

Report No. BC/MB/01.21.04.Rev1.

Mining Risk Assessment: Proposed Training Pitches and Car Park at the Wern Sports Field.

Prepared on behalf of:

Merthyr Rugby Club.

By:



Copyright.

The copyright relating to this report and the plans and documents therein contained, which have been prepared by Blandford Consulting, is owned by them exclusively, and no such report, plan or document may be reproduced, published or adapted without their written consent. Complete or partial copies may be distributed by the client to facilitate discussions and matters relating to its commission. This report has been researched, prepared and compiled in the context of the purpose stated herein and must not be used in a different context.

BLANDFORD CONSULTING

**THE ENTERPRISE CENTRE, MERTHYR INDUSTRIAL PARK,
PENTREBACH, MERTHYR TYDFIL, SOUTH WALES, CF48 4DR.
TEL: 01443 693353, FAX: 01443 693351
EMAIL: SALES@BLANDFORDCONSULTING.COM
WWW.BLANDFORDCONSULTING.COM**

Liability.

Blandford Consulting does not accept any liability other than arising out of the information that forms the basis of this report.

Mining Risk Assessment: Training Pitches and Car Parking, Land at the Wern Sports Ground.

Contents.

	Page:
1. Introduction	1
2. Brief Description of the Site	2
3. Geology of the Site	2
4. Mining History	3
5. Mine Gases	7
6. Radon Gas	8
7. Risk Assessment: Discussion and Recommendations	8

List of Plans

Drawing No:		Scale:
<i>BC/MB/01.21.04.01.</i>	<i>General Location Plan.</i>	<i>1:50,000.</i>
<i>BC/MB/01.21.04.02.</i>	<i>Geology Plan.</i>	<i>1:10,560.</i>
<i>BC/MB/01.21.04.03.</i>	<i>Detailed Location Plan.</i>	<i>See Plan.</i>

Appendices

Appendix I: Copy of The Coal Authority's Report, reference no. 51002046522001.

Appendix II: Copy of Public Health England's Radon Gas Report.

Mining Risk Assessment: Training Pitches and Car Parking, Land at The Wern Sports Ground.

1 Introduction

This report has been prepared on behalf of our client:

***Merthyr Rugby Club,
The Wern Sports Field,
Cae'r Wern,
Merthyr Tydfil,
CF48 1AE***

and relates to the Wern Sports Ground, Cae'r-Wen, Ynys Fach Estate, Merthyr Tydfil where it is proposed to construct new training pitches and car parking facilities. This report discusses the geology and mining history of the Site and the immediately surrounding area as they may affect the proposed development. Recommendations are made for the inclusion of a geotextile grid to mitigate against the risk of surface subsidence resulting from the presence of shallow mine workings.

The following sources of data were used in the compilation of this report:

- i) *Research of published geological records;*
- ii) *Research of mining records held at The Coal Authority's archive in Mansfield;*
- iii) *Research of The Coal Authority's interactive map, accessed on the 28th January 2021;*
- iv) *The findings of The Coal Authority's report, reference no. 51000874376001;*
- v) *the archive records of Blandford Consulting.*

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

/Cont....

2 Brief Description of the Site

The Wern Sports Ground is located on the western fringes of Merthyr Tydfil, approximately 600m south-west of the town centre; it is irregular in outline and occupies an area of approximately 0.26 hectares (see Figure 1 and *General Location Plan, drawing no. BC/MB/01.21.04.01*). The plot of land that is the subject of this report, 'the Site' is an approximately rectangular area occupying the southern half of the Wern Sports Ground; it has approximate maximum dimensions of 125m by 115m. The Wern Sports Ground is located in a residential area on the fringes of the town and is bounded on its western side by the A 470 (T), beyond which is open countryside. It is situated close to the floor of the Taff Valley and the Site is at an approximate elevation of 187m aod.

Figure 1
Aerial View of the Wern Sports Ground



3 Geology of the Site

The Site is situated near the northern margin of the South Wales Coalfield and is underlain at shallow depths by strata assigned to the Lower Coal Measures, a sub-division of the

/Cont....

Upper Carboniferous Period. The most recently published geological sheet at 1:10,560 scale (SO 00 NW) shows the inferred positions of the outcrops of the Seven Feet, Five Feet and Gellideg Seams to pass through the Site (see *Geology Plan, drawing no. BC/MB/01.21.04.02*). The next seam below the Gellideg Seam in the geological sequence is the Garw Seam; the interval between the two is approximately 30m. There are a number of ironstone bands within the coal measures lying between the two seams with two further ironstone bands, the Rosser Veins, present below the Garw Seam. The regional dip of the coal measures around the Wern is south-westwards with the result that the published geology sheet indicates that above named coal seams underlie the Site at relatively shallow depths. However, earlier ground investigation carried out at the Wern indicates that the shallow coal measures underlying the Site are the sequence immediately beneath the Gellideg Seam down to the Garw Seam, including the five ironstone bands.

The coal measures of the South Wales Coalfield have been affected by large faults. In the Ynys Fach area these large faults have a slightly sinuous trace at the surface and an average trend towards the north-west. The published geological sheet indicates that the Site is not affected by large scale faulting.

The published geological sheet indicates that locally the coal measures are overlain with deposits of glacial boulder clay. Other ground investigations at the Sports Ground have identified the presence of Made Ground across much of the area. Published geological records indicate that the Site is not affected by landslip.

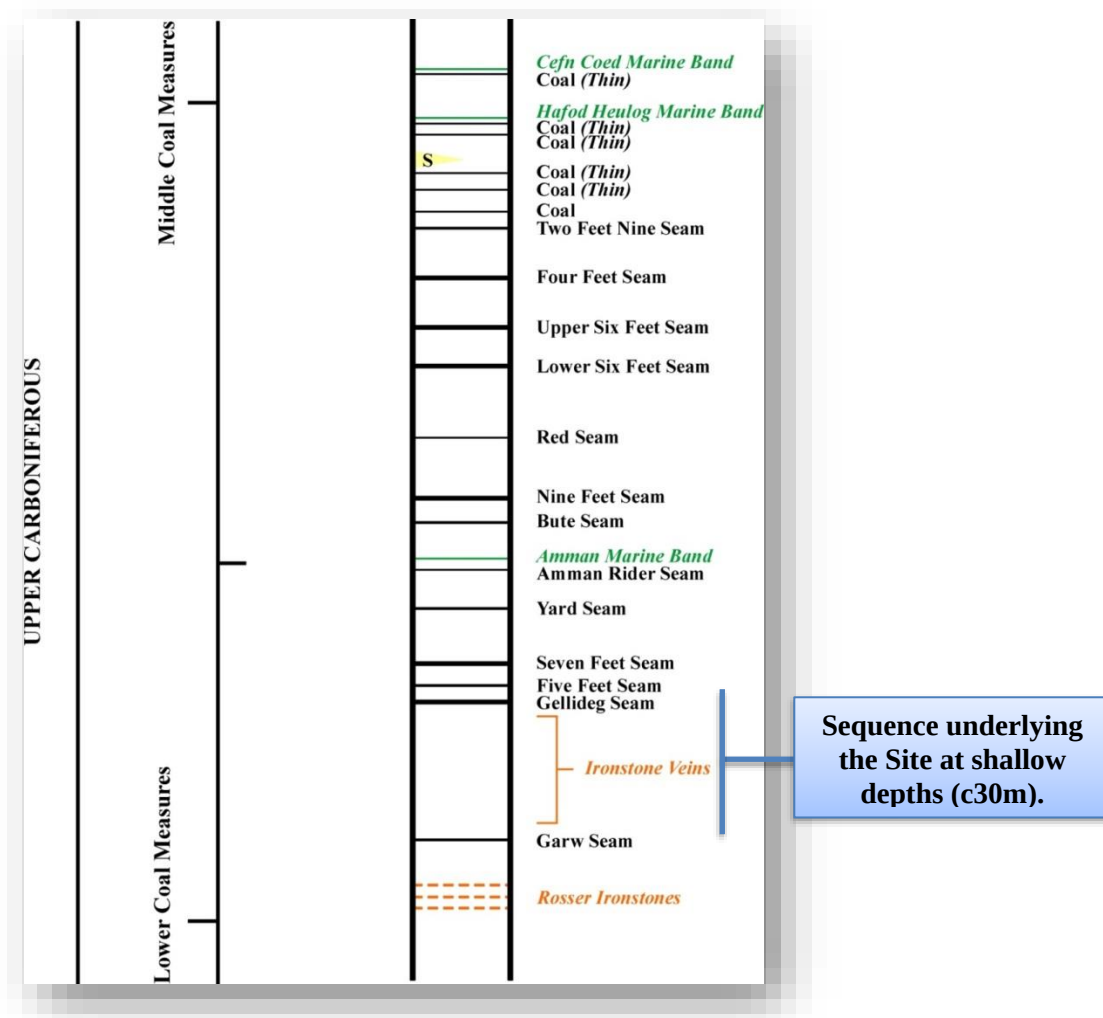
4 Mining History

The area has been subject to extensive mining operations for both coal and ironstone dating back to the earliest part of the nineteenth century. Coal seams and ironstone veins were accessed by adits driven into the mining horizons near their outcrops and by shafts sunk into the deeper coal seams and ironstone veins; there are a large number of disused shafts and adits in the locality. Air shafts were also sunk in order to provide ventilation to the underground mining operations. Both the Five Feet Seam and the Gellideg Seam were mined underground in the

/Cont....

immediate vicinity of the Site; although our search of coal mining records identified no record of old workings underlying the Site. The records held by The Coal Authority are not a complete record of past mining activities and the presence of unrecorded old workings cannot be dismissed, particularly in this area where extensive underground mining operations began before comprehensive records were being kept and where fairly widespread mining of ironstone veins has taken place.

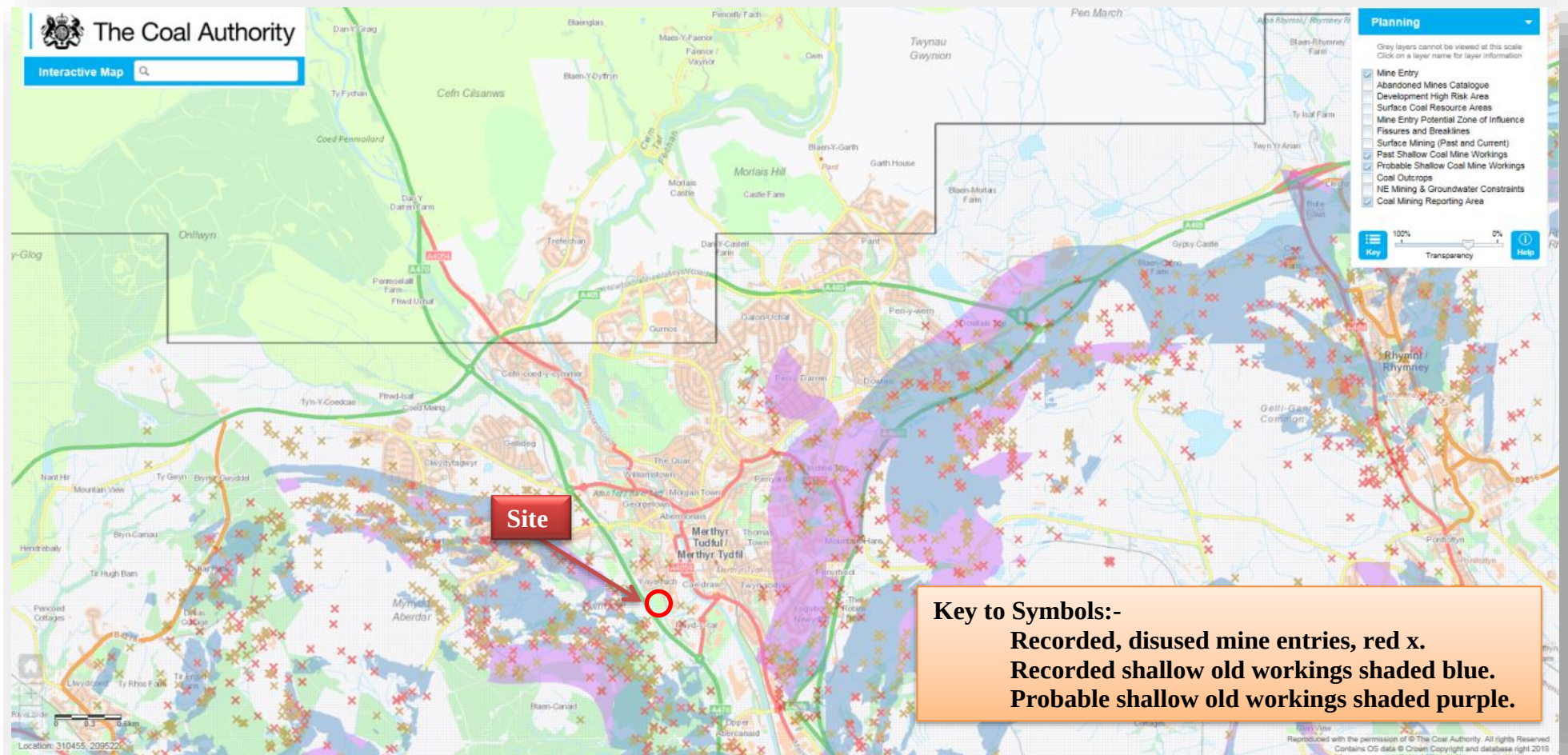
Figure 2
Part of the Stratigraphic Column.
 Scale: Not to Scale.



Since the early 1800s extensive underground mining operations took place in the five ironstone veins present between the Gellideg Seam and the Garw Seam together with the Rosser

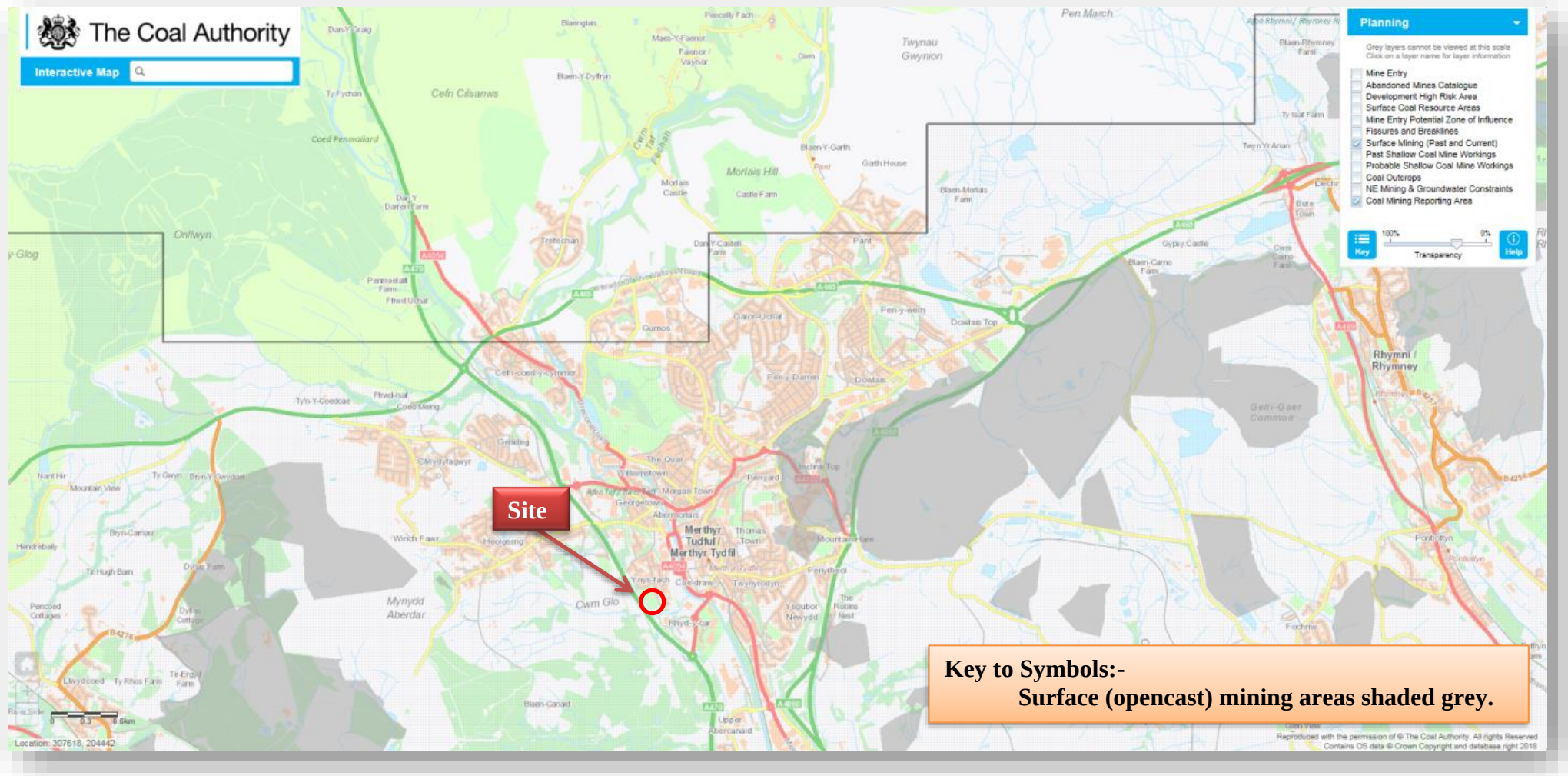
/Cont....

Figure 3
Print-out of The Coal Authority's Interactive Map
(Accessed 28th January 2021)



/Cont....

Figure 4
Print-out of The Coal Authority's Interactive Map
(Accessed 28th January 2021)



/Cont....

Veins. The workings were prosecuted from a number of drift mine entries and shafts that were interconnected and stretched from Clwydyfagwyr southwards to Abercanaid. The Rhydycar Pit, 200m south-east of the Site, was an important part of this extensive mining operation; the underground mining operations for the ironstone veins extended across the area of the Site.

Site investigation carried out at the Sports Ground for other developments has proved the presence of shallow old workings in a number of the ironstone veins.

Otherwise, there are no active coal mines in the locality, either deep mines or opencast, that would affect the structural integrity of the proposed redevelopment and the Site has not previously been part of an opencast coal site.

Our searches found no record of a disused shaft or adit within the confines of the Wern Sports Ground or within 20m of its boundary, a situation confirmed by The Coal Authority *report no. 51002046522001*. The risk of an unrecorded mine entry being present within the Site cannot be entirely discounted. The Site has not been part of an opencast coal site, and there have been no opencast mining operations close enough to the Site to affect the structural integrity of the proposed development. There are no operating collieries within influencing distance of the Site.

5 Mine Gases

When coal seams are disturbed during mining operations methane can be released and can collect with other mine gases in the mining voids left by the operations. In certain circumstances mine gases can accumulate within buildings and cause fire or explosion or can result in asphyxiation. 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 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. There are no shallow coal workings beneath the Site that could act as a source of mine gases and The Coal Authority has no record of an emission of mine gas at the Site that has required action. The proposed development does not include any enclosed spaces.

/Cont....

6 Radon Gas

The proposed developments do not include any enclosure spaces and a Radon gas report obtained for other developments at the sports ground identifies that sport ground is not in a Radon affected area.

7 Risk Assessment: Discussion and Recommendations

7.1 Solid Geology

There are no features associated with the solid geology of the Site that would require any particular measures to be included in the design and construction of the playing fields and car parking areas. It is recommended that no further action is required in this respect.

7.2 Mining History

7.2.1 Shallow Mine Workings

The area has been subject to extensive underground mining operations since at least the earliest part of the nineteenth century and site investigation carried out for other developments at the sports ground had proved the presence of shallow mine workings in a number of ironstone veins. The proposed development includes only soft developments involving only very shallow excavations, it does not include any hard structures or buildings. Given the nature of the proposed development there is no requirement to include any mitigation against any risk from the mining heritage.

7.2.2 Mine Entries

Our searches found no record of disused mine entries within the bounds of the Wern Sports Ground or 20m of its boundaries. Although the presence of an unrecorded entry cannot be entirely dismissed, there are mining records of local underground mine workings and these identify no mine entries within the confines

/Cont....

of the Site. The situation should be monitored during site clearance works and if any suspicious features are observed then excavation work must stop immediately and advice sought from a Chartered Geologist or from The Coal Authority.

7.2.3 Mine Gases

Various studies of the shallow old workings in the Heolgerrig area have found no particular risk from mine gases. However, the proposed development includes no enclosed spaces and it is considered that there is no risk to the development from mine gases.

7.3 Radon Gas

A Radon gas report obtained for other developments at the sports ground found that it is in an area where there is no risk from Radon gas and the development includes no enclosed spaces.

7.4 Summary of Risk Assessment

There is a risk of shallow mine workings being present beneath the Site in one coal seam and/or ironstone vein with the old workings at shallow enough depths to pose a risk of surface subsidence.

7.5 Recommendations

The proposed development includes only soft developments involving very shallow excavations, there is no requirement to include any mitigation against any risk from the mining heritage.

/Cont....



**Dr Malcolm Blandford,
Chartered Geologist.**

Report Date: 16th March 2021.

**Blandford Consulting,
Consultant Geologists and Geotechnical Engineers,
The Enterprise Centre, Merthyr Industrial Park, Pentrebach, Merthyr Tydfil, CF48 4DR.
Tel. No. (01443) 693353. Fax. No. (01443) 693351.**

PLANS



THE ENTERPRISE CENTRE,
MERTHYR INDUSTRIAL PARK,
PENTREBACH,
MERTHYR TYDFIL,
SOUTH WALES,
CF48 4DR.

BLANDFORD CONSULTING

Geologists Working With The Environment....

Study on Land at Merthyr Rugby Club Ground.

General Location Plan.

Plan Scale: 1:50,000.

Key to Symbols:

 Approximate Position of Site.

Note:
North is at top of plan.

© Crown Copyright Reserved



THE ENTERPRISE CENTRE,
MERTHYR INDUSTRIAL PARK,
PENTREBACH,
MERTHYR TYDFIL,
SOUTH WALES,
CF48 4DR.

BLANDFORD CONSULTING

Drawing No: BC/MB/01.21.04.01.



Study on Land at Merthyr Rugby Club Ground.

Geology Plan.

Plan Scale: 1:10,560.

Key to Symbols:

Approximate Site Boundary.

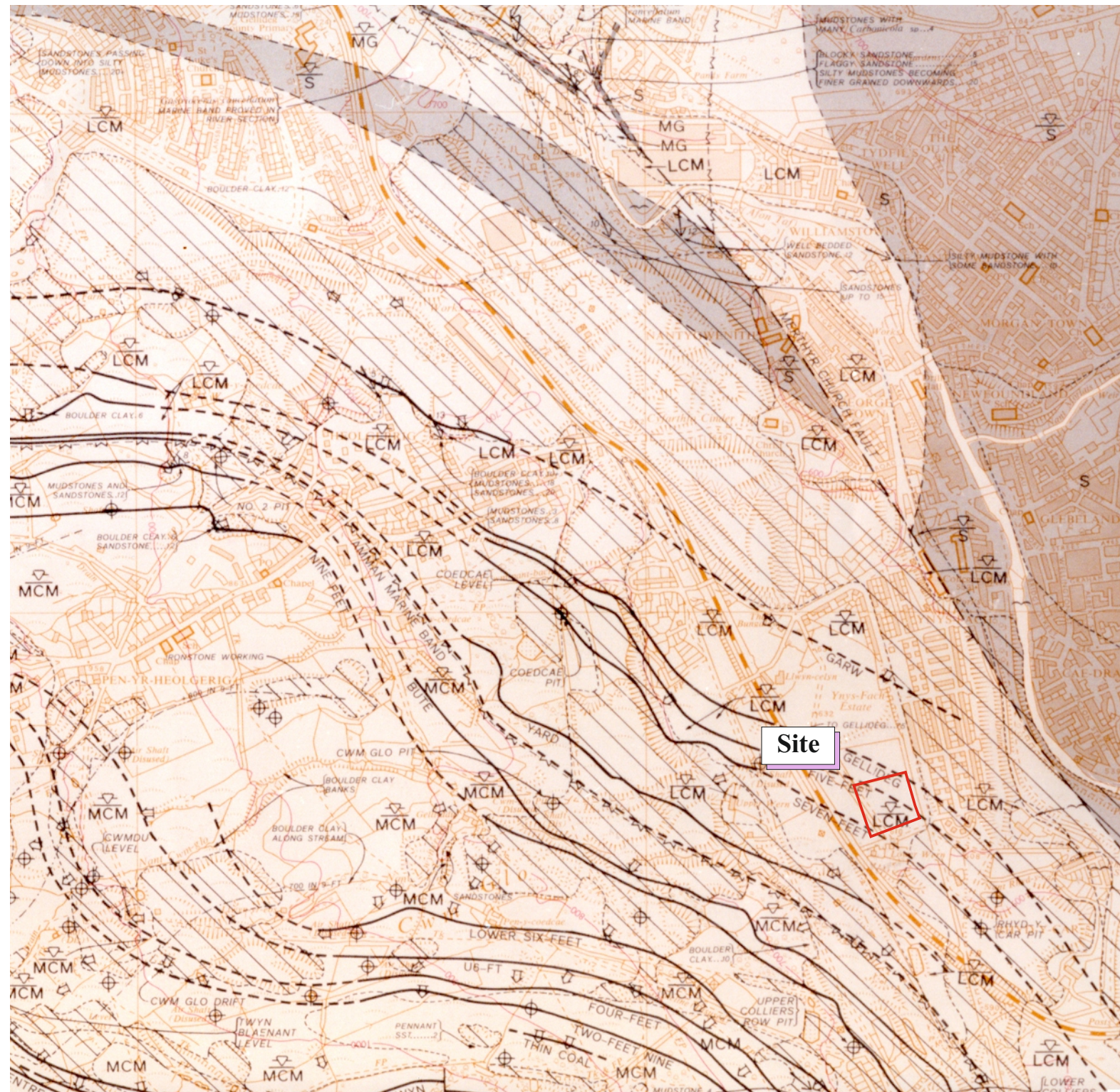
Note:
North is at top of plan.

© Crown Copyright Reserved



Drawing No: BC/MB/01.21.04.02.

Geologists Working With The Environment.....



Study on Land at Merthyr Rugby Club Ground.

Detailed Location Plan.

Plan Scale: See Plan.

Key to Symbols:

 **Approximate Site Boundary.**

Note:
North is at top of plan.

© Crown Copyright Reserved



THE ENTERPRISE CENTRE,
MERTHYR INDUSTRIAL PARK,
PENTREBACH,
MERTHYR TYDFIL,
SOUTH WALES,
CF48 4DR.

BLANDFORD CONSULTING

Drawing No: BC/MB/01.21.04.03.



APPENDIX I

**THE COAL AUTHORITY'S
MINING REPORT REFERENCE
No 51000874376001**



THE ENTERPRISE CENTRE,
MERTHYR INDUSTRIAL PARK,
PENTREBACH,
MERTHYR TYDFIL,
SOUTH WALES,
CF48 4DR.

BLANDFORD CONSULTING

Geologists Working With The Environment....



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

**BLANDFORD CONSULTING
MERTHYR TYDFIL INDUSTRIAL PARK
PENTREBACH
MERTHYR TYDFIL
MID GLAMORGAN
CF48 4DR**

Our reference: **51000874376001**
Your reference: **Merthyr Rugby Club**
Date of your enquiry: **29 April 2015**
Date we received your enquiry: **29 April 2015**
Date of issue: **29 April 2015**

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

Non-Residential Coal Authority Mining Report

6 CAE'R WERN, MERTHYR TYDFIL, CF48 1AE

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 not in an area for which a licence has been granted to remove or otherwise work coal using underground methods.

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

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

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

Mine entries

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

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. 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.

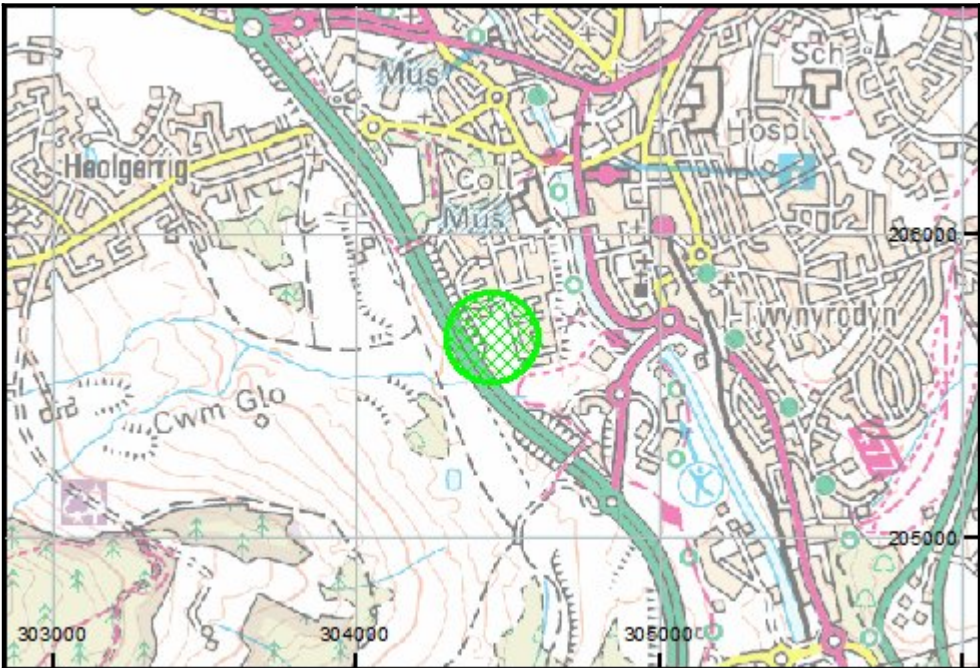
The Coal Authority owns the copyright in this report. The information we have used to write this report is protected by our database right. All rights are reserved and unauthorised use is prohibited. If we provide a report for you, this does not mean that copyright and any other rights will pass to you.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

Issued by:	The Coal Authority, 200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG
Tax Point Date:	29 April 2015
Issued to:	BLANDFORD CONSULTING MERTHYR TYDFIL INDUSTRIAL PARK PENTREBACH MERTHYR TYDFIL MID GLAMORGAN CF48 4DR
Property Search for:	6 CAE'R WERN, MERTHYR TYDFIL, CF48 1AE
Reference Number:	51000874376001
Date of Issue:	29 April 2015
Cost:	£59.00
VAT @ 20%:	£11.80
Total Received:	£70.80
VAT Registration	598 5850 68

Location map



Approximate position of property

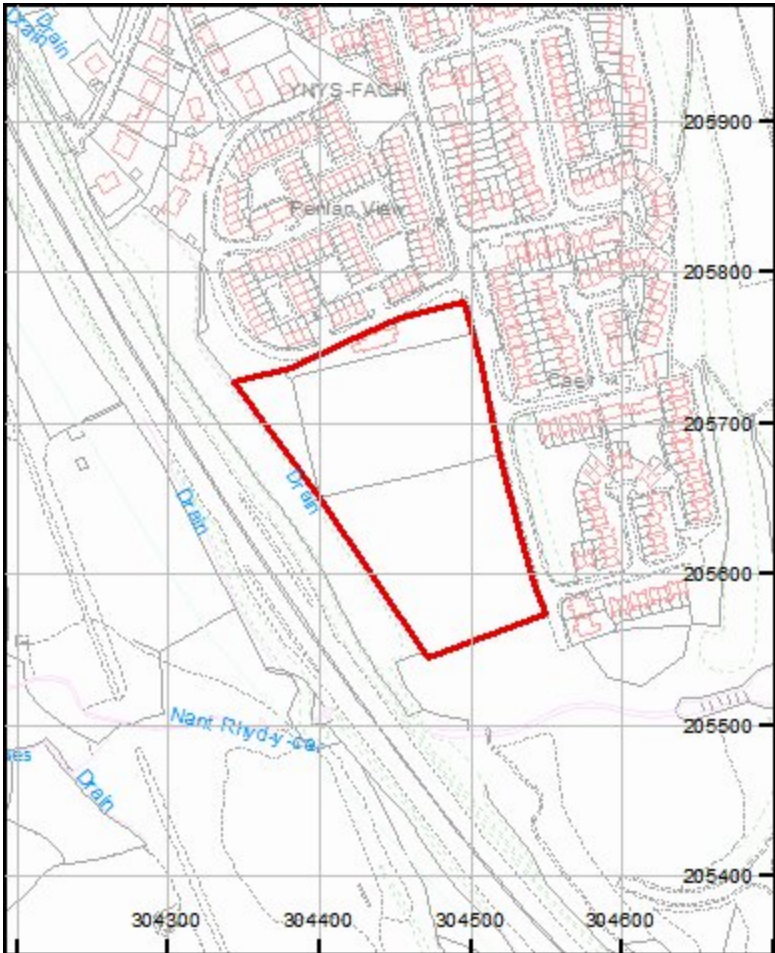


Enquiry boundary

Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right 2015. All rights reserved. Ordnance Survey Licence number: 100020315

Key

Approximate position of enquiry boundary shown



APPENDIX II

PUBLIC HEALTH ENGLAND'S RADON GAS REPORT



THE ENTERPRISE CENTRE,
MERTHYR INDUSTRIAL PARK,
PENTREBACH,
MERTHYR TYDFIL,
SOUTH WALES,
CF48 4DR.

BLANDFORD CONSULTING

Geologists Working With The Environment....



Radon Risk Report for addresses in England and Wales

Issued by Public Health England and British Geological Survey. This is Based upon Crown Copyright and is reproduced with the permission of Land & Property Services under delegated authority from the Controller of Her Majesty's Stationery Office, © Crown copyright and database right 2014MOU512.

Address searched: 24 Penlan View, Merthyr Tydfil, CF47 8NJ

Grid reference searched:

304391 East

205756 North

Date of report: 11 August 2016

Guidance for existing properties

Is this property in a radon Affected Area? - No

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.

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 <http://www.ukradon.org>

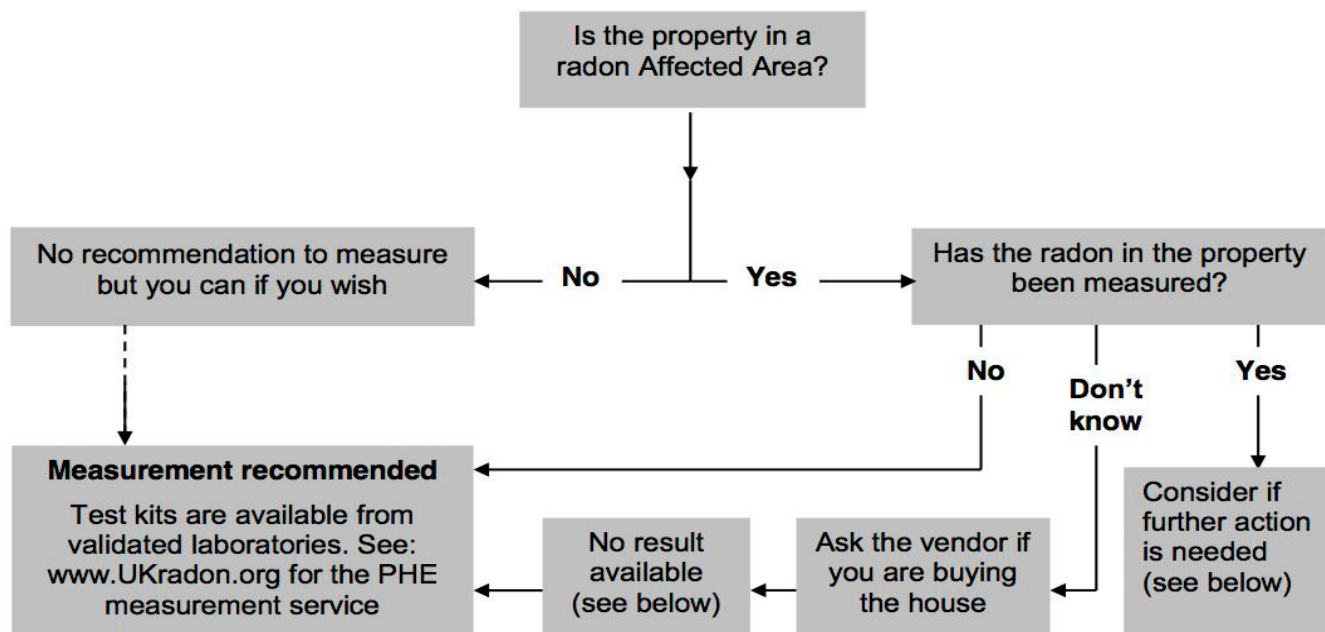
Guidance for new buildings and extensions to existing properties

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:

<http://www.ukradon.org>

Building Research Establishment:

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



BLANDFORD CONSULTING

THE ENTERPRISE CENTRE, MERTHYR INDUSTRIAL PARK, PENTREBACH, MERTHYR TYDFIL, SOUTH WALES, CF48 4DR. TEL: 01443 693353.