



COAL MINING RISK ASSESSMENT

LAND ADJACENT TO No. 5 HEOL

TEWDWR

CYMMER

NEATH PORT TALBOT

SA13 3NY

Prepared for:

ABS Drawing Services

By:

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Liverpool

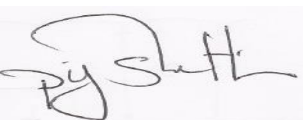
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Date: 12th January 2023



EnviroSolution Ltd

Document Verification

Site Address	No. 5 Heol Tewdwr, Cymmer, Port Talbot, SA13 3NY		
Report Title	Coal Mining Risk Assessment		
Job Number	CL101	Document Ref.	ES02418
Date Issued	12 th January 2023	Report Version	1
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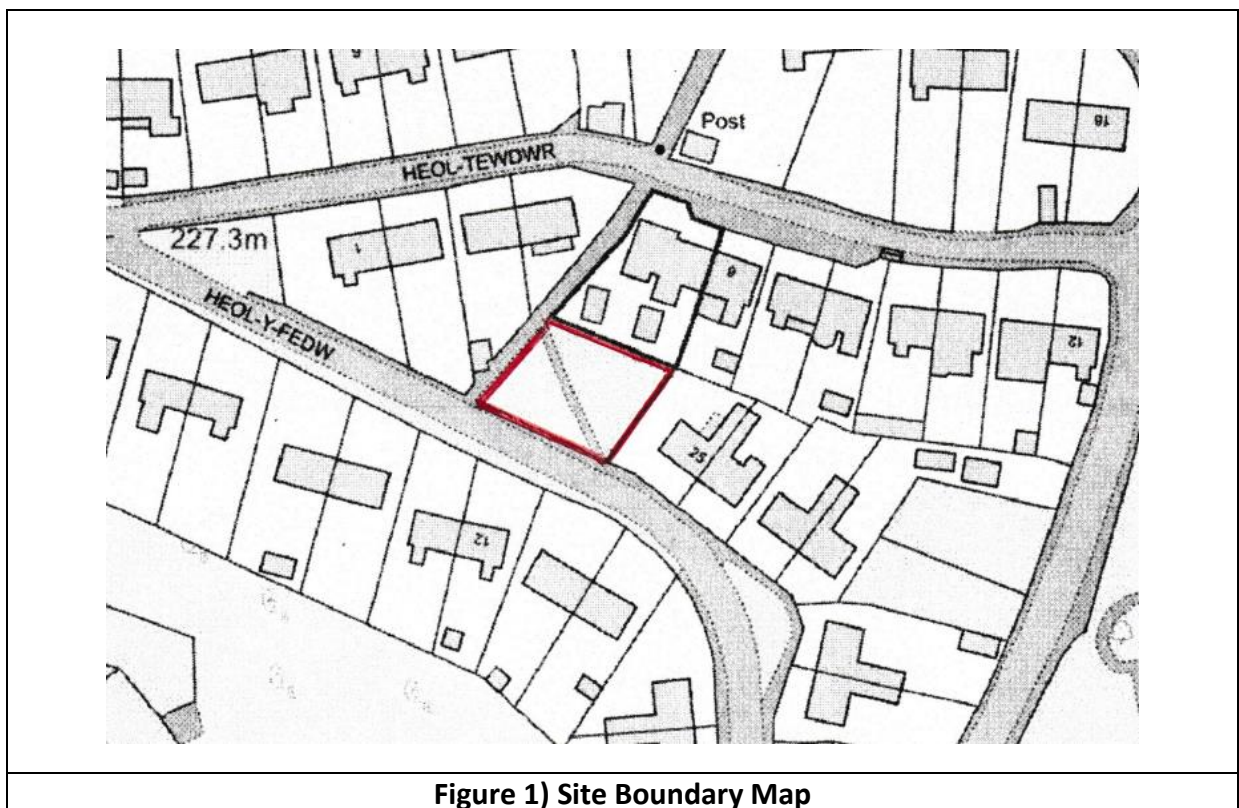
1 Introduction

1.1 Site Location and Description

The site is located at land adjacent to No. 5 Heol Tewdwr, Cymmer, Neath Port Talbot, SA13 3NY. National Grid Reference: 286780 195645. The site location is shown in **Appendix A**.

The site covers an area of approximately 390 square meters and is currently a vacant plot of green space covered in grass and shrubs with a central path.

The site topography undulates and generally slopes to the northwest from about 234m aOD to 230m aOD. The site is bounded by residential properties on all sides.



1.2 Development Proposal

The development proposal is to support a planning application to construct a pair of semi-detached residential dwellings set at mixed levels taking consideration of the sloping ground towards the north. Proposed external works include small gardens and car parking.

A copy of the development proposal plan is included in **Appendix A**.

1.3 Scope of Coal Mining Risk Assessment

EnviroSolution Ltd has been commissioned to prepare a Coal Mining Risk Assessment Report (CMRA) for the proposed development site, in order to provide the Local Planning Authority with information on the coal mining legacy risk(s), an assessment of their potential impact on land stability, and provide recommendations for the need to carry out any further investigations (including intrusive boreholes) to address these risk(s).

The CMRA has been undertaken in accordance with the principles of best practice including the Coal Authority's guidance document "Risk Based Approach to Development Management - Resources for Developers Version 3" (2014) (Ref. 1), CIRIA "SP32 Construction over Abandoned Mine Workings" (2002) (Ref. 2) and CIRIA "C758D Abandoned Mine Workings Manual" (2019) (Ref. 3).

The purpose of the CMRA Report is to:

- present a desk-based review of available information on the coal mining issues that are relevant to the application site;
- use that information to identify and assess the risks to the proposed development from coal mining legacy, including the cumulative impact issues;
- set out appropriate mitigation measures to address the coal mining legacy issues affecting the site, including any necessary remedial works and/or demonstrate how coal mining issues have influenced the proposed development; and
- demonstrate to the Local Planning Authority that the application site is, or can be made, safe and stable to meet the requirements of National Planning Policy with regard to development on unstable land.

1.4 Sources of Information

This report is based on current information of past mining activities relevant to the site. The following information sources have been used:

- Coal Authority Consultants Mining Report 9th January 2023 (Ref: 51003332463001 **Appendix B**)
- BGS Geoindex geological map
- BGS 1:63,360 Series, England and Wales Sheet 248 Pontypridd
- Coal Authority Interactive Website
- Historical Ordnance Survey maps

2 Environmental Setting

2.1 Historic Coal Mining Activity

The development site and surrounding area has been reviewed with reference to historical Ordnance Survey (OS) maps. The history of the site and immediate surrounding area are summarised in Table 1. Copies of the historical OS maps are included in **Appendix C**.

Table 1 - Historic Mapping Review

Date	Scale	Historic Mining Activity
1875	1:10,560	- Coal trial levels located 300m west and 370m southwest of the site. - General sandstone quarrying works along the south facing slope to the west.
1887	1:10,560	- Old trial level 200m west of the site. - Quarries 370m west of the site.
1914	1:10,560	- Glenavon Colliery located 870m east of the site.
1948	1:10,560	- Surrounding area developed with residential housing as at the present time. - Glenavon Colliery disused.

2.2 Site Geology

Significant thicknesses of Made Ground are not expected at this site from historically recorded usage; however, areas of reworked natural soils to control the natural slope towards the north should be expected.

The BGS geological maps (**Appendix D**) show that thin superficial deposits diamicton deposits will comprise diamicton which are of Quaternary age. These generally consist of over-consolidated unsorted clays, silts, sands and gravels.

The underlying bedrock geology consists of the Llynfi Member of the Pennant Sandstone Formation which is of Carboniferous age. These generally comprise grey-green feldspathic lithic arenites (arkose/sandstone) with thin mudstone/ siltstones interbeds of thin coals. According to the Coal Authority, the regional dip is approximately 10° – 14° towards the north.

The nearest geological fault is located 470m east of the site boundary. The fault downthrows towards the west. This part of the South-Wales Coalfield is heavily faulted on a large and small scale. This has resulted in difficulties in correlation of economic coal seams even over relatively short distances and coal seam names being used locally.

A BGS borehole log (Ref: SS89NE22) has been obtained from BGS online records from 280m northwest of the site (see Figure 2 below). The borehole shows 2.1m of superficial clays overlying interbedded sandstone and coal.

The uppermost coal, at a depth of about 7m bgl was less than 0.5m thick, as was the lower coal at about 18m bgl.

A copy of the borehole record is included in **Appendix E**.

The site is situated within a Tertiary Opencast Coal Resource Area (**Appendix F**), defined by the BGS as; coal fields that typically occur interbedded with thick sandstones formations. These coals form a resource and some of these coals have previously been deep mined. However, they do not generally form an attractive target for opencast mining due to factors such as high overburden ratios and hardness of the overburden. Notwithstanding this, it is considered to be very unlikely that there will be any interest in developing open cast coal mining operations at this location in the short or medium-term.

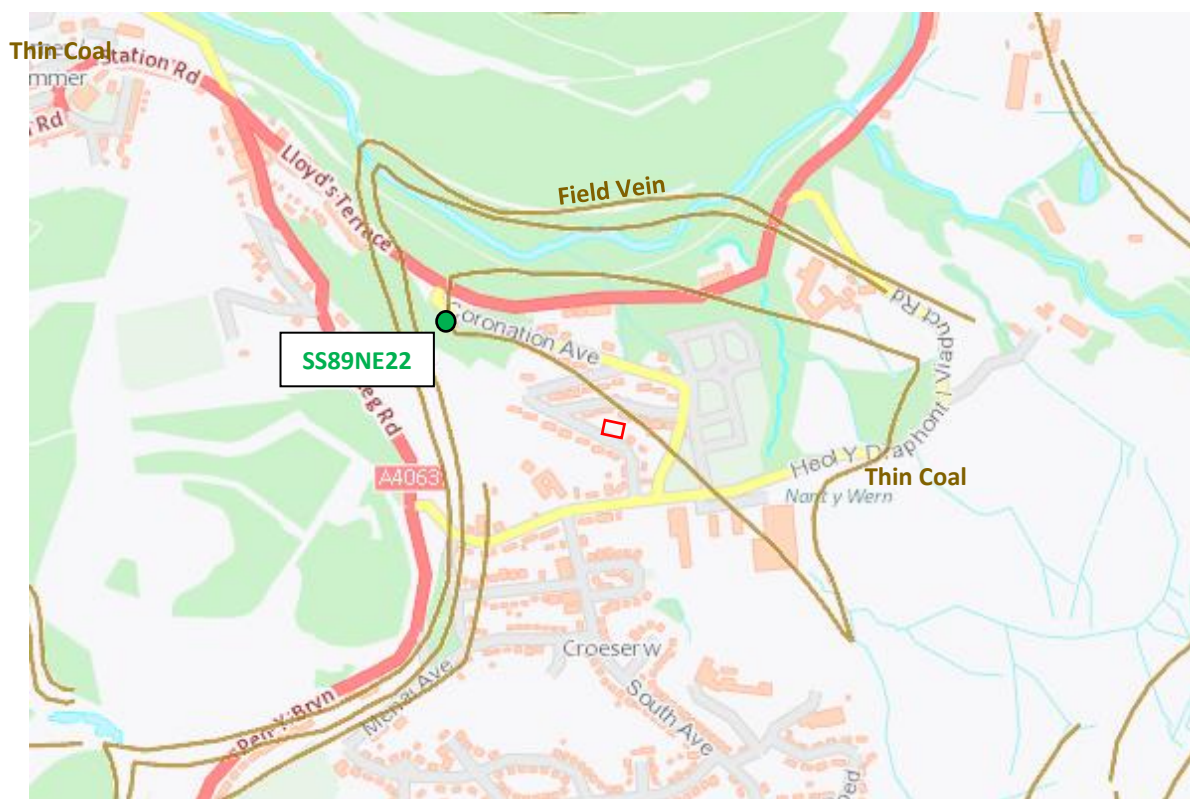


Figure 2) BGS Borehole Location (Geoindex Viewer)

3 Identification and Assessment of Site-Specific Coal Mining Risks

The table below summarises the potential risks associated with coal mining legacy for the proposed development site, identified from list sources of information.

Table 2 - Coal Mining Hazards Summary

Coal Mining Issues	Yes	No
Coal Outcrops	X	
Underground coal mining (recorded at shallow depths)		X
Underground coal mining (probable at shallow depths)		X
Recorded mine entries (shafts and adits)		X
Unrecorded mine entries (shafts and adits)	X	
Coal mining geology (fissures)		X
Record of past gas emissions		X
Recorded coal mining surface hazard		X
Surface mining (opencast workings)		X

The Coal Authority Interactive Map Viewer (**Appendix G**) has identified that the site is intersected by a Development High Risk Area (DHRA) associated with the presence of a coal outcrop which lies in close proximity to the site boundary. This DHRA seems to be associated with a sub-crop of “thin coal” as shown on the BGS Sheet 248 – **Appendix D**, that dips towards the north.

Historical mapping shown in **Appendix C** show ‘Trial Levels’ both to the north and south of the proposed development. It is believed that these probably relate to small-scale crop workings, but did not progress to unrecorded shallow underground workings.

The Coal Authority Coal Mining Report concludes that the site is in a surface area that could be affected by recorded underground workings in 5 no. seams of coal at depths of between 284m and 485m bgl. The coal in these workings was last worked in 1956.

Assuming competent rock strata equivalent to ten times the height of the working provides adequate protection against crown-hole development and surface subsidence (Ref 2), it is considered that the risk posed by past recorded coal workings is negligible.

The site is not in an area where the Coal Authority believes there are probable unrecorded shallow workings beneath, or within influencing distance of the site.

The Coal Authority report states that they are not aware of any mine entries within a 100m radius of the development site boundary. Notwithstanding this, there may be mine entries in the vicinity that have not been recorded.

The Coal Authority mining report states the property is not within the boundary of a historic or current opencast site, and there are no license requests outstanding to remove coal via this method in the future. The historical map review has shown the site has not been subject

to opencast mining and therefore the risk posed to the site from opencast mining methods is considered to be negligible.

4 Proposed Mitigation Strategy

On the basis of the desk based investigations, it is considered that the risk of unrecorded coal mine workings at shallow depth beneath the site is negligible.

Zones of trial levels, to the north, shown on the 1875 historical mapping, are not expected to have extended beneath the site.

If coal is encountered during foundation excavation works, the coal should be over-excavated for a minimum of 1m from the foundations and replaced with blinding concrete. These actions should be adequate to seal the coal from the atmosphere to prevent spontaneous combustion.

The possibility of unrecorded mine shafts has been highlighted in the Coal Authority report. Historical maps do not show evidence of shafts within the site boundary. The potential risk can be dealt with through vigilance during the earthworks stage of construction.

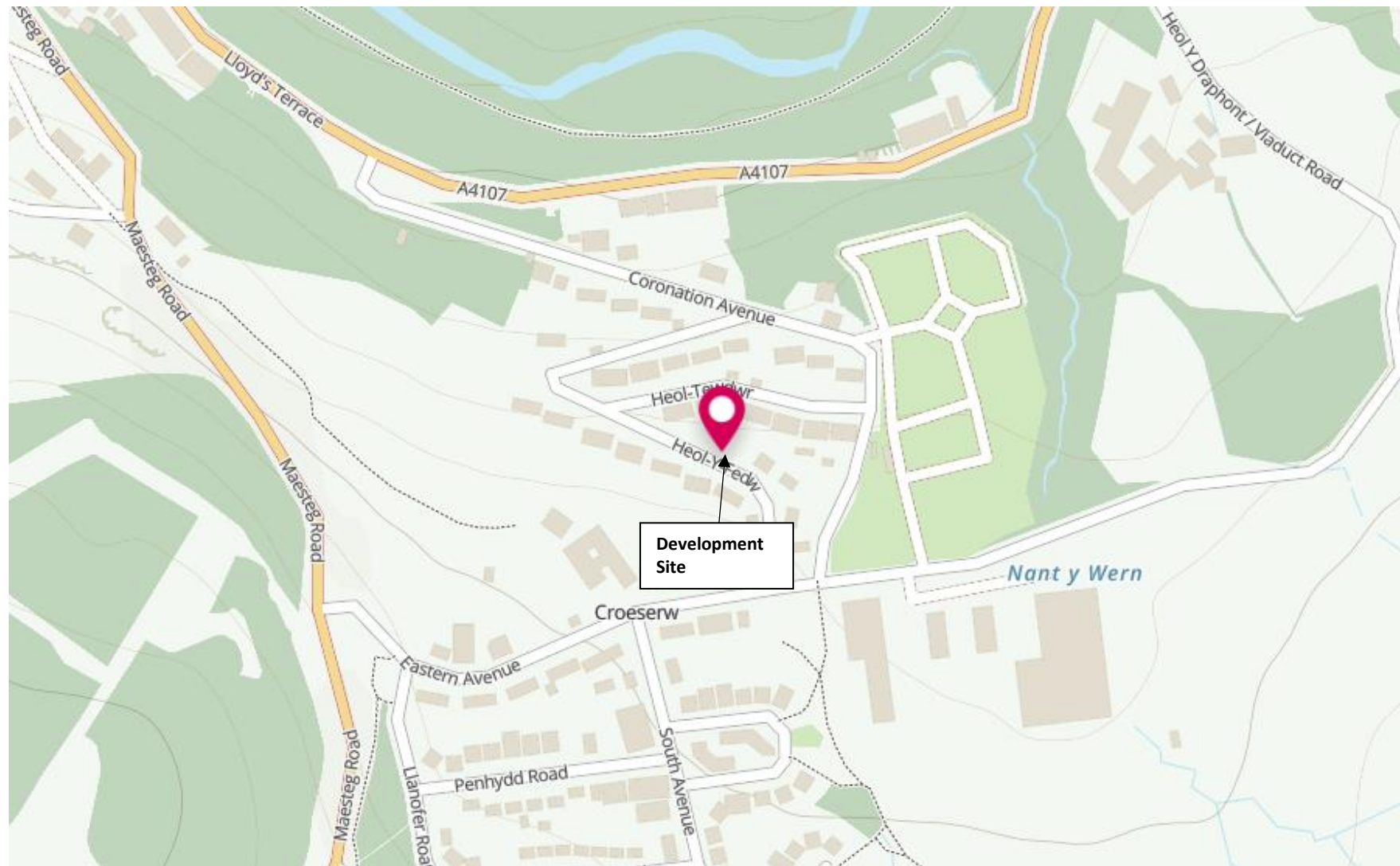
5 Conclusions

The Coal Mining Risk Assessment for the site at Heol Tewdwr in South Wales has concluded that the risk associated with coal mining related issues are low based on information from the Coal Authority and geological interpretation and can be suitably mitigated through informed professional practice and vigilance during construction.

6 References

1. Coal Authority, 2014, Risk Based Approach to Development Management Resources for Developers, Version 3.
2. CIRIA, 2002, SP32 Construction over Abandoned Mine Workings.
3. CIRIA, 2019, C758D Abandoned Mine Workings Manual.
4. CIRIA, Publication C665, Assessing risks posed by hazardous ground gases to buildings.

Appendix A – Site Location







Indicative Side Elevation (1:100)

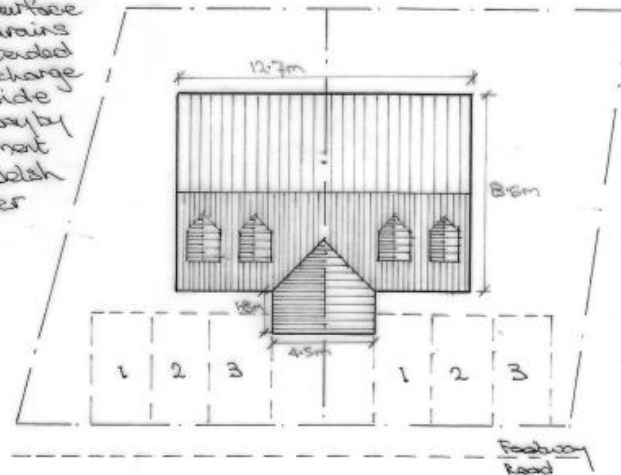


Indicative Rear Elevation (1:100)



Indicative 2nd Side Elevation (1:100)

Foul & surface water drains are intended to discharge into side pathway by agreement with Welsh Water



Indicative Block Plan (1:200)

Proposed provision of 3rd car parking spaces per dwelling size - 2.6m x 4.8m each

Appendix B – Coal Authority Report



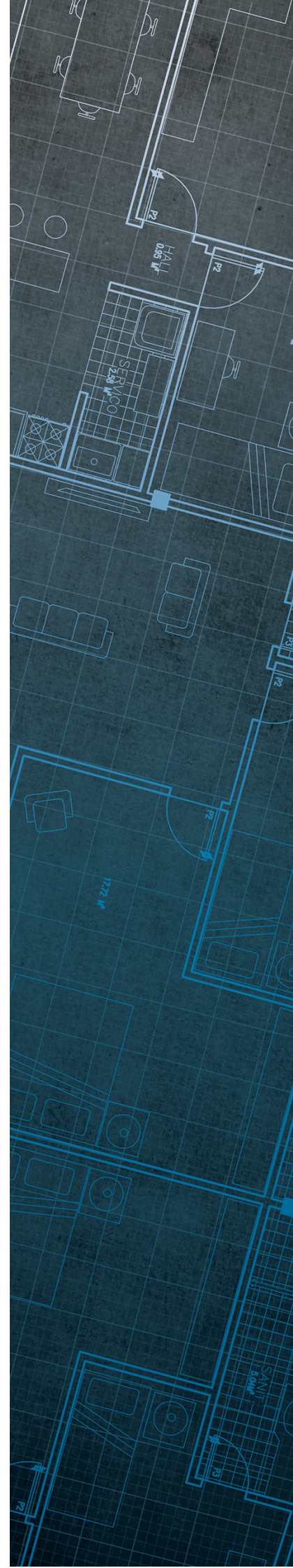
The Coal
Authority

Consultants Coal Mining Report

5 Heol Tewdwr
Croeserw
Cymmer
Neath Port Talbot
SA13 3NY

Date of enquiry:	9 January 2023
Date enquiry received:	9 January 2023
Issue date:	9 January 2023

Our reference:	51003332463001
Your reference:	Heol Tewdwr



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

EnviroSolution Limited

Enquiry address

5 Heol Tewdwr
Croeserw
Cymmer
Neath Port Talbot
SA13 3NY

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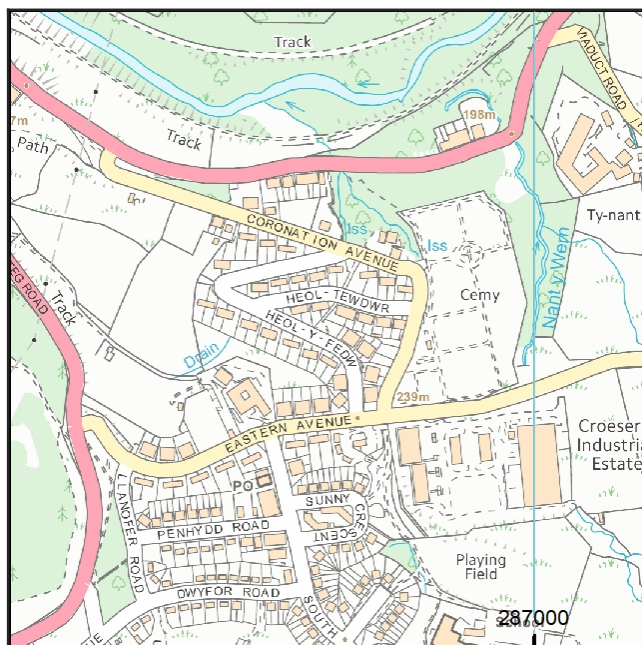
www.groundstability.com

 @coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /thecoalauthority



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	EIGHTEEN INCH	Coal	4F27	284	South-West	8.5	North	50	1925
unnamed	6FT BOTTOM LEAF	Coal	4F24	456	South	6.8	North	210	1916
unnamed	UPPER 6FT RIDER	Coal	4F29	465	South-West	10.7	North	110	1956
unnamed	CAERAU	Coal	4F20	466	South-West	9.4	North	100	1918
unnamed	LOWER NINE FOOT TOP LEAF	Coal	4F2C	485	South-West	8.7	North	132	1929

Probable unrecorded shallow workings

None.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

None recorded within 100 metres of the enquiry boundary.

Abandoned mine plan catalogue numbers

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

SWR4119	SWA1558	14525
SW302	10878	10304
SWA2474	SWA1012	PO0

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
UNNAMED	Coal	Yes	17.3	North-East	127

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

None recorded within 50 metres of the enquiry boundary.

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.

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.

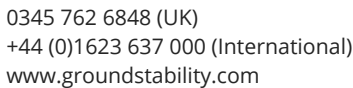
Withdrawal of support notices

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.

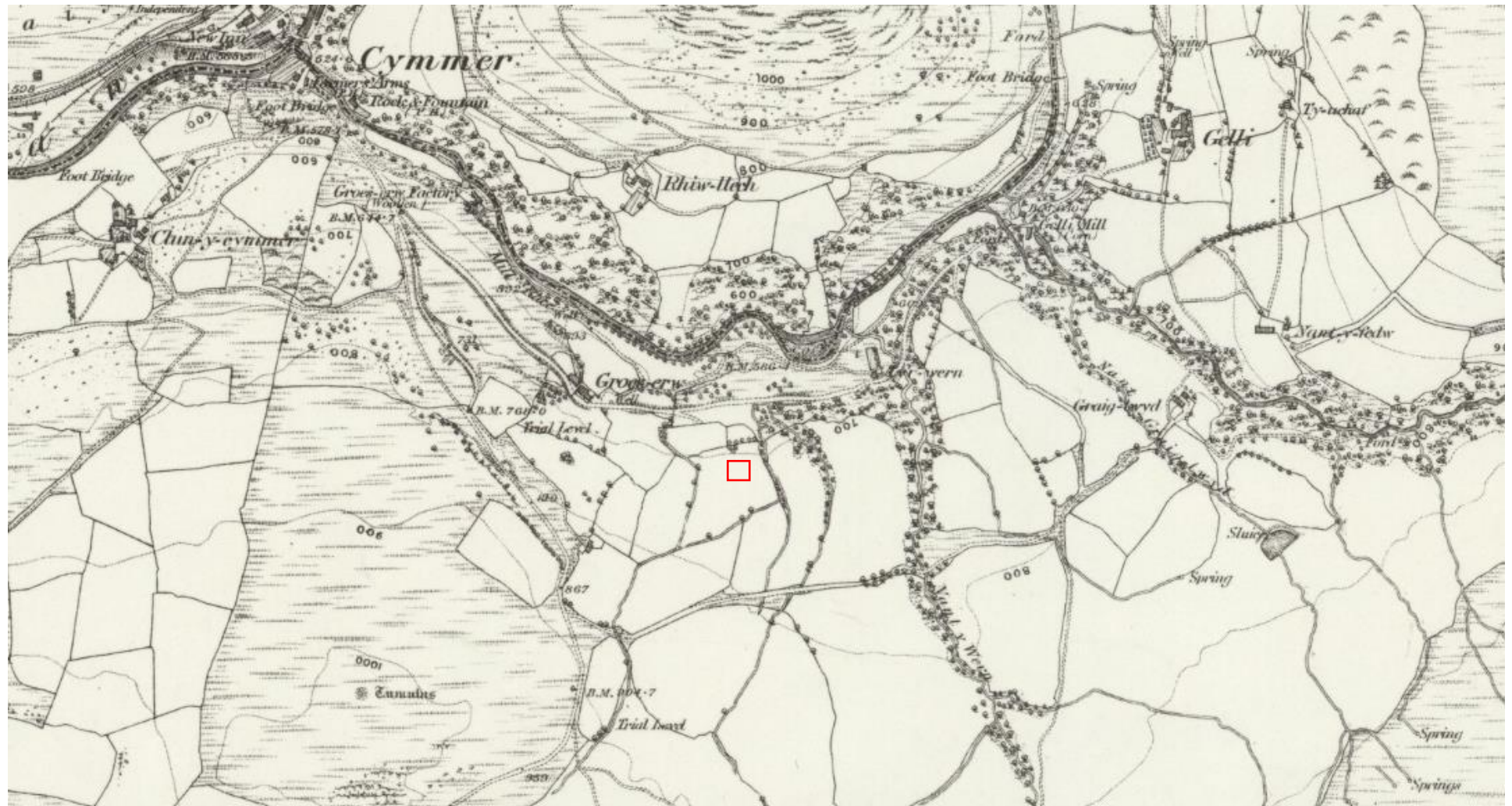
Payment to owners of former copyhold land

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.

Approximate position of the enquiry boundary shown	
Outcrop (Proven)	



Appendix C – Historic Maps



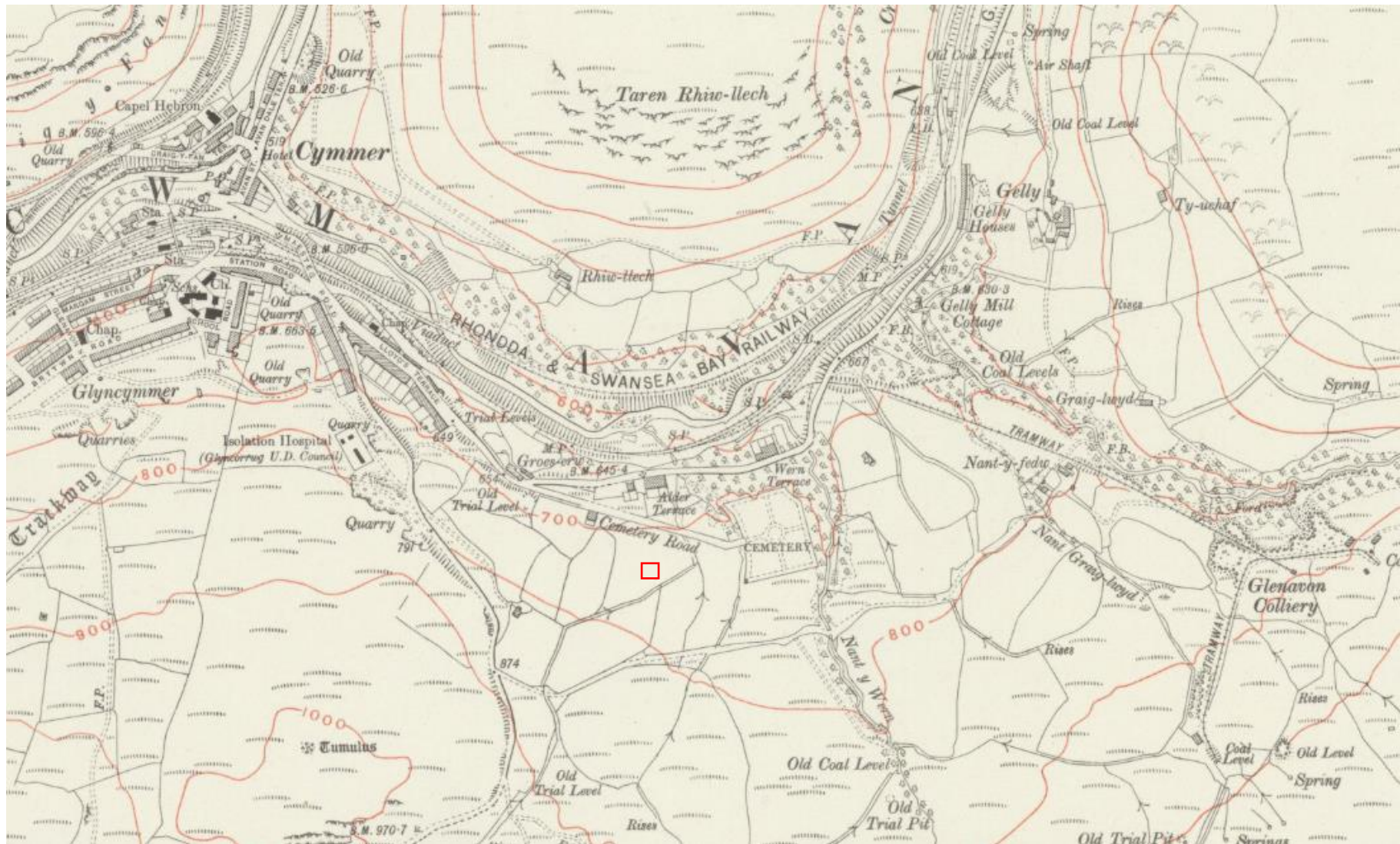
enviro | solution

Date: 1875
Scale 1:10,560



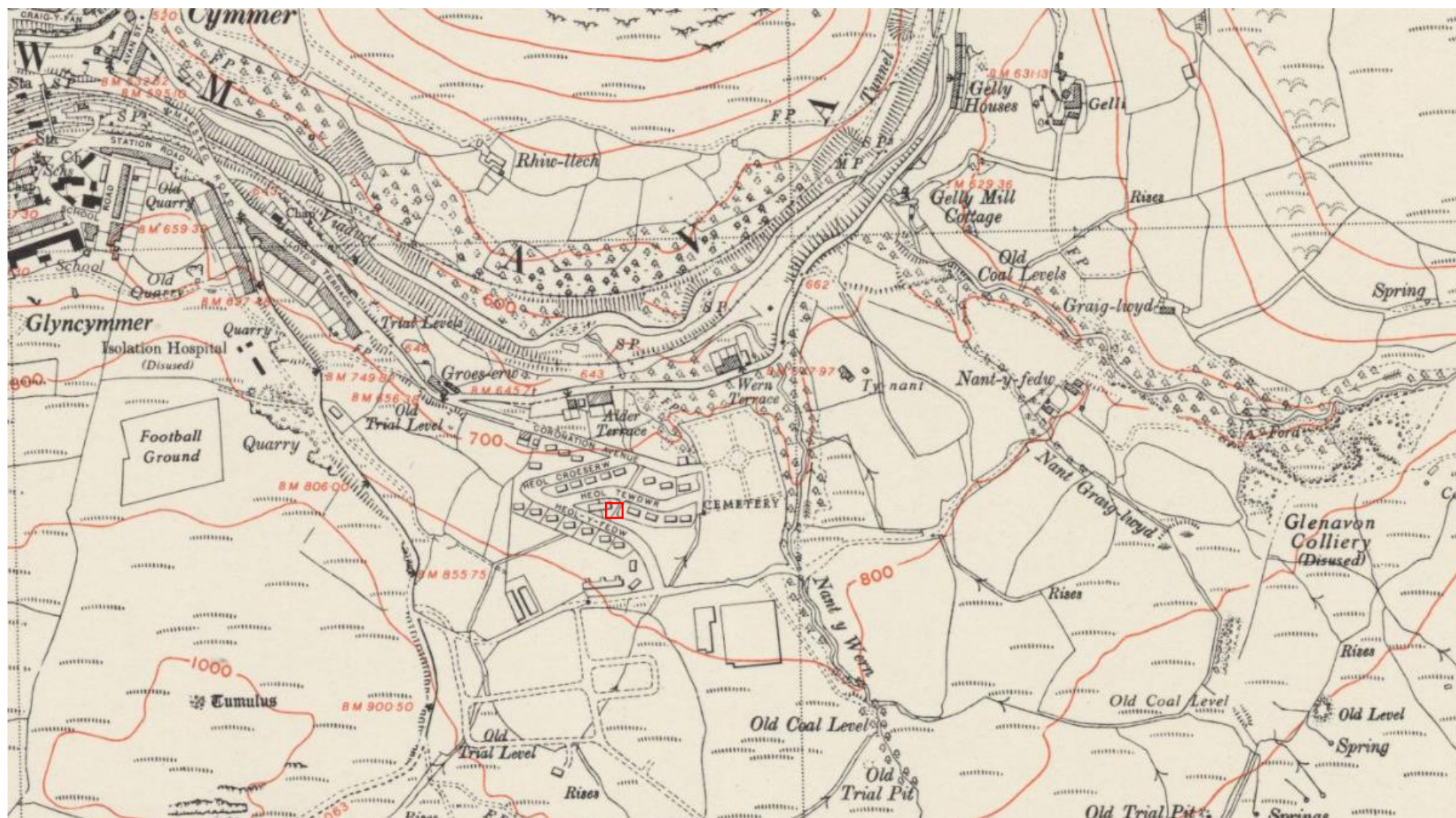
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Date: 1887
Scale 1:10,560



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Date: 1914
Scale 1:10,560

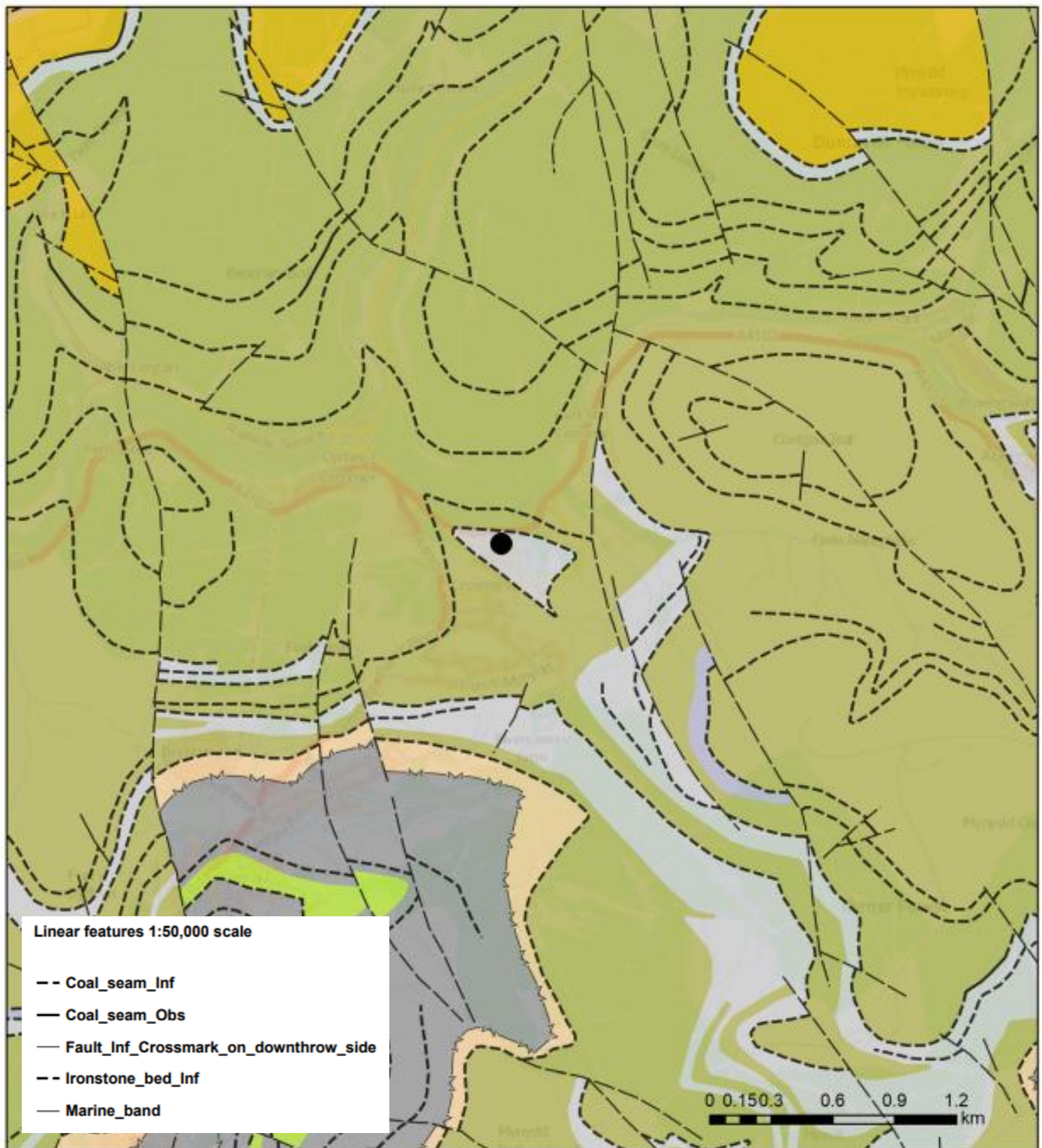


enviro | solution

Date: 1948
Scale 1:10,560

Appendix D – Geological Maps

Bedrock Geology



Bedrock geology 1:50,000 scale

	BRITHDIR MEMBER - MUDSTONE, SILTSTONE AND SANDSTONE
	RHONDDA MEMBER - MUDSTONE, SILTSTONE AND SANDSTONE
	SOUTH WALES UPPER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE
	SOUTH WALES MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE
	HUGHES MEMBER - MUDSTONE, SILTSTONE AND SANDSTONE
	BRITHDIR MEMBER - SANDSTONE
	SOUTH WALES MIDDLE COAL MEASURES FORMATION - SANDSTONE
	HUGHES MEMBER - SANDSTONE

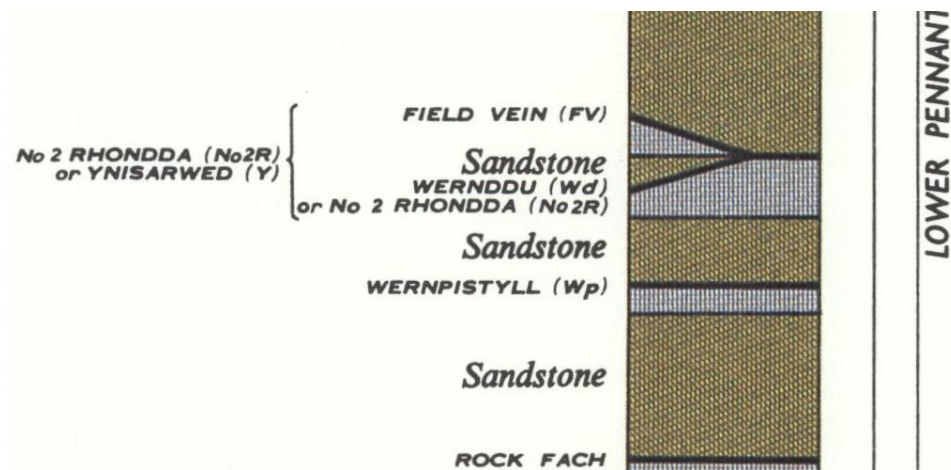
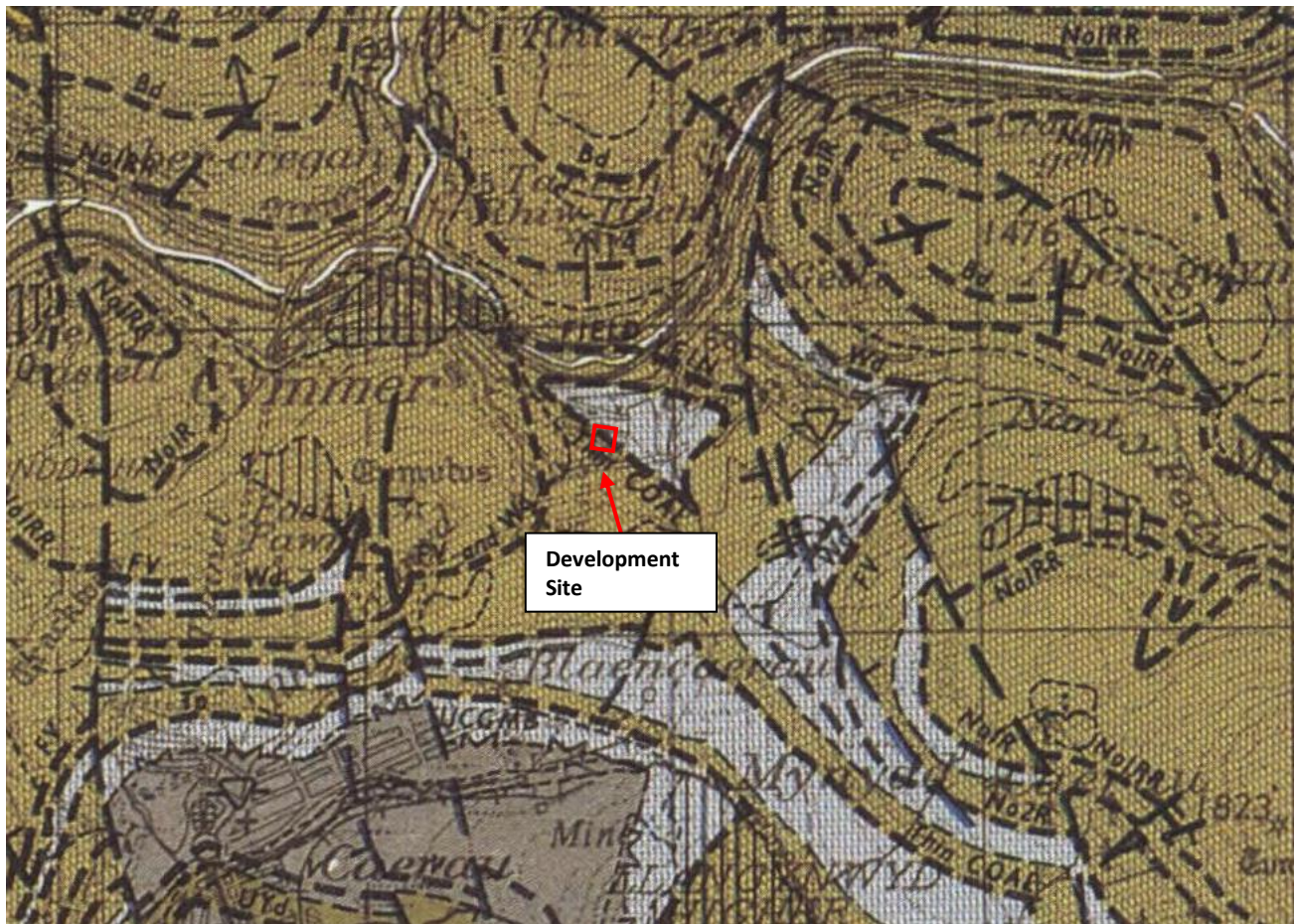
Superficial Geology



Superficial deposits 1:50,000 scale

GLACIOFLUVIAL DEPOSITS, DEVENSIAN - SAND AND GRAVEL
TILL, DEVENSIAN - DIAMICTON
ALLUVIUM - CLAY, SILT, SAND AND GRAVEL
PEAT - PEAT

BGS Geological Survey 1:50,000 Series England and Wales Sheet 248 Pontypridd



Appendix E – BGS Borehole Logs

SS89NE22

RECORD OF SHAFT OR BORE FOR MINERALS

1-inch Map Registered No.

Name and Number of Shaft or Bore

SS89NE/22.

For Messrs.

Town or Village

County

Six-inch quarter sheet

Exact site *In field near Coeslow (?) Farm*

6-inch Map
Registered
No.

(Attach a tracing from
a map, or a sketch-
map, if possible.

Purpose for which made

Level at which ^{shaft}_{bore} commenced relative to O.D.

State if ^{shaft}_{bore} is up, down, horizontal or

inclined; in latter cases give angle of inclination and direction

Made by

Information from

Date of Sinking *Jan. 1900.*

Specimens

Additional Notes in Space Overleaf

For Survey use only)
GEOLOGICAL
CLASSIFICATION

NATURE OF STRATA

THICKNESS

DEPTH

Surface clay & stones

7'

7

Sandstone (Hard)

2 6

7

6

Gravel & Broken Metals

13 6

22

COAL

1 6

23

6

Light fireclay & balls

5 8

30

2

Grey fatty blues

4

34

2

Grey blues

3 10

35

-

Grey pikes

3 3

41

3

Grey fatty sandstone

6 10

48

1

Grey blues

6 2

54

3

COAL

1 2

55

5

Grey blues

2 11

56

4

Sandstone (Hard)

3 1

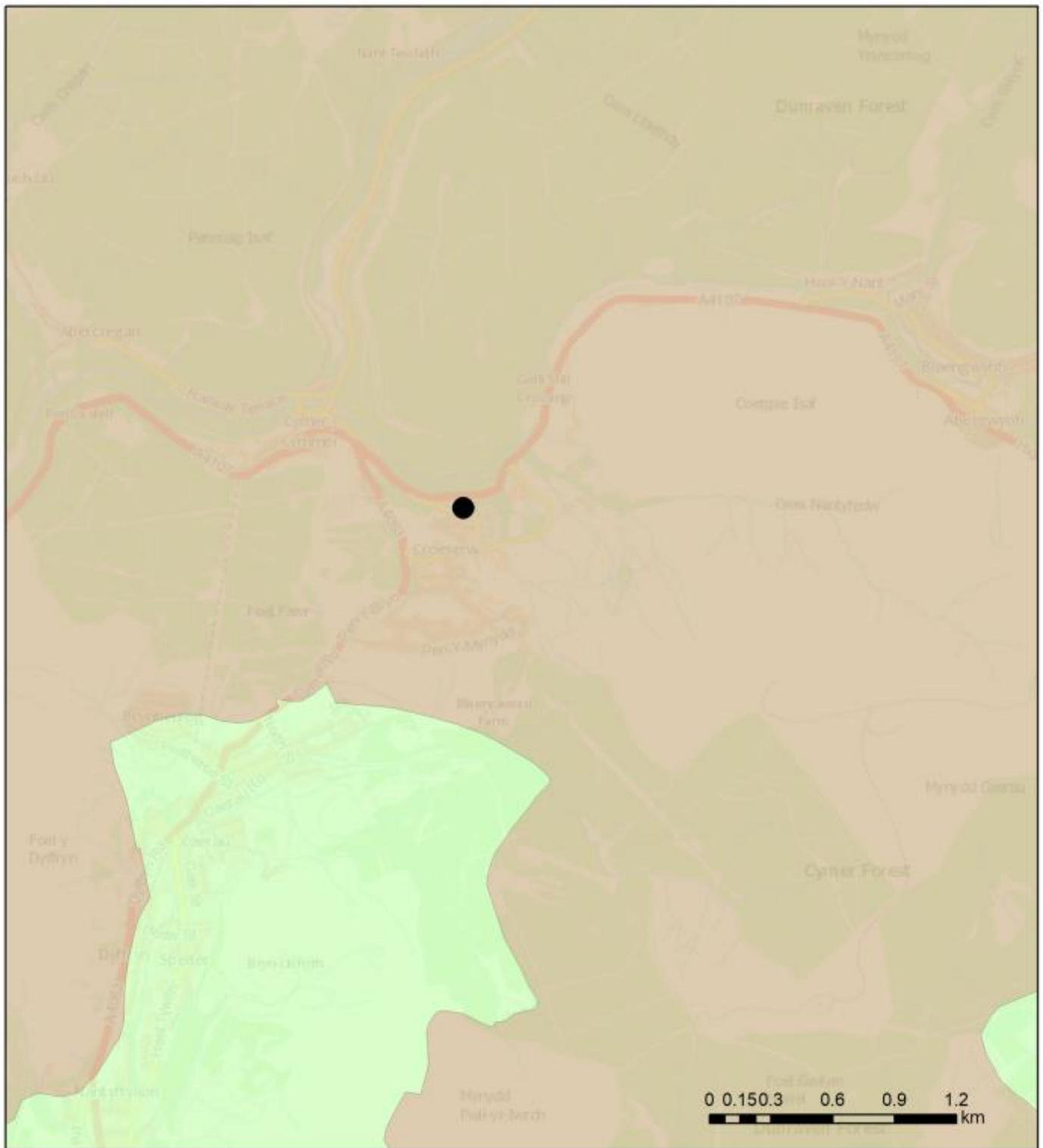
49

5

57

5

Appendix F – Coal Resource Map



Shallow Coal

-  Buried coal resource overlain by up to 50m overburden
-  Primary opencast coal resource area
-  Secondary opencast coal resource area
-  Tertiary opencast coal resource area

Appendix G – Coal Mining Summary Map

