

Report No. BC/MB/11.20.03.

**Coal Mining Risk Assessment:
Land at the Sunnybank, Farm Road Heolgerrig,
Merthyr Tydfil.**

Prepared on behalf of:

Executors of the Will of the Late Mr H Wall

By:



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Coal Mining Risk Assessment on Land at Sunnybank, Farm Road, Heolgerrig, Merthyr Tydfil.

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- Appendix II: Public Health England's Radon Gas Report.*

Coal Mining Risk Assessment on Land at Sunnybank, Farm Road, Heolgerrig, Merthyr Tydfil.

1 Introduction

This geological and mining report has been prepared on behalf of our client:

*Executors of the Will of the Late Mr H Wall,
C/o Mr Stephen Wall,
17 Westland Drive,
Hayes,
Bromley,
Kent, BR2 7HE.*

The report reviews the geology and mining history of the land and the immediately surrounding area as they may affect a proposed residential development on the Site. Recommendations are made for site investigation to examine further the risk from shallow mine workings and from a mine entry.

The following sources of data have been used in the compilation of this report,

- i) *Research of published geological data;*
- ii) *Research of mining records;*
- iii) *The findings of The Coal Authority report, no. 51002325822001;*
- iv) *Research of The Coal Authority's interactive map, accessed on the 17th November 2019;*
- v) *The findings of Public Health England's Radon report and*
- vi) *Research of Blandford Consulting's archives.*

The findings of the report are necessarily based upon the information used in its compilation and may be amended in the future in the light of additional material information. The report should only be used in its entirety for its stated purpose.

/Cont....

2 Brief Description of the Site

The parcel of land that is the subject of this report ('the Site') is located 1.5km west of the centre of Merthyr Tydfil in the settlement of Heolgerrig (see Figure 1 and *General Location Plan*, drawing no. BC/MB/11.20.03.01). The Site is located on the north-easterly facing slopes of the Taff Valley where average groundslopes are 1 in 13. The Site is located close to the edge of the settlement boundary where the pattern of dwellings is a mixture of terraced, semi-detached and detached. The Site is irregular in outline having maximum dimensions of approximately 71m by 21m; it is at an approximate elevation of 247m above ordnance datum.

Figure 1
Aerial View of Site



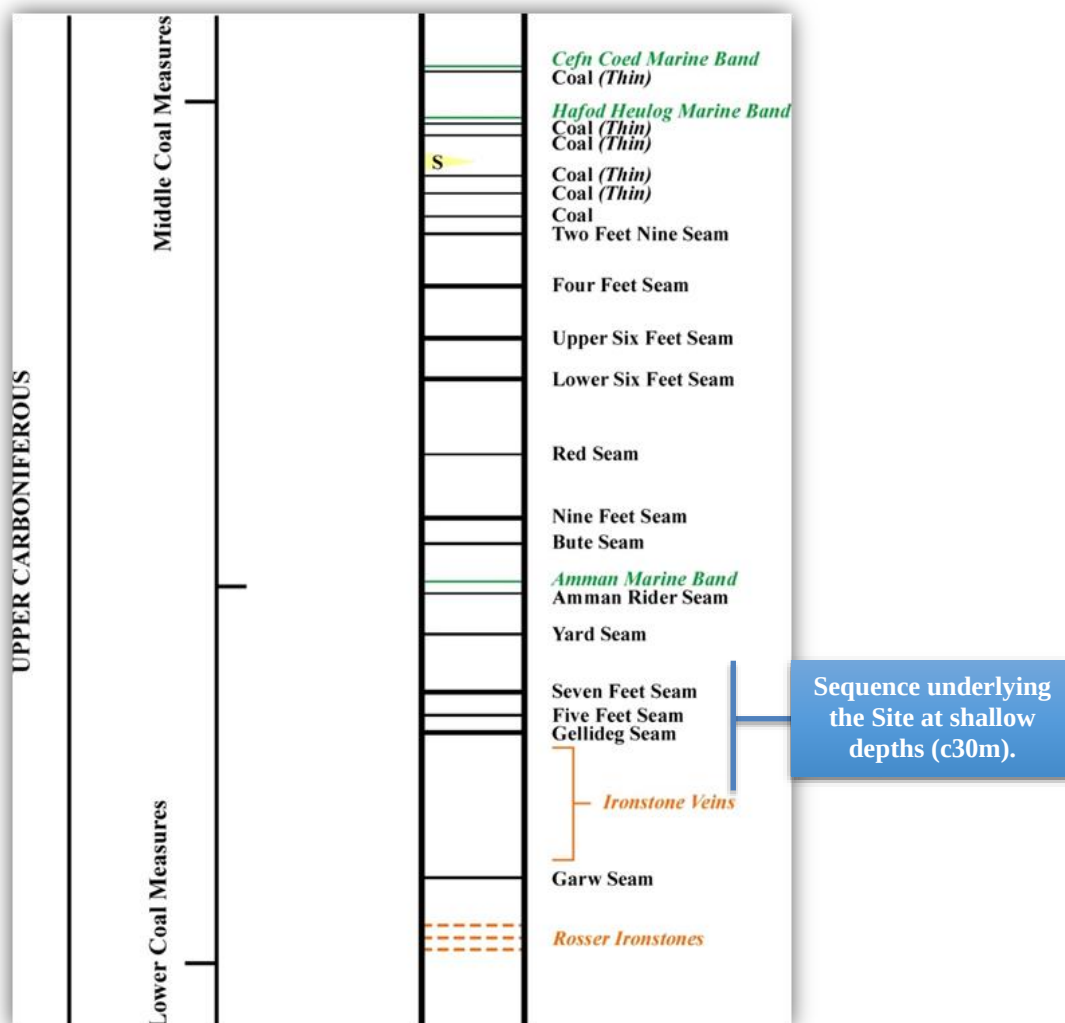
3 Geology of the Site

The Site is situated towards the northern margin of the South Wales Coalfield and is underlain at shallow depths with strata assigned to the Lower Coal Measures, a sub-division of the Upper Carboniferous Period. The published geological sheet for the area at a 1:10,560 scale, SO 00 NW, shows the inferred position of the outcrops of the Seven Feet, Five Feet and Gellideg

/Cont....

Seams to be present approximately 30m, 70m and 90m respectively north-east of the Site (see *Geology Plan, drawing no. BC/MB/11.20.03.02*). The regional dip of the strata in the Heolgerrig area is 1 in 12 in a southerly direction so that the above group of seams underlie the Site at relatively shallow depths. There are a number of ironstone veins below the Gellideg Seam in the geological sequence, some of which are likely to be within 30m of the surface (see Figure 2, Part of the Stratigraphic Column).

Figure 2
Part of the Stratigraphic Column



The measures of the South Wales Coalfield have been affected by large normal faults, frequently referred to as 'cross faults'. In the Heolgerrig area these faults have a sinuous trace at the surface and an average trend towards the north-west. Published geological information indicates that there are no such faults within influencing distance of the Site.

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Published geological information indicates that the measures are overlain with deposits of glacial Boulder Clay; we have no detailed information regarding the thickness and engineering properties of the Boulder Clay in the vicinity of the Site.

Published geological information also indicates that the Site is not affected by landslip.

4 Mining History

The general area has experienced extensive underground operations for both coal and ironstone dating back to the early nineteenth century. The workings were prosecuted from a number of adits driven into the valley sides at or near the outcrops of coal seams or ironstone veins, or else from shafts sunk near the valley floor. Our searches identified that the Site is affected by old workings in one coal seam at 'shallow depths, *i.e.* within 30m of the surface, and last mined in 1896.

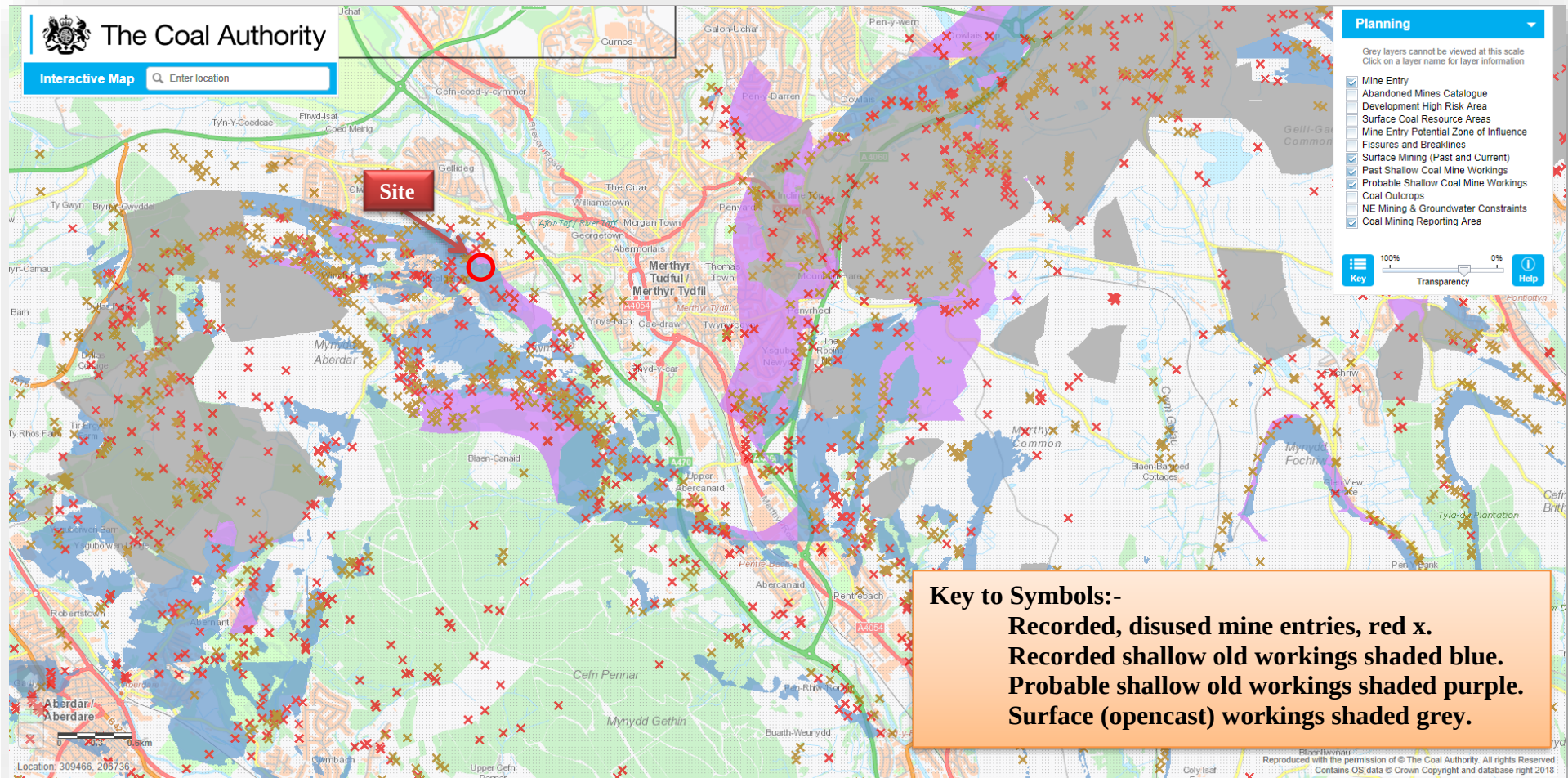
Our searches found that there are no records of disused shaft or adit within the confines of the Site or within 20m of its boundary, a situation confirmed by The Coal Authority *report no. 51002325822001*. There are no working collieries in the locality that would affect the proposed development. The Site has not been part of an opencast coal site (OCCS), and there have been no opencast mining operations close enough to the Site to affect the structural integrity of the proposed development.

5 Mine Gases

When coal is mined methane is released and may accumulate, sometimes with other mine gases, in the voids left by the mining operation. The gases may vent to atmosphere or be pushed out of the mining voids as they flood with mine water and in certain circumstances the gases can accumulate in voids and result in asphyxiation, fire or explosion. A number of studies of the old workings across South Wales and dating back to the mid to late twentieth century have shown that there is little risk from mine gases. This may be as a result of the nature of the coal seams or

/Cont....

Figure 3
Print-out of The Coal Authority's Interactive Map
(Accessed 17th November 2020)



/Cont....

because the shallow old workings have vented most of the mine gases to atmosphere or is as a result of the combination of the two. Locally, the coal measures are overlain with deposits of Boulder Clay that would inhibit the venting to atmosphere of mine gases. The recorded shallow mine workings underlying the Site are a potential source of mine gases, although The Coal Authority has no record of an incident involving mine gases at the Site that has required action.

6 Radon Gas

An assessment of the risk from Radon gas has been carried out by purchasing from Public Health England a Radon gas report for the property. The report identifies that the Site lies within an area that is not affected by Radon gas.

7 Discussion and Recommendations

7.1 Solid Geology

There are no large faults present in the locality that are close enough to the Site to have an impact upon the proposed development and published geological information indicates that the Site is not affected by landslip. In so far as the solid geology of the Site is concerned there is no requirement to include any particular precaution in the design and construction of the foundations.

7.2 Mining History of the Site

The Coal Authority's mining report and interactive map identifies the presence of shallow mine workings underlying the Site in one coal seam. Unrecorded old workings may also be present in one or more ironstone veins. It is recommended that when the location of the proposed dwelling has been finalised and approved by the LPA that exploratory boreholes are drilled in order to examine in more detail the nature and depth of any shallow mine workings that may be underlying the Site in order to inform a more detailed assessment of the risk that they pose. We envisage that commonly used techniques could be employed to mitigate the risk from any old workings that might be encountered. The borehole

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investigation should be designed and supervised by a Chartered Geologist or other competent person and will require a permit from The Coal Authority.

Our searches found no record of a disused mine entry within the confines of the Site or within 20m of its boundary. The potential for an unrecorded air shaft or adit to be present within the Site cannot be entirely dismissed, given the mining history of the area. If anything unusual is observed during excavation works then the work should be stopped immediately and advice should be sought from a suitably experienced Chartered Geologist or from The Coal Authority.

There are no active mining operations in the area that would affect the structural integrity of the proposed dwelling and the Site has not been part of an opencast coal site.

7.3 Foundation Options

Recommendations cannot be made regarding the appropriate foundation option until the findings of the recommended exploratory drilling are known. The exploration programme will require a permit from The Coal Authority.

7.4 Radon Gas

A report from Public Health England identifies that the Site lies within an area where there is no risk from Radon gas.

7.5 General

The advised site investigation should be designed and supervised by a Chartered Geologist, Chartered Geotechnical Engineer or other competent person.



**Dr Malcolm Blandford,
Chartered Geologist.**

Report Date: 17th November 2020.

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PLANS



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Geologists Working With The Environment....

Study on Land at Sunnybank, Farm Road,
Heolgerrig, Merthyr Tydfil.

General Location Plan.

Plan Scale: 1:50,000.

Key to Symbols:



Approximate Position of Site.

Note:

North is at top of plan.

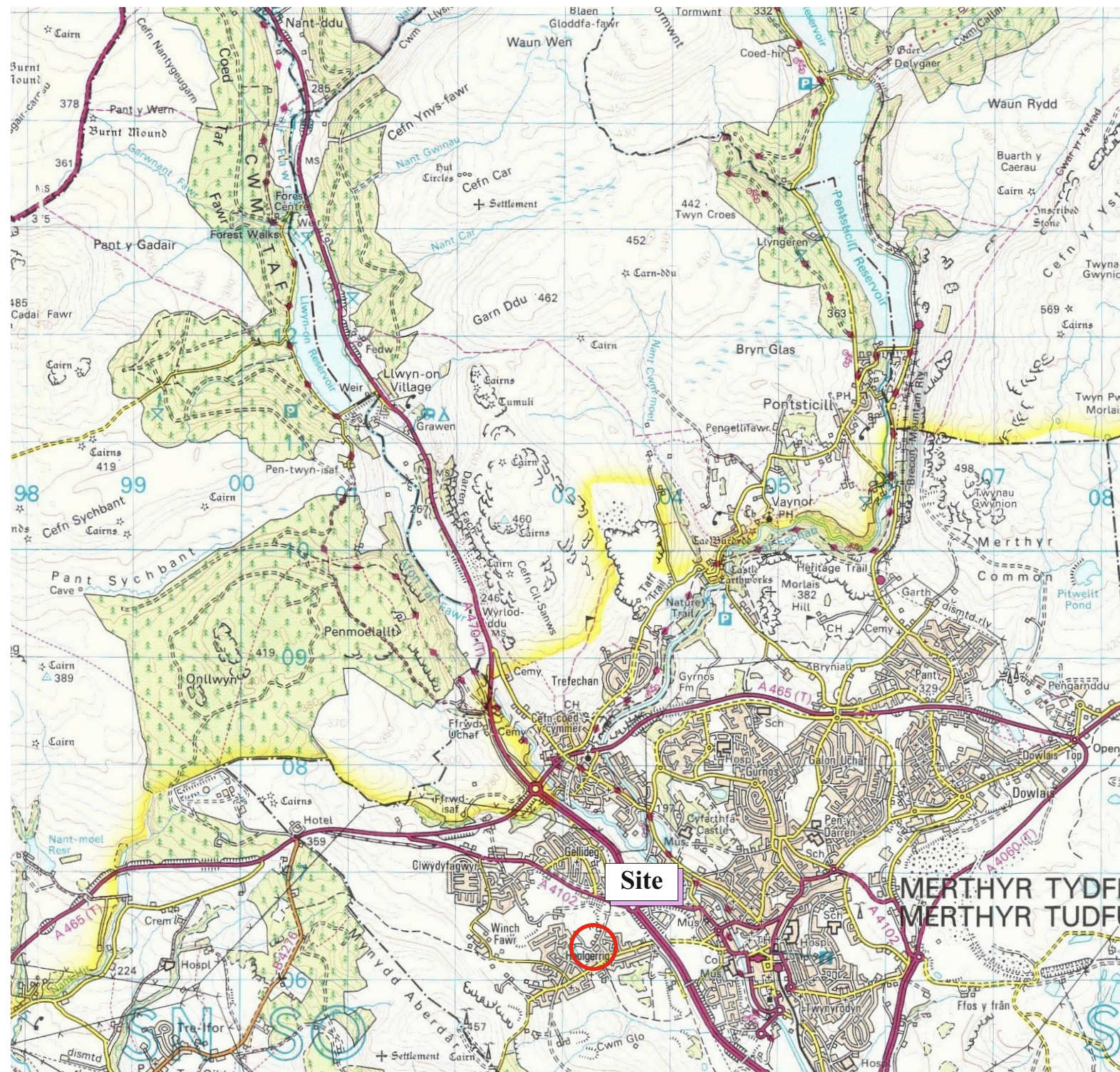
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Drawing No: BC/MB/11.20.03.01.



Study on Land at Sunnybank, Farm Road,
Heolgerrig, Merthyr Tydfil.

Geology Plan.

Plan Scale: 1:10,560.

Key to Symbols:

- Approximate Site Boundary.
- ➡ Approximate Position of Disused Adit.
- ⊕ Approximate Position of Disused Shaft.

Note:
North is at top of plan.

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Drawing No: BC/MB/11.20.03.02.



Study on Land at Sunnybank, Farm Road,
Heolgerrig, Merthyr Tydfil.

Detailed Location Plan.

Plan Scale: See Drawing.

Key to Symbols:

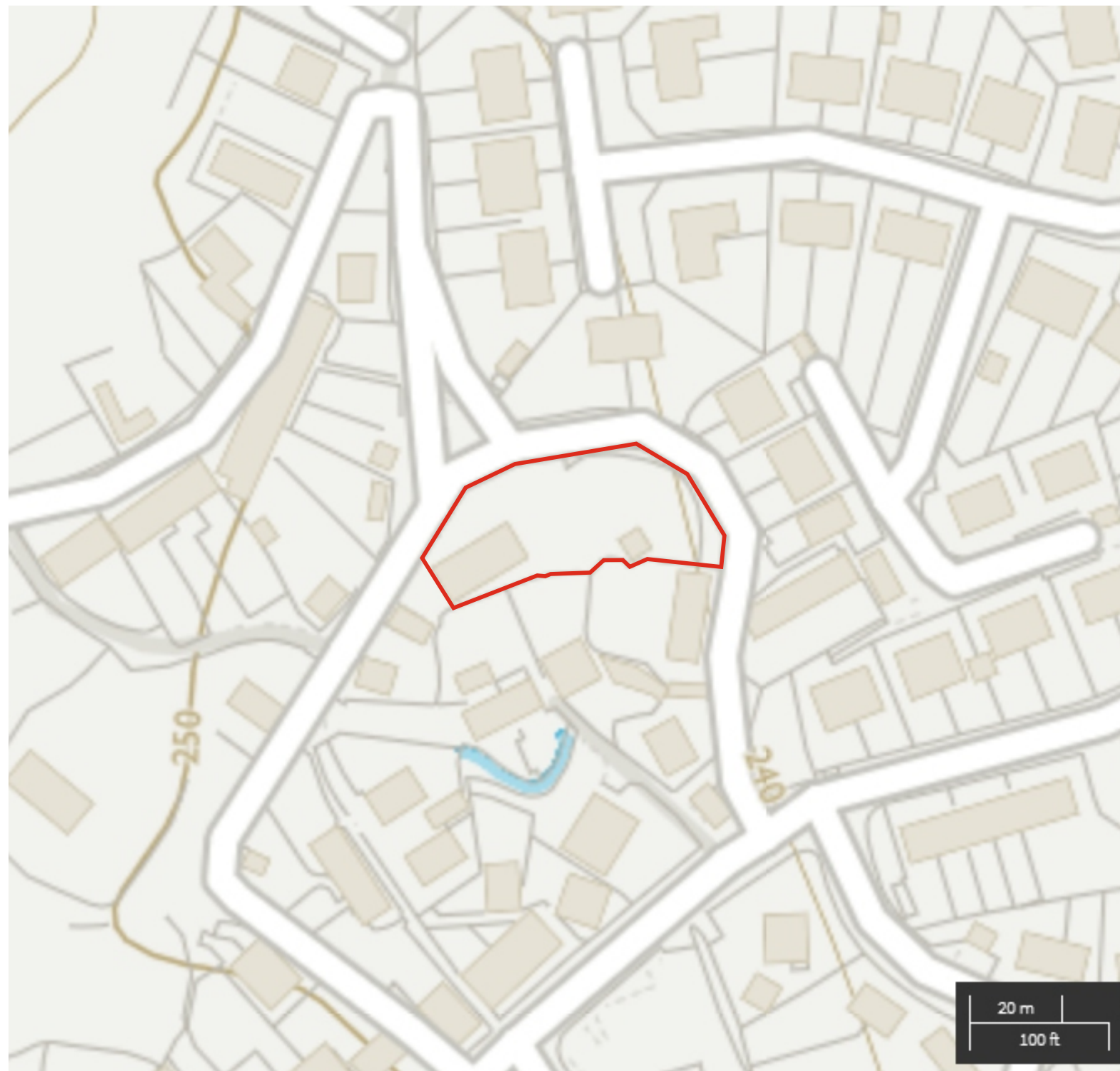
 **Approximate Site Boundary.**

Note:
North is at top of plan.

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Drawing No: BC/MB/11.20.03.03.



APPENDIX I

**COPY OF THE COAL
AUTHORITY'S REPORT, REF
NO. 51002325822001**



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PENTREBACH,
MERTHYR TYDFIL,
SOUTH WALES,
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The Coal
Authority

CON29M

coal mining report

SUNNY BANK, MOUNT PLEASANT, HEOLGERRIG, MERTHYR TYDFIL, CF48 1RT



Known or potential coal mining risks

Past underground coal mining	Page 4
Future underground coal mining	Page 4
Mine entries	Page 4



Further action

No further reports from the Coal Authority are required. Further information on any next steps can be found in our Professional opinion.

For more information on our reports please visit
www.groundstability.com



Professional opinion

According to the official mining information records held by the Coal Authority at the time of this search, evidence of, or the potential for, coal mining related features have been identified. In view of the coal mining circumstances we would recommend that any planned or future development should follow detailed technical advice before beginning work on site. Please see **page 3** for further details on **Future development**.

Your reference:

Our reference: **51002325822001**

Date: **23 October 2020**

Client name:

Philip Griffiths

If you require any further assistance please
contact our experts on:

0345 762 6848

groundstability@coal.gov.uk



The Law
Society

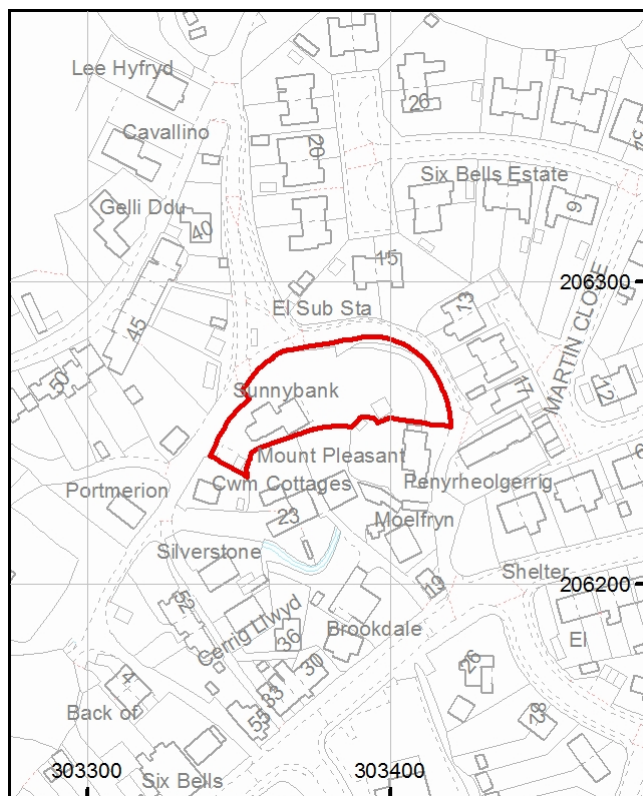
Enquiry boundary

Key

Approximate position of enquiry boundary shown



We can confirm that the location is
on the coalfield



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This report is prepared in accordance with the latest Law Society's Guidance Notes 2018, the User Guide 2018 and the Coal Authority's Terms and Conditions applicable at the time the report was produced.



Accessibility

If you would like this information in an alternative format, please contact our communications team on 0345 762 6848 or email communications@coal.gov.uk.

Professional opinion



Future development

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 specialist engineering practice required for former mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or coal mines without first obtaining the permission of the Coal Authority. Developers should be aware that the investigation of coal seams, mine workings or mine entries may have the potential to generate and/or displace underground gases. Associated risks both to the development site and any neighbouring land or properties should be fully considered when undertaking any ground works. The need for effective measures to prevent gases migrating onto any land or into any properties, either during investigation or remediation work, or after development must also be assessed and properly addressed.

If you are looking to develop, or undertake works, within a coal mining development high risk area your Local Authority planning department may require a Coal Mining Risk Assessment to be undertaken by a qualified mining geologist or engineer. Should you require any additional information then please contact the Coal Authority on **0345 762 6848** or email **cmra@coal.gov.uk**.

Detailed findings

Information provided by the Coal Authority in this report is compiled in response to the Law Society's CON29M Coal Mining enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL.

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1 Past underground coal mining

The property is in a surface area that could be affected by underground mining in 1 seam of coal at shallow depth, and last worked in 1896.

2 Present underground coal mining

The property is not within a surface area that could be affected by present underground mining.

3 Future underground coal mining

The property is not in an area where the Coal Authority has received an application for, and is currently considering whether to grant a licence to remove or work coal by underground methods.

The property is not in an area where a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area likely to be affected from any planned future underground coal mining.

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

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

4 Mine entries

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

This information is based on the information that the Coal Authority has at the time of this enquiry.

Based on the Coal Authority's knowledge of the mining circumstances at the time of this enquiry, there may be unrecorded mine entries in the local area that do not appear on Coal Authority records.

5 Coal mining geology

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

6 Past opencast coal mining

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

7 Present opencast coal mining

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

8 Future opencast coal mining

There are no licence requests outstanding to remove coal by opencast methods within 800 metres of the boundary.

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.

9 Coal mining subsidence

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

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

The Coal 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.

10 Mine gas

The Coal Authority has no record of a mine gas emission requiring action.

11 Hazards related to coal mining

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

12 Withdrawal of support

The property is not in an area where a notice to withdraw support has been given.

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

13 Working facilities order

The property is not in an area where 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.

14 Payments to owners of former copyhold land

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

Statutory cover



Coal mining subsidence

In the unlikely event of any coal mining related subsidence damage, the Coal Authority or the mine operator has a duty to take remedial action in respect of subsidence caused by the withdrawal of support from land or property in connection with lawful coal mining operations.

When the works are the responsibility of the Coal Authority, our dedicated public safety and subsidence team will manage the claim. The house or land owner ("the owner") is covered for these works under the terms of the Coal Mining Subsidence Act 1991 (as amended by the Coal Industry Act 1994). Please note, this Act does not apply where coal was worked or gotten by virtue of the grant of a gale in the Forest of Dean, or any other part of the Hundred of St. Briavels in the county of Gloucester.

If you believe your land or property is suffering from coal mining subsidence damage and you need more information on what to do next, please use the following link to our website which sets out what your rights are and what you need to consider before making a claim.

www.gov.uk/government/publications/coal-mining-subsidence-damage-notice-form



Coal mining hazards

Our public safety and subsidence team provide a 24 hour a day, 7 days a week hazard reporting service, to help protect the public from hazards caused by past coal workings, such as a mine shaft or shallow working collapse. To report any hazards please call **01623 646 333**. Further information can be found on our website: www.gov.uk/coalauthority.

Glossary



Key terms

adit - horizontal or sloped entrance to a mine

coal mining subsidence - ground movement caused by the removal of coal by underground mining

Coal Mining Subsidence Act 1991 - the Act setting out the duties of the Coal Authority to repair damage caused by coal mining subsidence

coal mining subsidence damage - damage to land, buildings or structures caused by the removal of coal by underground mining

coal seams - bed of coal of varying thickness

future opencast coal mining - a licence granted, or licence application received, by the Coal Authority to excavate coal from the surface

future underground coal mining - a licence granted, or licence application received, by the Coal Authority to excavate coal underground. Although it is unlikely, remaining coal reserves could create a possibility for future mining, which would be licensed by the Coal Authority

mine entries - collective name for shafts and adits

payments to owners of former copyhold land - historically, copyhold land gave rights to coal to the copyholder. Legislation was set up to allow others to work this coal, but they had to issue a notice and pay compensation if a copyholder came forward

shaft - vertical entry into a mine

site investigation - investigations of coal mining risks carried out with the Coal Authority's permission

stop notice - a delay to repairs because further coal mining subsidence damage may occur and it would be unwise to carry out permanent repairs

subsidence claim - a formal notice of subsidence damage to the Coal Authority since it was established on 31 October 1994

withdrawal of support - a historic notice informing landowners that the coal beneath their property was going to be worked

working facilities orders - a court order which gave permission, restricted or prevented coal mine workings

APPENDIX II

PUBLIC HEALTH ENGLAND'S RADON GAS REPORT



THE ENTERPRISE CENTRE,
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Geologists Working With The Environment....



Radon Risk Report for addresses in England and Wales

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Address searched: Sunnybank, Farm Road, Heolgerrig, Merthyr Tydfil, CF48 1RT

Date of report: 17 November 2020

Guidance for existing properties

Is this property in a radon Affected Area? - No

A radon Affected Area is defined as where the radon level in at least one property in every hundred is estimated to exceed the Action Level.

The estimated probability of the property being above the Action Level for radon is: 0-1%

The result may not be valid for buildings larger than 25 metres.

If this site is for redevelopment, you should undertake a GeoReport provided by the British Geological Survey.

This report informs you of the estimated probability that this particular property is above the Action Level for radon. This does not necessarily mean there is a radon problem in the property; the only way to find out whether it is above or below the Action Level is to carry out a radon measurement in an existing property.

Radon Affected Areas are designated by the Public Health England. PHE advises that radon gas should be measured in all properties within Radon Affected Areas.

If you are buying a currently occupied property in a Radon Affected Area, you should ask the present owner whether radon levels have been measured in the property. If they have, ask whether the results were above the Radon Action Level and if so, whether remedial measures were installed, radon levels were re-tested, and the results of re-testing confirmed the effectiveness of the measures.

Further information is available from PHE or <https://www.ukradon.org>

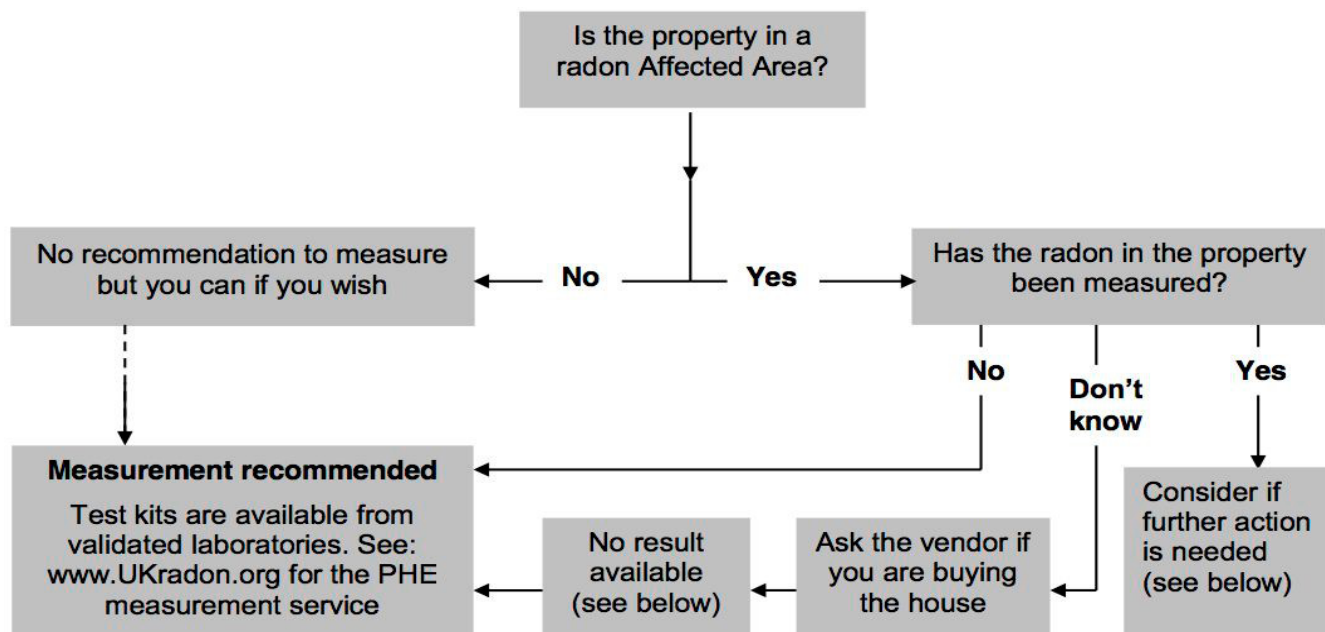
Guidance for new buildings and extensions to existing properties

What is the requirement under Building Regulations for radon protection in new buildings and extensions at the property location? - None

If you are buying a new property in a Radon Affected Area, you should ask the builder whether radon protective measures were incorporated in the construction of the property.

See the Radon and Building Regulations for more details.

PHE guidance for occupiers and prospective purchases



Existing radon test results: There is no public record of individual radon measurements. Results of previous tests can only be obtained from the seller. Radon levels can be significantly affected by changes to the building or its use, particularly by alterations to the heating and ventilation which can also be affected by changes in occupier. If in doubt, test again for reassurance.

Radon Bond: This is simply a retained fund, the terms of which are negotiated between the purchaser and the vendor. It allows the conveyance of the property to proceed without undue delay. The purchaser is protected against the possible cost of radon reduction work and the seller does not lose sale proceeds if the result is low. Make sure the agreement allows enough time to complete the test, get the result and arrange the work if needed.

High Results: Exposure to high levels of radon increases the risk of developing lung cancer. If a test in a home gives a result at or above the Action Level of 200 Becquerels per cubic metre of air (Bq/m³), formal advice will be given to lower the level. Radon reduction will also be recommended if the occupants include smokers or ex-smokers when the radon level is at or above the Target Level of 100 Bq/m³; these groups have a higher risk. Information on health risks and radon reduction work is available from PHE. Guidance about radon reduction work is also available from some Local Authorities, the Building Research Establishment and specialist contractors.

PHE designated radon website:

<https://www.ukradon.org>

Building Research Establishment:

<http://www.bre.co.uk/page.jsp?id=3137>



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