, Tonmawr, (hereafter referred to as the 'Site'). The Site development proposals are currently understood to include a proposed residential development.

1.2 Context & Purpose

In accordance with Planning Policy Guidance 14, all sites located within Coal Authority Referral Areas subject to planning applications require a CMRA. The Site lies within a Coal Authority designated Coal Mining Reporting Area, therefore, a CMRA is required to support the planning application.

The purpose of the Report is to present a desk-based review of all available information on the coal mining legacy relevant to the Site, and then, propose further investigation or mitigation measures that address the coal mining legacy. The Report also sets out how the requirements of national planning policy with regard to development on unstable land are to be addressed.

This report has been written in general accordance with the Coal Mining Risk Assessment Model Report Template, January 2011 and intends to demonstrate to the Local Planning Authority (LPA) that the Site is, or can be, made safe and stable, to meet the requirements of the national planning policy with regard to Planning Policy Guidance Note 14 (PPG14) "Development on Unstable Land" DoE 1990.

1.3 Scope of Works

The scope of works performed by Hydrogeo for this CMRA report is presented in Table 1:

Table 1 – Scope of Works

Data Collection	1. Documentary research: – Review Site history (location, surroundings, topography); – Review current Site use (including adjacent areas); – Review Site geology, 2. Review commercially available Coal Authority and Regulatory database information; 3. Request and review the clients previous intrusive investigations;
Interpretation & Reporting	4. Identification and assessment of site specific coal mining risk; 5. Summary of the identified risks, the need for, and scope of, further investigation and/or remedial measures; 6. Proposed mitigation strategy; and, 7. Prepare final CMRA Report incorporating all of the above.

1.4 Data Sources & Third Party information

In completing this assessment, Hydrogeo has utilised the following information:

- British Geological Survey (BGS) data;
- BGS 1:50,000 Sheet 248, Pontypridd
- Coal Authority Report; and,
- Available Internet based search data including available historical maps.

1.5 Limitations

This Report provides an assessment of the potential status of the ground below the Site based upon the available information. It does not provide an environmental Phase I report in accordance with the principles of BS10175 in relation to a Preliminary Investigation.

Hydrogeo obtained, reviewed and evaluated information in preparing this Report from The Coal Authority, the BGS and others. The conclusions, opinions and recommendations are based upon this data. Hydrogeo does not warrant the accuracy of the information provided to it and will not be responsible for any opinions which Hydrogeo has expressed, or conclusions which it has reached in reliance upon information which is subsequently proven to be inaccurate.

2 Review of Site Setting, History & Regulatory Information

Factor	Description
Current Site Use and Surrounding Area	The site currently comprises an open field between residential properties on the east side of Blaenafon Terrace, Tonmawr. To the east are further residential properties beyond which is open countryside. Surrounding residential properties are located to the west of Blaenafon Terrace beyond which is the local Rugby Club ground.
Proposed Development	The proposed development comprises a residential development
Geology	From the 1:50,000 BGS map for the area the Site is underlain by Till, Devensian - Diamicton. Superficial Deposits formed up to 2 million years ago in the Quaternary Period. The Solid Geology beneath the site comprises the Pennant Sandstone Formation Brithdir Member - Mudstone, Siltstone and Sandstone. Sedimentary Bedrock formed approximately 307 to 309 million years ago in the Carboniferous Period. The geology map for the site area additionally indicates coal seams namely the Glyngwilym and Wenalt Seam outcrop in close proximity to the site.
Coal Authority Record	A Coal Authority report has been obtained by Hydrogeo and is included within Appendix 1. According to the available records, the property is not within the zone of likely physical influence on the surface from past underground workings. However the property is in an area where the Coal Authority believe there is coal at or close to the surface. This coal may have been worked at some time in the past. The potential presence of coal workings at or close to the surface should be considered prior to any site works or future development activity.
Previous Investigations	No recorded previous Site Investigations are available.
Historical Mapping	Historical maps (1860 -1960) have shown site to be a greenfield site, with two residential properties from 1910 to the north of the site. Surrounding the site are a number of shafts, old coal levels, quarries and trial holes for the extraction of coal resources. An old coal level identified 200m north of the site at a similar topographic level to the site. Whitworth Colliery north-west of the site from the 1900s comprising shafts and chimneys. The 1960's historical maps show a spring present on the site with housing to the immediate south of the site.

3 Identification and Assessment of Site Coal Mining Risks

3.1 Introduction

An identification and assessment of the Site's coal mining risks has been undertaken from existing desk based information.

If an issue associated with the coal mining legacy is identified, a preliminary risk assessment is carried out to assess each possible feature, to determine whether these pose potentially unacceptable risks to the future development of the Site, and, if further assessment is required.

The decision on whether a feature related to coal mining poses a potentially unacceptable risk is based upon professional judgement. The significance of a feature associated with the coal mining legacy will also be determined dependant on the context of the proposed land use of the Site.

Assessing risks from coal mining is based upon guidance provided by the Coal Authority following a 'risk-based' approach implemented through PPG 14.

3.2 Potential Coal Mining legacy Issues

Table 2 below summarises the potential risks associated with coal mining legacy at the Site, identified from the sources listed in Section 1.4 above, and summarised in Section 2.

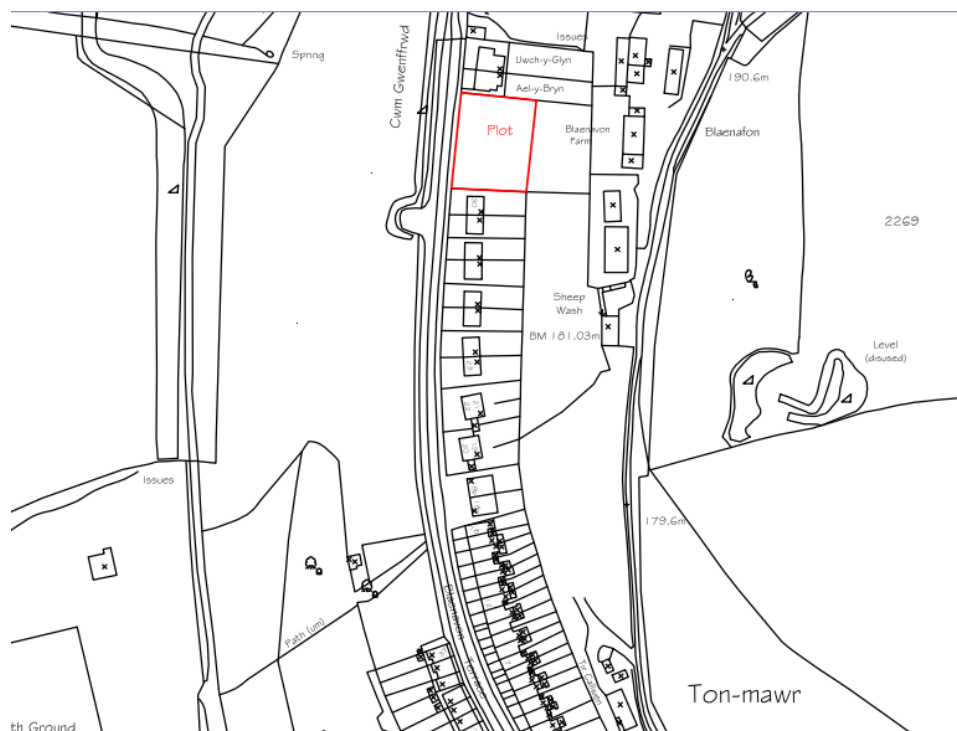
Table 2 – Potential Coal Mining Legacy Issues

Coal Mining Legacy	Yes	No	Risk Assessment
Underground coal mining (recorded at shallow depths)		X	Not Required
Underground coal mining (probable at shallow depths)	X		Required
Mine entries (shafts and adits)		X	Not required
Coal mining geology (fissures)		X	Not required
Record of past mine gas emissions		X	Not required
Recorded coal mining surface hazard		X	Not required
Surface mining (opencast workings)		X	Not required

3.3 Conceptual Geological Model

The Site currently comprises open pasture with residential properties to the north, south east and west (not shown) as depicted in Figure 1. Development proposals are currently understood to include a residential development with associated car parking.

Figure 1 – Site Location Plan



An internet based search has been carried out to view historical maps of the property between 1860 -1960. The site is shown to be a greenfield site, with two residential properties shown to be present from approximately 1910 to the north of the site. In the surrounding area of the site, there are a number of shafts, old coal levels, quarries and trial holes for the extraction of coal resources.

The historical plans indicate that there is an old coal level (mine working entrance) identified approximately 200m north of the site at a similar topographic level to the site.

Whitworth Colliery is shown to be present to the north-west of the site from the 1900's comprising shafts and chimneys.

The 1960's historical maps for the site show there to be a spring present on the site, with water flowing to the west from the issuing spring sinking under Blaenafon Road and

remerging down gradient. The 1960's plan also showing housing to the immediate south of the sites existing southern boundary.

Geology

Reference to Figure 2 the BGS Solid and Drift series maps confirms that the site is underlain by Till, Devensian - Diamicton. These superficial deposits formed up to 2 million years ago in the Quaternary Period. At this time the local environment would have been dominated by ice age conditions. The Diamicton rocks were formed in cold periods with Ice Age glaciers scouring the landscape and depositing moraines of till with outwash sand and gravel deposits from seasonal and post glacial meltwaters.

The bedrock geology comprises the Pennant Sandstone Formation Brithdir Member, Sandstone sedimentary bedrock formed approximately 307 to 309 million years ago in the Carboniferous Period.

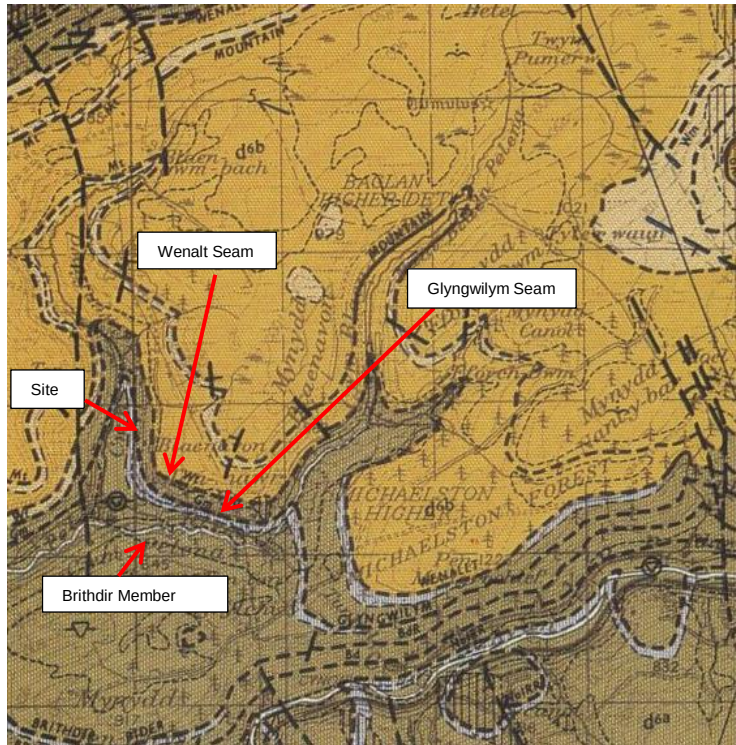
The geological mapping for the area indicates that the site lies in very close proximity to the Pennant Sandstone Formation Brithdir Member, Mudstone, Siltstone and Sandstone.

These rocks were formed from rivers depositing mainly sand and gravel detrital material in channels to form river terrace deposits, with fine silt and clay from overbank floods forming floodplain alluvium, and some bogs depositing peat; includes estuarine and coastal plain deposits mapped as alluvium.

Outcropping close to the site are coal seams identified on the BGS series map as the Glyngwilym and Wenalt Seam.

A spring indicated on the 1960's historical mapping may be a consequence of a transition from Brithdir Sandstone to a Mudstone sequence as shown on the geological mapping. It should be noted that this spring line does issue further east on earlier historical maps in close proximity to Blaenafon Farm.

Figure 2 - Geological map of surrounding site area, Pontypridd Sheet 248 Solid, British Geological Survey. (C10/018) British Geological Survey. ©NERC All rights reserved.



Coal Mining

Potential coal mining legacy risks to the Site have been identified by the Coal Authority Report which confirms:

- the property is not within the likely zone likely physical influence on the surface from past underground workings;
- the property is in an area where the Coal Authority believe there is coal at or close to the surface. This coal may have been worked at some time in the past. The potential presence of coal workings at or close to the surface should be considered prior to any site works or future development activity;
- The property is not in the likely zone of influence of any present underground coal workings;
- The property is in an area for which a licence to remove or otherwise work coal using underground methods was granted in October 1996. The grant of this licence is conditional on the applicant securing any other rights, permissions (including planning permission) and consents to enable operations to be carried out;
- The property is not in an area that is likely to be affected at the surface from any planned future workings;
- There are no recorded mine entries within, or within 20m of, the boundary of the property.

Internet Based Search – Whitworth Colliery

A review of internet databases confirms Whitworth Colliery was present to the north-west of the site from the early 1900's comprising 2 no. shafts, associated buildings and chimneys.

The Whitworth Colliery is understood to have employed between 65 and 172 men during sinking and up to closure (1907 to 1911). The colliery was abandoned in November 1911 after striking the No. 2 Rhondda seam at 504 yards. The seam being reportedly 3 feet thick at the shaft was followed for several hundred yards in different directions.

It is understood that the pit was closed due to excessive water in the No.2 shaft. The failure in 1911 was reported in the CG of 7th November as "Owing to the death of Mr. de Frietas, sinking was suspended. One shaft reached 500 yards, the other 450 yards." Works reportedly passed through the Rhondda No. 2 seam.

A receiver was appointed in December 1911, the colliery was worked briefly, but by November 1912 the Whitworth Colliery was described as being at a standstill.

The South Wales Daily Post (31/10/1913) reported that the workings of the colliery had been inspected by some colliery proprietors with the view of re-opening. The interest came to nothing and the colliery was finally abandoned in 1915.

The two shafts at Whitworth Colliery remained uncapped until the 1950's after a long campaign by the residents of Tonmawr the two shafts were capped by the National Coal Board.

BGS / Shaft or Borehole Records

A review of the BGS Borehole records confirms the presence of a number of boreholes in close proximity to the site.

Borehole SS79NE/77 located approximately 150m to the west of the site confirms thickness between seams (old series notes) no. 2 Rhondda to Wenalt at Whitworth 1575 ft (480.06 metres). No other information provided.

Borehole SS79NE32 – Whitworth Colliery (BH Section) Drilled from a recorded site level of 456.37 ft OD – Borehole log provides comprehensive detail down to the No. 2 Rhondda Seam at 1515ft down to the borehole base at 1969 ft. The borehole log confirms that the shallowest coal was recorded at 224 ft.

Whitworth No. 2 Pit Record SHAFT SS79 NE 29 – Located approximately 165m NW of the site.

3.4 Risk Assessment and Mitigation Strategy

Based on the information obtained in the desk based study, a risk assessment has been formulated which identifies plausible risks at the Site in the context of the proposed end-use. These are detailed in Table 3 - Identified Risks and Mitigation Strategy.

Table 3 - Identified Risks and Mitigation Strategy

Source	Risk	Assessment of Risk Significance	Mitigation Strategy
Area where there is coal at or close to the surface	Low – Medium	Coal may have been worked at some time in the past. The potential presence of coal workings at or close to the surface should be considered prior to any site works or future development activity.	Watching brief during site enabling works. Investigation beneath the plots at site area in order to advise on depth and further assess the potential for impact and where required detail mitigation measures.

4 Conclusions & Recommendations

4.1 Summary of Site Status

The Site is located on the eastern side of Blaenafon Road and currently comprises a parcel of open pasture surrounded by residential properties to the north, south, east and west.

The site slopes steeply from the Blaenafon Road at approximately 160 mAOD to 170 mAOD at the sites eastern boundary. Outline proposals are currently understood to include residential development in keeping with the surrounding properties.

The geological map indicates the site to overlies Diamicton (drift), overlying the Brithdir Member sandstone, with a potential more mudstone rich layer of the Brithdir member in close proximity to the site. The BGS series map identifies the Glyngwilym and Wenalt coal seam outcropping close to the site. Review of historical maps for the site area identifies a spring issue on the site circa 1960's.

A coal mining report has been commissioned which states *"the property is in an area where the Coal Authority believe there is coal at or close to the surface. This coal may have been worked at some time in the past."*

4.2 Summary of Risks

The property is in an area where the Coal Authority believe there is coal at or close to the surface. This coal may have been worked at some time in the past. The potential presence of coal workings at or close to the surface should be considered prior to any site works or future development activity.

Few records of early coal mining exist, a coal level is observed on historical maps at a similar topographic level 200m north. This may relate to local surface working of the Glyngwilym coal seam as shown on the BGS map. Additionally a former colliery shaft was located 150m west, with working recorded.

There is the potential for unrecorded shallow mine workings in the vicinity of all workable shallow and outcropping coal seams. The potential for historical unrecorded mine workings beneath the development site area therefore cannot be discounted.

4.3 Recommendations

In relation to coal mining it is recommended that during the enabling works phase a watching brief is kept in order to determine presence or otherwise of any near surface workings.

Additionally it is recommended that an investigation should be undertaken, to provide information on the presence, depth and nature of any underlying shallow workings. The fieldwork is anticipated to initially comprise the drilling of rotary probe holes to allow logging of the soils and solid strata through examination of flush returns and rate of penetration of the drill bit.

Observations of ground, geotechnical and groundwater conditions should also be recorded.

Prior to drilling permission would need to be obtained from the Coal Authority. The probeholes would be cased within the majority of the superficial deposits. In accordance with Coal Authority conditions, the borehole head will be monitored for gases during its advancement. The probehole locations would be positioned to give maximum site coverage.

Depending upon the outcome of the rotary probehole exercise it can be determined if any shallow workings are present and need to be stabilised by drilling and grouting prior to development.

5 Limitations to Coal Mining Risk Assessments

The recommendations contained in this Report represent the professional opinion of Hydrogeo, based upon the information referred to in Section 1.0 of this Report, exercising the duty of care required of an experienced Geo-Environmental Consultant. Hydrogeo does not warrant or guarantee that the Site is free of hazardous or potentially hazardous materials or conditions.

Hydrogeo obtained, reviewed and evaluated information in preparing this Report from The Coal Authority, the BGS and others. Hydrogeo conclusions, opinions and recommendations have been determined using this information. Hydrogeo does not warrant the accuracy of the information provided to it and will not be responsible for any opinions which Hydrogeo has expressed, or conclusions which it has reached in reliance upon information which is subsequently proven to be inaccurate.

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Appendices

Appendix 1

Coal Authority Report



Issued by:

The Coal Authority, Property Search Services, 200 Lichfield Lane, Berry Hill, Mansfield, Nottinghamshire, NG18 4RG
Website: www.groundstability.com Phone: 0345 762 6848 DX 716176 MANSFIELD 5

**HYDROGEO LTD
36C LION STREET
ABERGAVENNY
MONMOUTHSHIRE
NP75NT**

Our reference: **51000910233001**
Your reference: **BLAENAVON TERRACE,**
Date of your enquiry: **29 June 2015**
Date we received your enquiry: **29 June 2015**
Date of issue: **29 June 2015**

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

Non-Residential Coal Authority Mining Report

BLAENAVON TERRACE, TONMAWR, SA12 9US

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

Coal mining	See comments below
Brine Compensation District	No

Information from the Coal Authority

Underground coal mining

Past

According to the records in our possession, the property is not within the zone of likely physical influence on the surface from past underground workings.

However the property is in an area where the Coal Authority believe there is coal at or close to the surface. This coal may have been worked at some time in the past. The potential presence of coal workings at or close to the surface should be considered prior to any site works or future development activity. Your attention is drawn to the Comments on Coal Authority Information section of the report.

Present

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

Future

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

The property is in an area for which a licence to remove or otherwise work coal using underground methods was granted in October 1996. The grant of this licence is conditional on the applicant securing any other rights, permissions (including planning permission) and consents to enable operations to be carried out.

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

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

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

Mine entries

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

Coal mining geology

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

Opencast coal mining

Past

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

Present

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

Future

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

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

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres, since 31st October 1994.

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

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

Mine gas

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

Hazards related to coal mining

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

Withdrawal of support

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

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

Working facilities orders

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

Payments to owners of former copyhold land

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

Comments on Coal Authority information

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

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

Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

Additional Remarks

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

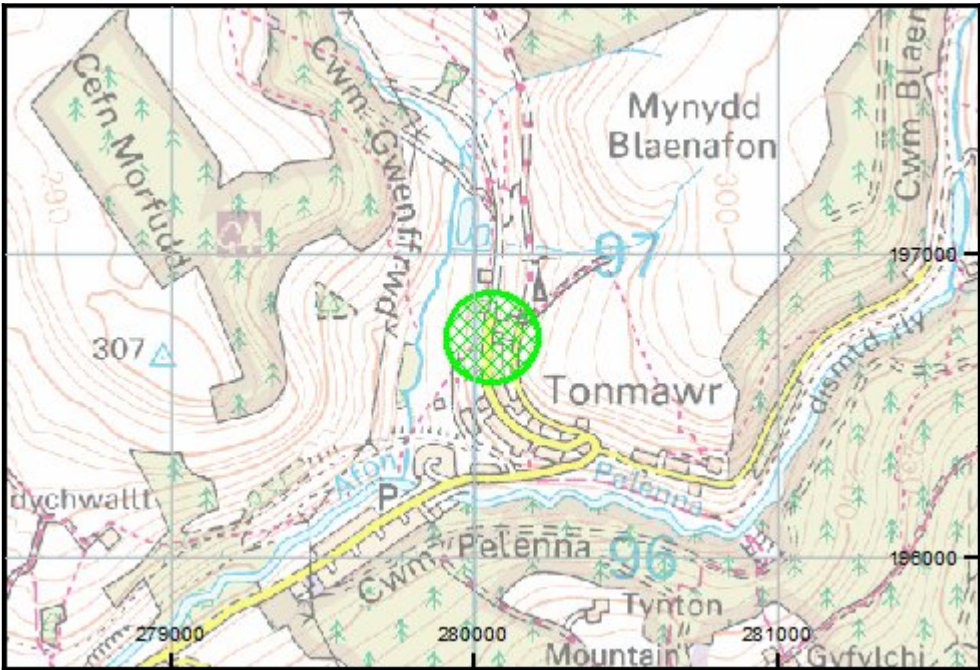
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Tax Point Date:	29 June 2015
Issued to:	HYDROGEO LTD 36C LION STREET ABERGAVENNY MONMOUTHSHIRE NP75NT
Property Search for:	BLAENAVON TERRACE, TONMAWR, SA12 9US
Reference Number:	51000910233001
Date of Issue:	29 June 2015
Cost:	£59.00
VAT @ 20%:	£11.80
Total Received:	£70.80
VAT Registration	598 5850 68

Location map



Approximate position of property



Enquiry boundary

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Key

Approximate position of enquiry boundary shown

