



RHONDDA
GEOTECHNICAL
SERVICES

COAL MINING RISK ASSESSMENT
PRE-PLANNING ENQ. Q2022/0111
NEATH PORT TALBOT C.B.C.
RESIDENTIAL UNITS
BRYNMORGAN VILLA CARE HOME
LOWER BRYNMORGAN BRIDGE
UPPER CWMTWARCH
SWANSEA
SA9 2XG
16/10/2022

All Ordnance Survey mapping used in this report has been purchased from Groundsure or Promap and remains Crown Copyright. The Geological Survey map is from the Author's own collection and is also Crown Copyright. Coal Authority documents are also copyright All plans are orientated north unless otherwise indicated.

This report is supplied in confidence to the client as a Coal Mining Risk Assessment. The author cannot be held responsible for its use for any other purpose or unauthorised use by third parties. The report remains the intellectual property of the author and unauthorised use will result in legal action.

COAL MINING RISK ASSESSMENT

1. INTRODUCTION

This Coal Mining Risk Assessment (henceforth C.M.R.A.) has been produced for Geraint John Planning who have been acting as agents for a pre-planning application to Neath Port Talbot L.P.A. reference Q2022/0111. The application is for the construction of detached modular residential units on land within an existing care home facility at Brynmorgan Villa, Upper Cwmtwrch. Some outline plans of the proposed siting of the modules have been suggested. These can be seen in Appendix 1. The footprints of the proposed modules may be subject to change for several reasons, not least the findings of this risk assessment. N.P.T. have told the agents they require supporting documentation, one item of which is a C.M.R.A. The Coal Authority do not consult over pre-application matters. However, N.P.T. point out that the site area is classed as partly being within a Development High Risk Area. The reasons for this classification are multiple nearby coal mine entrances and shallow coal seam outcrops. With such a classification the C.A. become statutory consultees for the application and a C.M.R.A. needs to be produced to validate the application as requested.

Richard Davies BSc. (Hons), MSc., F.G.S. of Rhondda Geotechnical Services has been commissioned as the competent person to prepare a C.M.R.A. of the proposed development site. The purpose of any C.M.R.A. is to provide the L.P.A. with information on possible coal mining and an assessment of its impact on the ground stability of the site in order to satisfy the L.P.A. that the site is, or can be made safe and stable in line with national guidelines. This will be done in line with the template and recommendations of the C.A. document Guidance for Welsh L.P.A.s (version 4, 2017).

The site is centred on grid reference 275715, 210870 and ranges in elevation between approximately 113m-125m. A.O.D. There are no surface watercourses. The site location is shown in Figure 1 and the site boundary is shown in Figure 2 overleaf. It should be noted that two distinct areas are highlighted in Figure 2 (Areas A and B). The general assessment will cover the entire land ownership outlined in red. The site specific assessment will deal with Areas A and B separately as there are significant differences between the two in terms of risk from mining legacy issues.

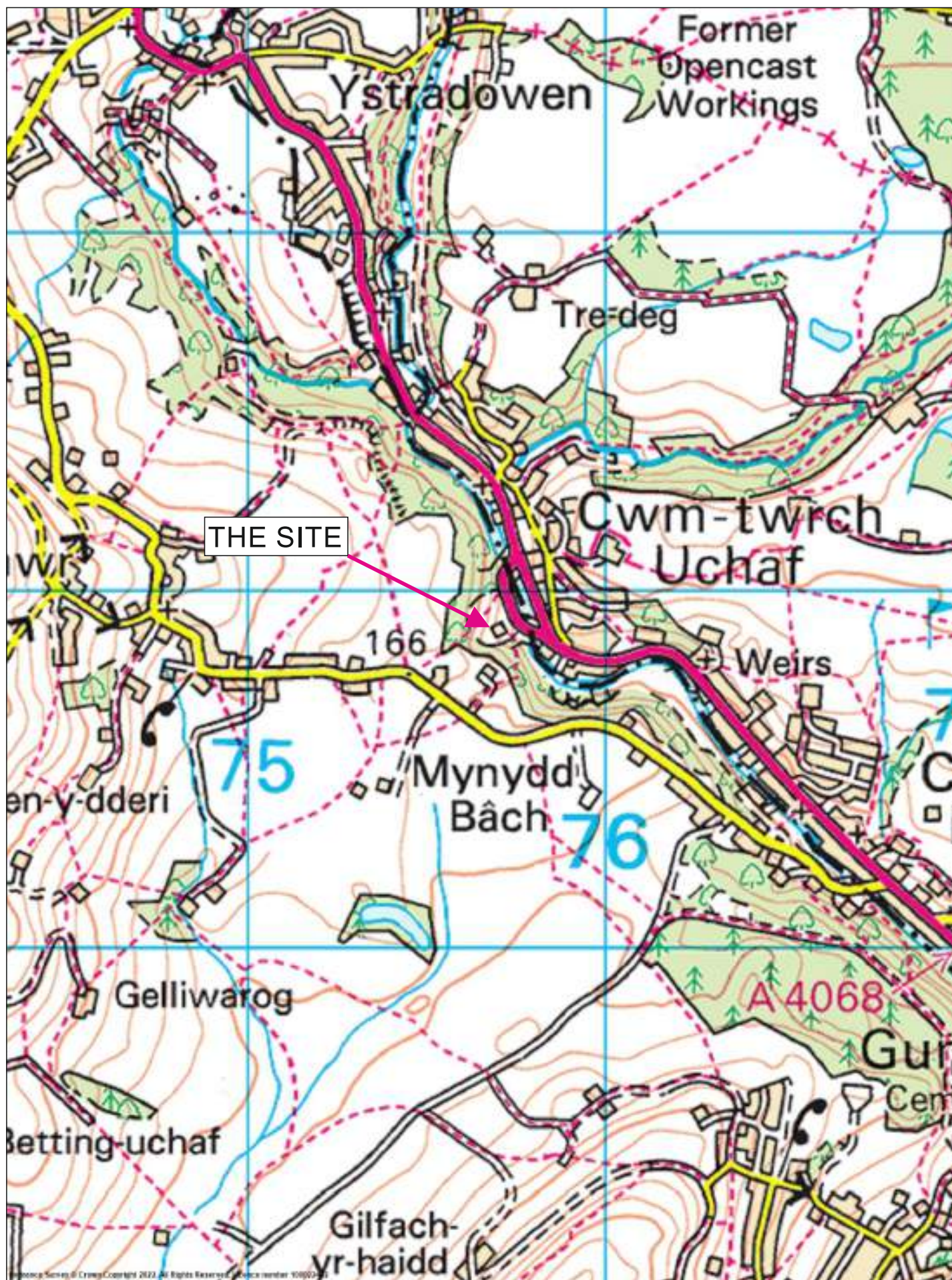


FIGURE 1
SITE LOCATION

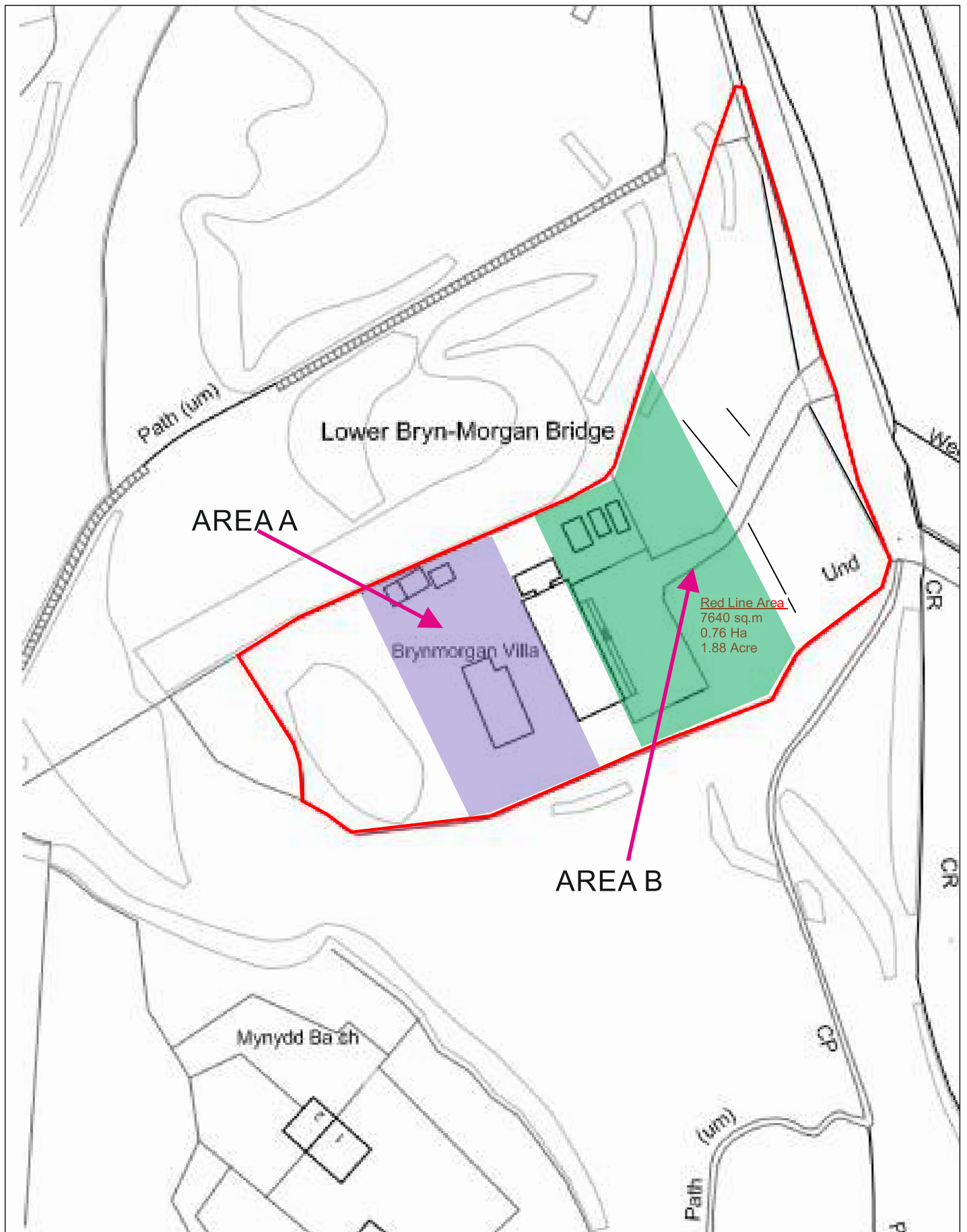


FIGURE 2
LAND OWNERSHIP BOUNDARY IS OUTLINED IN RED.
TWO POTENTIAL DEVELOPMENT AREAS ARE HIGHLIGHTED.

2. SOURCES OF INFORMATION

- a) Coal Authority Consultants Report ref 51003309044001.
- b) The C.A. interactive viewer.
- c) The 6" to the mile Geological Survey sheet SN 71SE (1960-64 revision, published in 1973).
- d) The Memoirs of the Geological Survey of The South Wales Coalfield, part VIII The Country around Swansea (1907) and other mining archive sources.
- e) British Coal Rationalised Development Plan Sheet 07/D/SN/71SE
- f) Historical Ordnance Survey maps, Old County Editions Brecknockshire, Sheet XLIIISW 1876, 1901 and 1921 at 1:10,560 scale, 1903 revision XLIII.9 at 1:2500 scale and National Grid Sheet SN 71SE (1965) at 1:10,560.
- g) A Site Walkover

2a) The Consultants Report states that there is recorded underground mining of coal beneath the site in two seams. These are the Lower Nine Foot Top Leaf at 44m depth, last worked in 1895 and the Upper Gellideg at 157m, last worked in 1953. The report goes on to say the C.A. believe there are no shallow unrecorded workings or shallow spine roadways beneath the site. The report records eighteen mine entries within, or within 100m of the site boundary. These are shown in Figure 3, an extract of the summary of findings map. Four are shafts and fourteen are adits. The majority of these are both topographically higher than the site and outside the site boundary. Two are of direct relevance to the risk assessment. These are the shaft reference 275210-102 and adit reference 275210-095. The report contains the reference numbers of nine abandonment plans which may be of relevance to the site. These were checked but none seemed relevant to possible shallow mining beneath the site. Two seam outcrops are named within the site boundary. These are the Lower Nine Foot Bottom Leaf and the Middle Nine Foot Top Leaf. The report or SoF map does not distinguish which seam is which. The C.A. is not aware of any geological faults, fissures, breaklines or other weaknesses that have been affected by coal mining. An area of opencast mining (green hatching in Figure 3) immediately abuts the northern site boundary.

In Section 2 the report states there have been no site investigations and there are no recorded surface hazards that have required remedial action within 50m. There is a subsidence claim (blue hatching in Figure 3) southwest of the site. A

subsidence report has not been purchased. The claim is on land significantly higher than the site and as such it is of no direct relevance. There are no records of gas emissions requiring action within 500m. Section 3 states there are no present underground workings or plans for any. There are no Section 46 notices or withdrawal of support notices.

All these facts will feed into the later quantitative risk assessment. Section 4 states potential risks have been identified and should be investigated further in a risk assessment. The Consultants Report is attached in Appendix 2.

2b) The C.A. interactive viewer contains a vast amount of information from various sources, particularly on the mining data window. Much of this is not contained within a Consultants Report for reasons unknown. An extract from the planning window can be seen in Figure 4. Development High Risk Areas are hatched in grey. The site lies in a very large area of development high risk.

In order to fully understand why a site has a high-risk status it is informative to study the Coal Mining Data window. This window is far superior to the planning window as it is at a larger scale. There are multiple datasets which can be turned on and off. An extract from the Mining Data Window is reproduced as Figure 5 overleaf. For clarity only two sets of data are turned on in Figure 5- seam outcrops and mine entries. The brown lines are coal seam outcrops. The two nearest outcrops east and west of the existing building (highlighted) are numbered with their seam codes SW0321 and SW0331. The C.A. seam directory shows these to be the Lower Nine Foot Bottom Leaf and the Middle Nine Foot Top Leaf respectively. From the seam numbers ascending to the west it can be deduced that the strata may be dipping to the west, or that the ascending order could be caused by topography alone. Neither dips or topography are shown on the viewer.

The two mine entries within the site boundary are marked, along with multiple other mine entries. Sometimes the Interactive viewer database gives mine entry information not recorded in the Consultants Report. Unfortunately, in this case, the only additional information is that the adit has an orientation of 230° with no details of the shaft recorded.

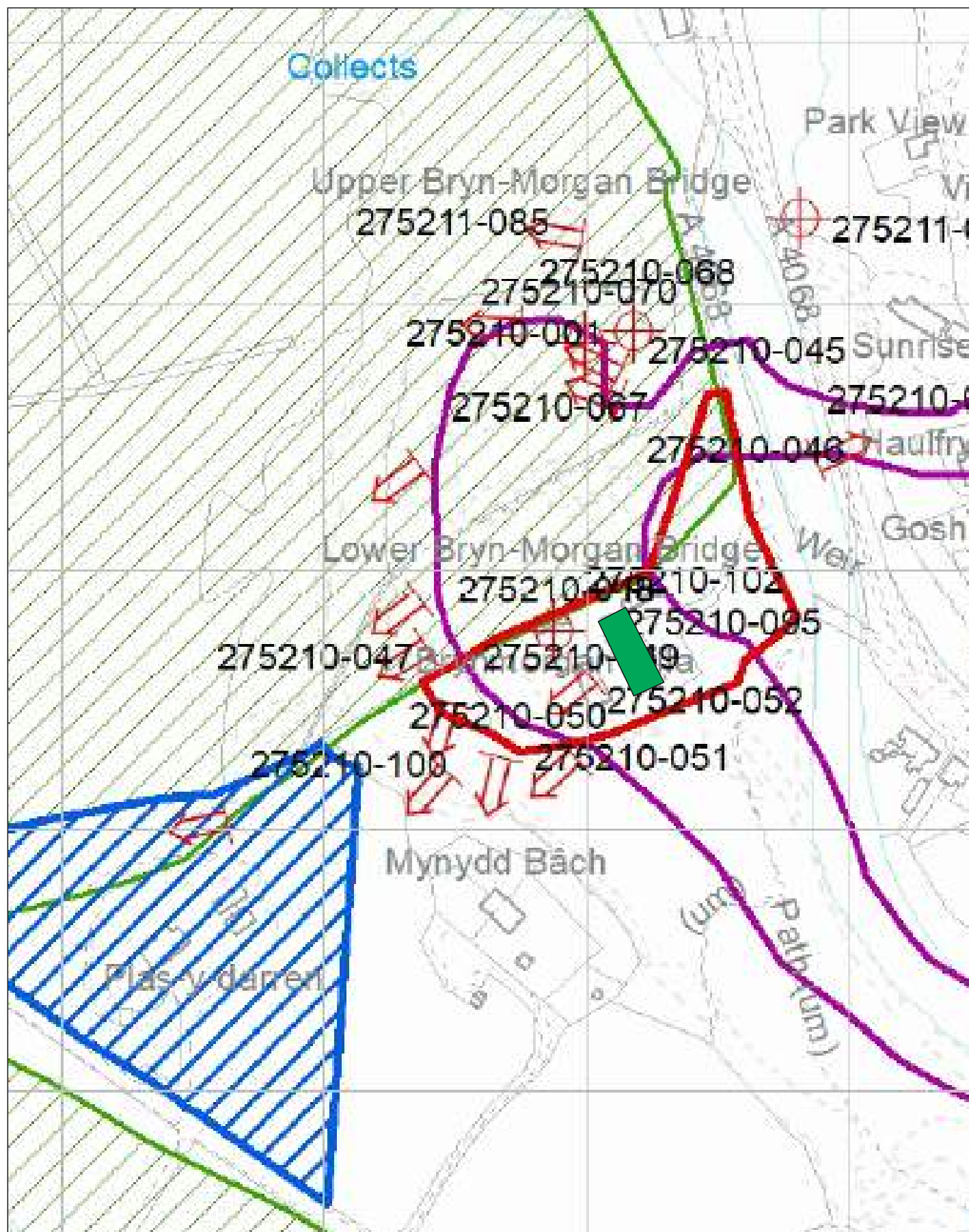


FIGURE 3

SUMMARY OF FINDINGS MAP FROM THE CONSULTANTS REPORT.
THE EXISTING RESIDENTIAL BUILDING IS HIGHLIGHTED IN GREEN.

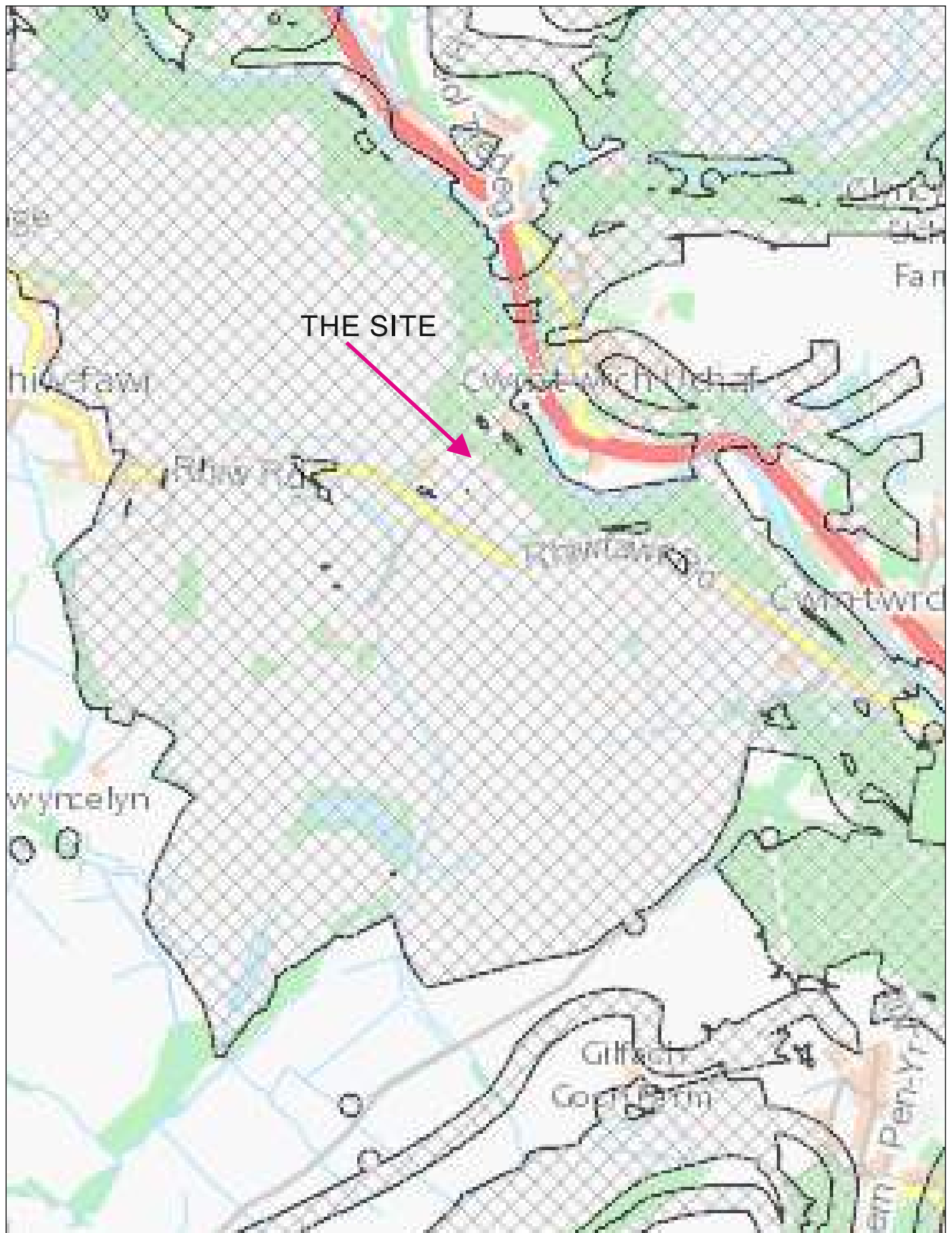


FIGURE 4
COAL AUTHORITY INTERACTIVE VIEWER, PLANNING WINDOW.
GREY HATCHED AREAS ARE DEVELOPMENT HIGH RISK.

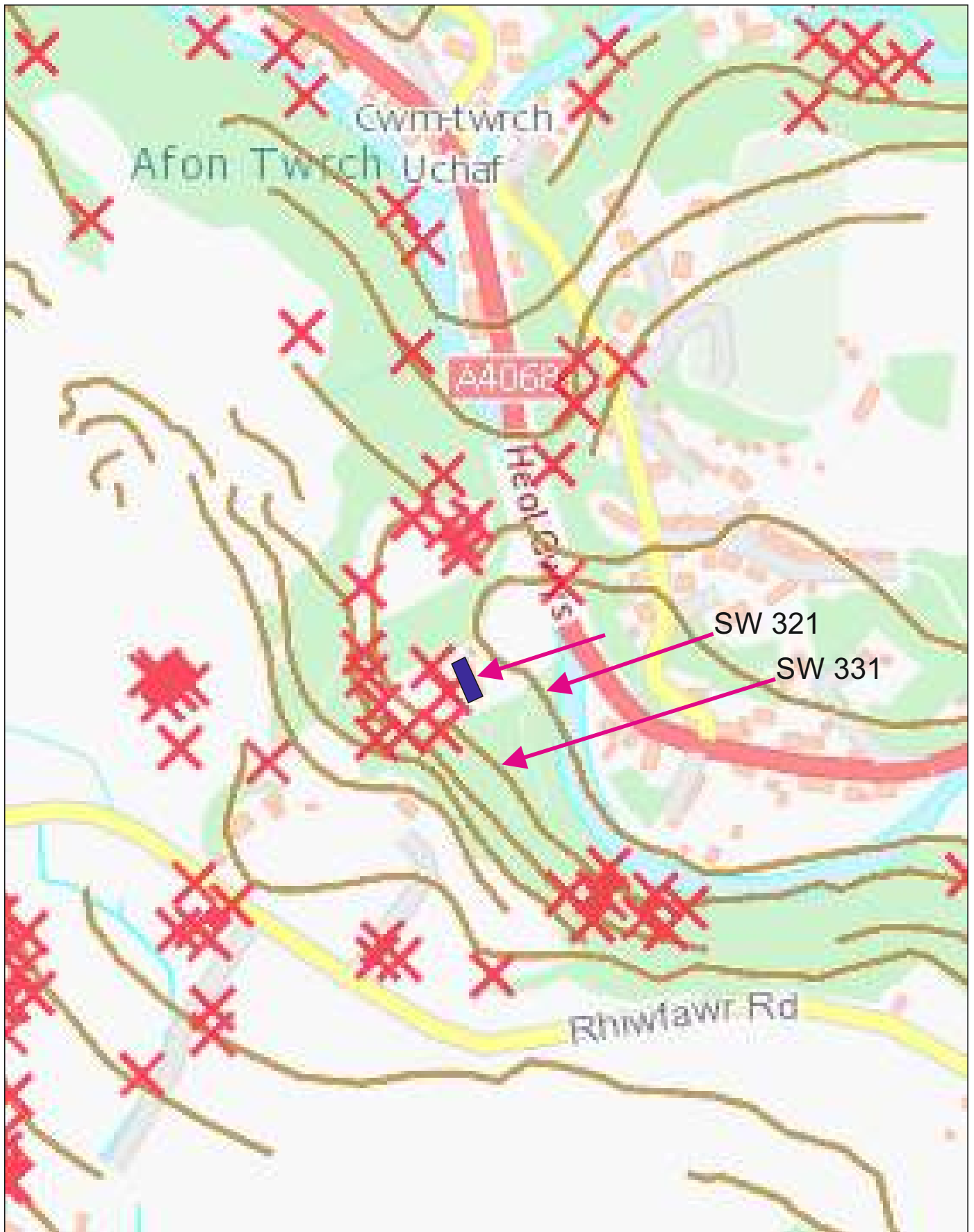


FIGURE 5

C.A.VIEWER, MINING DATA WINDOW. RED CROSSES ARE MINE ENTRIES, BROWN LINES ARE SEAM OUTCROPS. THE MAIN RESIDENTIAL BUILDING IS HIGHLIGHTED

2c, d and e) The six-inch to the mile Geological Survey sheet SN 71SE covers the area around the site. An extract of the map is reproduced as Figure 6B overleaf. Figure 6A is a georeferenced overlay of the National Grid base map on an aerial photo. This was done to allow the accurate positioning of the existing building on the Geological Survey Sheet. It evidently had not been built when the 1966 O.S. map was produced. A section of the stratigraphic column from SN 71SE is shown in Figure 7 with the site level marked. It is always very useful to study the survey sheets in conjunction with the Memoirs. Used together, the six-inch survey sheets and the Memoirs are an invaluable source of much detailed geological information on the area. Much of this has been obtained from mining records. Due to the very high economic importance of South Wales, extensive government funded geological surveys have been carried out in the past. These were completed in 1845, 1899 and 1954 respectively. Very little information on historical coal mining in the area is missing. In the case of the Swansea Area the Memoirs have not been revised since the 1907 edition, due to the decline in the importance of the Coal Industry.

The map was published in 1973, following a re-survey of the entire area between 1940 and 1964. The site is underlain by strata from the Middle Coal Measures, which are undifferentiated in South Wales. The nearest measured strata dips to the site are 8° and 7° to the south. This, combined with the topography, produces the ascending seam sequence to the west seen in Figures 5 and 6B. To the west of the existing building are the outcrops (in ascending order) of the Stanllyd, Harnlo and Four Foot seams. The difference in nomenclature from the C.A. data is due to the C.A. attempting to standardise coal seam names across the coalfield. This is the cause of much confusion and errors in the C.A. database. The Stanllyd (or Big Seam) undoubtedly correlates with the Nine Foot in the east of the coalfield. Because of the various splits and convergences it is unhelpful to use convoluted versions of the Nine Foot name. It is far better to use the local names. These were in general use west of the Vale of Neath Disturbance for over a hundred years and all archive material uses them.

The arrow symbols are levels, three of which are on the Stanllyd outcrop with Arch Level denoted as being driven upwards to the Four Foot. The term level is generally used in South Wales instead of adit, which is usually used for metalliferous mines only.

All three seam outcrops are west of, and higher than the existing building and so do not underlie it. There is no seam outcrop shown east of the building as in Figures 3 and 5. This is not unusual, as the Geological Survey usually only shows the main seams for clarity. Referring back to Figure 7, the approximate level of the existing building is shown. There is a split off the Stanllyd called the Lower Black which probably underlies the existing building. This may well correspond to the outcrop shown in Figures 3 and 5. The seam is shown to be 1'6" thick. This is at the lower end of workable thickness. It should be borne in mind that this is an average over the entire 25 km² map sheet and may vary considerably both upward and downward.

The primary source for the C.A. Interactive Viewer is the British Coal Rationalised Development Plan. This itself drew heavily on the Geological Survey with additional information from N.C.B/B.C. opencast records. Figure 8 is a section of Development Plan 07/D/SN/71SE. The existing building is highlighted, and the outcrop pattern is identical to the Interactive Viewer. The second outcrop, east of the building is identified as Seam 32. In the stratigraphic column in Figure 9, this is indeed the Lower Black. The complicated splitting of the Big Seam into its components is well illustrated. The thickness of the Lower Black is given as 6"-48" (0.15m-1.22m). This is certainly a good workable thickness at the higher end.

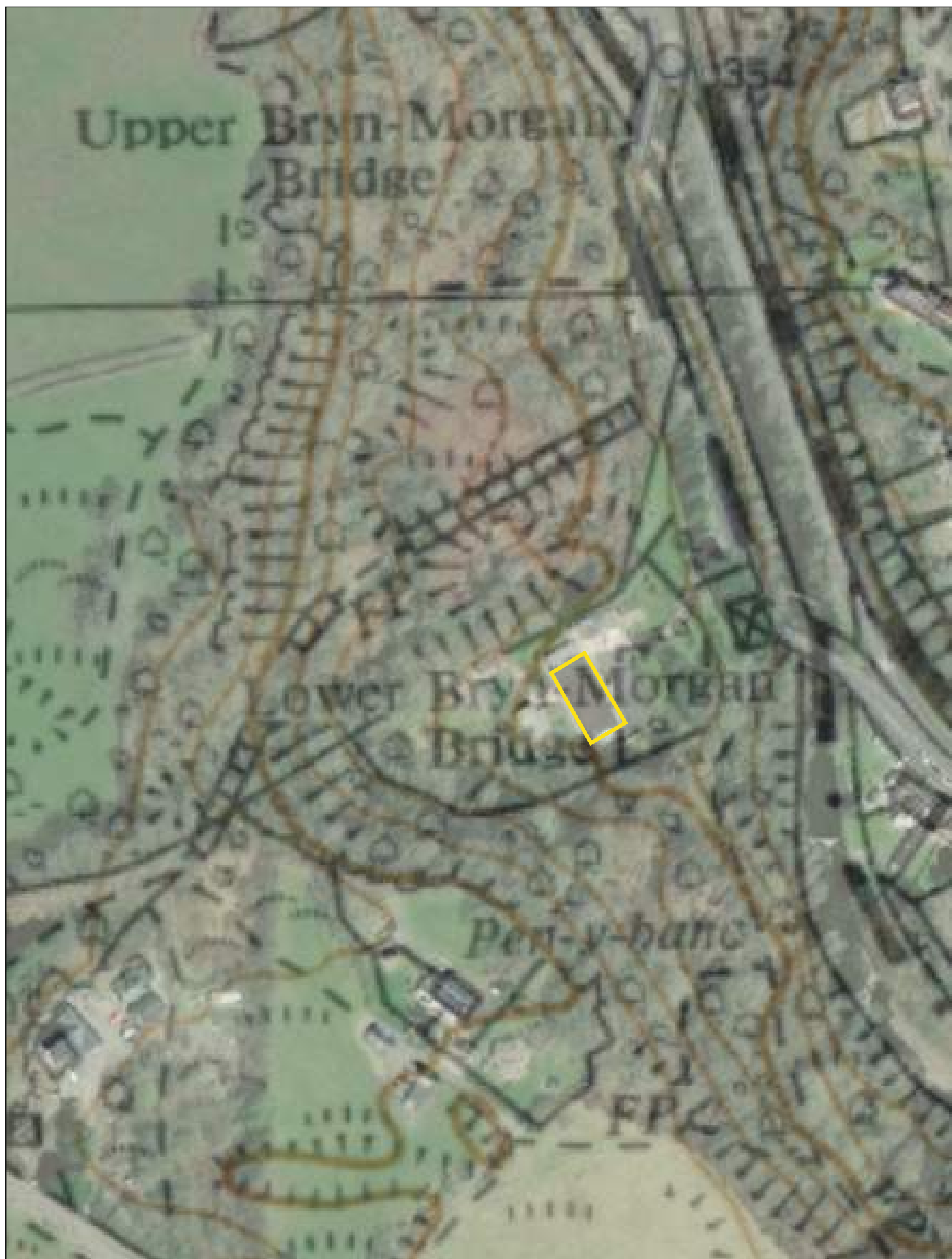
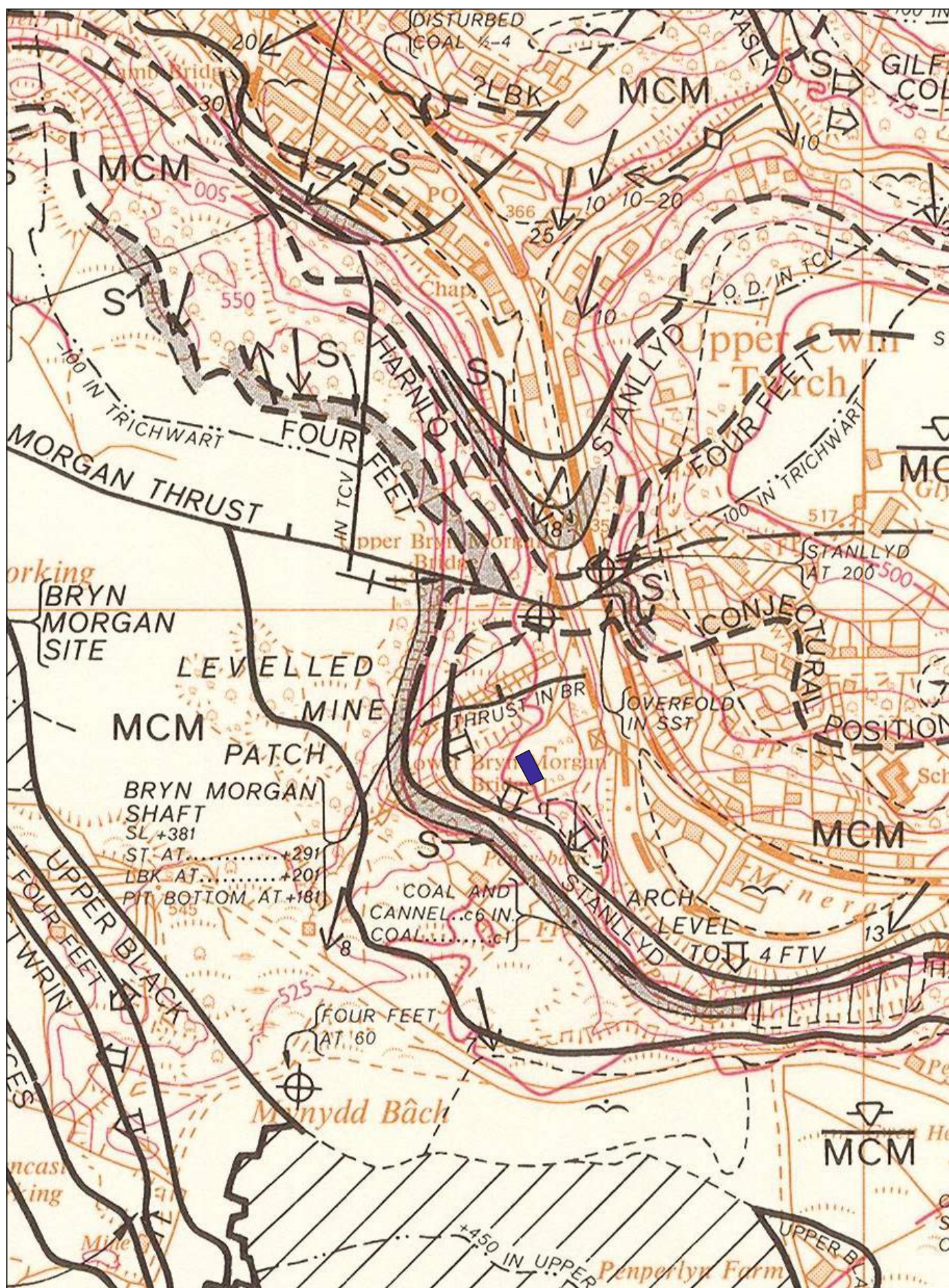


FIGURE 6A

1964 NATIONAL GRID O.S. GEOREFERENCED ON A RECENT AERIAL PHOTOGRAPH. BRYNMORGAN VILLA IS HIGHLIGHTED



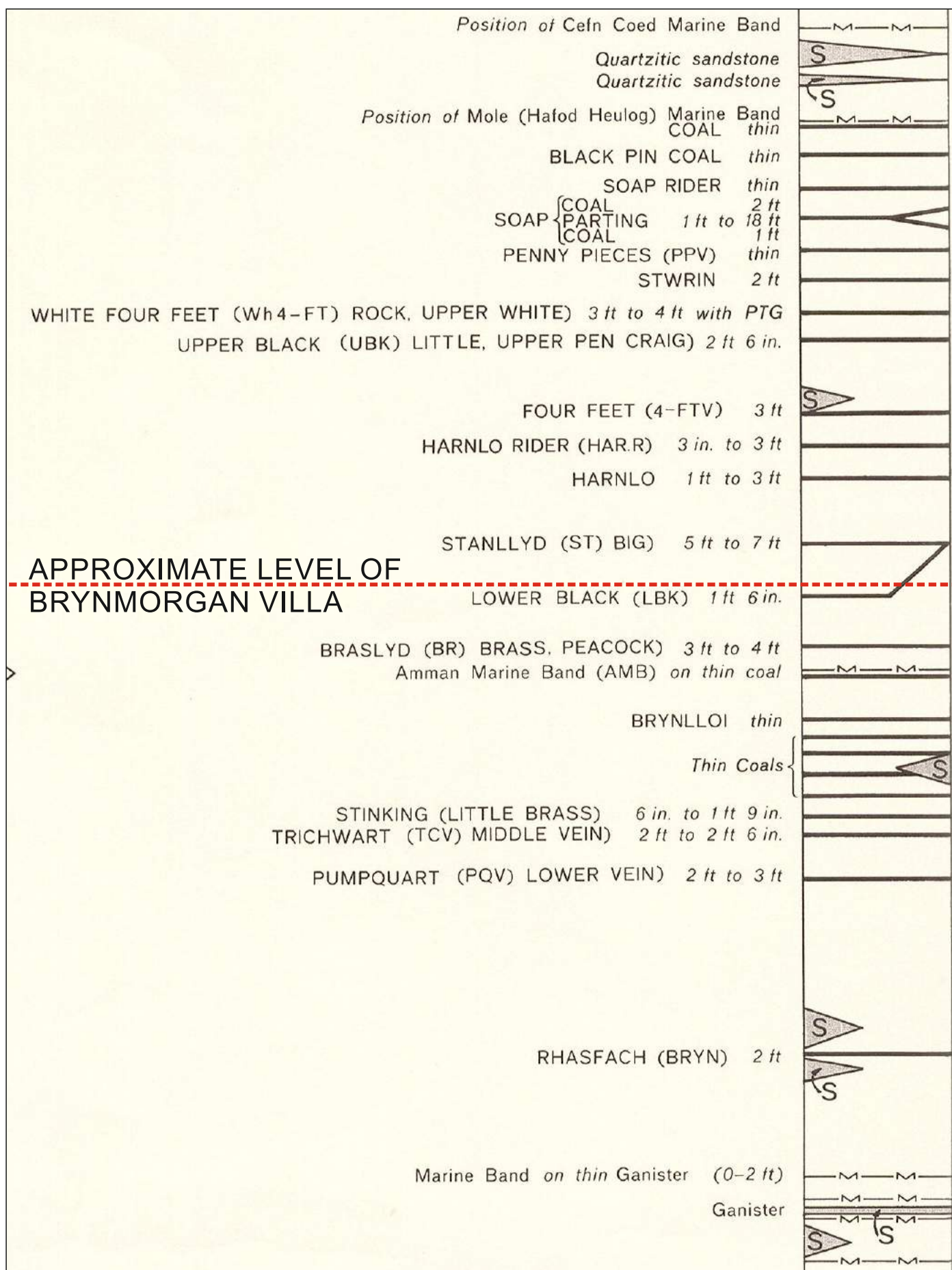


FIGURE 7

SECTION OF THE STRATIGRAPHIC COLUMN FROM SN 71SE.
THE APPROXIMATE LEVEL OF BRYNMORGAN VILLA IS SHOWN.

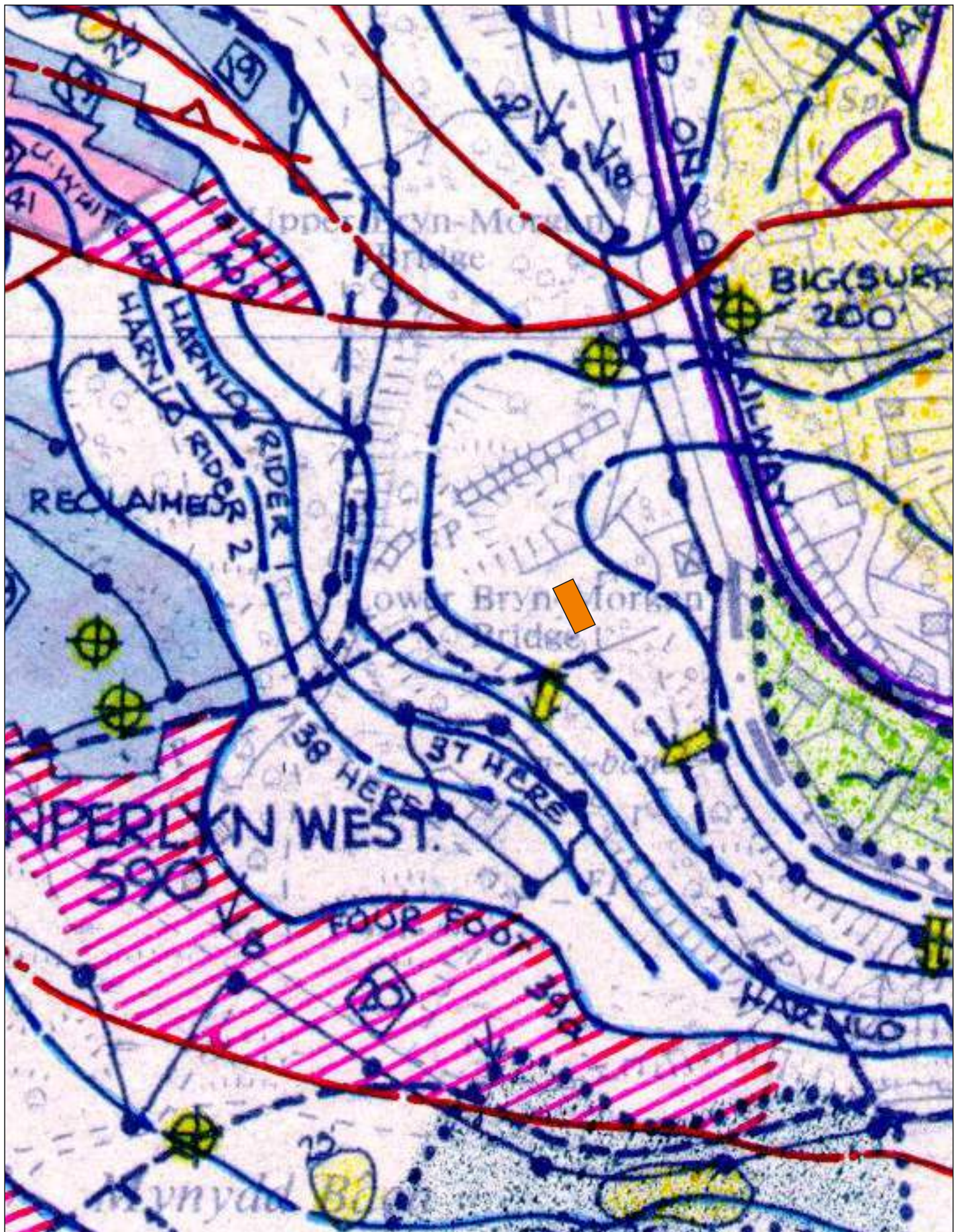


FIGURE 8
EXTRACT OF BRITISH COAL DEVELOPMENT PLAN 07/D/SN/71 SE.
BRYNMORGAN VILLA IS HIGHLIGHTED IN ORANGE.

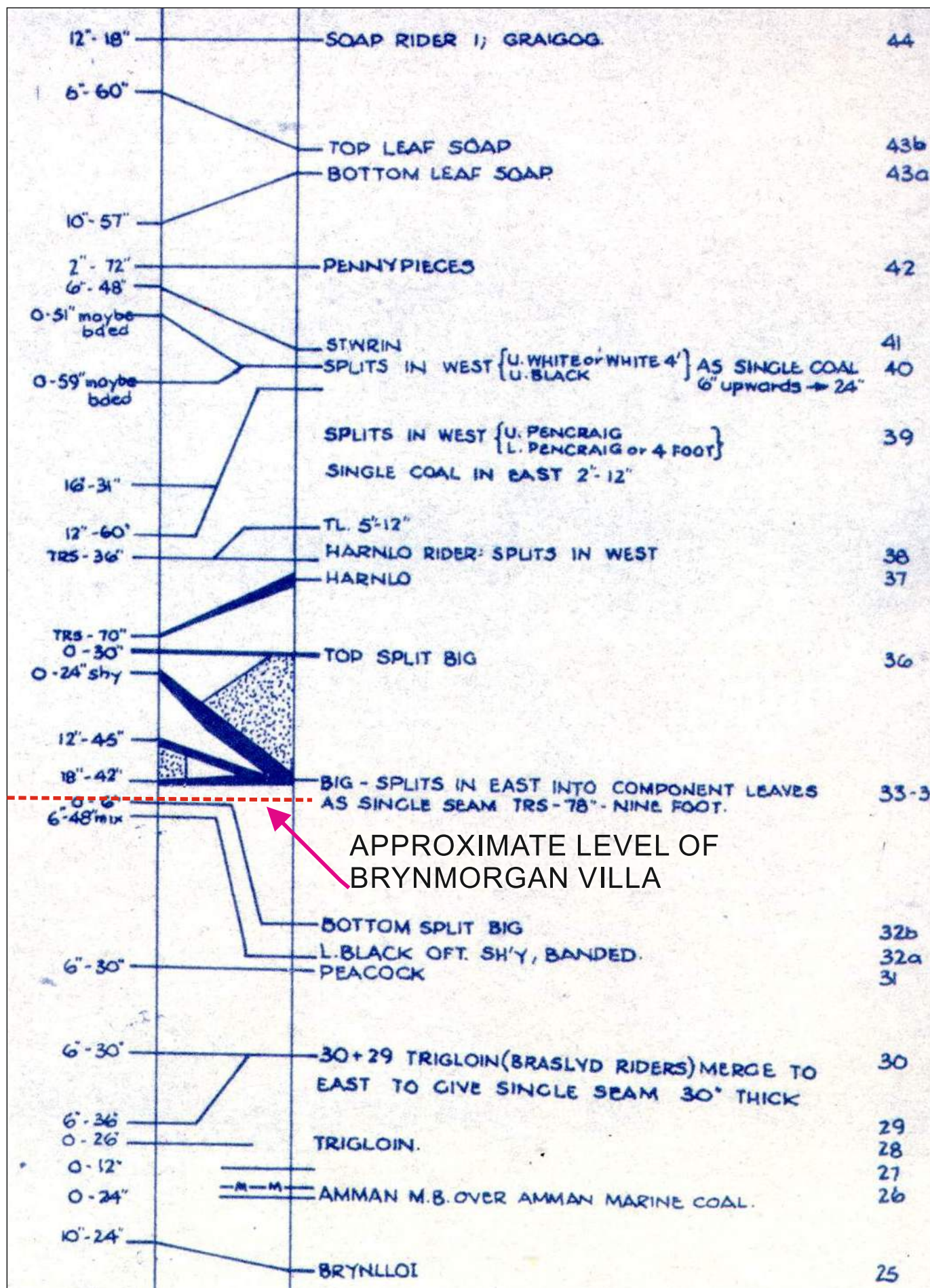


FIGURE 9
SECTION OF STRATIGRAPHIC COLUMN FROM 07/D/SN/71 SE.

2f) Historical Ordnance Survey maps can prove invaluable in looking for evidence of coal mining activity. Since the first County Series maps were produced in the 1870's nearly all mining features have been recorded, even if they were considered "old" at that time. This is particularly true of the 1:1250 and 1:2500 scale maps. They are a useful additional source to the geological material. Levels are frequently labelled and spoil heaps shown. The older maps show many coal mining features, but nothing in the immediate vicinity of the site. For this reason are not reproduced here Figure 10 is the 1903 1:2500 O.S. georeferenced onto a modern aerial photo. The spoil heap from the disused Brynmorgan Colliery reaches to the current northern site boundary.

2h) A site visit is not part of the C.M.R.A. template but can prove invaluable. This is particularly true when attempting to locate mine entrances. The site was visited on Friday 22nd September 2022. The positions of the two mine entries were examined but there was nothing visible. The position of shaft 275210-102 is covered by an outbuilding on a concrete slab. The position of level 275210-095 is close to or possibly beneath a former swimming pool that has been infilled for safety reasons.

Figure 11 shows water stained with Iron Hydroxide emerging from the drive at the front of Brynmorgan Villa. This is nearly always the product of the oxidation of Iron Pyrites in coal left in old workings. Because the area is a mixture of concrete, tarmac and buildings it is not possible to pinpoint the source precisely. It could be some distance from where it is emerging, merely being forced to that spot by the built environment.

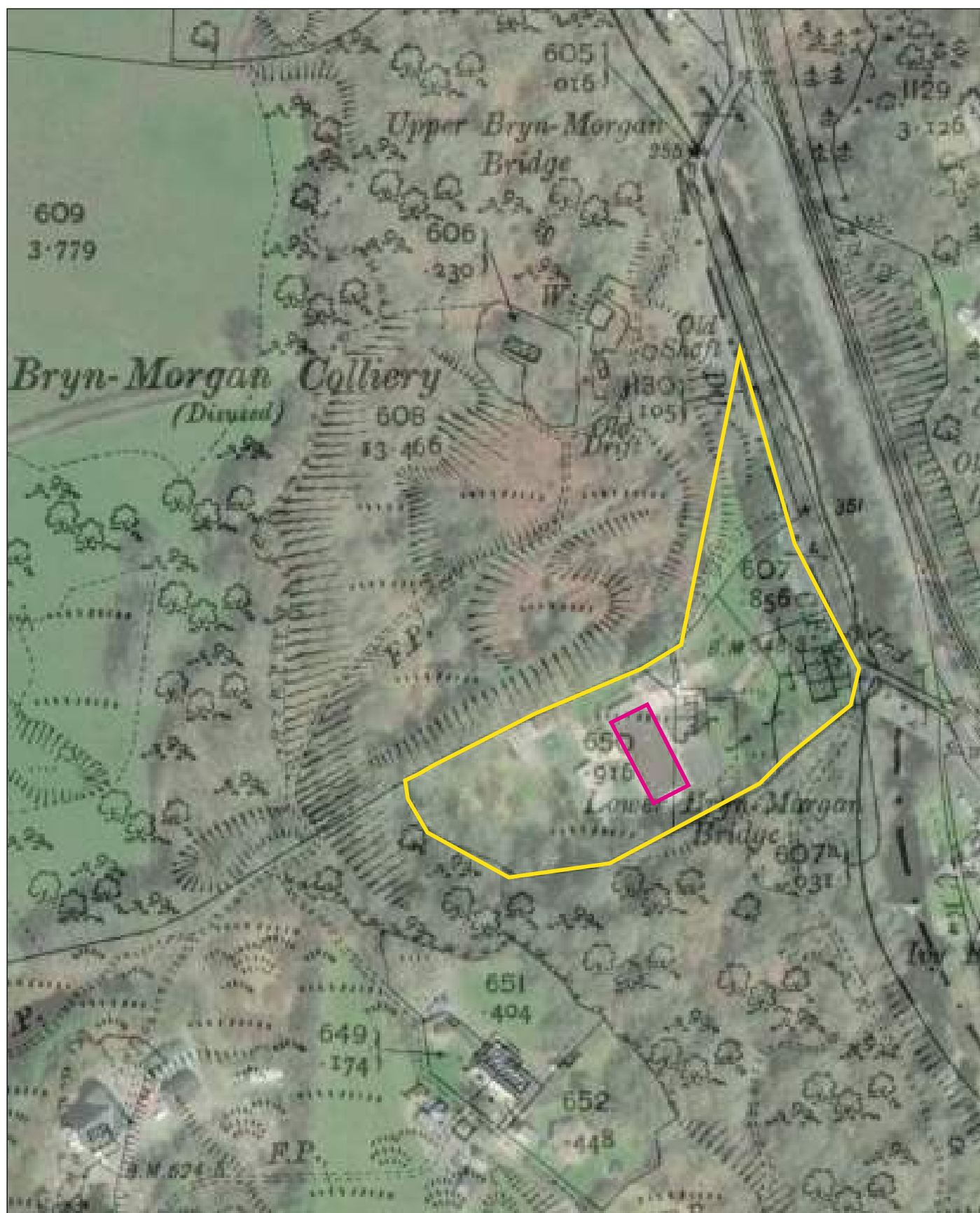


FIGURE 10

1903 1:2500 O.S. GEOREFERENCED ON A MODERN AERIAL PHOTO.
BRYNMORGAN VILLA IS HIGHLIGHTED.



FIGURE 11

MINEWATER EMERGING AT THE FRONT OF BRYNMORGAN VILLA

COAL MINING ISSUE		YES	NO	R.A?
SHALLOW RECORDED WORKINGS			X	
SHALLOW UNRECORDED WORKINGS		X		X
MINE ENTRIES		X		X
FISSURES			X	
GAS EMISSIONS		X		X
SURFACE HAZARDS			X	
SURFACE MINING			X	
FUTURE MINING LICENSE			X	

AREA A

3. SITE SPECIFIC COAL MINING RISKS

From the table above it can be seen that three issues require a risk assessment for this site. These are stability issues caused by possible unrecorded shallow mineworkings and the mine entrances within the site, and a more detailed look at the risk from mine gas emissions. To first briefly deal with the issues marked NO on the table:-

a) The shallowest recorded workings beneath the site are at 44m depth. It is likely this figure applies to the lowest topographic point on the site so 44m is the minimum figure. 44m is considered too deep to affect ground stability at the surface. The Consultants Report states these are in the “Lower Nine Foot Top Leaf” (see section 2c, d, e). In all probability, this refers to workings in the Braslyd Seam (also known as the Brass or Peacock Seam). Several of the mine plans listed in the report are for workings in this seam. The other recorded workings are at 157m depth in the “Upper Gellideg”. Again, the nomenclature is incorrect. These workings will be in either the Triquart or Pumpquart Seams. They are far too deep to have any influence on the site.

b) The C.A. report states there are no fissures, surface hazards or lines of geological weakness affected by underground mining under the site. The site has not been subject to remedial works carried out by the C.A.

c) There has been a damage notice/ subsidence claim within 50 metres of the site. This is almost certainly linked to shallow workings in the Stanllyd Seam. This seam outcrops within the site ownership boundary. However, it is not thought that the seam underlies Area A and it certainly does not underlie Area B.

d) An area of opencast mining is shown immediately adjacent to the site. This does not mean opencast mining has been carried out up to the site boundary. The areas shown in Figure 3 actually show the limits of land purchased by the former N.C.B./British Coal for opencast mining. In practice, mining was only carried out on 25%-35% of the total land ownership. This was done with well designed batters and unworked buffer zones. Reinstatement by contractors was closely supervised by the N.C.B and of a very high standard. The former Brynmorgan Opencast site poses no threat to ground stability at the site.

e) There are no future mining licenses in existence or pending.

Figure 12 is the plan from a CON29 previously purchased by the applicants. This shows the positions of the mine entrances in higher resolution than Figure 3. Area A is coloured purple. The influence of the four levels just off the western site boundary can be safely disregarded. They are well away from any potential development and 8m-10m higher than the main site. This leaves two entrances of concern. 275210-095 is a level. It's position relative to the other levels suggests it may have been a drainage level as it is situated below the outcrop of the Stanllyd Seam. There is no sign of it on site and the position is partly covered with an infilled swimming pool (see Figure 13). Figure 14 shows the position of shaft 275210-102. Again, there is no physical evidence visible, and the position is covered by an outbuilding sat on a concrete slab. The reason for the presence of a shaft (as opposed to a level) has implications for the possible presence of unrecorded workings. The position strongly suggests it is an air shaft. Logically, this must be connected to workings beneath the site. The outcrop position of the Stanllyd means it does not underlie Area A. The shaft could be linked to the recorded workings in the Braslyd. Alternatively, the shaft could be to workings in the Lower Black. These would be at a depth significantly shallower than the 44m recorded in the Braslyd. They could possibly be the origin of the Minewater described in section 2h.

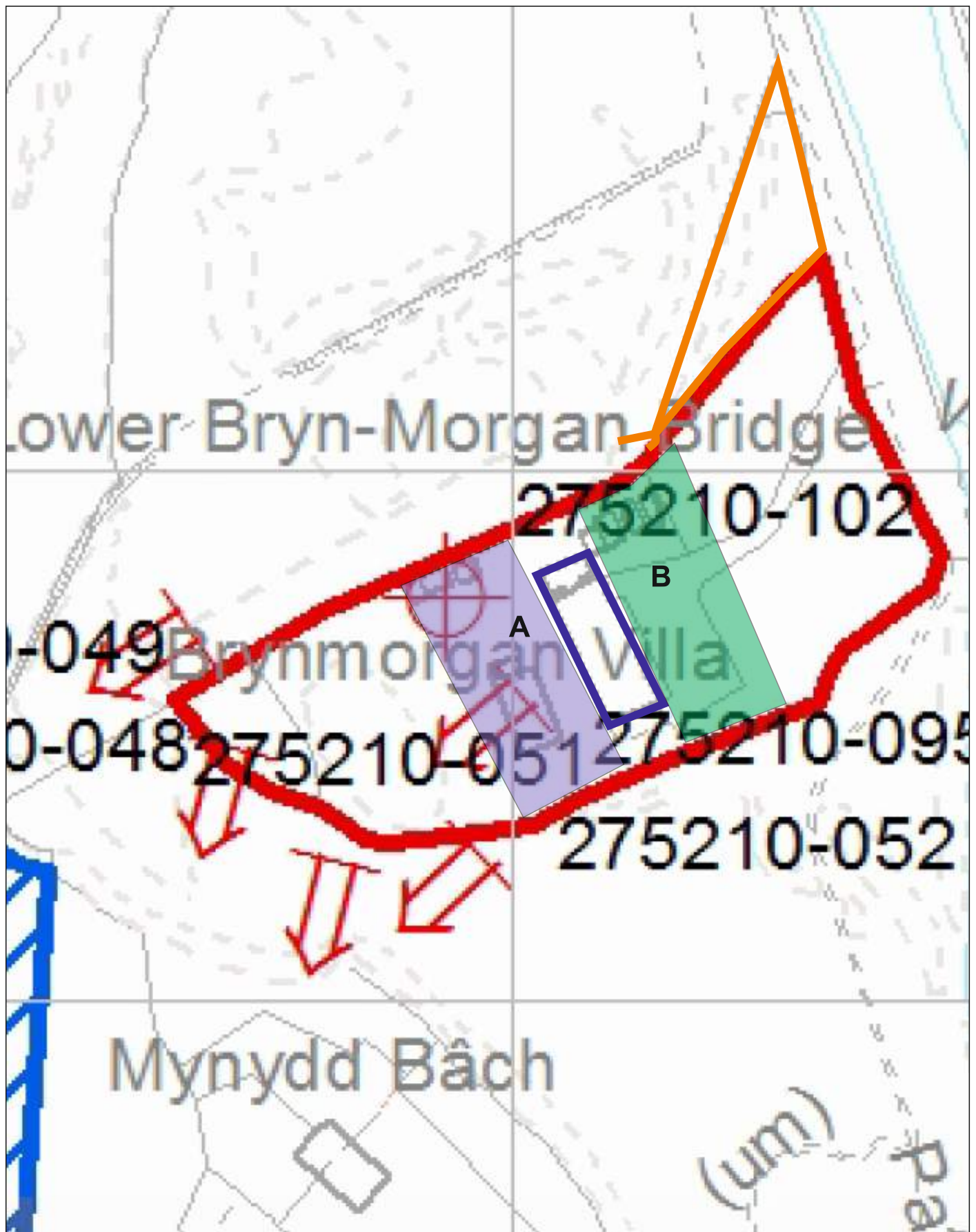


FIGURE 12

HIGHER RESOLUTION PLAN FROM THE CON29 SHOWING THE POSITIONS OF THE SHAFT AND LEVEL WITH MORE CLARITY. ADDITIONAL LAND ACQUISITION OUTLINED IN ORANGE.



FIGURE 13
THE POSITION OF MINE ENTRANCE REF. 275210-095



FIGURE 14

THE POSITION OF SHAFT REF. 275210-102 IS BENEATH THE CONCRETE SLAB WITH THE OUTBUILDING AT CENTRE.

COAL MINING ISSUE		YES	NO	R.A?
SHALLOW RECORDED WORKINGS			X	
SHALLOW UNRECORDED WORKINGS		X		X
MINE ENTRIES			X	
FISSURES			X	
GAS EMISSIONS		X		X
SURFACE HAZARDS			X	
SURFACE MINING			X	
FUTURE MINING LICENSE			X	

3. SITE SPECIFIC COAL MINING RISKS- AREA B

From the table above it can be seen that two issues require a risk assessment for this part of the site. These are the possible presence of shallow unrecorded workings and a more detailed look at the risk from mine gas emissions. To first briefly deal with the issues marked NO on the table:-

- a) The shallowest recorded workings beneath the site are at 44m depth. As with Area A, they are far too deep to have any influence on the site.
- b) The mine entries are further than 20m from Area B with the existing building sitting between the recorded entries and Area B. Area B is outside the zone of influence of these mine entries.
- c) The C.A. report states there are no fissures, surface hazards or lines of geological weakness affected by underground mining under the site. The site has not been subject to remedial works carried out by the C.A.
- d) There has been a damage notice/ subsidence claim within 50 metres of the site. This is almost certainly linked to shallow workings in the Stanllyd Seam. This area is even further away from Area B than it is from Area A and the same considerations apply.
- e) An area of opencast mining is shown immediately adjacent to the site. Any influence on Area B can be disregarded for the same reasons as given for Area A in the preceding section.
- f) There are no future mining licenses in existence or pending.

Area B is well off the outcrop of the Stanllyd Seam. Any unrecorded workings beneath Area B would have to be in the Lower Black Seam. The accuracy of the outcrop pattern shown in the C.A. data is unproven. If it is relatively accurate, it would suggest that the seam would be at an extremely shallow depth beneath Area B. As such it is less likely

to have workings in it. The coal is likely to be weathered and poor quality with roof support issues. Normal mining practice would be to drive in further to better quality coal with a rock roof. Nonetheless, the possibility of the presence of shallow workings cannot be totally discounted.

4. MITIGATION STRATEGY

Both Area A and Area B require quantification of the mining legacy issues that possibly impact them. This can only be done with an intrusive investigation. This would need to be done under the Coal Authority permitting system. In the case of Area A, the existing buildings would need to be cleared and the mine entry positions located and assessed with a powerful excavator. Area A would also need to be investigated using rotary drilling. This would be needed to check for the presence of shallow mine workings. Area B would also require an intrusive investigation using rotary drilling to check for shallow workings. The risk from mine gases has not been quantified and assessed at this time. Much more information about the mine entries and possible workings is required. At present, the risk is considered low, based on past experience and desk study information alone

5. CONCLUSION

Based on desk study information alone, Area A has definite mining legacy issues that may influence ground stability. These need to be thoroughly investigated and quantified. Whilst the mine entries could be remediated if their positions were established, the presence of shallow mine workings would severely affect the cost and viability of the proposed development. Area B has far less chance of being impacted by mining legacy issues. There is a small possibility of unrecorded shallow mineworkings beneath Area B. Although considered unlikely, this needs to be confirmed with an intrusive site investigation. Area B would currently appear to be a far more attractive site for the proposed development.

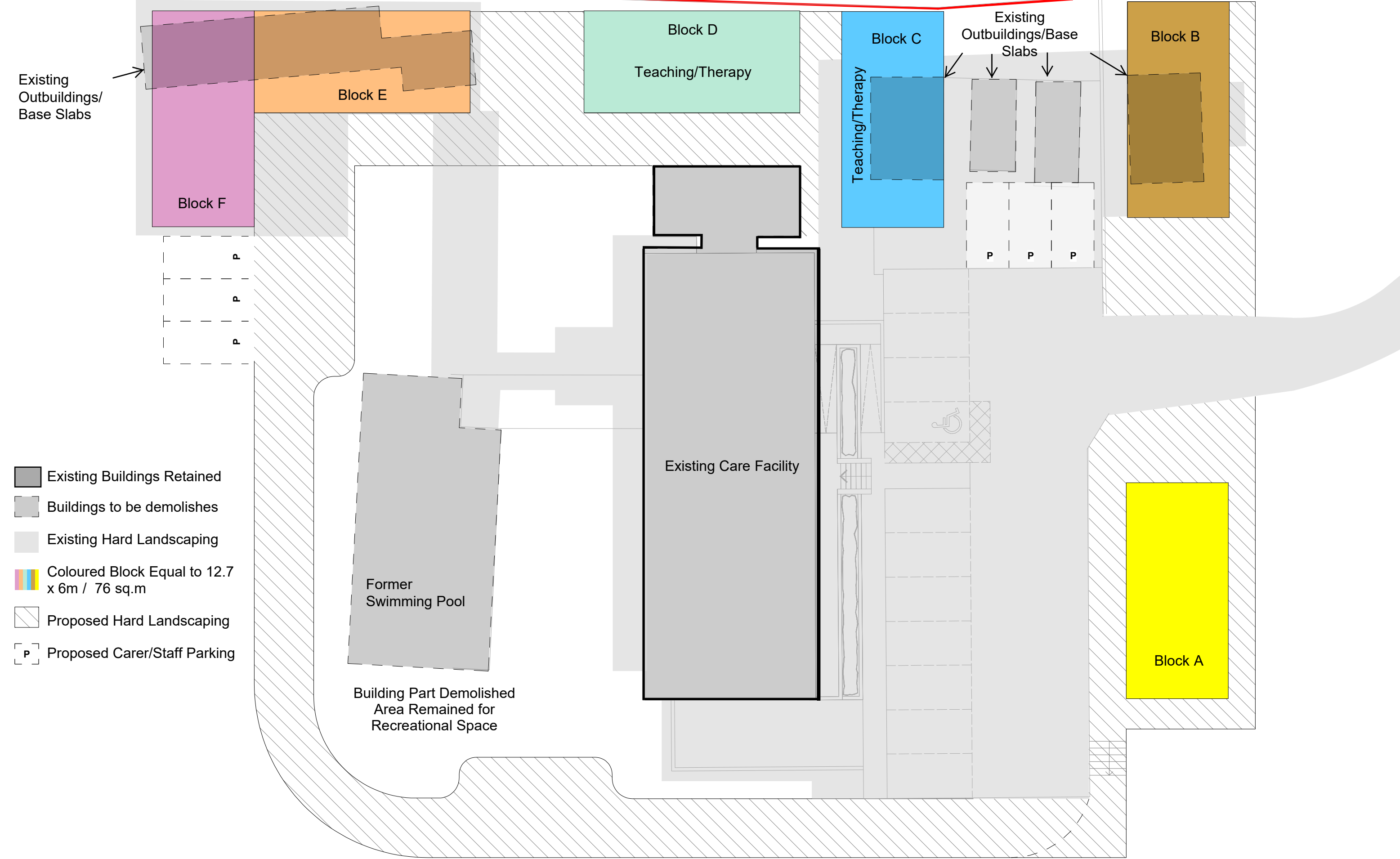
There is no reason for the C.A. to object to a planning application for the proposed development providing intrusive investigations are conditioned by the Local Authority. These would need to be designed by an experienced Geologist or Mining Engineer and carried out under the C.A. permit system. The results of the investigation would then need to be analysed to establish what (if any) steps would be needed to make the land safe and stable for the proposed development.

Richard Davies BSc. (Hons), MSc., F.G.S.

16/10/2022

APPENDIX 1

REPRESENTATIVE SITE PLANS



APPENDIX 2
COAL AUTHORITY
CONSULTANTS REPORT
BRYNMORGAN VILLA
UPPER CWMTWIRCH



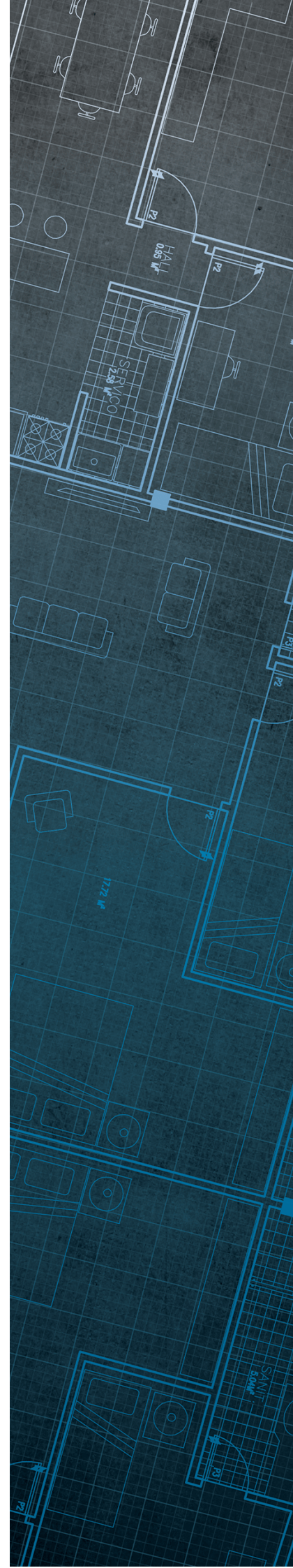
The Coal
Authority

Consultants Coal Mining Report

Brynmorgan Villa
Lower Brynmorgan Bridge
Upper Cwmtwrch
Neath Port Talbot
SA9 2XG

Date of enquiry:	2 September 2022
Date enquiry received:	2 September 2022
Issue date:	2 September 2022

Our reference:	51003309044001
Your reference:	



Consultants

Coal Mining Report

This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

RICHARD Davies

Enquiry address

Brynmorgan Villa
Lower Brynmorgan Bridge
Upper Cwmtwrch
Neath Port Talbot
SA9 2XG

How to contact us

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

 @coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /thecoalauthority



Approximate position of property



Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right 2018. All rights reserved.

Ordnance Survey Licence number: 100020315

Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	LOWER NINE FOOT TOP LEAF	Coal	4YUU	44	Beneath Property	13.1	North-West	107	1895
unnamed	UPPER GELLIDEG	Coal	4YV1	153	North	15.9	South-East	116	1953
unnamed	UPPER GELLIDEG	Coal	4HOC	157	Beneath Property	16.8	South-East	84	1953

Probable unrecorded shallow workings

None.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Shaft	275210-001	275719 210990		Coal	
Adit	275210-045	275711 210975		Coal	
Adit	275210-046	275711 210964		Coal	
Adit	275210-047	275635 210888		Coal	
Adit	275210-048	275638 210870		Coal	
Adit	275210-049	275647 210847		Coal	
Adit	275210-050	275645 210821		Coal	
Adit	275210-051	275667 210826		Coal	
Adit	275210-052	275694 210827		Coal	
Adit	275210-067	275635 210939		Coal	
Adit	275210-068	275673 210992		Coal	
Shaft	275210-070	275700 210985		Coal	
Adit	275210-090	275789 210942		Coal	
Adit	275210-095	275701 210857		Coal	
Adit	275210-100	275561 210803		Coal	
Shaft	275210-102	275688 210876		Coal	
Shaft	275211-070	275782 211033	This shaft was filled with 840 tons of red ash in May 1983. No further details are known.	Coal	
Adit	275211-085	275697 211025		Coal	

Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

8376	SWR2001	3299
10075	SW338	SW2629
SW2628	SWR1543	SW422

Our records show we have more plans than those shown above which could affect the enquiry boundary.

Please contact us on 0345 762 6848 to determine the exact abandoned mine plans you require based on your needs.

Outcrops

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
LOWER 9FT BOTTOM LEAF	Coal	Yes	Within	N/A	142
MIDDLE 9FT TOP LEAF	Coal	Yes	Within	N/A	149

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

Please refer to the "Summary of findings" map (on separate sheet) for details of any opencast areas within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

There are 1 claim(s) within 50 metres of the property boundary that do not match the property address. These are shown on the enquiry boundary plot.

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.

If further subsidence damage claims information is required, please visit www.groundstability.com.

See Section 4 for further information.

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining

None recorded.

Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

Court orders

None recorded.

Section 46 notices

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

Withdrawal of support notices

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.

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.

Section 4 – Further information

The following potential risks have been identified and as part of your risk assessment should be investigated further.

Development advice

The site is within an area of historical coal mining activity. Should you require advice and/or support on understanding the mining legacy, its risks to your development or what next steps you need to take, please contact us.

Coal mining subsidence

The site is within an area of previous interest. It is close to where the Coal Authority or licensed mine operator has investigated and where necessary remediated issues relating to coal mining subsidence.

The site requires further investigation and may influence your risk assessment. We recommend that you order the appropriate **Coal Authority Subsidence Claims Report**, which will include more information about the hazard.

For further information on specific site or ground investigations in relation to any issues raised in Section 4, please call us on 0345 762 6848 or email us at groundstability@coal.gov.uk.

Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk**.

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

Opencast mines

Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips

Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations

Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites

Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence

Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission.

Mine water treatment schemes

Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining

Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing

Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders

Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices

Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

Withdrawal of support notices

Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

Payment to owners of former copyhold land

Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.