

**PROPOSED HOUSING
DEVELOPMENT
AT
TREFORGAN
NEATH**

MINING STUDY

REPORT

JULY 2017

***ateb*Consult**

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PROPOSED HOUSING AT TREFORGAN CRYNANAT

SITE INVESTIGATION AND MINING REPORT

July 2018

17/017

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PROPOSED HOUSING AT TREFORGAN CRYNANAT

SITE INVESTIGATION AND MINING REPORT

1.0 Brief

The brief for the study and report, as instructed by the Developers and site owners for the proposed housing site , Crynant Plant Ltd, Neath was to

- 1.1_ To undertake an initial Desk study ,site walkover and risk assessment study on the land at Treforgan in the Neath Valley., where the developer proposes a new housing development of five dwellings associated infrastructure .
- 1.2 To review factual data ,historic plans and site investigation records for the site made available by the site owner ,
- 1.3 Review the Coal Authority and other available reports on the site
- 1.4 Consider the proposed housing development plans in relation to the site and available data and develop foundation concepts for the proposed new dwellings
- 1.5 Carry out on intrusive site investigations to confirm the geology and location and depth of any coal seams in the area
- 1.6 Review the results of the desk study and on site drilling/mining investigations and to assess the risk to the proposed development from any past mining in the area , and then to advise on any mitigation measures that may be needed and also on the foundation types for the proposed dwellings.
- 1.7 Prepare a report on the study work and on site investigations undertaken giving geo-technical and foundation recommendations for the proposed dwellings .

PROPOSED HOUSING AT TREFORGAN CRYNANAT

SITE INVESTIGATION AND MINING REPORT

2.0 Basis of Report

The basis of this report is a site investigation desk study and mining desk study and review carried out by *ateb* Consult in May 2018, followed by detailed confirmatory site investigations comprising of rotary percussion boreholes undertaken in June 2018.

The overall scope of the study works encompassed the following.

- 2.1** A review of available information present on the site.
- 2.2** A desk study into site conditions including liaison with the British Geological Survey and review of available historical records and plans of the site, and radon risk records held by BGS for the area.
- 2.3** A walk over survey of the site pre development and a site assessment of current conditions.
- 2.4** A review of the developer's proposals for provision of the new housing development.
.
- 2.5** A review of the information gathered on the site
- 2.6** Rotary percussion bores sunk to a depth of circa 30m under the site, so as to establish and confirm the site geology.
- 2.7** Following the study and site investigation works the results were collated and the report prepared.

PROPOSED HOUSING AT TREFORGAN CRYNANAT

SITE INVESTIGATION AND MINING REPORT

3.0 Site Characteristics

3.1 General

The proposed housing development site lying off Trefrogan Road in Crynant near Neath [grid ref SN791062] comprises of an approximately rectangular parcel of land as shown on fig. 1 ,2 ,

3.2 Topography and adjoining land use

The site lies on the hillside and with the ground rising from 107m aod at the site entrance off Trefrogan Rd to circa 118.56m aod at the rear of the site ,where there sits a now empty former care home building [once believed to be offices] .

The overall site area lies with in a rural area on the edge of the village , with open country and common land to the north and west , and the village to the south and east.

There are houses on either side of the site accessed off Trefrogan Road.

Currently the lower area of the site where housing is proposed [fig3] is covered by vegetation ,trees and rough pasture

3.3 Current Use

The site is currently unused

3.4 Historic Land Use

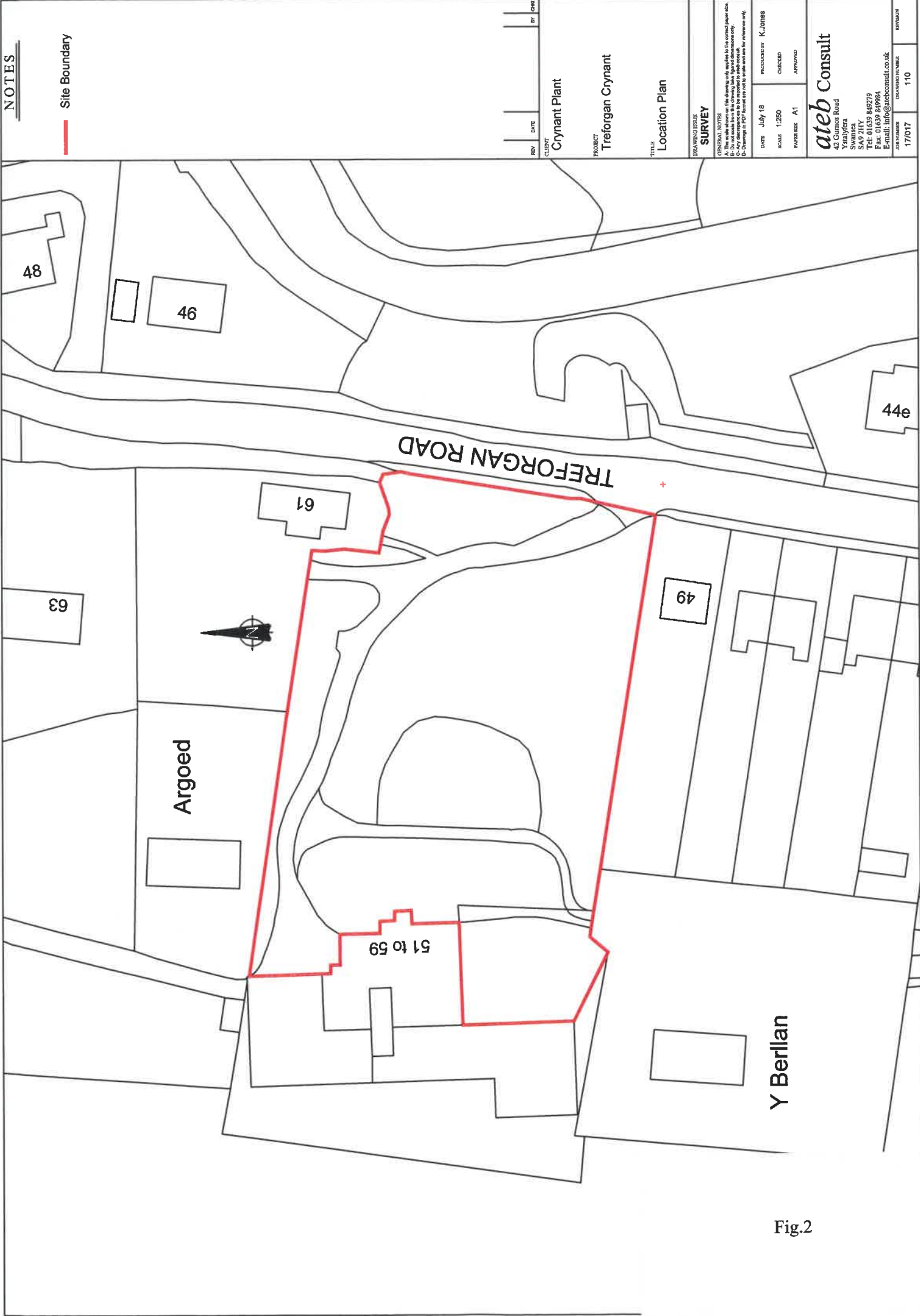
A review of sequential editions of the Ordnance Survey plans of the area [Appendix A] shows that the only development in the [past appears to be the large building at the rear of the site, with access roads in to the establishment off Terforgan Rd . Housing is shown on either boundary alongside Treforgan Rd

3.5 Proposed Development

The proposal is for five new housing units and associated road and infrastructure as shown on figure 4



Fig.1



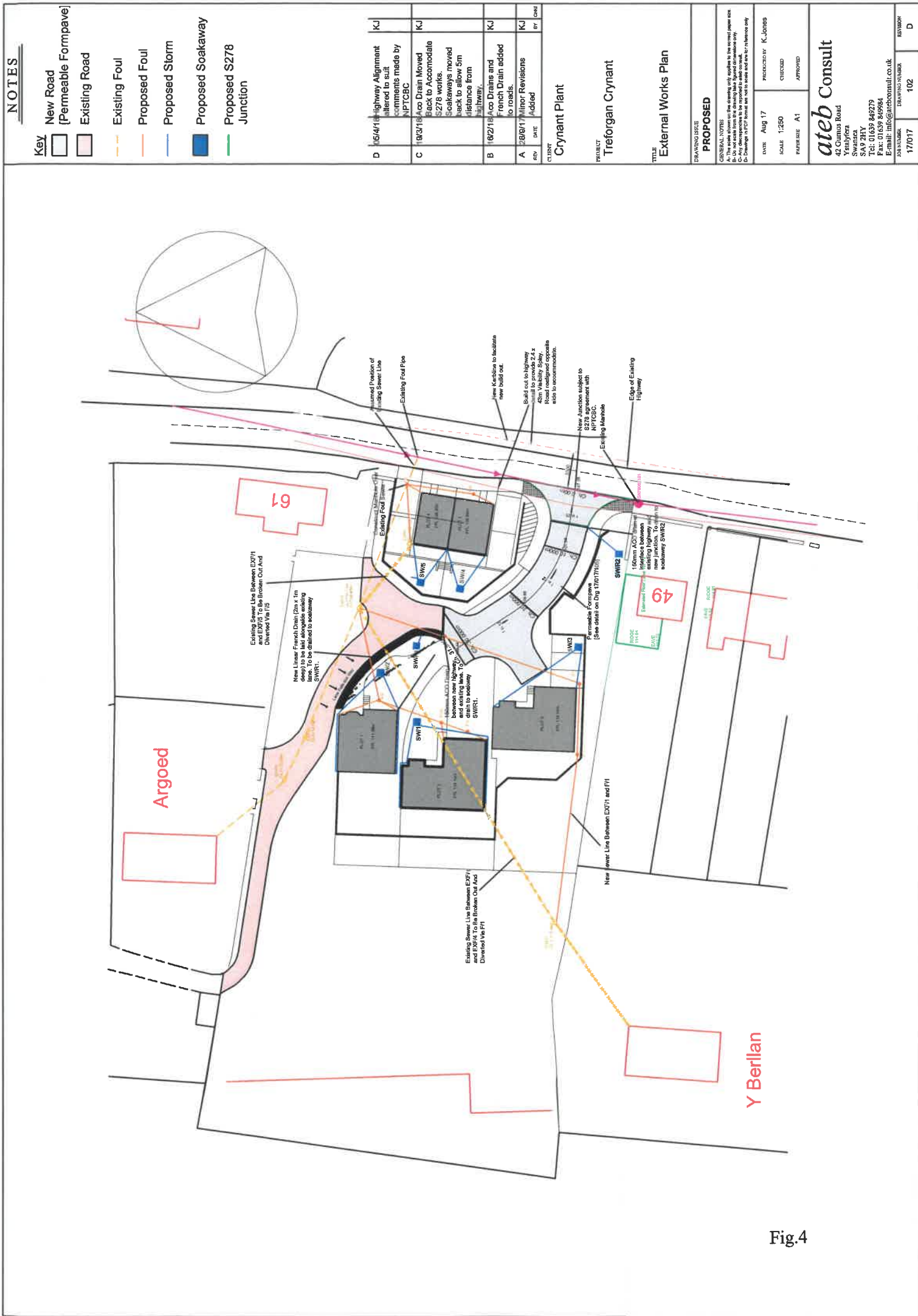
NOTES			
Site Boundary			
REV	DATE	BY	CHK
CLIENT		Crynant Plant	
PROJECT		Treforgan Crynant	
TITLE		Location Plan	
DRAWING ISSUE			
SURVEY			
GENERAL NOTES			
A- The scale shown on this drawing only applies to the printed paper size. B- All dimensions are to be given in metres and rounded to the nearest millimetre. C- Any discrepancies to be resolved to the client. D- Drawings in PDF format are not to scale and are for reference only.			
DATE	July 18	PREPARED BY	K.Jones
SCALE	1:250	CHECKED	
PAPER SIZE	A1	APPROVED	
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JOB NUMBER	17/017	DRAWING NUMBER	110
REVISION			

Fig.2



Fig.3

BY	CHK
REV	DATE
CLIENT	
Crynant Plant	
PROJECT	
Trefogan Crynant	
TITLE	
Topographical Survey	
DRAWING ISSUE	
SURVEY	
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DRAWING NUMBER	-
REVISION	



NOTES			
Key	New Road [Permeable Formpave]		
	Existing Road		
	Existing Foul		
	Proposed Foul		
	Proposed Storm		
	Proposed Soakaway		
	Proposed S278 Junction		

D	16/4/18	Highway Alignment altered to suit comments made by NPTC/BC	KJ
C	19/3/18	100mm ACP Drain Moved Back to Accomodate S278 works. Soakaways moved back to allow 5m distance from highway.	KJ
B	18/2/18	100mm Drains and French Drain added to roads.	KJ
A	28/8/17	Minor Revisions	KJ
REV	DATE	Added	BY
CLIENT	Crynant Plant		
PROJECT	Treforgan Crynant		
TITLE	External Works Plan		

DRAWING ISSUE	
PROPOSED	
GENERAL NOTES	
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17/01/17	102	D

Fig.4

PROPOSED HOUSING AT TREFORGAN CRYNANAT

SITE INVESTIGATION AND MINING REPORT

4.0 Geology

4.1 General Geology

The general geology of the site area is shown on the 1:50,000 geological map of the area [BGS sheets 230,231 [fig5] and is shown as comprising of superficial deposits , over the lower pennant coal measures formation of the South Wales Coalfield]] , which are shown in the area as generally being sandstones and mudstones with veins of coal . The BGS records show that the seams dip to the South West by approximately 9-10deg in the area . The geological records also show that the upper welsh vein subcrops to the north east of the site area. , and would lie at depth under the site , with the upper pinchin vein subcropping near the site, probably to the south west .This seam would thus not affect the site area as it dips to the south west To the east of site lies the Nant Marl fault where the seams appear to end and are thrown by the fault.

4.2 Superficial Deposits

The superficial deposits on the site as recorded during the trial pits sunk during the drainage study works comprise of topsoils and subsoil to a depth of some 600mm over shallow deposits of soft to firm brown clays and sands ,[glacial drift] with rock head at depths of approximately 4m

4.3 Solid Deposits

The solid strata under the site comprises of the lower pennant coal measures.

4.3 Natural Radon Gas

From Liaison with British Geological Survey it is noted the site lies in an area where there is no risk of Natural Radon gas emissions from the underlying solid strata. The area is thus classed as one where no Radon protection is required for the proposed development.

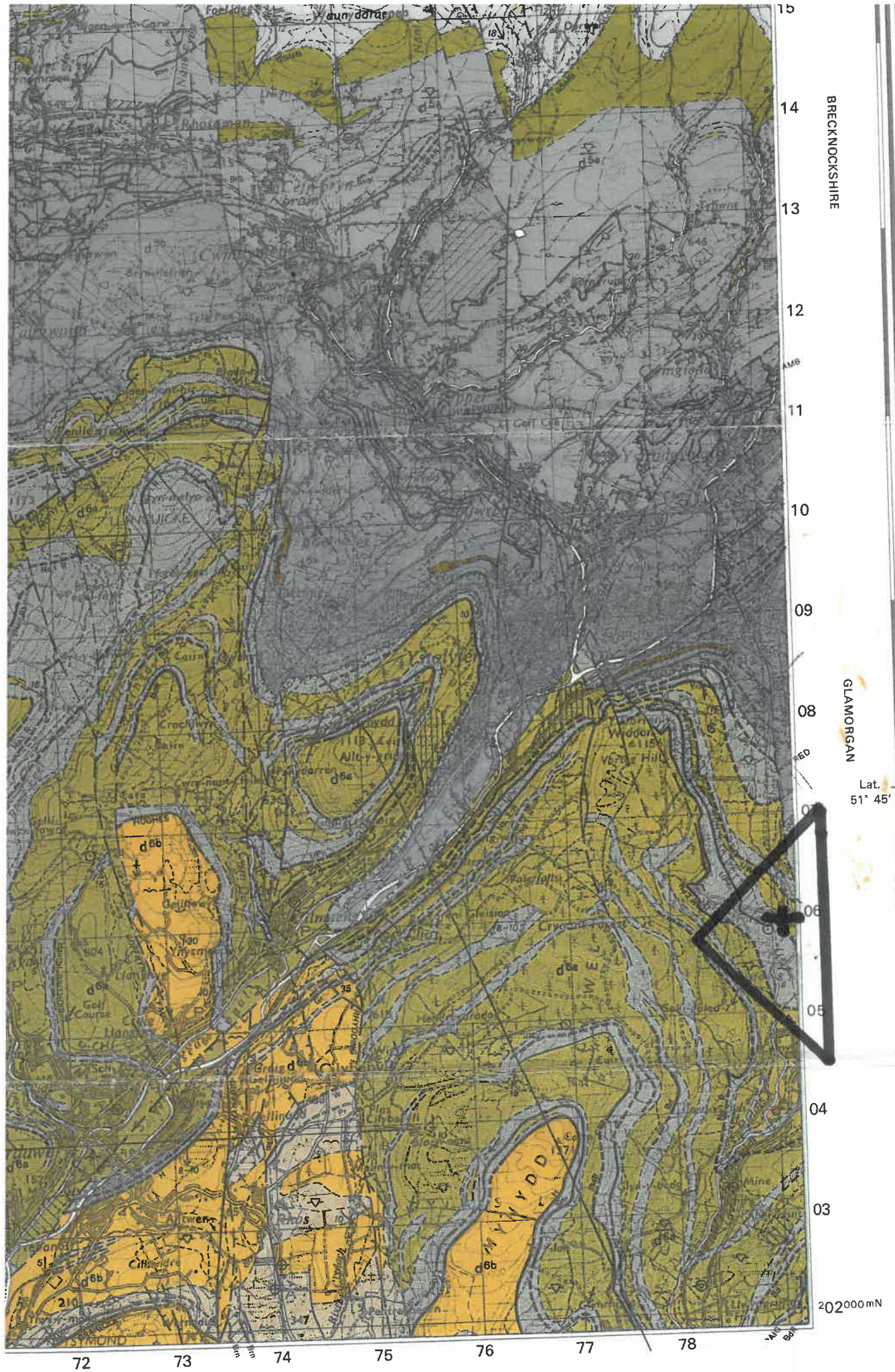


Fig.5

PROPOSED HOUSING AT TREFORGAN CRYNANAT

SITE INVESTIGATION AND MINING REPORT

5.0 Mining Study

5.1 General

In order to establish the site geology and depth to any coal seams intrusive site investigations were undertaken with 3 number rotary percussion holes sunk to depths of up to 30m [fig. 6]

5.2 Site Investigation Results

The location of the boreholes and the summary results can be seen on fig.6 below
With reference to fig. 6 the bores confirmed that

- 5.2.1 The glacial drift superficial strata extends to some 4m -4.7m below existing site levels
- 5.2.2 Below this level sandstones and mudstones of the south wales coalfield were encountered, extending to a depths of at least 30 meters
- 5.2.3 Within borehole 1 sunk on the lower part of the site near the entrance a coal seam of some 900mm thick was encountered at a depth of 14.2m below ground level . There was no evidence of working and solid rock strata extends up to rock head .
- 5.2.4 In boreholes 2 located at the northern end of the site a coal vein 700mm thick was encountered at a depth of 7.2m with a further seam some 1800mm in thickness at a depth of 16.1 m -.
- 5.2.5 In borehole 3 only one seam of seam 600mm thickness was encountered at a depth of 11.8m
- 5.2.6 There was no evidence of past workings in any of the bores, but past mining cannot be discounted in this area.

5.3 Site investigations -Appraisal

- 5.3.1 A review of the results of the borehole investigation against the available geological plans of the area has been undertaken and the following conclusions drawn,
- 5.3.2 The coal seams in the area appear to dip at approximately 9-10 degrees to the south west, with the upper seam encountered in BH/2 also found at a greater depth in BH/3
This seam appears to be in the region of some 600-700mm in thickness, with rock cover varying between 2.5m in BH/2 and 7.7m in BH/3 . This seam does not appear to be plotted on the BGS plans. As this seam is shallow and near its sub crop it is unlikely it would have been worked by mining techniques.
- 5.3.3 The lower seam found in BH/2 is also found at a similar level and [allowing for the dip in strata] in BH 1 which was sunk from a lower ground level -This seam also appears to dip to the south west but is not encountered in BH/3 as it is at a greater depth at this location

NOTES

Key



Trial Pits



Rotary
Percussion
Boreholes

Area of Site =
3426m²

GRID REFERENCE
SN791062

Borehole 1			
Strata	Top Depth	Base Depth	Overall Depth
Boulder Clay	0m	4.1m	4.10m
Sand/Mud Stone	4.1m	14.20m	10.10m
Coal	14.20m	15.10m	0.90m
Sand/Mud Stone	15.10m	30.00m	14.90m
Borehole 2			
Strata	Top Depth	Base Depth	Overall Depth
Boulder Clay	0m	4.7m	4.70m
Sandstone	4.7m	5.50m	0.80m
Sandstone	5.50m	7.20m	1.70m
Coal	7.20m	7.90m	0.70m
Sand/Mud Stone	7.90m	16.10m	8.20m
Coal	16.10m	17.90m	1.80m
Sand/Mud Stone	17.90m	30.00m	12.10m
Borehole 3			
Strata	Top Depth	Base Depth	Overall Depth
Boulder Clay	0m	4.1m	4.10m
Sand/Mud Stone	4.1m	11.80m	7.70m
Coal	11.80m	12.40m	0.60m
Sand/Mud Stone	12.40m	21.50m	9.10m
Sand/Mud Stone	21.50m	30.00m	8.50m

REV DATE

Crynant Plant

PROJECT

Treforgan Crynant

TITLE

Borehole Locations and
Data

DRAWING ISSUE

RECORDED SURVEY

GENERAL NOTES

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C- Drawings in PDF format are not for scale and are for reference only.

DATE

JUNE 17

PRODUCTED BY

J. Morris

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JOB NUMBER

17/017

DRAWING NUMBER

109

REVISION

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Fig.6

PROPOSED HOUSING AT TREFORGAN CRYNANAT

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than the depth to which the borehole was sunk . Rock cover over this seam of between 900 and 1800mm thickness is over 10mtrs in both BH/1 and BH/2 and the seam is thus at a depth where even if worked there would be no affect on surface layers. Due to the time since mining cased in the area any gerund movement should also have long ceased. From a review of the available plans and records this seam is probably the Welsh Vein that subcrops to the north and east of the site

- 5.3.4 There is no evidence of past mine working in the boreholes but past mining in the area is a possibility, but as noted above due to depth and age of any workings and ground movements should now have long ceased
- 5.3.5 The depth of the seam found in BH/1 and at lower level in B/H2 is such that there is sufficient rock head above the seam so as not to affect any surface layers,
- 5.3.6 A cross section through the site summarizing the above is given in fig 7 below.

5.4 Mining Study Results v Proposed Housing Proposals

Following the above mining study the results were reviewed in relation to the proposed housing layout and the following conclusions drawn

- 5.4.1 The seam found at depth in BH/1 and also found at a similar level in BH/2 is probably the welsh vein which dips to the south west . The seams has over 10m of hard sandstone cover over it across the site and is thus at a depth that local movement should not affect surface levels. Further mining activity has cease in this area for many years and any associated local movements should have ceased. This seam should thus not affect the development. Notwithstanding this raft foundations should be provided to mitigate against any residual risk however unlikely.
- 5.4.2 The seam found in BH/2 at 7.2m depth and again in H/3 at 11.8 m depth is unlikely to have been worked by shaft /slant or pit mining techniques but local excavations in the seam may have taken place on the east side of the site where rock cover is low . The rock cover on the west side of the site is some 7.7m in depth and here if there were any past workings the cover and depth is such that there is x10 seam depth in rock cover and hence any local mining in the past should not affect surface levels
However to mitigate against any risk the following is proposed
 - 1] Following site clearance and removal of the topsoil the ground be inspected to ascertain if there are any abnormalities or evidence of local pitting/bell pits
 - 2] Test holes be dug by excavator down to the seam on the east side of the site where plots 1 and 2 are proposed to check if worked - if worked then the seam can be dug out and the ground re compacted
 - 3] Reinforced concrete rafts used for the dwellings [as already noted above]

PROPOSED HOUSING AT TREFORGAN CRYNANAT

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7.0 Conclusions & Recommendations.

- 7.1 As a result of the site investigation study undertaken and supplementary on site investigations undertaken it is concluded that there is no evidence of any past mine entries bell pits or adits being present on the site and the related risk is thus remote from such features
- 7.2 The nearest mine entries identified are at a distance from the site and would not affect the proposed development and in any event past mining has ceased for some time and ground movement should have ceased
- 7.2 Two coal seams subcrop under the site - No evidence has been found of these being worked at shallow depth where they could affect the proposed development. The lower [Welsh Vein?] seam is at such a depth with rock cover above that any past workings should not affect the development.
The upper seam does not affect the southern part of the site due to topography, and is at a depth on the western side where the rock cover in sandstone is greater than 10 seam thickness and thus any residual movement related to past working should not disturb surface layers.
On the eastern side of the site this seam is shallower and it is recommended that following site clearance the ground be inspected for any abnormalities and also trial holes be dug at onset to check the area and the ground dug out and re compacted if need be
- 7.3 Notwithstanding the above and with regards to the development reinforced raft foundations are recommended to mitigate against any residual risks
- 7.4 With reference to the foundation design and bearing capacity of the strata present it is recommended that allowable bearing pressures of 100kn/m² should be used in the design

APPENDIX A

E-mail: admin@apex-drilling.com

Blue - Client's Copy	Yellow - QS Copy	White - Site Copy
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Contract Name Crygnant

Contract No

Date 21/6/18

Sheet 2 of 2 Working Day 1

APEX

DRILLING SERVICES

DAILY DRILLING LOG

Tel: 01656 749149

E-mail: admin@apex-drilling.com

Client ATEB

Order No

Drill Crew C Yandell / c Thomas

Rig Type TRUP

QUANTITIES				INSTALLATION DETAILS			
Bore Hole	Top Depth	Base Depth	Thickness	Recovery	Strata Description	Standing Time - Reason	Borehole
move BHO1	to	BHO1	(25min)				
dig trial pit	0.00	4.10	(40min)		Bolder clay		
case	0.00	4.10					
OH	4.10	14.20			Sand st / mud st bands	coal trace	
	14.20	15.10			Can	water 9.60	
	15.10	30.00			Sand st / mud st bands		
pull casing					Back fill BH(20min)		
22/6/18							
Clean up drill site							
de mob Rig + equipment							
Sita Moves	(No)	Casing	m	Core Boxes	(No)	Fixed Plant	
Bore Moves	(No)	Open Hole	m	Core Liner	m		
Return Moves	(No)	W. Samples	m	SPT/CPT	(No)	Standing Times	(hrs)
Security	YES / NO	Coring	m	Installation	m	Breakdown	(hrs)
Signed by Apex				Signed by Client			
Date				Date			

Diameter.....m
Well Casing.....m
Well Screen.....m
Gravel.....m
Bentonite.....m
Gas Bung.....(No)
End Cap.....(No)
Cover Type RAISED / FLUSH
Water Level.....m
Remarks

