

PREPARED BY:	Quantum Geotechnic Ltd	DOCUMENT:	Technical Note 01
CLIENT:	Mr I Williams	DATE:	28 th February 2022
PROJECT TITLE:	Land Adjacent No.1 Ffordd Dinas, Cwmavon	OUR REF:	Q0673-TAN01

1.0 Introduction & Background

Quantum Geotechnic Ltd (QG) have been employed by Mr Ian Williams (hereafter referred to as the Client) to undertake an intrusive combined coal mining and geotechnical ground investigation on a plot of land located adjacent to No. 1 Ffordd Dinas in the village of Cwmavon, Port Talbot. Postcode: SA12 9BS. National Grid Reference: SS 77753 92220.

The Client proposes to construct one residential detached dwelling on an existing garden area immediately to the east of No.1 Ffordd Dinas. The site lies to the south of Ffordd Dinas road, with access gained from the road and down the existing soil slope using an existing partial track.

The site lies at a reduced elevation of approximately 5m from Ffordd Dinas road.

Location of the site is shown in Figures 1 and 1A below, with a collection of drawings in Appendix I as provided by the Client;

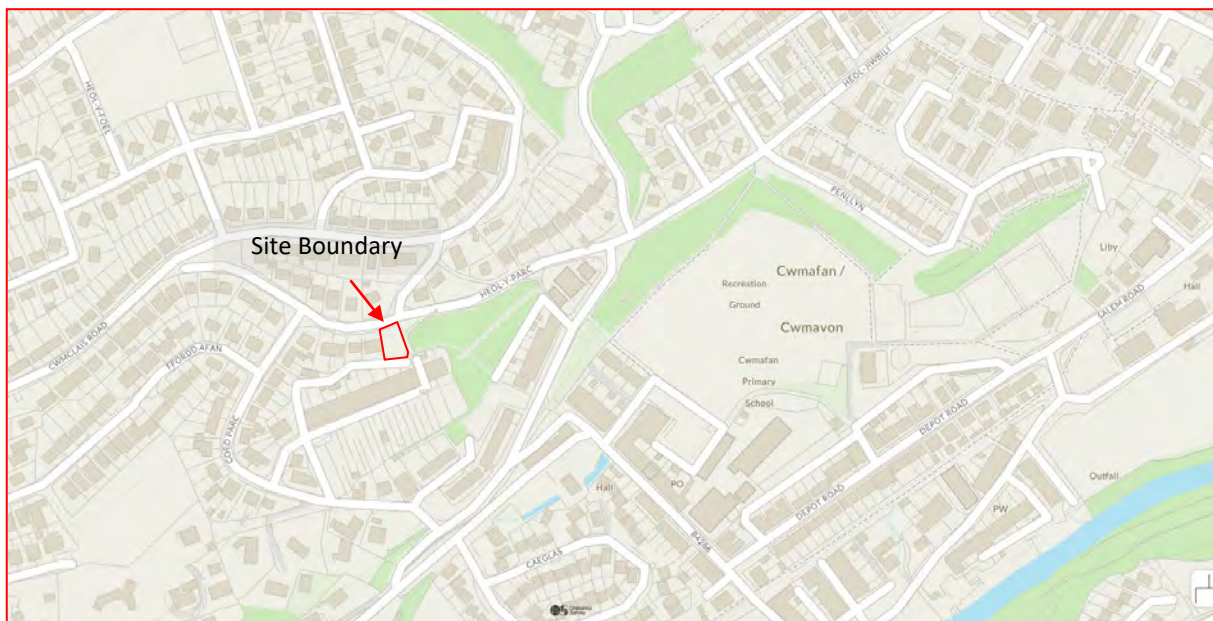


Figure 1: Location of proposed development site © Ordnance Survey.



Figure 1A: Detailed location of proposed development site and proposed early layout of new dwelling
(drawing supplied by Client)

2.0 Related Studies

A desk-based Coal Mining Risk Assessment (CMRA) was undertaken by Earth, Environmental & Geotechnical Ltd in April 2021. This earlier report concluded that the site lies within a Coal Authority defined Development High Risk Area with probable shallow coal mine workings due to a locally outcropping coal seam notably, the Lower Nine Foot Coal Seam from the South Wales Lower Coal Measures Formation, indicated to outcrop at shallow depth towards the northern area of the site dipping northwards at an angle of 18°. This seam was considered to have been formerly mined to the north of the site, last worked 1900.

The report goes on to state that there is a risk to the development from unrecorded shallow coal mining activity beneath the site. It recommended that two boreholes be drilled on site to determine the presence or absence of unrecorded shallow mine workings.

A complete copy of the aforementioned CMRA can be found in Appendix II.

3.0 Mining & Geotechnical Ground Investigation

In November 2021, Quantum Geotechnic submitted a Permit Application to the Coal Authority to obtain permission to undertake 2 No. rotary drilled water flush boreholes to maximum of 30m depth on site. The Permit was received from the Coal Authority on 11th January 2022, a copy of which is enclosed in Appendix III.

Quantum Geotechnic Ltd attended site on the 24th to 26th January 2022 to undertake the two mining investigation boreholes using one of their Commachio Geo205 multi-purpose drilling rigs, with one of the boreholes installed with a combined landgas and groundwater monitoring installation.

In addition, 2 No. windowless samples boreholes with in-situ Standard Penetration Testing were also drilled in the shallow soils using one of their Dando Terrier mini-rigs to permit assessment of the shallow ground for bearing capacity and suitability of shallow foundations for both the proposed new dwelling and associated new retaining wall feature along the site's northern boundary to retain the existing ~5m high soil slope.

All siteworks, including creating accessways and defined working areas, were undertaken supervised by an Engineering Geologist from Quantum. Prior to drilling, each borehole location was scanned and cleared for any buried services and permit to break ground administered by the site supervisor. The locations of the boreholes are presented on Figure 1 in Appendix IV.

The QG Lead Driller logged the mining rotary drilled boreholes, whilst an Engineering Geologist from Quantum logged the windowless sample boreholes in accordance with BS5930:2015+A1:2020 industry guidance. A complete set of borehole logs are presented within Appendix V.

Table 1 below summarises the four borehole details.

Borehole ID	Easting	Northing	Level mAOD	Final Depth mbgl	Reason for Termination	Combined Landgas & Groundwater Monitoring standpipe Installed
BH01	277758.198	192226.392	54.89	30.0	Sufficient depth achieved	Standpipe installed to 19.0m depth
BH02	277753.653	192220.116	54.77	25.0	Sufficient depth achieved	No Install – Bentonite sealed
WS01	277753.787	192227.375	54.95	2.0	Dense strata	No Install – Bentonite sealed
WS02	277754.573	192217.916	54.79	3.0	Dense strata	No Install – Bentonite sealed

Table 1: Summary of borehole detail

4.0 Ground Investigation Findings

Mining Investigation Boreholes:

Boreholes BH01 and BH02 were drilled to respective depths of 30.0m and 25.0m.

BH01, located furthest north on site, encountered a completely weathered Sandstone bedrock profile from 12.0m depth which was overlain by Glacial Till and Glaciofluvial deposits. The bedrock was proven to a depth of 30.0m with no indications of any coal seams or indeed any mine workings, with no voids or broken ground encountered.

BH02 revealed a similar ground profile, with completely weathered Sandstone commencing at 11.50m depth. No indications of any coal seams or indeed any mine workings, with no voids or broken ground encountered.

BH01 was installed with a combined 50mm diameter HDPE landgas and groundwater monitoring standpipe. This was undertaken as a precautionary measure due to areas of historical coal mine workings having the potential for mine gases being emitted at surface. Two post-fieldwork site monitoring visits were undertaken to record landgas emissions from the standpipe. The monitoring findings are discussed in Section 5.0, with records provided in Appendix VI.

Geotechnical Ground Investigation Boreholes:

Boreholes WS01 and WS02 were drilled to respective depths of 2.0m and 3.0m, both terminating in very dense Sand & Gravel soils due to being unable to progress further. Each borehole revealed a thin cover of Made Ground comprising reworked natural clayey and silty soils with rare inclusions of brick, concrete and glass fragments to a maximum recorded depth of 0.6m. This was underlain by a medium dense to dense, silty clayey sandy GRAVEL which progressed into a very dense SAND & GRAVEL deposit at respective depths of 0.75m and 1.10m which continued to the base of each windowless sample borehole. SPT N values at 1.0m depth recorded 6 and 10 whilst at 2.0m depth recorded 20 and 50.

Groundwater Conditions:

BH01 and BH02 both encountered water at 2.00m depth, rising to 1.80m and 1.70m respectively after 20-minute standard observation period.

5.0 Discussion & Conclusions**Mining Investigation:**

The CMRA study undertaken in 2021 by others inferred the potential for shallow mine workings within the previously referenced Lower Nine Foot Coal Seam in the northern area of the site. However, upon further review by Quantum, the topography of the area shows a sharp incline northward and the plotted seam outcrop to be along the site's northern boundary. It is therefore extremely unlikely to have been worked so close to the crop line due to physical restrictions with the relief and topography of the land, and a very limited 'roof' cover for the mine. The coal seam also dips northwards away from the site.

Notwithstanding the above, the intrusive mining investigation boreholes have concluded that no shallow workings have taken place beneath the site. The two rotary drilled boreholes did not reveal any coal seams or any evidence of mine workings to depths of between 25-30m, with a weathered bedrock profile commencing between 10-11.5m below ground level. It is therefore concluded that the risk from shallow coal mine workings to the proposed development is negligible.

Geotechnical Ground Investigation:

Two shallow mini-boreholes were drilled on the site to assist with providing geotechnical parameters for foundation design of both the proposed new dwelling structure and a potential new retaining structure for the northern lying slope feature.

The boreholes (WS01 & WS02) revealed a thin Made Ground cover underlain by a dominant granular natural soil which became increasingly dense with depth, resulting in the boreholes refusing at 2.0m and 3.0m respectively. Made Ground, typically comprising reworked topsoil, was proven to 0.60m depth. Underlying this was a clayey Gravel stratum which showed some variability in constituent soils fractions and in SPT N density values (6 and 10). At 1.00m depth, based on the in-situ test data, this soil would provide an allowable bearing capacity of 50kN/m², however, should higher loadings be anticipated we would advise founding at a minimum depth of 1.20m, within the Sand & Gravel soils which would offer as a minimum 125kN/m², ensuring foundations are placed in a uniform soil. Conventional foundations should be applicable for this development.

Depending on the proposed retaining wall structure design, foundations for this structure may need to go deeper, however, at this early-stage Quantum are not aware of the proposals, but advise that foundations, like the new dwelling, are set within the lower lying Sand & Gravel soils.

Groundwater strikes were encountered in the mining boreholes at 2.00m depth and rose to 1.70m after a twenty-minute observation period. These water strikes are determined to be isolated perched pockets of

water. Post-fieldwork monitoring of water levels in the installed standpipe in BH01 revealed the standpipe to be 'dry' of groundwater. By placing the foundations at such a shallow depth this would likely negate encountering groundwater and requiring any groundwater management requirements.

Further consideration has also been given to the results of the post-fieldwork landgas monitoring exercise. At time of writing 2 No. post-fieldwork monitoring ground gas visits have been undertaken as part of the preliminary landgas risk assessment. Appendix VI presents the monitoring records.

The results show Methane (CH₄) concentrations of between 0 and 0.1%v/v and Carbon Dioxide (CO₂) concentrations of between 0.5 and 1.2%v/v. A maximum flow rate of 0.7litres per hour was recorded. A maximum of 4ppm of Carbon Monoxide (CO) was recorded. No Hydrogen Sulphide (H₂S) detected. Oxygen (O₂) levels ranged between 14.8 and 17.3%v/v.

The potential risks posed by any recorded presence of potentially harmful gases can be assessed on a semi-quantitative basis by reference to the guidance in documents CIRIA 665 and BS8485. The assessment comprises multiplying the maximum measured steady gas flow rate (expressed as litres per hour) by the maximum steady gas concentration (expressed as percentage-by-volume; divided by 100) to derive a Gas Screening Value (GSV). The GSV can then be used to determine a risk classification and a Characteristic Situation for the site as defined in Table 2.

Characteristic Situation	Risk Classification	Gas Screening Value (l/hr) - GSV
1	Very low	<0.07
2	Low	>0.07, <0.7
3	Moderate	>0.7, <3.5
4	Moderate to High	>3.5, <15
5	High	>15, <70
6	Very High	>70

Table 2: Gas Screening Value and Characteristic Situation Classification

Based on the ground gas monitoring findings to date, the site is classified as Characteristic Situation 1 and no special precautions against ground gases are required. Please note that no Radon assessment has been undertaken as part of this engagement and it is recommended this is undertaken to determine if any special Radon gas protection measures are required.

We trust that the above is of assistance; however, if you need any further clarification or have any queries, please do not hesitate to contact us.

Yours faithfully,

For and on behalf of

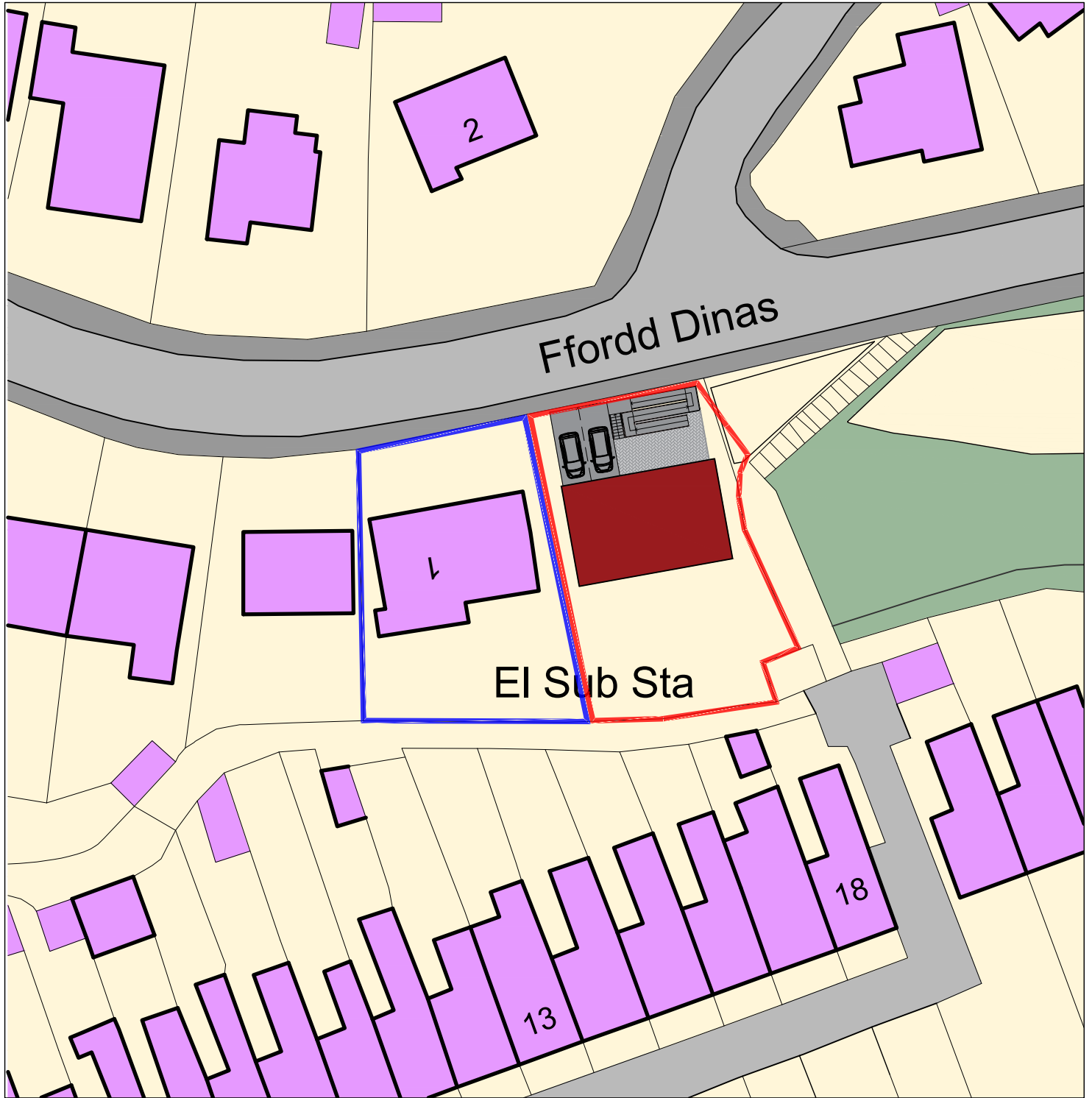
QUANTUM GEOTECHNIC LTD

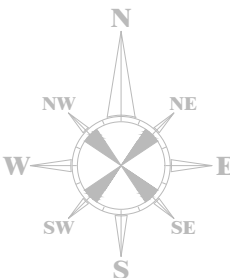
Ross McDermott

Chartered Engineering Geologist

B.Sc. (Hons), M.Sc., C.Geol., F.G.S., GEG., TechIOSH., NEBOSH

APPENDIX I: DRAWINGS & PLANS
(supplied by Client)



Notes Ordnance Survey, (c) Crown Copyright 2021. All rights reserved. Licence number 100022432 	REVISIONS			CLIENT: Ian Williams					
	Rev	Comment	By	Date	PROJECT TITLE: New Home				
	-				PROJECT ADDRESS 1: Plot adj. 1 Ffordd Dinas, Cwmavon			A4	
					PROJECT ADDRESS 2: Neath Port Talbot, SA12 9BS			CHECKED BY: DLD	
					DRAWING TITLE: Proposed Block Plan			APPROVED BY: DLD	
					DATE: 18.01.2021			SCALE: 1:500	DRAWN BY: AV
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Front Elevation



East Elevation

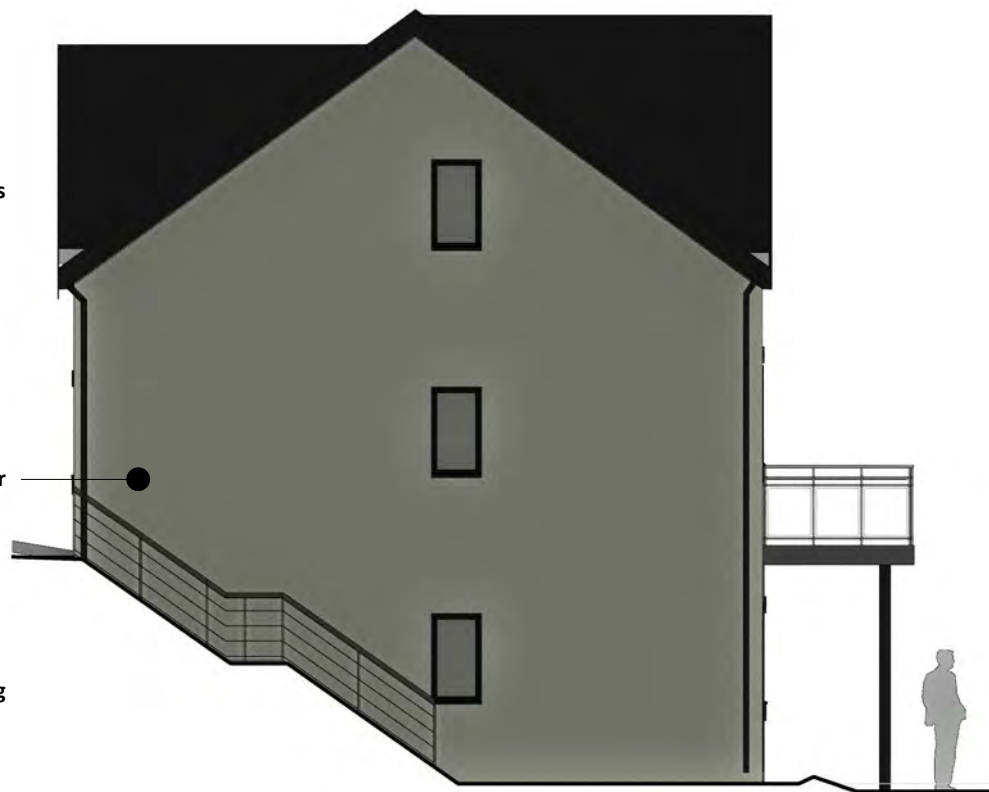


Rear Elevation

Concrete Tiles

White Render

Stone Cladding



West Elevation

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No.	Description	By	Date
A	Amended Layout	AV	05.01.2021

CLIENT

Ian Williams

PROJECT

New Home

PROJECT ADDRESS

1 Ffordd Dinas,
Cwmavon, Neath Port Talbot
SA12 9BS

DRAWING TITLE

Proposed Elevations

DRAWN BY	CHECKED BY	© Copyright Darkin Architects 2021
AV	DLD	
PROJECT REF	SCALE	PAPER SIZE
NH340	1 : 100	A3
DRAWING	REVISION	DATE
301	A	24.11.2020

APPENDIX II: COAL MINING RISK ASSESSMENT (CMRA) REPORT
(supplied by Client, produced by Earth, Environmental and Geotechnical Ltd, April 2021)



EARTH ENVIRONMENTAL
& GEOTECHNICAL

Coal Mining Risk Assessment

Ffordd Dinas

Cwmavon

April 2021

On behalf of

Mr. Ian Williams

Earth Environmental & Geotechnical Ltd
Houldsworth Mill Business Centre
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COAL MINING RISK ASSESSMENT

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CWMAVON

FOR

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Report No. A4081/21

APRIL 2021

Report Title:	Land adjacent Plot 1 Fford Dinas, Cwmavon Coal Mining Risk Assessment	
Report Reference:	A4081/21	
Client:	Mr. Ian Williams	
Issue Date:	2 nd April 2021	
Drafted By:	E Czarnecki	
Reviewed By:	A Czarnecki BSc (Hons) CGeol	
Authorised By:	A Czarnecki BSc (Hons) CGeol	

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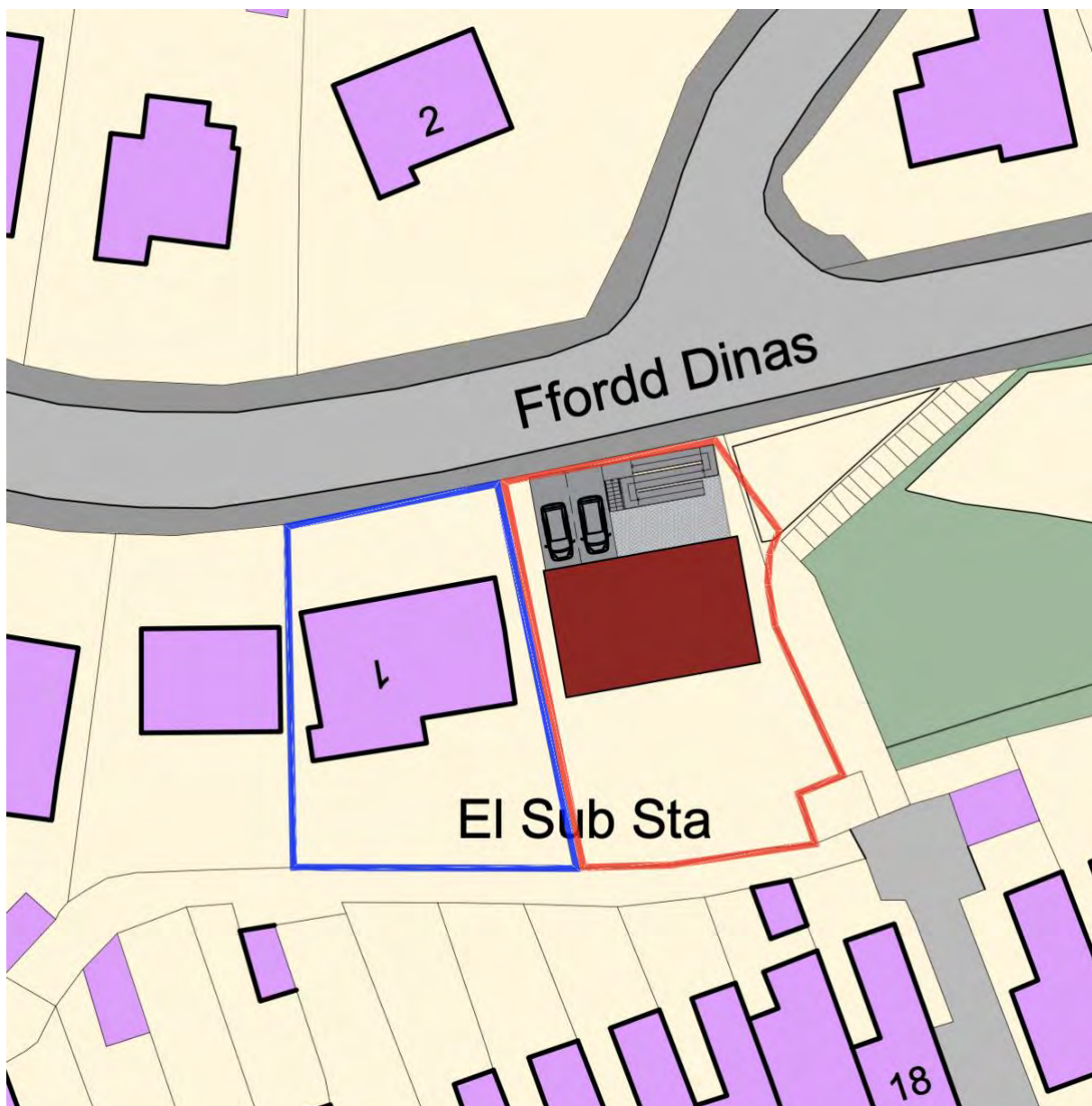
Appendix 1	Coal Authority Consultants Mining Report
Appendix 2	Report Limitations

1.0 INTRODUCTION

Appointment

- 1.1 Earth Environmental & Geotechnical Ltd have been commissioned by Darkin Architects on behalf of Mr. Williams (the Client), to undertake a Coal Mining Risk Assessment for a proposed development on land adjacent to Plot 1 Ffordd Dinas, Cwmavon.
- 1.2 It is understood that the Client is seeking planning permission for the construction of one three-storey (with a basement) detached dwelling.
- 1.3 A proposed development plan has been provided and is shown as Figure 1.

Figure 1 Proposed Development Plan



- 1.4 This Coal Mining Risk Assessment is required to accompany a planning application to Neath Port Talbot Council.

Objective

- 1.5 The purpose of the Coal Mining Risk Assessment is to collate available geological, mining and historical data in order to assess the potential for the site to be affected by underground mining.
- 1.6 This report has been drafted in accordance with the Coal Authority (CA) Guidance Risk Based Approach to Development Management, Version 4, 2017.

Sources of Information

- 1.7 The Coal Mining Risk Assessment compiles a review of the following information sources:
- British Geological Survey of England, Swansea Sheet 247, 1/50,000, 2011 edition.
 - British Geological Survey of England, Sheet SS79SE, 1/10,560, 1970 edition.
 - Coal Authority Interactive Map Viewer.
 - Coal Authority Mining Report.
 - British Geological Survey online borehole records.
 - Google Earth imagery.
 - Online Historical Ordnance Survey maps.
 - Site Investigations in Areas of Mining Subsidence, FG Bell, 1975.
 - The threat of abandoned mines on the stability of urban areas, Barry Clarke, IAEG2006 Paper Number 379, The Geological Society of London, 2006.
 - The collapse of shallow coal mine workings, Durham theses, Durham University, Garrard, 1981.
 - Construction over abandoned mineworking's, CIRIA Special Publication 32, 2002.
 - Abandoned Mineworking's Manual, CIRIA 2019.
 - Neath Port Talbot Council planning portal.
 - CON29M Coal Mining Report, 12th March 2021.
 - Blandford Consulting, Mining Risk Assessment, Tabernacle Court, Cwmavon, 2017.

2.0 SITE LOCATION AND DESCRIPTION

- 2.1 The site is located approximately 141m north of Cwmafon village centre and lies at an elevation of 55mAOD (centre of site). The approximate National Grid Reference for the centre of the site is SS 77753 92220 with the closest postcode being SA12 9BS.
- 2.2 A location plan is shown below as Figure 2 together with an aerial photograph as Figure 3 (overleaf).

Figure 2 Site Location Plan

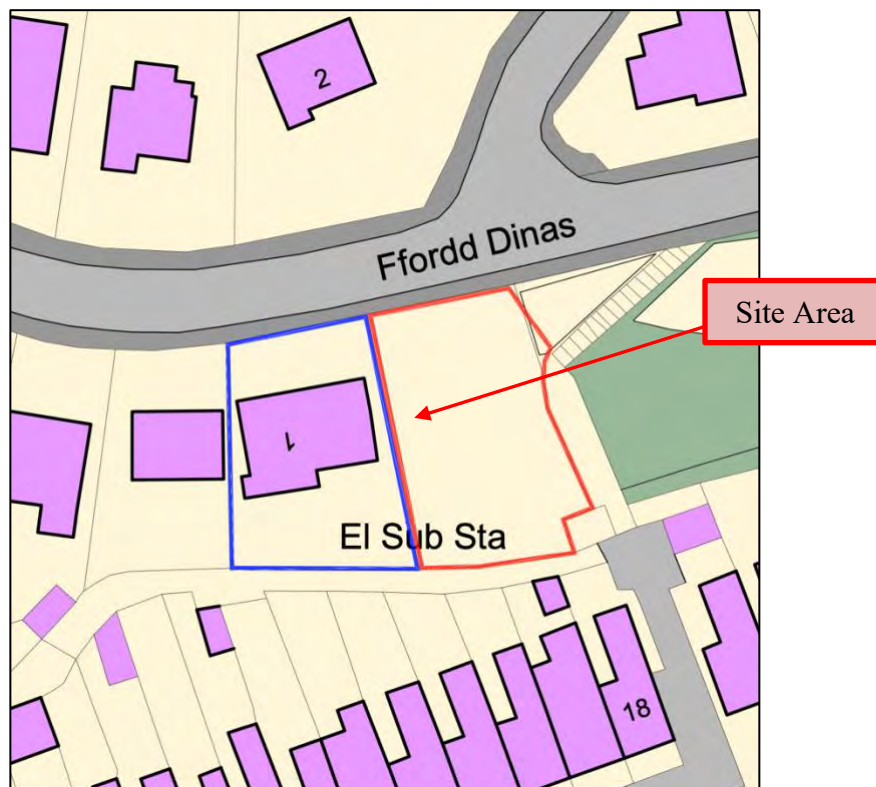


Figure 3 Site Photograph



3.0 ASSESSMENT OF DATA

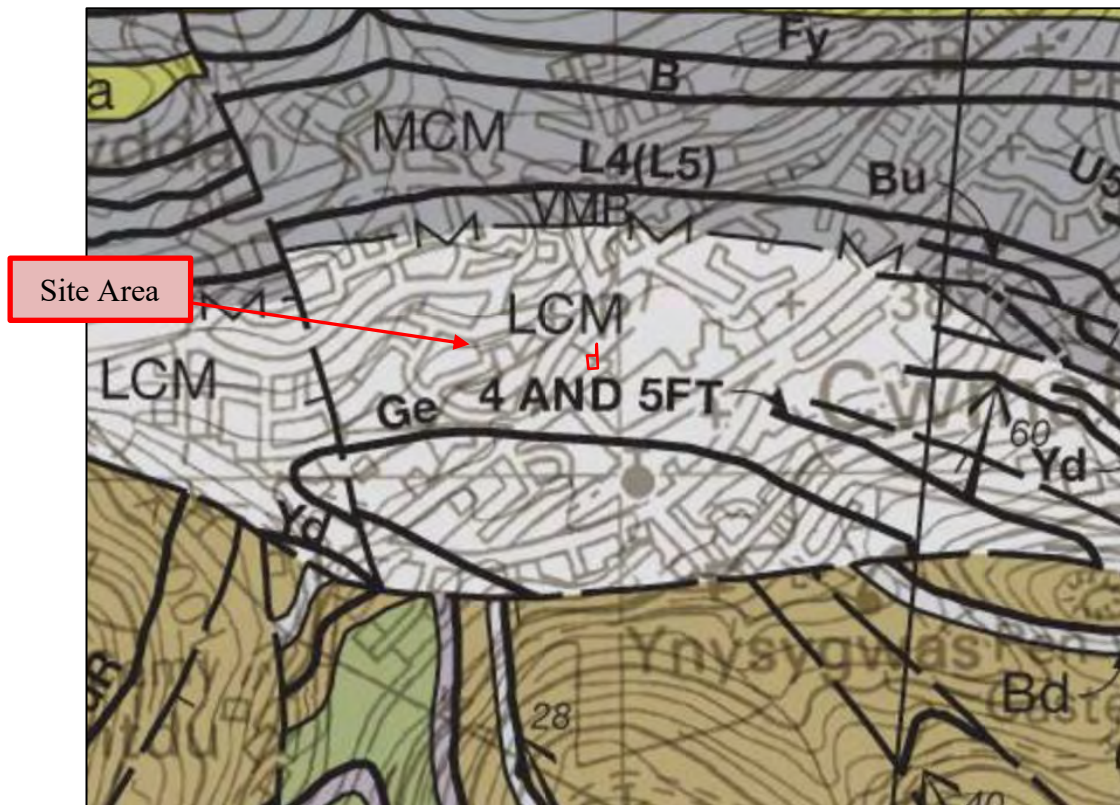
Geological Information

- 3.1 The geology of the site has been determined from geological maps for the area and examination of Coal Authority (CA) records.

British Geological Survey Published Data Assessment

- 3.2 The site is underlain by superficial deposits of Devensian Till, comprising Diamicton, commonly known as Boulder Clay.
- 3.3 The solid geology beneath the site is shown to be the South Wales Lower Coal Measures Formation consisting of cycles (cyclothems) of coal seams, sandstone, mudstone, siltstone and seatearth.
- 3.4 There are no BGS borehole records that allow for further assessment of the local geology or shallow coal mining regime.
- 3.5 An extract from the most recently published geological map showing the approximate site location and key local geological features are presented below in Figure 5.
- 3.6 The regional dip of strata within the area is sixty degrees to the north.

Figure 4 Geology Map Extract



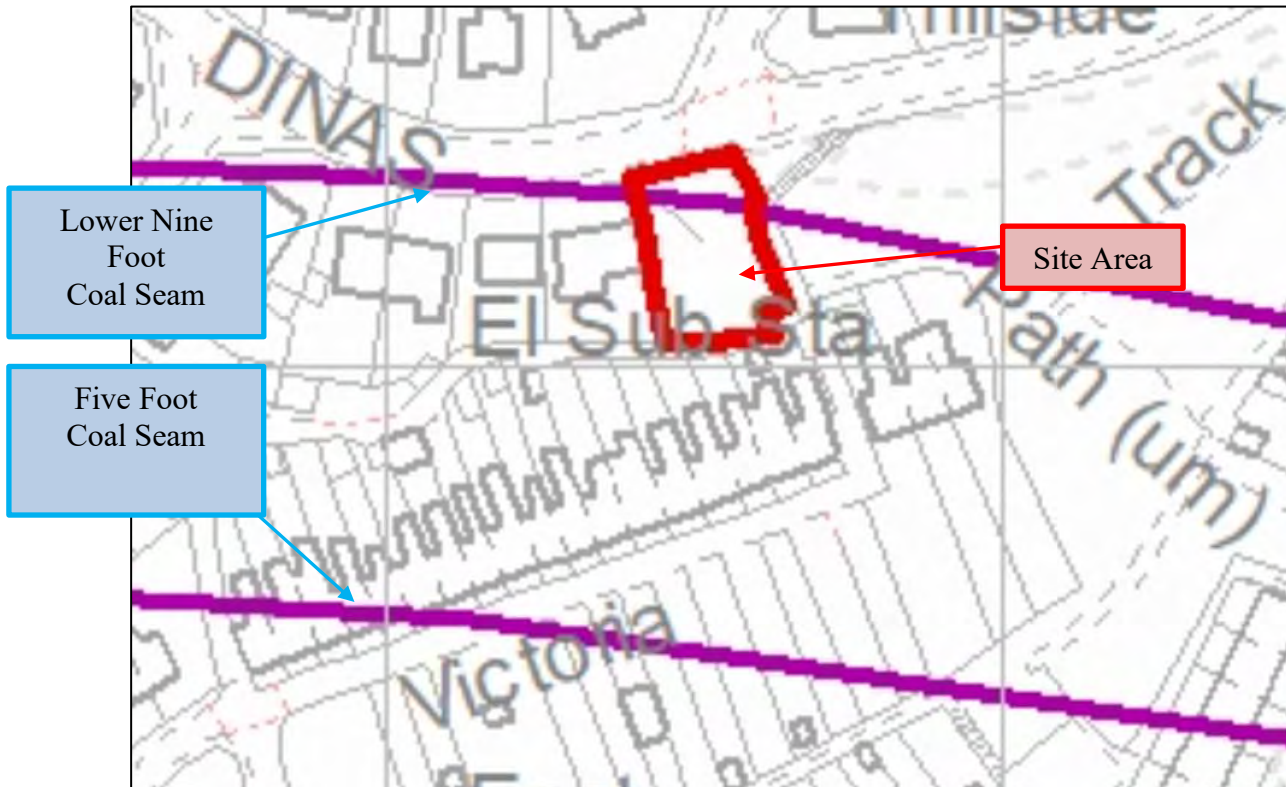
DUC	MCM	BIG (B) or SIX-FEET
	U9	RED
	Bu	UPPER NINE-FEET
		LOWER NINE-FEET
	M	BUTE
		Vanderbeckei (Amman) Marine Band
		AMMAN RIDER
	Yd	YARD
	M7	MIDDLE SEVEN-FEET
		LOWER SEVEN-FEET
		UPPER FIVE-FEET
	Ge	GELLIDEG or CRIBBWR FAWR

Coal Authority Records

- 3.7 Reference to the Coal Authority Online Interactive viewer shows the site to be located within a Development High Risk Area and within an area of Probable Shallow Coal Mine Workings.
- 3.8 A Coal Authority Mining Report (extract shown as Figure 5) has been acquired for the site and reveals that there are no proven records of past underground mine workings beneath the site.
- 3.9 To the north of the site the Lower Nine Foot (Top Leaf) coal seam was worked at a depth of 18m in 1900. The coal seam dips at eighteen degrees to the north.

- 3.10 The Coal Authority report suggests that there are probable unrecorded shallow workings beneath the site.
- 3.11 The Lower Nine Foot (Top Leaf) coal seam outcrops on the site and is noted to be workable.
- 3.12 There are no records of any managed tips, remediated sites, areas of coal mining subsidence within 50m of the site.

Figure 5 Coal Authority Map Extract



Historical information

- 3.13 The available historical plans dating back to 1877 show no mining features on the site or in the general area.

4.0 COAL MINING RISK ASSESSMENT

Scope of Coal Mining Risk Assessment

- 4.1 Objectives of the coal mining risk assessment are to provide a desk-based assessment of available geological and mining information relating to the site (and wider area) and to use this information so as to identify risks present to the development from the legacy of mining.
- 4.2 As part of the risk assessment, potential mitigation measures (if required) should be considered, including any necessary remedial works.
- 4.3 The outcome of the risk assessment should demonstrate to the Local Authority that the proposed development is or can be made safe (and stable) to meet the requirements of the National Planning Policy Framework (NPPF).

Data Limitations

- 4.4 It should be appreciated that it did not become a legal requirement to deposit coal mining abandonment plans until the 1870's and that this requirement was not rigorously enforced for some time after. Many shallow coal seams were worked prior to the introduction of first edition Ordnance Survey Maps and information on these workings is often not available. Therefore, if coal seams were accessible then there is the potential that they could have been worked by formal or informal means.
- 4.5 It is also possible that if unrecorded workings are present then unrecorded mine entries may be present.

Coal Mining Risks

- 4.6 The risks associated with coal mining are as follows:
 - Collapse of relict workings beneath buildings causing damage to the building fabric and infrastructure.
 - Migration of mine gases from old mine workings and mine entries resulting in accumulation of flammable and asphyxiating gases in confined areas.
 - Consolidation of relict workings and overlying strata causing structural defects in building fabric and infrastructure.
 - Failure of mine entries causing loss of ground beneath building and external areas.
 - Spontaneous combustion of old mine workings.

Conclusions

- 4.7 The development area lies within a Coal Authority Development High Risk Area and within an area of probable shallow workings due to locally outcropping coal seams.
- 4.8 The Lower Nine Foot coal seam outcrops on the site and was formerly mined at a shallow depth to the north. The coal seam dips to the north at an angle of eighteen degrees from the horizontal.

Proposed Mitigation Strategy

- 4.9 There is a risk to the development from unrecorded shallow coal mining activity beneath the site.
- 4.10 It would therefore be prudent to conduct a ground investigation across the site in order to determine the presence or absence of unrecorded shallow mine workings. Two boreholes should therefore be drilled to a depth of 30m below ground level.
- 4.11 The drilling of boreholes will require a permit from the Coal Authority together with the development of a risk assessment and method statement.
- 4.12 This report should allow for planning permission to be granted with relevant conditions.

APPENDIX 1

COAL AUTHORITY MINING REPORT



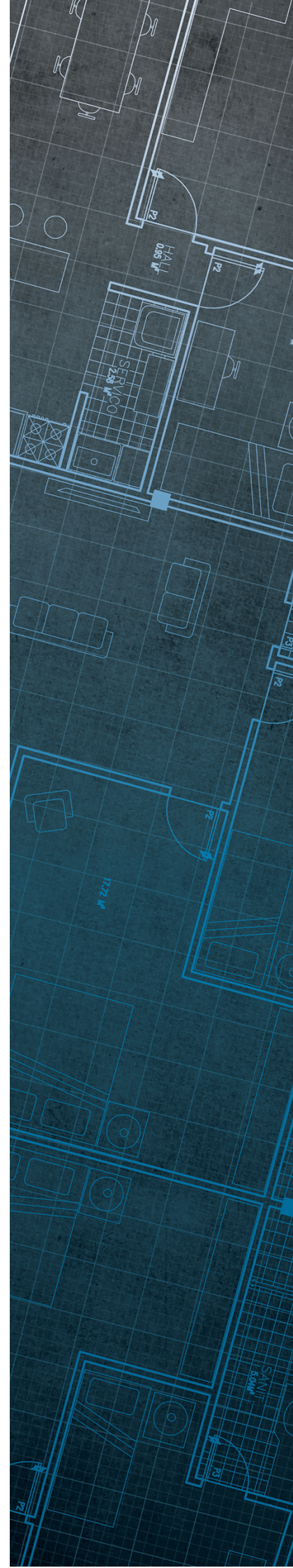
The Coal
Authority

Consultants Coal Mining Report

1 Ffordd Dinas
Cwmavon
Neath Port Talbot
SA12 9BS

Date of enquiry: 1 April 2021
Date enquiry received: 1 April 2021
Issue date: 1 April 2021

Our reference: 51002434422001
Your reference: A4081



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

EARTH ENVIRONMENTAL & GEOTECHNICAL LTD

Enquiry address

1 Ffordd Dinas
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Neath Port Talbot
SA12 9BS

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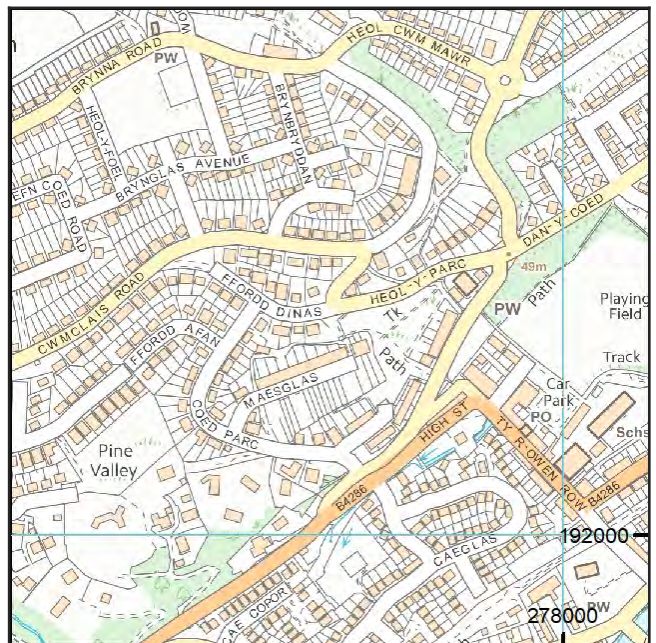
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Approximate position of property



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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	LOWER NINE FOOT (TOP LEAF)	Coal	4CY1	18	North	27.0	North	140	1900

Probable unrecorded shallow workings

Yes.

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:

SWR2093	SWR2009	SWR2012
2680	PO0	SWR2654

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
FIVE FOOT	Coal	Yes	48.6	South	98
LOWER NINE FOOT (TOP LEAF)	Coal	Yes	Within	N/A	94

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.

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.

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.

APPENDIX 2

REPORT LIMITATIONS

REPORT LIMITATIONS

This contract was completed by Earth Environmental & Geotechnical Ltd on the basis of a defined programme and scope of works and terms and conditions agreed with the client. This report was compiled with all reasonable skill, and care, bearing in mind the project objectives, the agreed scope of works, the prevailing site conditions, the budget and staff resources allocated to the project.

Other than that, expressly contained in the above paragraph, Earth Environmental & Geotechnical Ltd provides no other representation or warranty whether express or implied, is made in relation to the services. Unless otherwise agreed this report has been prepared exclusively for the use and reliance of the client in accordance with generally accepted consulting practices and for the intended purposes as stated in the agreement under which this work was completed. This report may not be relied upon, or transferred to, by any other party without the written agreement of a Director of Earth Environmental & Geotechnical Ltd.

If a third party relies on this report, it does so wholly at its own and sole risk and Earth Environmental & Geotechnical Ltd disclaims any liability to such parties.

It is Earth Environmental & Geotechnical Ltd understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was an important factor in determining the scope and level of the services. Should the purpose for which the report is used, or the proposed use of the site change, this report will no longer be valid and any further use of, or reliance upon the report in those circumstances by the client without Earth Environmental & Geotechnical Ltd review and advice shall be at the client's sole and own risk.

The report was written in 2021 and should be read in light of any subsequent changes in legislation, statutory requirements and industry best practices. Ground conditions can also change over time and further investigations or assessment should be made if there is any significant delay in acting on the findings of this report. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of Earth Environmental & Geotechnical Ltd. In the absence of such written advice of Earth Environmental & Geotechnical Ltd, reliance on the report in the future shall be at the client's own and sole risk. Should Earth Environmental & Geotechnical Ltd be requested to review the report in the future, Earth Environmental & Geotechnical Ltd shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between Earth Environmental & Geotechnical Ltd and the client.

The observations and conclusions described in this report are based solely upon the services that were provided pursuant to the agreement between the client and Earth Environmental & Geotechnical Ltd. Earth Environmental & Geotechnical Ltd has not performed any observations, investigations, studies or testing not specifically set out or mentioned within this report.

Earth Environmental & Geotechnical Ltd is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, Earth Environmental & Geotechnical Ltd did not seek to evaluate the presence on or off the site of electromagnetic fields, lead paint, radon gas or other radioactive materials.

The services are based upon Earth Environmental & Geotechnical Ltd observations of existing physical conditions at the site gained from a walkover survey of the site together with Earth Environmental & Geotechnical Ltd interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The findings and recommendations contained in this report are based in part upon information provided by third parties, and whilst Earth Environmental & Geotechnical Ltd have no reason to doubt the accuracy and that it has been provided in full from those it was requested from, the items relied on have not been verified.

No responsibility can be accepted for errors within third party items presented in this report. Further Earth Environmental & Geotechnical Ltd was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the services. Earth Environmental & Geotechnical Ltd is not liable for any inaccurate information, misrepresentation of data or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to Earth Environmental & Geotechnical Ltd and including the doing of any independent investigation of the information provided to Earth Environmental & Geotechnical Ltd save as otherwise provided in the terms of the contract between the client and Earth Environmental & Geotechnical Ltd.

Where field investigations have been carried out these have been restricted to a level of detail required to achieve the stated objectives of the work. Ground conditions can also be variable and as investigation excavations only allow examination of the ground at discrete locations. The potential exists for ground conditions to be encountered which are different to those considered in this report. The extent of the limited area depends on the soil and groundwater conditions, together with the position of any current structures and underground facilities and natural and other activities on site. In addition, chemical analysis was carried out for a limited number of parameters [as stipulated in the contract between the client and Earth Environmental & Geotechnical Ltd] based on an understanding of the available operational and historical information, and it should not be inferred that other chemical species are not present.

The groundwater conditions entered on the exploratory hole records are those observed at the time of investigation. The normal speed of investigation usually does not permit the recording of an equilibrium water level for any one water strike. Moreover, groundwater levels are subject to seasonal variation or changes in local drainage conditions and higher groundwater levels may occur at other times of the year than were recorded during this investigation.

Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan but is (are) used to present the general relative locations of features on, and surrounding, the site.

APPENDIX III: COAL AUTHORITY PERMIT FOR INTRUSIVE WORKS



The Coal
Authority

Permit to Enter or Disturb Coal Authority Interests

Permit 24172

Name and Address of Permit Holder:

*Mr Ian Williams
1 Ffordd Dinas
Cwmafan
Neath Port Talbot
SA12 9BS*

Site Location:

*Plot adj to
1 Ffordd Dinas
Cwmafan
Neath Port Talbot
SA12 9BS*

This certificate hereby grants the above named Permit Holder a Permit to carry out:-

Ground investigation by two boreholes to 30m to determine presence of shallow mine workings

within the Authority's interests at the identified site location above as shown on the Grant Permit Boundary (overleaf) for the period of 12 months from the granted date shown below. *The granting of this Permit does not constitute advice given by the Authority in relation to the proposed operations. It is the Permit Holder's responsibility to obtain appropriate health, safety, environmental, technical and legal advice.*

Conditions:

- *Manned entry (i.e.) into mine entries/workings) is strictly prohibited.*
- *Water flush*
- *Gas Monitoring CO, CH₄, CO₂, O₂, H₂S at borehole and rig*
- *Operators undertaking the work must be in possession of this certificate and the Permit boundary plan at the time of works*
- *Appropriate borehole sealing without delay and to withstand site level changes*

Signed: _____ Granted Date: **11th January 2022**

For and on behalf of The Coal Authority

Nominated Representative: Helen Day, Permitting Manager;

The Coal Authority, Permitting Office, 200 Lichfield Lane, Mansfield, Notts, NG18 4RG

Tel: 01623 637450; E-Mail: permissions@coal.gov.uk



The Coal
Authority

Granted Permit Boundary

Permit Ref: 24172

Permit Boundary:



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APPENDIX IV: EXPLORATORY HOLE LOCATION PLAN

MapServe

SS7792
277728
192232

277750

SS7792
277763
192232

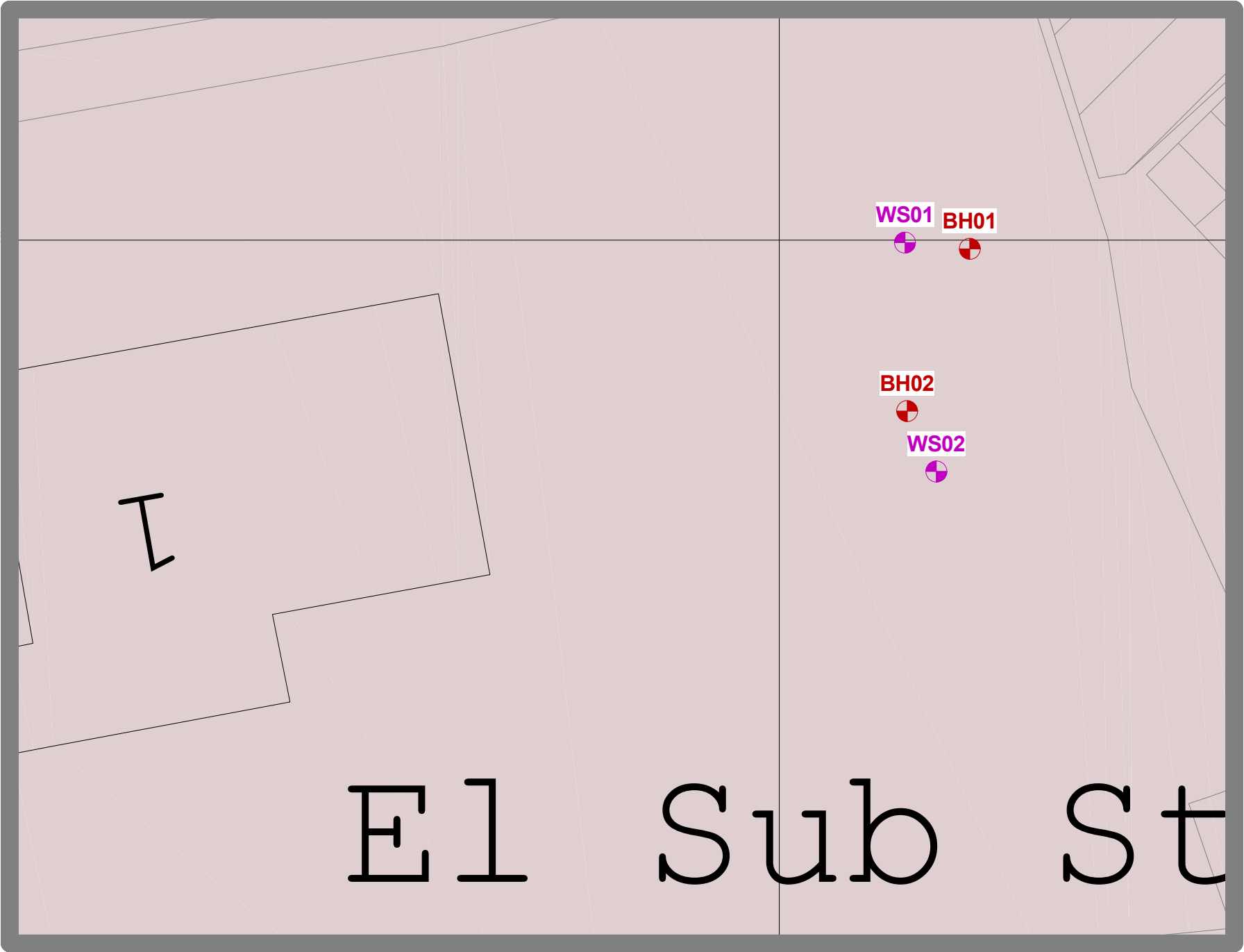
192225

192225

192205
SS7792

277750

192205
SS7792



Plas Newydd, Llanedi, Pontarddulais, Swansea
SA4 0FQ
Tel: 01554 744880
Fax: N/A
Email:

KEY



Borehole



Trial Pit



Monitoring / Test Point



Window Sample



Dynamic Probe



Historical Hole



Sampling Point

PROJECT
LAND ADJACENT NO.1
FFORDD DINAS, CWMAVON

DRAWING TITLE:
EXPLORATORY HOLE
LOCATION PLAN

JOB NO.
Q0673
DATE
01/03/22

FIGURE NO.
1
SCALE
1:150

APPENDIX V: BOREHOLE RECORDS

Contract : Land Adjacent No.1 Ffordd Dinas, Cwmavon Client : Mr I. Williams												Borehole No. BH01	
Dates : 24/1/22 - 25/1/22 Location : Proposed New Build Footprint						Job Number : Q0673 Engineer : Grade Consulting Ltd				Ground Level : 54.89 m A.O.D. <i>Level to Ordnance Datum</i> Coordinates: 277758.20 E 192226.39 N <i>Co-ordinates to National Grid</i>			

m B.G.L.	Run Details				Fractures		Samples		Strata				Water	Install/Backfill
	Core Run	TCR %	SCR %	RQD %	Min Avg Max	FI	Depth	Type No. Blows	Depth (Thickness)	Description	Legend	Red. Level A.O.D.		
0									(0.50)	Driller's Description: Made Ground - Clay Backfill				
1									0.50	Driller's Description: Sandy Clay and Gravels		54.39		
2														
3														
4														
5														
6									(9.50)					
7														
8														
9														
10									10.00	Driller's Description: Sandy Clay and Cobbles		44.89		
11									(2.00)					
12									12.00	Driller's Description: Completely weathered SANDSTONE.		42.89		
13														
14														

Hole Progress / Water Obs				Casing		Groundwater				Flush		
Date / Time	H. Depth	C. Depth	Water	Depth	Diam.	Struck	Rose To	Behaviour	Sealed	Depth	Type	Returns
24/01/2022 17:00	12.00	10.00	1.70	10.00	115.00	2.00	1.70	minor inflow		0.00 - 30.00	Water	100
25/01/2022 08:00	12.00	10.00	10.80									

Plant: Commachio Geo205 multipurpose drill rig using 115m ODEX and water flush system
Remarks: Access created to borehole. Area CAT and Genny scanned to clear for services prior to breaking ground.

 Llanedi, Swansea SA4 0FQ Tel: +44(0)1554 744880 email: enquiries@quantumgeotech.co.uk	Operator: GB&AW	Logged By: G Blades	Sheet No. 1 Of 3	m Per Page 15	All measurements in metres unless otherwise stated	
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Contract : Land Adjacent No.1 Ffordd Dinas, Cwmavon											Borehole No. BH01		
Client : Mr I. Williams													
Dates : 24/1/22 - 25/1/22					Job Number : Q0673					Ground Level : 54.89 m A.O.D. <i>Level to Ordnance Datum</i>			
Location : Proposed New Build Footprint					Engineer : Grade Consulting Ltd					Coordinates: 277758.20 E 192226.39 N <i>Co-ordinates to National Grid</i>			

m B.G.L.	Run Details				Fractures		Samples		Strata					Water	Install/ Backfill
	Core Run	TCR %	SCR %	RQD %	Min Avg Max	FI	Depth	Type No. Blows	Depth (Thick-ness)	Description	Legend	Red. Level A.O.D.			
15										Driller's Description: Completely weathered SANDSTONE.					
16															
17															
18															
19															
20															
21															
22															
23															
24															
25															
26															
27															
28															
29															

Hole Progress / Water Obs				Casing		Groundwater					Flush		
Date / Time	H. Depth	C. Depth	Water	Depth	Diam.	Struck	Rose To	Behaviour	Sealed	Depth	Type	Returns	
25/01/2022 12:00	19.00	19.00											

Plant: Commachio Geo205 multipurpose drill rig using 115m ODEX and water flush system
Remarks: Access created to borehole. Area CAT and Genny scanned to clear for services prior to breaking ground.

	Llanedi, Swansea SA4 0FQ Tel: +44(0)1554 744880 email: enquiries@quantumgeotech.co.uk	Operator:	Logged By:	Sheet No.	m Per Page	All measurements in metres unless otherwise stated	
		GB&AW	G Blades	2 Of 3	15		

Contract : Land Adjacent No.1 Ffordd Dinas, Cwmavon Client : Mr I. Williams											Borehole No. BH01						
Dates : 24/1/22 - 25/1/22 Location : Proposed New Build Footprint					Job Number : Q0673 Engineer : Grade Consulting Ltd					Ground Level : 54.89 m A.O.D. <i>Level to Ordnance Datum</i> Coordinates: 277758.20 E 192226.39 N <i>Co-ordinates to National Grid</i>							
m B.G.L.	Run Details				Fractures		Samples		Strata				Water	Install/ Backfill			
	Core Run	TCR %	SCR %	RQD %	Min Avg Max	FI	Depth	Type No. Blows	Depth (Thickness)	Description	Legend	Red. Level A.O.D.					
30									30.00	End of Borehole at 30.0m depth - sufficient depth achieved.		24.89					
31																	
32																	
33																	
34																	
35																	
36																	
37																	
38																	
39																	
40																	
41																	
42																	
43																	
44																	
Hole Progress / Water Obs				Casing			Groundwater				Flush						
Date / Time	H. Depth	C. Depth	Water	Depth	Diam.	Struck	Rose To	Behaviour		Sealed	Depth	Type	Returns				
Plant: Commachio Geo205 multipurpose drill rig using 115m ODEX and water flush system Remarks: Access created to borehole. Area CAT and Genny scanned to clear for services prior to breaking ground.																	
 Llanedi, Swansea SA4 0FQ Tel: +44(0)1554 744880 email: enquiries@quantumgeotech.co.uk						Operator: GB&AW		Logged By: G Blades		Sheet No. 3 Of 3		m Per Page 15		All measurements in metres unless otherwise stated			

Contract : Land Adjacent No.1 Ffordd Dinas, Cwmavon Client : Mr I. Williams											Borehole No. BH02		
Dates : 25/1/22 - 26/1/22 Location : Proposed New Build Footprint					Job Number : Q0673 Engineer : Grade Consulting Ltd					Ground Level : 54.77 m A.O.D. <i>Level to Ordnance Datum</i> Coordinates: 277753.65 E 192220.12 N <i>Co-ordinates to National Grid</i>			

m B.G.L.	Run Details				Fractures		Samples		Strata				Water	Install/Backfill
	Core Run	TCR %	SCR %	RQD %	Min Avg Max	FI	Depth	Type No. Blows	Depth (Thickness)	Description	Legend	Red. Level A.O.D.		
0									(0.60)	Driller's Description: Made Ground - Clay Backfill				
1									0.60	Driller's Description: Sandy Clay Gravels and Cobbles		54.17		
2														
3														
4														
5														
6									(9.70)					
7														
8														
9														
10														
11									10.30 (0.60)	Driller's Description: Sandstone Boulder		44.47		
12									10.90 (0.60)	Driller's Description: Sandy Clay and Gravels		43.87		
13									11.50	Driller's Description: Completely weathered SANDSTONE.		43.27		
14														

Hole Progress / Water Obs				Casing		Groundwater				Flush		
Date / Time	H. Depth	C. Depth	Water	Depth	Diam.	Struck	Rose To	Behaviour	Sealed	Depth	Type	Returns
				11.50	115.00	2.00	1.80	minor inflow		0.00 - 25.00	Water	100

Plant: Commachio Geo205 multipurpose drill rig using 115m ODEX and water flush system
Remarks: Access created to borehole. Area CAT and Genny scanned to clear for services prior to breaking ground.

 Llanedi, Swansea SA4 0FQ Tel: +44(0)1554 744880 email: enquiries@quantumgeotech.co.uk	Operator: GB&AW	Logged By: G Blades	Sheet No. 1 Of 2	m Per Page 15	All measurements in metres unless otherwise stated	
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Contract : Land Adjacent No.1 Ffordd Dinas, Cwmavon Client : Mr I. Williams											Borehole No. BH02						
Dates : 25/1/22 - 26/1/22 Location : Proposed New Build Footprint					Job Number : Q0673 Engineer : Grade Consulting Ltd					Ground Level : 54.77 m A.O.D. Level to Ordnance Datum Coordinates: 277753.65 E 192220.12 N Co-ordinates to National Grid							
m B.G.L.	Run Details				Fractures		Samples		Strata				Water	Install/ Backfill			
	Core Run	TCR %	SCR %	RQD %	Min Avg Max	FI	Depth	Type No. Blows	Depth (Thickness)	Description	Legend	Red. Level A.O.D.					
15										Driller's Description: Completely weathered SANDSTONE.							
16																	
17																	
18									(13.50)								
19																	
20																	
21																	
22																	
23																	
24																	
25									25.00	End of Borehole at 25.0m depth - sufficient depth achieved.		29.77					
26																	
27																	
28																	
29																	
Hole Progress / Water Obs				Casing		Groundwater					Flush						
Date / Time	H. Depth	C. Depth	Water	Depth	Diam.	Struck	Rose To	Behaviour		Sealed	Depth	Type	Returns				
Plant: Commachio Geo205 multipurpose drill rig using 115m ODEX and water flush system Remarks: Access created to borehole. Area CAT and Genny scanned to clear for services prior to breaking ground.																	
 Llanedi, Swansea SA4 0FQ Tel: +44(0)1554 744880 email: enquiries@quantumgeotech.co.uk						Operator: GB&AW		Logged By: G Blades		Sheet No. 2 Of 2		m Per Page 15		All measurements in metres unless otherwise stated			

Contract : Land Adjacent No.1 Ffordd Dinas, Cwmavon Client : Mr I. Williams										Window Sample No. WS01							
Dates : 26/1/22 - 26/1/22 Location : Proposed New Build Footprint					Job Number : Q0673 Engineer : Grade Consulting Ltd			Ground Level : 54.95 m A.O.D. <i>Level to Ordnance Datum</i> Coordinates: 277753.79 E 192227.38 N <i>Co-ordinates to National Grid</i>									
	Samples		Sample Run		Tests		STRATA				Water						
	Depth	Type No.	Diam. (mm)	Recovery (%)	Depth	SPT & Hand Vane Results	Depth (Thickness)	DESCRIPTION	Legend	Red. Level A.O.D.							
1			101	100	1.00	SPT (S) 10 (1-2-3-3-2)	(0.35)	MADE GROUND - Dark brown, slightly sandy slightly clayey to clayey Gravel of fine to coarse, angular sandstone and occasional concrete and brick.									
								0.35 (0.40)	Medium dense to dense, orange brown, slightly silty clayey sandy (medium) GRAVEL of fine to coarse, angular to subrounded sandstone. Low to medium cobble content of angular to subangular sandstone.		54.60						
								0.75 (1.25)	Very dense, orange brown, slightly clayey slightly silty SAND & GRAVEL. Gravel of fine to coarse, angular sandstone.		54.20						
2			87	80	2.00	SPT (S) 50/210mm (10-11-14-15-21/60mm-)	2.00	End of Windowless Sample Borehole - encountered refusal on dense granular strata		52.95							
Equipment / plant used: Dando Terrier Mini-Rig Remarks: Access created to borehole. Area CAT and Genny scanned to clear for services prior to breaking ground.																	
			Llanedi, Swansea SA4 0FQ Tel: +44(0)1554 744880 email: enquiries@quantumgeotech.co.uk			Operator: GB&AW		Logged By: R McDermott		Sheet No. 1 Of 1		m Per Page 4		All measurements in metres unless otherwise stated			

Contract : Land Adjacent No.1 Ffordd Dinas, Cwmavon

Client : Mr I. Williams

Borehole No.

WS01

Dates : 26/1/22 - 26/1/22

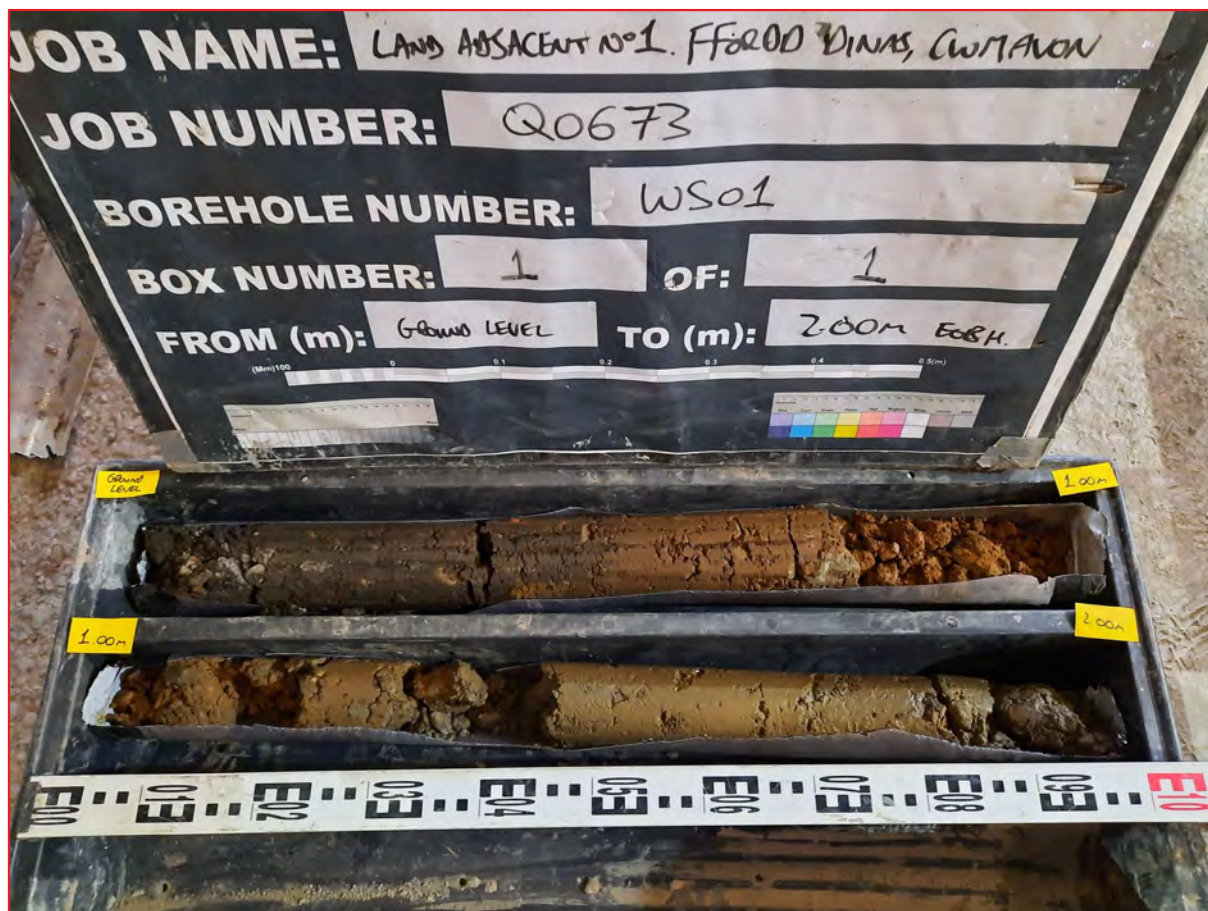
Job Number : Q0673

Ground Level : 54.95 m A.O.D.
Level to Ordnance Datum

Location : Proposed New Build
Footprint

Engineer : Grade Consulting Ltd

Coordinates: 277753.79 E
192227.38 N
Co-ordinates to National Grid



Llanedi, Swansea
SA4 0FQ
Tel: +44(0)1554 744880
email: enquiries@quantumgeotech.co.uk

Operator:
GB&AW

Logged By:
R McDermott

Sheet No.
1 Of 1

m Per
Page
2

All measurements in
metres unless
otherwise stated



Contract : Land Adjacent No.1 Ffordd Dinas, Cwmavon Client : Mr I. Williams										Window Sample No. WS02						
Dates : 26/1/22 - 26/1/22 Location : Proposed New Build Footprint					Job Number : Q0673 Engineer : Grade Consulting Ltd			Ground Level : 54.79 m A.O.D. <i>Level to Ordnance Datum</i> Coordinates: 277754.57 E 192217.92 N <i>Co-ordinates to National Grid</i>								
Samples		Sample Run		Tests		STRATA										
Depth	Type No.	Diam. (mm)	Recovery (%)	Depth	SPT & Hand Vane Results	Depth (Thickness)	DESCRIPTION	Legend	Red. Level A.O.D.	Water						
1		101	85	1.00	SPT (S) 6 (1-2-1-1-2-2)	(0.60)	MADE GROUND - Dark brown, slightly clayey very silty Gravel of fine to coarse, angular sandstone and occasional concrete and glass. Few rootlets to 0.15m depth.									
						0.60	Medium dense to dense, orange brown, slightly silty clayey sandy (medium) GRAVEL of fine to coarse, angular to subrounded sandstone. Low to medium cobble content of angular to subangular sandstone.		54.19							
						(0.50)										
2		87	50	2.00	SPT (S) 20 (4-4-5-4-5-6)	1.10	Very dense, brown grey, slightly silty SAND & GRAVEL. Gravel of fine to coarse, angular sandstone.		53.69							
3		77	65	3.00	SPT (S) 50/190mm (7-10-15-18-17/40mm-)	(1.90)										
						3.00	End of Windowless Sample Borehole - encountered refusal on dense granular strata and cobbles at 3.00m depth		51.79							
Equipment / plant used: Dando Terrier Mini-Rig Remarks: Access created to borehole. Area CAT and Genny scanned to clear for services prior to breaking ground.																
Llanedi, Swansea SA4 0FQ Tel: +44(0)1554 744880 email: enquiries@quantumgeotech.co.uk					Operator: GB&AW		Logged By: R McDermott		Sheet No. 1 Of 1		m Per Page 4		All measurements in metres unless otherwise stated			

Contract : Land Adjacent No.1 Ffordd Dinas, Cwmavon

Client : Mr I. Williams

Borehole No.

WS02

Dates : 26/1/22 - 26/1/22

Job Number : Q0673

Ground Level : 54.79 m A.O.D.
Level to Ordnance Datum

Location : Proposed New Build
Footprint

Engineer : Grade Consulting Ltd

Coordinates: 277754.57 E
192217.92 N
Co-ordinates to National Grid



APPENDIX VI: POST-FIELDWORK LANDGAS & GROUNDWATER MONITORING RECORDS

Page 1 of 1

Project Name:	1 Ffordd Dinas, Cwmavon
Project No.:	Q0673
BH/TP No.:	BH01
Instruments Used:	Water Dip Meter Probe, GA2000 Gas Analyser

Installation Date:				
GL (mAOD)	Pipe	Type	Installation Depth (mbgl)	Response Zone (mbgl)
54.89	A	50mm	19.00	15.00 - 19.00

[illegible]



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