



RHONDDA
GEOTECHNICAL
SERVICES

COAL MINING RISK ASSESSMENT

PROPOSED RESIDENTIAL DEVELOPMENT

ON LAND AT

THE FORMER PENALLTA COLLIERY

WINDING WHEEL LANE

PENALLTA

HENGOED

CF82 6AL

26/08/2025

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COAL MINING RISK ASSESSMENT

1. INTRODUCTION

This Coal Mining Risk Assessment (henceforth C.M.R.A.) has been produced for Jackson Geo Services Ltd as part of a wider viability study for a proposed large residential development on land at the former Penallta Colliery, Hengoed. Over 60% of the site falls within a Coal Authority designated Development High Risk Area. The reasons for the High-Risk classification will be detailed within this assessment and include a coal seam outcrop, recorded shallow coal workings, four mine entries within the site boundary and two others within a zone of influence of the site. With a Development High Risk classification, the C.A. become statutory consultees for any planning application. Wider geotechnical and geoenvironmental issues will also need to be addressed but a C.M.R.A. will be required to accompany and validate any initial formal planning application.

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 residential site. The purpose of this 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. The purpose of this C.M.R.A. is to gather all the available information and use it to identify any coal mining risks and then to quantify them. It will then suggest, if necessary, any mitigation measures 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 location and site boundary with the proposed layout can be seen overleaf in Figures 1 and 2. The proposed development is centred on grid reference 314000, 195850 at an elevation ranging from 180m-189m A.O.D. The site is an irregular polygon averaging 330m x 100m and covering an area of approximately 2.9 Ha. The site is bounded to the east and west by residential development. To the south is undeveloped farmland and woodland. To the north the site abuts the Penallta Industrial Estate. Residential development of the site has been mooted since the late 1990s, but it is thought that a combination of ground conditions and the need to retain several important listed buildings has imposed financial constraints that have held the site back. The site boundary contains the former Power Hall and both sets of winding headgear.



FIGURE 1
SITE LOCATION



FIGURE 2
BUILT DEVELOPMENT SITE BOUNDARY.

2. SOURCES OF INFORMATION

- a) Coal Authority Consultants Report ref MR-51003519990001.
 - b) The C.A. interactive viewer.
 - c) The 6" to the mile Geological Survey sheets ST 19NW (1952-57 revision, pub. 1963) together with the British Coal Development Plan 07/D/ST/19 NW.
 - d) The Memoirs of the Geological Survey of The South Wales Coalfield, Part I the Country around Newport (Mon.) (third edition, 1969) and other mining archive sources.
 - e) Historical Ordnance Survey maps, Old County Editions for Glamorgan, Sheet XX.13, 1875 edition with 1900 and 1916 revisions at 1:2500 scale.
 - f) Abandonment plans SW2568 and R14546.
 - g) A previous 1999 report by Ateb Consulting for previous owners. This collates a wealth of site investigation material into one report.
- 2a) The Consultants Report states that there is underground mining in multiple seams of coal beneath the site. Most of these are deeper than 528m below the site and last worked in 1965. Because of the size of the site each seam has several depths given. At that depth and age, it would be expected that all ground movement due to coal mining in these seams should have stopped. The dates given would indicate that the workings were from Penallta Colliery which sits in the middle of the site. The report also states there are shallow workings beneath the site at 10m depth and at 11m depth. These are supposedly in the Mynyddislwyn Lower Leaf. The Lower Leaf has an extraction thickness of 2.2m and was last worked in 1902. The report states there are no probable unrecorded shallow workings and no shallow spine roadways. The report then states that there are six mine entries within, or within 100m of the boundary of the site. Three of these are adits and three are shafts. The labelling on the Summary of Findings map (Figure 3A) is confusing, as is often the case where mine entries are closely grouped. As a result, R.G.S. requested an enhanced, large-scale map. This is shown in Figure 3B where the mine entry positions can be clearly distinguished. The outcrop of the Mynyddislwyn Lower Leaf is shown running inside the site near the eastern site boundary in Figure 3A. There are no recorded faults, fissures or breaklines. There are no opencast mines within 500m of the site

In section 2 the report records no site investigations within 50m of the site boundary. There are four remediated sites within the site boundary. The C.A. has received no damage notices or subsidence claims for properties within 50m since October 1994 (i.e. since the formation of the C.A. to take liability for legacy mining issues). There are no records of gas emissions requiring action within 500m of the site boundary. Section 3 states there is no licensing for present or future coal mining within 200m. There are no Section 46 notices or Withdrawal of Support notices. In Section 4 the Consultants Report states that potential risks have been identified and that these should be investigated as part of any assessment. It also says technical advice should be obtained before beginning work on site. There is also the standard warning that the fact there are no recorded mine gas incidents within 500m does not mean that mine gas is not a risk. The C.A. recommends a more detailed gas risk assessment is undertaken by a competent assessor. All these facts will feed into the later quantitative risk assessment. The Consultants Report is attached in Appendix 1.

2b) The C.A. interactive viewer contains a vast amount of information from various sources, particularly on the mining data window. An extract from the Planning Window can be seen in Figure 4. The hatched areas are classed as Development High Risk. The purple linear area signifies a 20m buffer zones around a coal seam outcrop. This is clearly the Mynyddislwyn outcrop in Figure 3. The brown circles are mine entry potential zones of influence, matching the positions in Figure 3. A significant proportion of the northwest of the site is a blue area of Development High Risk. The colour signifies recorded shallow workings.

To fully understand why sites have a high-risk status it is informative to study the Coal Mining Data window. 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 outcrop relevant to this risk assessment is the outcrop in the southeast of the map. The seam code is SW1141, which means the C.A. believe it is the Mynyddislwyn Lower Leaf Seam. West of the site is a linear outcrop labelled SW1161, which the C.A. have as an unnamed seam. The outcrop is above the site stratigraphically and topographically and so have no effect on the outcome of the risk assessment. The fact that the seam codes are ascending to the west is significant. This indicates the strata are dipping to the west. Therefore, if the outcrop position is correct, the Mynyddislwyn Lower Leaf underlies most of the

site. Since dip angles are currently unknown, the depth of the seam below the site is also unknown.

The red crosses are mine entries. The Mining Data Window database often contains data inexplicably not contained in the Consultants Report. The shafts have been circled in Figure 5. Just off the northwest corner of the site 313196-002 is an air shaft 29.3m deep and capped in 1973. In the southern part of the site the two circled shafts are 313195-001 (west) and 314195-001 (east). These are the downcast and upcast shafts of Penallta Colliery. At 743m and 687m respectively they were amongst the deepest shafts ever sunk in South Wales. The remaining three mine entries are “old levels” (sub horizontal coal mines) with similar orientations of 236°, 265° and 270° i.e. westward into the crop of the Mynyddislwyn.

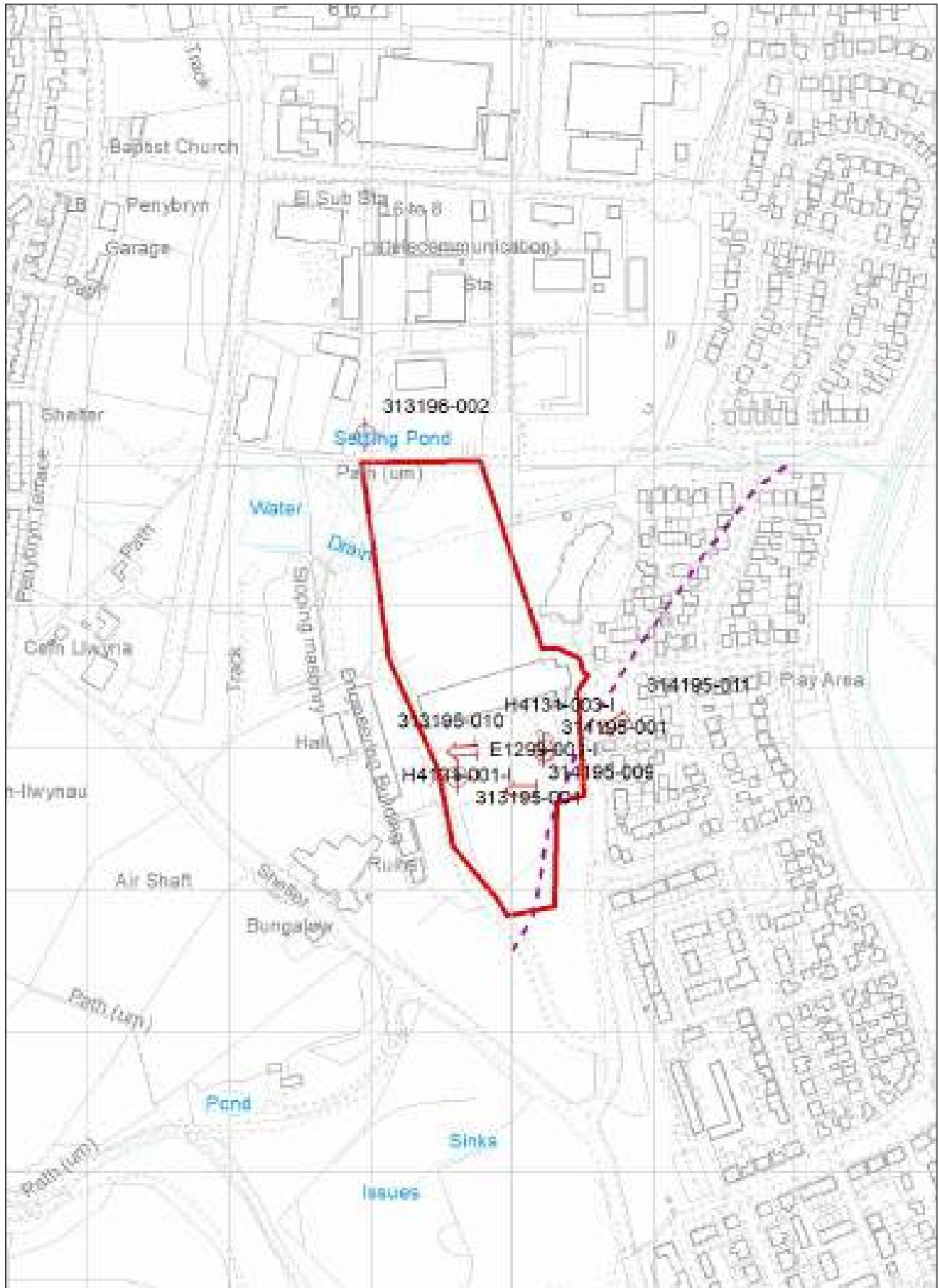


FIGURE 3
SUMMARY OF FINDINGS MAP FROM THE CONSULTANTS REPORT.

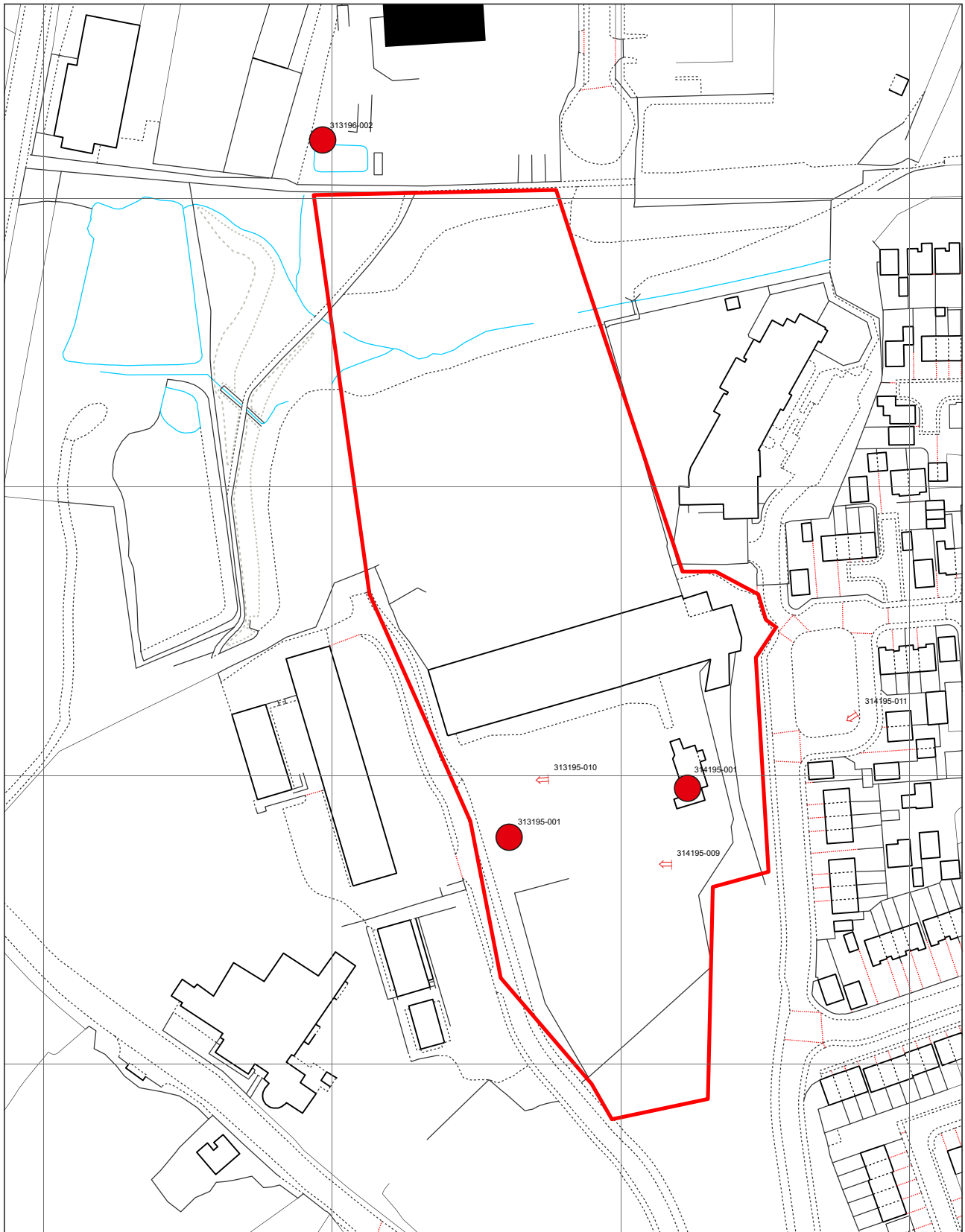


FIGURE 3B
BESPOKE ENHANCED MINE ENTRY PLAN FROM THE C.A.

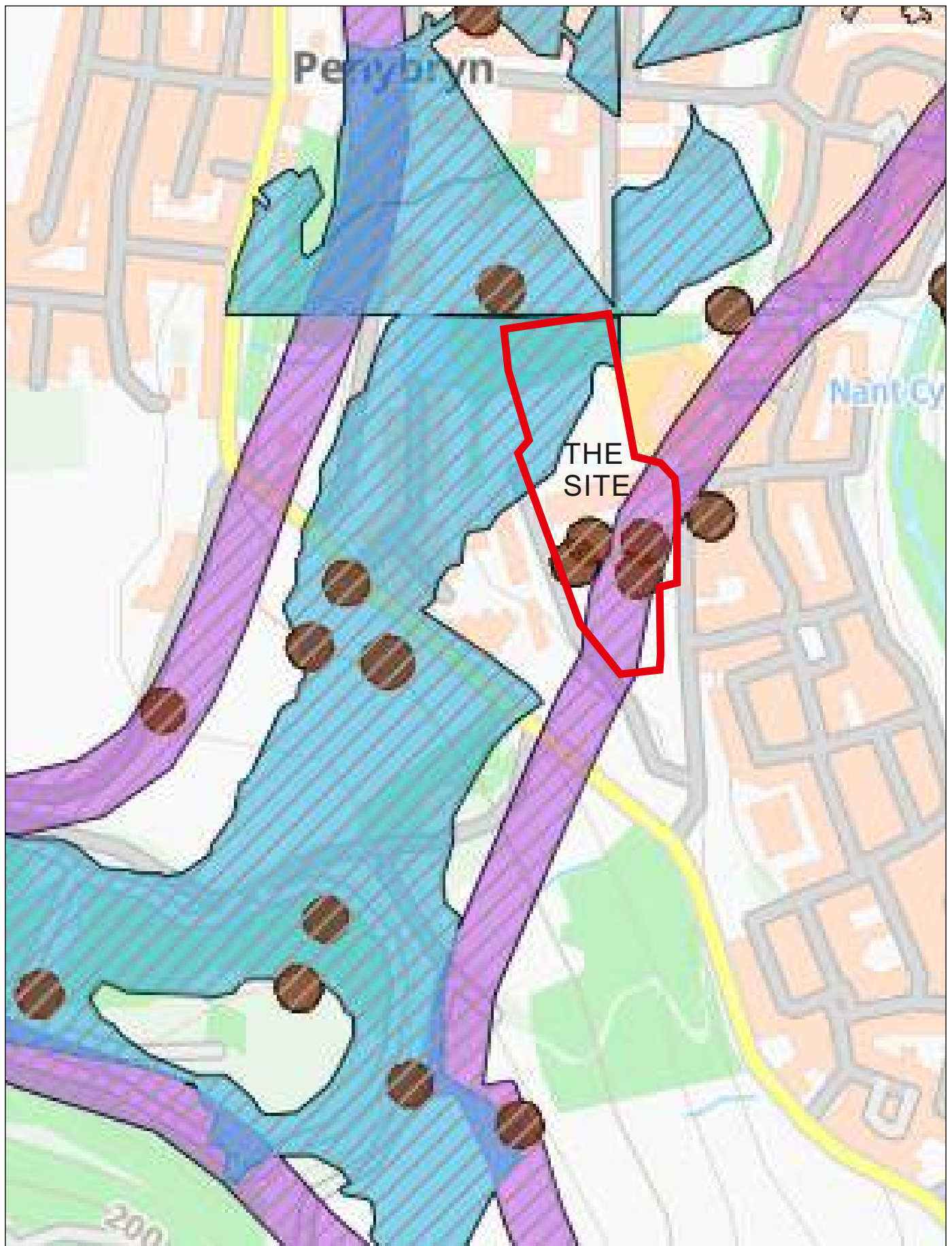


FIGURE 4

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

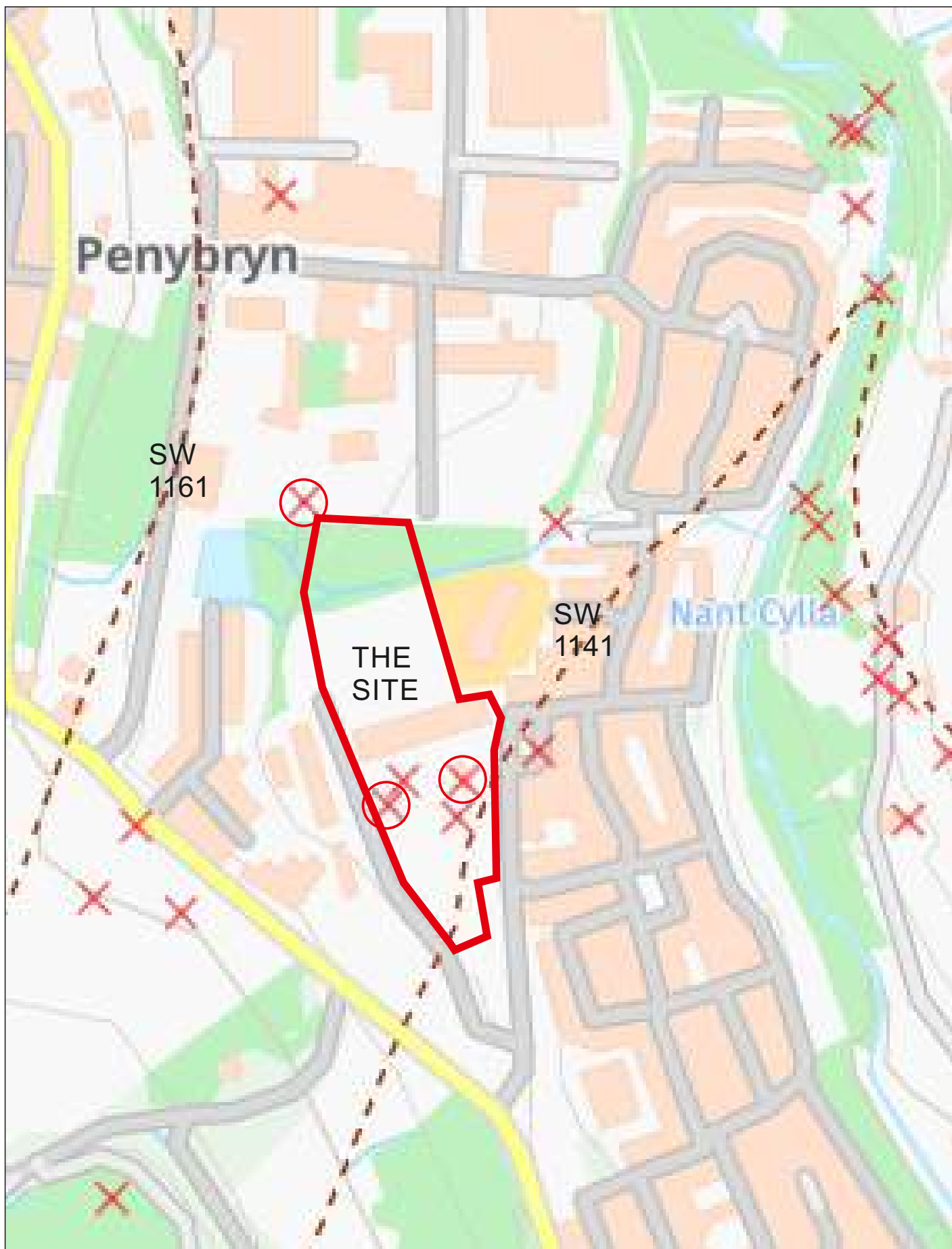


FIGURE 5
C.A. VIEWER, MINING DATA WINDOW. RED CROSSES ARE
MINE ENTRIES, BROWN LINES ARE COAL SEAM OUTCROPS.

2c and d) The six inch to the mile Geological Survey sheet ST 19NW covers the area around the site. An extract of the map has been reproduced as Figure 6 overleaf. A section of the stratigraphic column from the map 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 the area, 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. The memoirs state that the bedrock beneath the site is of Upper Carboniferous (Coal Measure) age. More specifically the site is underlain by beds of the Upper Coal Measures. These are mainly the Grovesend Beds. Their junction with the underlying Hughes Beds is marked by the Mynyddislwyn Seam. It is widely accepted that the boundary between the two strata groups is an unconformity, as in this part of the coalfield the Swansea Beds are absent. It is thought they were removed by contemporaneous erosion due to localised uplift. In their data, the C.A. call this seam the Mynyddislwyn Lower Leaf. In other parts of Gwent, particularly to the southeast of the site, the Mynyddislwyn consists of two distinct seams separated by a parting. There is an excellent isopachyte map in the Memoirs illustrating the increasing separation of the two seams across Gwent. The memoirs state that the parting between the two leaves of the Mynyddislwyn varies from 9" (0.23m) in the north (of 1" Sheet 249) to 32' (9.76m) at an opencast prospect 2km southwest of the site. The Geological Survey acknowledge this on ST 19NW where the seam outcrop has a subordinate line below it. The Memoirs record that where the separation is large the Upper Leaf is virtually worked out whilst the Lower leaf is generally untouched by mining. This was because the thicker and better quality Upper Leaf had always proved more profitable. In the immediate area of the site because the separation is so thin, both leaves of the seam are worked together. In Llancaiach No.1 Level north of the site the complete seam section is:-

COAL	3'6"	(1.1m)
DIRT	10"	(0.25m)
COAL	<u>2'4"</u>	<u>(0.7m)</u>
	6'8"	(2.05m)

This closely agrees with the 2.2m extraction thickness given in the Consultants Report. It is important to make this distinction because of the implications for the risk assessment if there was a second, higher seam above the recorded workings. The British Coal Rationalised plan in Figure 8 shows the seam as one within the site. Although there is good correlation between the Mynyddislwyn outcrop pattern on the Survey map and the C.A. viewer there is no coal seam on the Survey Sheet where the C.A. viewer has its unnamed seam in Figure 5. Close examination of the Survey Sheet reveals a dashed line following the same pattern. On the Survey Sheet this is marked as stratigraphic boundary marking the change from the argillaceous rock overlying the seam beneath the site, with sandstone higher up in the Grovesend beds. The Memoirs record that the roof rock above the Mynyddislwyn Seam as being “120’-140’ (36.6m-42.7m) of mudstone containing lenticular beds of fine-grained sandstone, generally of no great thickness.” The British Coal Rationalised Development Plan shows the Small Rider Seam in the position of the argillaceous/arenaceous boundary. Whichever version is correct is of academic interest only as it does not underlie the site.

Before leaving the Memoirs, it is worth noting that in this part of Gwent there are no coal seams in the Hughes Beds above the basal Cefn Glas seam. This means there can be unrecorded shallow mining below the Mynyddislwyn. In the No.2 shaft at Penallta (marked in Figures 4, 5 and 6) the separation between the Mynyddislwyn and the Cefn Glas is 540’ (163m). Therefore, only the Mynyddislwyn seam needs to be considered in this Risk Assessment as the Cefn Glas seam is far too deep to affect surface stability.

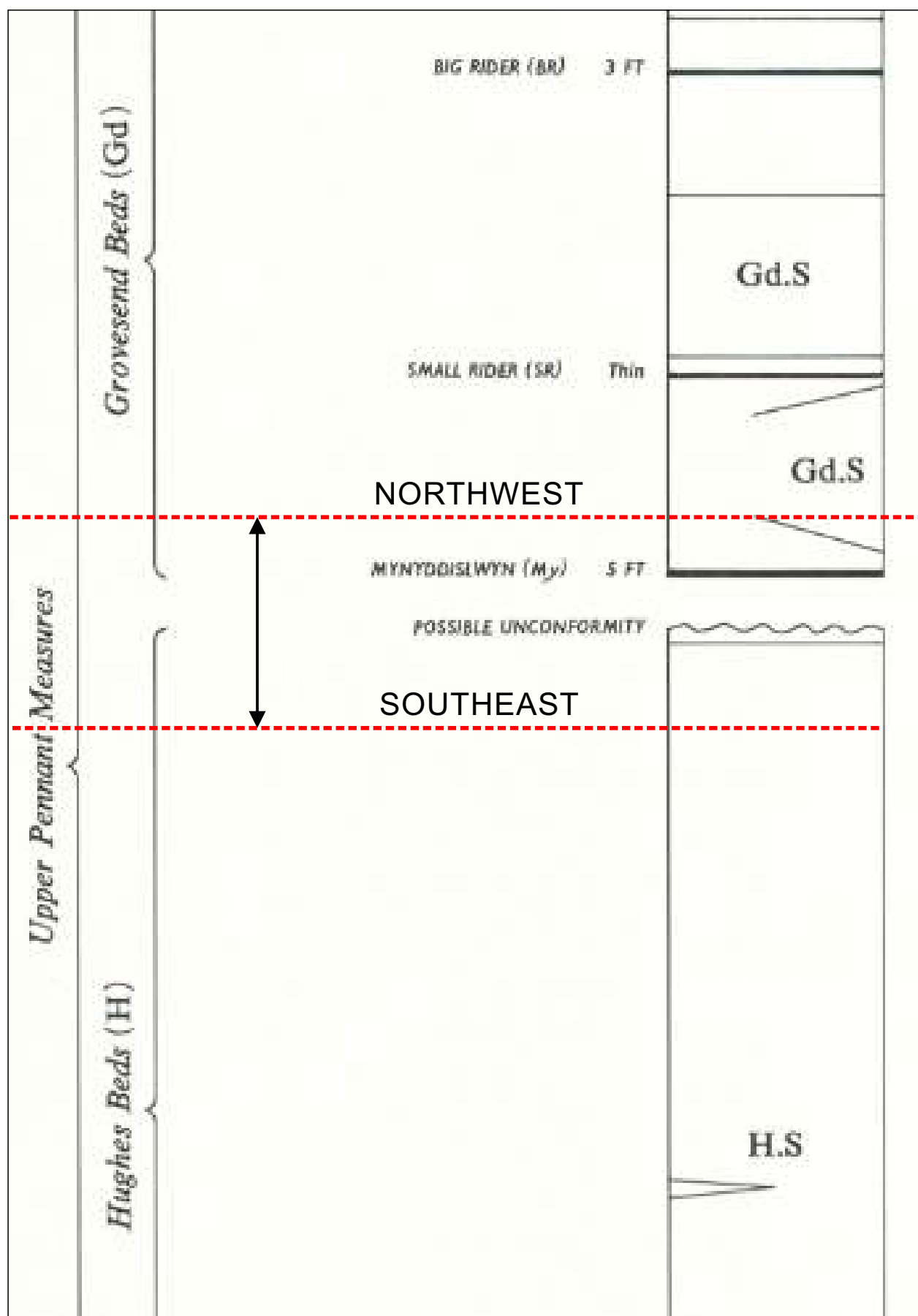


FIGURE 7
SECTION OF THE STRATIGRAPHIC COLUMN FROM ST 19NW.
THE APPROXIMATE RANGE OF SITE LEVELS IS MARKED.

2e) 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. Since the probability of shallow coal mining is the most important issue in this risk assessment, they are a useful additional source to the geological material. O.S. maps can also be an aid to looking at past topography and geomorphology before a site has been developed. In the case of this site, there is no physical evidence for the three levels south of the Power Hall building. The plotted positions adopted by the C.A are solely dependent on historical O.S. Figure 9 shows the large scale 1899 1:2500 map of the site area. This slightly pre-dates the sinking of the Penallta Shafts and the colliery construction (1905-1909). The C.A. references have been added to five mine entries. "Old Shaft" 314196-009 is not relevant to this assessment as it is too far from the site boundary. "Old Levels" 313195-010 and 314195-011 are clearly marked as rectangular features on the map and the C.A. will have derived the orientations from these. To the knowledge of the author, they are not marked on any mine plans. They were subsequently buried during the construction of the large colliery complex. In the case of 314195-011 the position of the "old level" on the map is not clear, as is sometimes the case. The orientation would undoubtedly be toward the site. It is noticeable that a recent large housing development adjacent to the site studiously avoids the presumed position which is now in a grassed recreational area.

2f) At the time the shallow coal in the Mynyddislwyn Seam was being removed, the area was semi-rural. This means there are very few surface features on the abandonment plans. Estate ownership boundaries are often marked, and usually accurately, since there was a great deal of money at stake from mineral royalties. Field boundaries on the surface are also governed by the same land ownership. These estate boundaries are clearly marked on abandonment plan SW2568. Figure 10 shows a section of the abandonment plan SW2568. The brown line marks boundaries between three separate estates. This same line is shown in orange in Figure 9. Magnetic north is marked on SW2568, and this has been used to obtain true north. In 1880 magnetic north was 20° west of true north in Wales. Air shaft 313196-002 is also marked. In 1973 an N.C.B. Surveyor has positioned the Penallta Shafts on the plan. These features have been used to roughly position the site boundary as the magenta line in Figure 10. A considerable amount of the northern section of the site is underlain by workings. This is in broad agreement with the recorded shallow mining in Figure 4, although the C.A. will have had access to more sophisticated plotting techniques. The pattern of the workings is typical of Welsh stall and pillar working of the time. The relatively

undisturbed nature of the seam is evidenced by the length of the stalls. These are up to 80m long. What is important on this plan is the hatching drawn across the intricately marked stalls, pillars and roadways. Only limited lengths of the main ventilation roadways (the parallel roads with short linkages between them) are not shaded in this way. What this means is that all the pillars have been removed “on retreat”. Looking at the working dates on the stalls and the annotation “bad roof and soft coal” it seems evident that the mine (Penallta Level) reached its southeastern limit approaching the outcrop and no further mining was possible after the 1870s. Everything was then removed working back towards the entrances which were far to the west. Pillar robbing, as it was known, was a well-known practice in South Wales. It was often done surreptitiously to avoid royalty payments and taxation. In this case the actions have been clearly declared, and their extent marked on the plans. The fact that the area beneath the site, and for a considerable distance around, has been subject to total extraction will have an important bearing on the site-specific assessment for the site in Section 3. Before leaving SW2568 it is worth noting that there is a seam section taken from the No.2 shaft log handwritten on the 1971 plot. Pit top (usually measured from the rails the drams emerged from the cage onto) is at 583’ (177.7m). The Mynyddislwyn is at 553’, 30’ (9.1m) b.g.l. The section given is:-

COAL 12” (300mm)

RASHINGS 3” (75mm)

COAL 39” (1000mm)

This is an impressive total section of 1.37m with only 75mm of dirt. This is also final proof that the Mynyddislwyn Seam is a compound seam at the site and is not the Lower Leaf as the C.A. data insists.

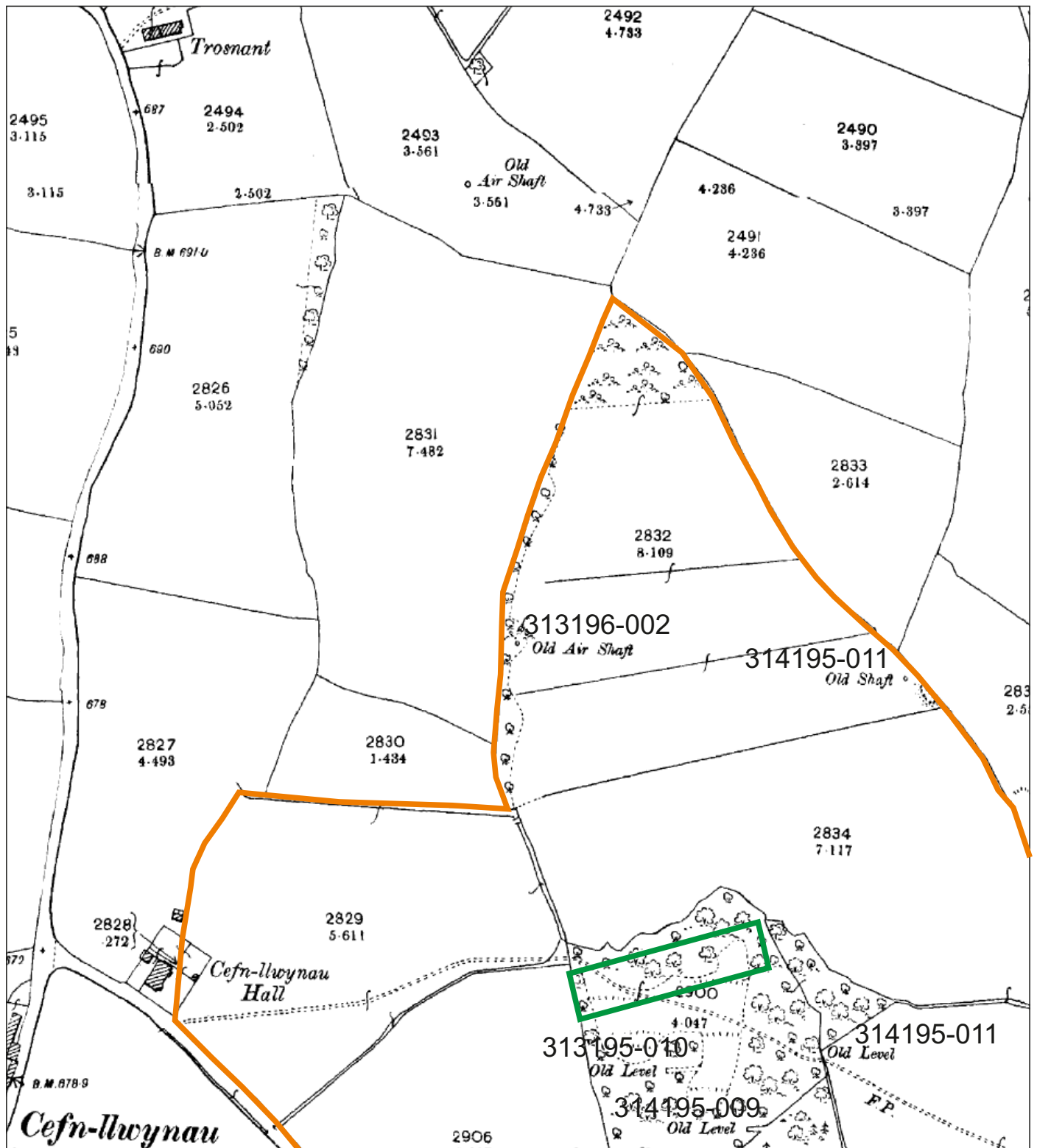


FIGURE 9

THE 1899 O.S. PRE-DATES THE CONSTRUCTION OF PENALLTA COLLIERY AND RETAINS THE ORIGINAL FIELD BOUNDARIES CORRESPONDING TO THE ESTATE BOUNDARIES ON ABANDONMENT PLAN SW2568. C.A. MINE ENTRY REFERENCES HAVE BEEN ADDED. THE APPROXIMATE POSITION OF THE POWERHOUSE IS IN GREEN.

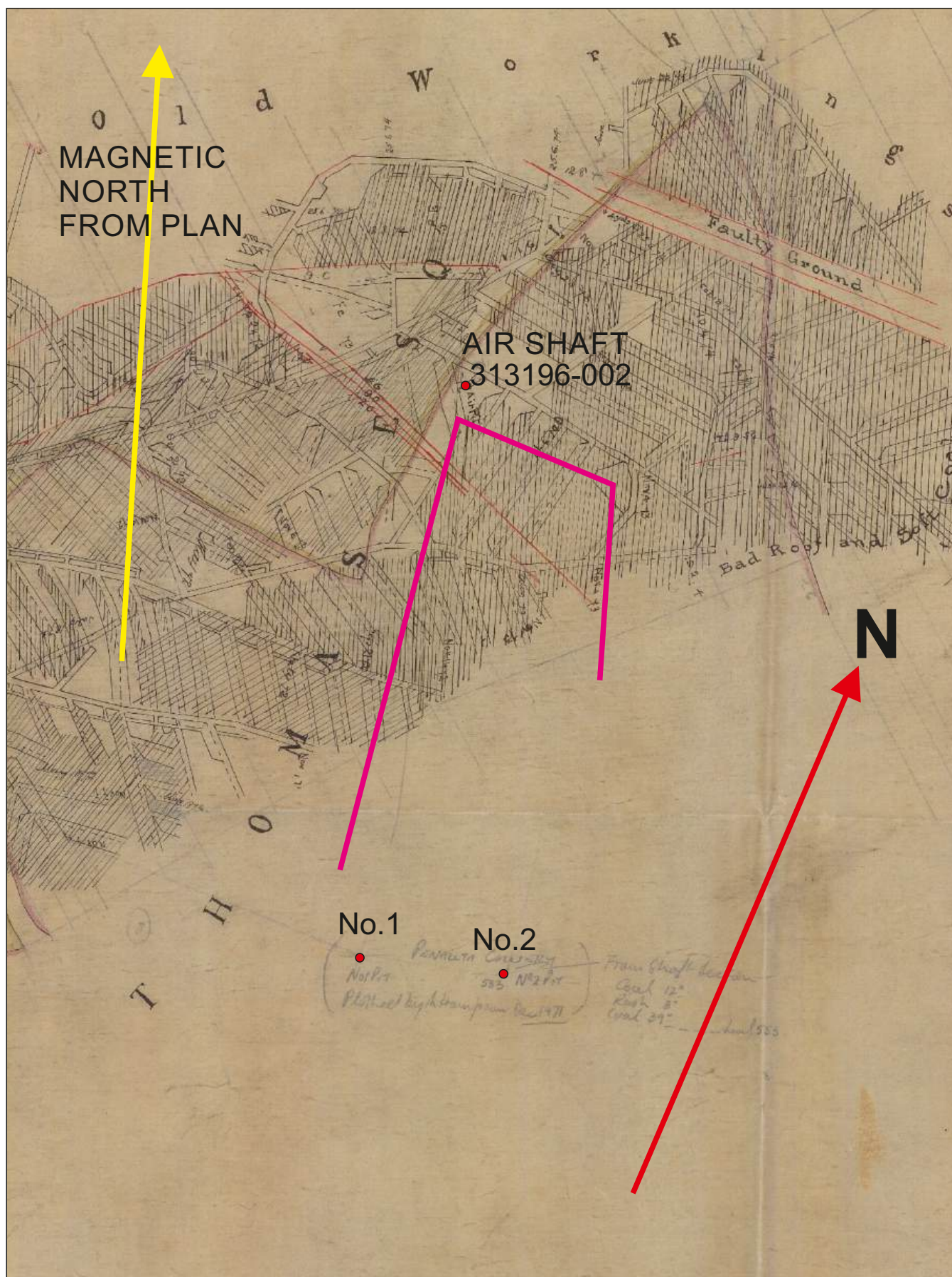


FIGURE 10
SECTION OF ABANDONMENT PLAN SWR2568. AN N.C.B. SURVEYOR HAS PLOTTED THE PENALLTA SHAFTS IN 1973. THE APPROXIMATE SITE BOUNDARY IS SHOWN ENCOMPASSING SHALLOW WORKINGS

2g) As mentioned in the introduction, the site ownership has changed hands several times and a lot of work has been carried out at the site at various times, much of it remedial. The main phase of intrusive site investigation was carried out in 1999. Much of the geotechnical and geoenvironmental work is outside the remit of this C.M.R.A. An overriding constant during this time was Ateb Consultants. Their work on the site is of a consistently high standard, but their involvement seems to end in 2007. In a Land Quality and Engineering Statement dated November 2007 they summarise the shallow mining situation thus:-

5.6.1. As a result of the site investigation and the historical study work carried out it is considered that with the exception of the north corner of the land the site is clear of shallow mine workings.

This is then immediately contradicted by the next but one section:-

The existing buildings are generally sound.....However there are shallow mineworkings under the northwest corner of the Power Hall and grouting works will be required in this area to stabilise the ground followed by a degree of repair to the gable wall to ensure long term stability of the site.

As will be shown in a review of the intrusive site investigation referred to, this is a simplification of the situation near the Power Hall. In addition, the “north corner” is a considerable portion of the site (see Figures 4 and 10) which appears to have only had one borehole drilled on it.

The borehole positions are set out on a masterplan (Figure 17) on page 39 of the report. Unfortunately, the report is a scan of an original paper copy. Whilst the text of the report is perfectly legible, the extremely complex nature of Figure 17 with contours, buildings and physical features makes 100% identification of the borehole numbers impossible. Attempts are being made to obtain an original copy, but time constraints mean it will not be included here, even if one can be obtained. A summary of the borehole logs is as follows:-

NO COAL

BHs R1-R12. Of these, only R3, R4 and R5 are within the current application area. The others are under the modern housing development adjoining the site to the east. All are evidently east of the Mynyddislwyn outcrop. In the case of R19 and R22 the boreholes seem to have been stopped too short to prove anything.

INTACT COAL

BHs R6, R7, R13, R17, R18, R20. These are all west of the outcrop with the coal present at shallow depth. R18 is well off the site boundary. The author's interpretation of R15 is that it drilled through collapsed workings. Although loss of flush was not noted, this is not unknown if the roof has "squeezed". Only 0.3m of coal was recorded.

CONFIRMED WORKINGS

R6A, R8, R16, R22, R23. Both R6A and R8 are marginally west of the current site boundary, but confirm the presence of dangerously shallow workings close to the gable end of the Power Hall. R16 appears to be the only borehole drilled within the area of recorded workings. R22 and R23 appear to be in front of the Power Hall but the poor quality of the reproduction means none of these three can be positioned with 100% confidence.

Of the remaining boreholes, R14 was drilled down the No.1 Shaft. R22 was abandoned on a steel obstruction after three positions were attempted.

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

3. SITE SPECIFIC COAL MINING RISKS

From the table above it can be seen that three issues require a risk assessment for this site. The risk from mine entries and both recorded and unrecorded shallow workings under the site. To first briefly deal with the issues marked NO on the table:-

- a) The C.A. report states there are no fissures, surface hazards or lines of geological weakness affected by underground mining under the site.
- b) Extensive previous work in the 1999 site investigation concluded there was no gas risk at the site. This included monitoring a borehole drilled down the No.1 Shaft. It is highly unlikely the shallow workings in the Mynyddislwyn will contain gas. At the time of their working, they were known to be gas free, and the workings were lit with naked lights. Future investigative work will include further gas monitoring. From the point of view of this assessment the risk is considered negligible with the proviso of future additional work being carried out.
- c) There have been no damage notices nor subsidence claims within 50 metres of the site. The Consultants Report lists four “remediated sites”. This almost certainly refers to the infilling of the two main shafts and the subsequent topping up required.
- d) There has been no surface mining (opencast) close to the site in the past. There are no licenses for future mining in existence.

There are recorded shallow workings beneath the site. The mine plans establish this beyond doubt. There are also unrecorded workings present as proved in the 1999 site investigation. The depths given in the Consultants Report (10m-11m) can only be a generalisation considering the size of the site, the dip of the strata and the topography rising to the northwest. There are no surveyed depths on the abandonment plans. The depth of unrecorded workings in the S.I. ranges from 5.5m-11.7m. Assuming BHR16 is

within the area of recorded workings, these can be assumed to be deeper at 15.5. This is however, still extremely shallow from the ground stability point of view. Both the mine plans purchased for the risk assessment show that all the pillars beneath the site were removed some time after 1874. This was a very dangerous operation, even when compared to the daily hazards faced by miners generally in the nineteenth century. The thickness of the Mynyddislwyn Seam combined with a relatively poor roof meant that the original extraction ratio was only 50%. Large long ribs of coal approximately the same width as the stalls were left behind. This was done for one reason only-to support the roof. When these pillars were then removed the roof would be completely unsupported. Timbering was used as temporary support. As the work moved back toward the ventilation roadways, wherever possible, the temporary timbering was removed for reuse. The fact that all support beneath the site was removed 150 years ago completely changes the predicted risk of ground instability. The behaviour of stall and pillar workings long after abandonment can be highly unpredictable and dependant on many variables. Among these would be roof rock, seam thickness, lateral extraction ratio and depth. With total extraction of the pillars the nature of the workings has now become akin to longwall working. Instead of void propagation, areal collapse would be expected. At depth this process begins immediately support is removed, as seen on modern mechanised coalfaces. At the shallow depths of the workings beneath the site it would be expected there would be a mixture of instant catastrophic collapse and a gentler slow squeeze. Whatever the nature of the collapse mechanism, after nearly 150 years it can be assumed this process is now complete.

This leaves the risk from mine entries to be assessed. The two main shafts are brick lined for a considerable depth and have been backfilled with uncontrolled tipping by British Coal. At least one of the shafts has since had to be topped up. Given the huge depth of both shafts some degree of settlement is to be expected. A prudent course of action will be discussed in the following section.

The old air shaft just north of the site boundary does not pose a threat to the site. It is currently within the yard of Mixit on the Penallta Industrial Estate. They are a readymix concrete company. The author has worked on their site in the past. The shaft is 29.3m deep and is backfilled and capped. The site is outside the zone of influence of the shaft, particularly because a no-build buffer zone is proposed between the residential development and the industrial estate. The depth of the shaft gives a good indication of the depth of the recorded workings at the northern end of the site.

This leaves the three old levels. The 1999 site investigation spent considerable time and effort attempting to locate the two old levels within the site boundary. This involved targeted drilling and deep (4.5m) trenching. Apparently the third mine entry

outside the present boundary was also searched for but no details are given. The Ateb Report concluded that they had either been grubbed out prior to the construction of the colliery complex or that they had simply collapsed when the ground levels were raised, followed by 80 years of heavy loading and traffic. It is hard not to disagree with this point of view. They do not pose a threat to ground stability at the site alone. However, they should not be artificially separated from the shallow workings they are undoubtedly connected to near the gable of the Power Hall.

4. MITIGATION STRATEGY

The site requires a further well-planned site investigation building on the information contained in the initial 1999 S.I. The major information gaps are in the northwest of the site and adjacent to the gable wall of the Power Hall. The S.I. should be designed by an experienced Mining Engineer/Geologist. The objectives of the site investigation are twofold. Firstly, drilling of the known area of recorded shallow mining is needed to prove or disprove the hypothesis that the shallow working will have collapsed and that there is a negligible threat to ground stability at the site. Secondly, the extent and nature of the unrecorded workings near the Power Hall needs to be delineated. Following that the results can be used to determine what remedial action will be required to prevent further deterioration of the building. Grouting was offered as a solution in the original report, but the extremely shallow nature of the workings means other foundation solutions may be preferable. The C.A. should also be consulted about a mutually agreeable permanent capping of the two main shafts, but at the moment that is not a pressing issue.

5. CONCLUSION

This risk assessment has presented abundant evidence from comprehensive research that there is a residual risk to ground stability posed by coal mining legacy issues at the site. In particular, the risk from the shallow workings, both recorded and unrecorded under the proposed development needs to be further quantified. The risk from mine gases is thought to be negligible, but future site investigations will enable further quantification of any gas risk. Therefore, it is the author's opinion that there is no reason for the Coal Authority to object to planning permission being granted for the proposed development provided the permission is conditioned with a thorough pre-commencement site investigation, required remedial works and validation of said works.

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

26/08/2024

APPENDIX 1

COAL AUTHORITY CONSULTANTS REPORT

WINDING WHEEL LANE

PENALLTA



The Coal
Authority

Consultants Coal Mining Report

1

The Great Engineering Building
(Court E)
Winding Wheel Lane
Penallta
Caerphilly County Borough
CF82 6AN

Date of enquiry:	21 August 2025
Date enquiry received:	21 August 2025
Issue date:	21 August 2025

Our reference:	51003519990001
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

1
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Winding Wheel Lane
Penallta
Caerphilly County Borough
CF82 6AN

How to contact us

0345 762 6848 (UK)
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200 Lichfield Lane
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Nottinghamshire
NG18 4RG

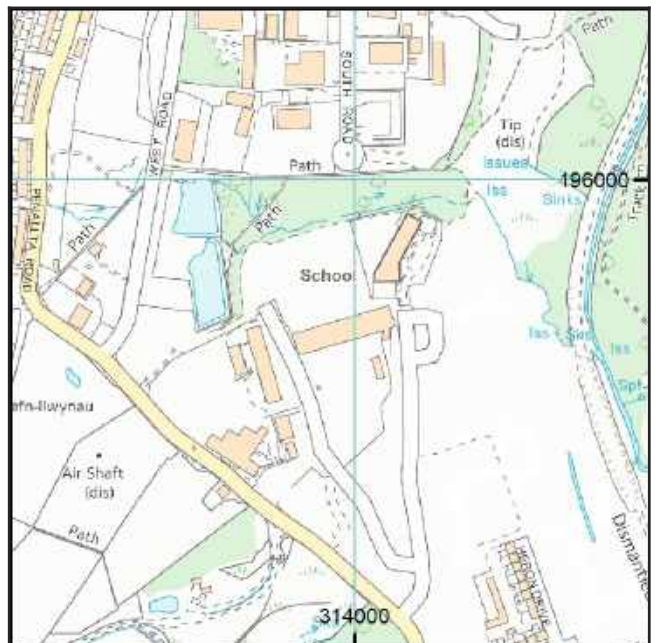
www.groundstability.com

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Approximate position of property



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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	MYNYDDISL WYN LOWER LEAF	Coal	45JK	10	Beneath Property	4.1	North-West	220	1873
unnamed	MYNYDDISL WYN LOWER LEAF	Coal	7NRI	11	Beneath Property	1.0	South	220	1902
unnamed	UPPER SIX FEET	Coal	45Y2	528	South-East	11.3	North-West	200	1948
unnamed	UPPER SIX FEET	Coal	45Y8	549	South-East	11.2	North-West	200	1948
unnamed	UPPER SIX FEET	Coal	45Y1	571	East	12.1	North-West	200	1922
unnamed	UPPER SIX FEET	Coal	45Y0	576	East	8.4	North-West	200	1950
unnamed	TWO FOOT NINE	Coal	45G6	583	South	4.1	North-West	120	1952
unnamed	FOUR FOOT	Coal	45EE	596	South	9.5	North-West	170	1955
unnamed	UPPER SIX FEET	Coal	45Y3	599	South	12.0	North-West	200	1940
unnamed	UPPER SIX FEET	Coal	45Y5	604	East	14.4	North-West	200	1930
unnamed	UPPER SIX FEET	Coal	45Y6	604	East	11.9	North-West	200	1954
unnamed	UPPER SIX FEET	Coal	45Y4	606	South-East	12.5	North-West	200	1940
unnamed	UPPER SIX FEET	Coal	45XQ	621	South	9.5	North-West	200	1918
unnamed	UPPER SIX FEET	Coal	45XO	624	West	3.0	North-West	200	1927
unnamed	FOUR FOOT	Coal	45EB	632	South-West	6.8	West	170	1930
unnamed	UPPER SIX FEET	Coal	45Y7	642	East	11.7	North-West	200	1920
unnamed	UPPER NINE FOOT	Coal	45V1	670	South-West	2.4	North-West	120	1926
unnamed	UPPER SIX FEET	Coal	45C6	673	North-East	6.2	North-West	180	1930
unnamed	FOUR FOOT	Coal	45FO	675	North	2.8	North-West	160	1948
unnamed	UPPER NINE FOOT	Coal	45V0	676	West	3.0	North-West	120	1920
unnamed	FOUR FOOT	Coal	45EC	677	West	3.8	North	190	1937

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	FOUR FOOT	Coal	45FJ	685	North	1.2	North	140	1960
unnamed	UPPER SIX FEET	Coal	45XR	686	North-West	0.9	South-West	180	1915
unnamed	FOUR FOOT	Coal	45F1	695	North	4.2	South	150	1926
unnamed	FOUR FOOT	Coal	45F2	697	North	4.1	South	150	1953
unnamed	LOWER NINE FOOT	Coal	45R0	704	West	9.4	North-West	122	1960
unnamed	FOUR FOOT	Coal	45F3	707	North	2.5	South-East	150	1930
unnamed	LOWER NINE FOOT	Coal	45QX	707	West	4.1	North-West	122	1961
unnamed	UPPER NINE FOOT	Coal	45V7	710	North	6.8	North	120	1918
unnamed	LOWER NINE FOOT	Coal	45QZ	711	West	5.7	North-West	122	1960
unnamed	LOWER NINE FOOT	Coal	45T3	727	West	5.2	North-West	100	1965
unnamed	UPPER NINE FOOT	Coal	45V6	769	North-West	6.6	North	120	1920

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	313195-001	313962 195780	This mine entry was filled to surface in November 1991 with stone and shale. In 2004 a steel cover was fitted over the shaft and a fence placed around the shaft cover.	Coal	
Adit	313195-010	313975 195799	Treatment details unknown.*	Coal	
Shaft	313196-002	313897 196021	A concrete cap of unknown specification was installed within this shaft by Gelligaer Urban District Council in 1973.	Coal	
Shaft	314195-001	314023 195798	This entry was filled with stone and shale to an unknown specification in November 1991. In 2004 this filling was topped up with 600 tonnes of stone and a steel cover was then placed over the shaft. The Heapstead building within which the shaft is situated was then sealed to prevent access. In addition a total of 900 tonnes of stone was introduced through a collapsed area of the associated fan drift and this was then sealed with 6 cubic metres of concrete to the surface. A steel grille was fastened across steel girders at ground level in the fan evasse to prevent access to the base of the fan housing. These works were undertaken by JMC Mining Ltd acting on behalf of The Coal Authority.	Coal	
Adit	314195-009	314018 195769	Treatment details unknown.*	Coal	
Adit	314195-011	314082 195821	Treatment details unknown.*	Coal	

*For your information, before the coal industry was nationalised in 1947, there was no requirement for a mine operator to record mine entry treatment details when a mine was abandoned. Therefore, it is not unusual for us to have no treatment details for many of the 176,000 recorded mine entries on our database. Despite this lack of information, please be assured that the fact we have no treatment recorded does not necessarily mean that the mine entries were left untreated when abandoned.

Abandoned mine plan catalogue numbers

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

16366	SWR3947	4800
SWT1268	SW2567	SWR4122
SWR1896	14551	SWA3949

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
MYNYDDISLWYN LOWER LEAF	Coal	Yes	Within	N/A	19

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

None recorded 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

Distance to site remediation (m)	Direction
Within	N/A
Within	N/A
Within	N/A
Within	N/A

See Section 4 for further information.

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.

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.

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.

MINE GAS: Please note, if there are no recorded instances of mine gas within 500m of the enquiry boundary, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded. 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. In these instances, the Coal Authority recommends that a more detailed Gas Risk Assessment is undertaken by a competent assessor.

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.

Remediated sites

The site is within an area of previous interest. It is close to where the Coal Authority has investigated and where necessary remediated mine entries and/or shallow coal mine workings following specific reported hazards.

The site requires further investigation and may influence your risk assessment. We recommend that you order the Coal Authority **Surface Hazards Incident 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. Please note, if there are no recorded instances of mine gas reported, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded.

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.