

Afan Valley Adventure Resort

Ground Investigation

Factual Report

G22033

July 2022

Client Name

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Report Control Sheet

Report Number

G22033

Date of Issue

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Site Address

Land off Pen Y Bryn, Cymmer, Port Talbot SA13 3SD

Report Preparation

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	Signature	Signature

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1 Introduction

1.1 General

Wildfox Resort Afan Valley Ltd entered into a contract with Jackson Geo Services (JGS) to complete a ground investigation at Afan Valley Adventure Resort (hereafter referred to as The Site). The contract was agreed during June 2022. As per the Construction Design and Management (CDM) Regulations (2015), parties were attributed the following responsibilities:

Table 1: Responsibility Under CDM

Client	Wildfox Resort Afan Valley Ltd
Designer	Stantec
Principal Contractor	Keystone Environmental
Sub-Contractor	JGS

1.2 Proposed Development

The site is proposed to be developed as a new adventure resort comprising holiday accommodation and outdoor activities.

1.3 Scope of Works

The scope of investigation was defined by Stantec and is detailed within award letter 332310683/3500/L001_OE_VA (hereafter referred to as The Specification). In summary, the scope of investigation comprised:

-  Machine Excavated Trial Pitting
-  In-situ Testing (Soakaway Testing)
-  Geotechnical Laboratory Testing
-  Factual Reporting

1.4 Limitations

The project has been undertaken in accordance with The Specification and current standards and guidance as applicable (see References).

This report presents the observations made during desk based studies and the fieldwork period on a factual basis. Any observations within the report are limited to those which can be made based upon the information available at the time.

JGS consider the contents of the report have been produced accurately and the data presented is representative of the site conditions at the time. JGS assumes any third party data included in the report is accurate and correct. No responsibility is accepted by JGS for inaccuracies within third party data.

This report has been written to The Specification and is for use only in this context by the named Client and their advisers and is confidential to the named Client.

This report presents information on ground conditions, including groundwater, gas and contamination concentrations and soil properties, which are based upon the available dataset for the investigation. This dataset is considered representative of the site as whole, however is limited by the locations of investigation. Ground conditions, in particular Made Ground, can vary substantially and JGS do not accept responsibility for local unforeseen changes. Furthermore, groundwater, gas concentrations and chemical concentration can vary with time, atmospheric conditions and spatially dependent upon a variety of confining factors.

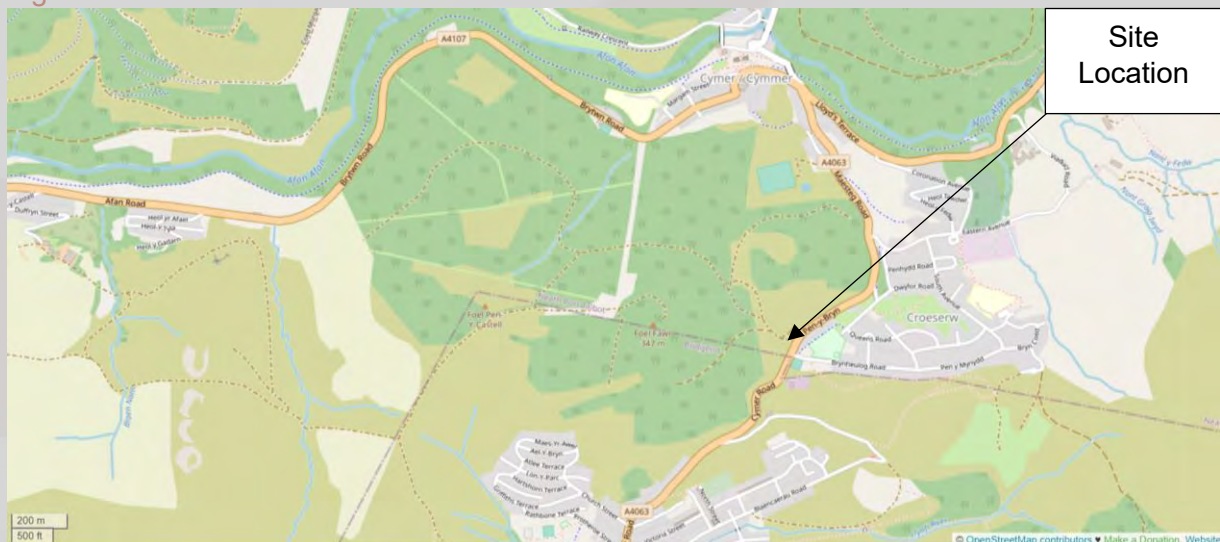
Consideration should be made as to the relevance of the information if the dataset is to be utilised after a significant period of time has elapsed from the date of investigation.

2 The Site

2.1 Site Location

The Site is situated at National Grid Reference (NGR) SS 860 952, and is approximately 4.6 km from the town of Maesteg. The location of The Site is shown in Figure 1:

Figure 1: Site Location



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2.2 Current Use

The Site currently comprises a low level mountainous moorland with part of the site within forestry. It is irregular and measures 2000 m by 1000 m at its widest points.

The site is generally open land with a series of gravel tracks running throughout, with the main track leading up to a TV tower (located at the top of the Foel Fawr). At the top of the Foel Fawr, a small derelict building is located. There is a small forestry area, comprising mostly mature trees. A small dry stream bed runs through the centre of the site from the south west to the north east. The northern section of the site comprises a valley, whilst the site rises to a ridge in the southern part of the site. Between these two features is a plateau with multiple areas of bog/marsh. The sides of both the ridge and the valley are steep.

The northern boundary of the site is where the valley steepens and drops down to the village of Cymmer. Below the site in the north east, there is an old football pitch and a covered reservoir. The western and southern boundaries open out onto moorland and further valleys.

2.3 Anticipated Ground Conditions

The anticipated ground conditions have been assessed using the data available on the British Geological Survey (BGS) Geology of Britain Viewer (2022) and the published BGS map (map no. 248, 1975), these are summarised within Table 2:

Table 2: Anticipated Ground Conditions

Artificial Ground	None Recorded	None Recorded
Superficial Deposits	None Recorded	None Recorded
Solid Geology	Rhondda Member	Sandstone. Sedimentary Bedrock formed approximately 308 to 315 million years ago in the Carboniferous Period. Local environment previously dominated by rivers.

The site is shown to be located in an area where a fault, downthrown the west, trends in a north direction within the southern part of the site.

The southern area of the site is shown as an area which has been affected by landslip.

Beyond the southern and eastern boundaries of the site the Field Vane and Wernddu coal seams are indicated to sub-crop.

The Department for Environment, Food & Rural Affairs (DEFRA) MAGIC mapping system (2021) indicates The Site is located within an area where the bedrock is classified as a Secondary A aquifer.

3 Fieldwork

3.1 General Information

The fieldwork was completed between 27 June and 8 July 2022.

The ground investigation was undertaken in accordance with BS5930:2015+A1:2020. The works were supervised by a trained and competent JGS engineer.

The layout of the investigation locations and their unique identifiers were determined by Stantec. This information was provided to JGS prior to works commencing onsite.

Service drawings were provided to JGS by Stantec prior to works commencing on site and the location of the proposed investigation locations was checked against the service drawings prior to excavation.

Prior to excavation, each exploratory hole location was scanned using a Cable Avoidance Tool (CAT) to confirm the absence of services beneath the proposed excavation.

Photographs of the materials encountered were taken in accordance with The Specification and are presented in Appendix II.

Following completion of the fieldwork, all investigation locations been surveyed to National Grid and Ordnance Datum. The location of the exploratory holes is shown on the drawing within Appendix I. The survey was completed by JV srveys.

3.2 Exploratory Holes

The proposed numbers of exploratory holes, their unique identifiers, termination depths and installation requirements were provided to JGS within The Specification. The details of the as built exploratory holes, including the location ID, construction method, actual termination depth and installation detail, are listed within Table 3.

Table 3: Exploratory Hole Details

Exploratory Hole ID	Construction Method	Termination Depth (m)	Installation Details		
			Type	Diameter (mm)	Response Zone (m bgl)
TP101	Machine excavated trial pit	1.20	Backfilled with arisings		
TP102		1.60			
TP103		2.00			
TP104		2.00			
TP105		1.50			
TP106		1.50			
TP108		1.60			
TP109		1.50			
TP110		1.60			
TP111		1.50			

Notes: SP – Standpipe piezometer; P – Piezometer

Trial pit TP101 was not able to be excavated to the scheduled depth due to sandstone bedrock being encountered at 1.20 m depth.

Due to time constraints and difficult access trial pit TP107 was cancelled by Stantec.

Fair copy logs, which record the method, samples obtained, in-situ testing completed within the exploratory holes, backfill and descriptions of the material encountered, are presented within Appendix II.

3.3 Logging and Sampling

Samples of the materials encountered were obtained in accordance with The Specification for descriptive and geotechnical testing purposes.

The description of the materials encountered was completed in accordance with BS5930:2015+A1:2020, BS EN ISO 14688-1 (2018) and BS EN ISO 14689 (2018).

Geotechnical samples were stored at ambient temperature and protected from extremes of weather until lab testing commenced at the JGS Llantrisant sample storage facility. Once scheduled for testing, the samples were transported to Geo Site and Testing Services Limited.

3.4 In-situ Testing

In-situ testing was completed in accordance with The Specification and relevant associated technical standards. In summary, the in-situ testing comprised the following:

-  Soakaway testing in accordance with BRE Digest 365.

The results of the in-situ testing undertaken is presented within Appendix II.

4 Geotechnical Laboratory Testing

Laboratory testing for geotechnical purposes was completed at GSTL, UKAS registration number 2788. The testing requirements were specified by Stantec and the testing has been completed in accordance with the requirements of The Specification and relevant technical standards. The geotechnical testing was completed on 9 August 2022. The testing is summarised in Table 4 and the results are presented within Appendix III.

Table 4: Geotechnical Testing Summary

Test Type	Number of Tests
Particle Size Distribution Testing	11

5 References

-  BGS England and Wales Sheet 248, Pontypridd, 1:50000 geological map (solid and drift) British Geological Survey. (1975)
-  BGS Geology of Britain Viewer. www.bgs.ac.uk. British Geological Survey. (2022)
-  BRE Digest DG 365. Soakaway design. Building Research Establishment, Garston, Watford. (2016)
-  BS 1377. Methods of test for soils for civil engineering purposes. British Standards Institution. (1990)
-  BS 5930:2015+A1. Code of practice for ground investigations. British Standards Institution. (2020)
-  BS EN 1997-2. Eurocode 7. Geotechnical design. Part 2 Ground investigation and testing. British Standards Institution. (2007, incorporating corrigendum June 2010)
-  BS EN ISO 14688-1. Geotechnical investigation and testing. Identification and classification of soil. Part 1 Identification and description (2018)
-  BS EN ISO 14688-2. Geotechnical investigation and testing. Identification and classification of soil. Part 2 Principles for a classification (2018)
-  BS EN ISO 14689. Geotechnical investigation and testing. Identification, description and classification of rock (2018)
-  Department for Environment, Food and Rural Affairs (DEFRA) MAGIC maps online application. DEFRA (2022)
-  Open Street Map (2022)

Appendix I

Drawings

Exploratory Hole Plan

Drawing Number: JGS/01



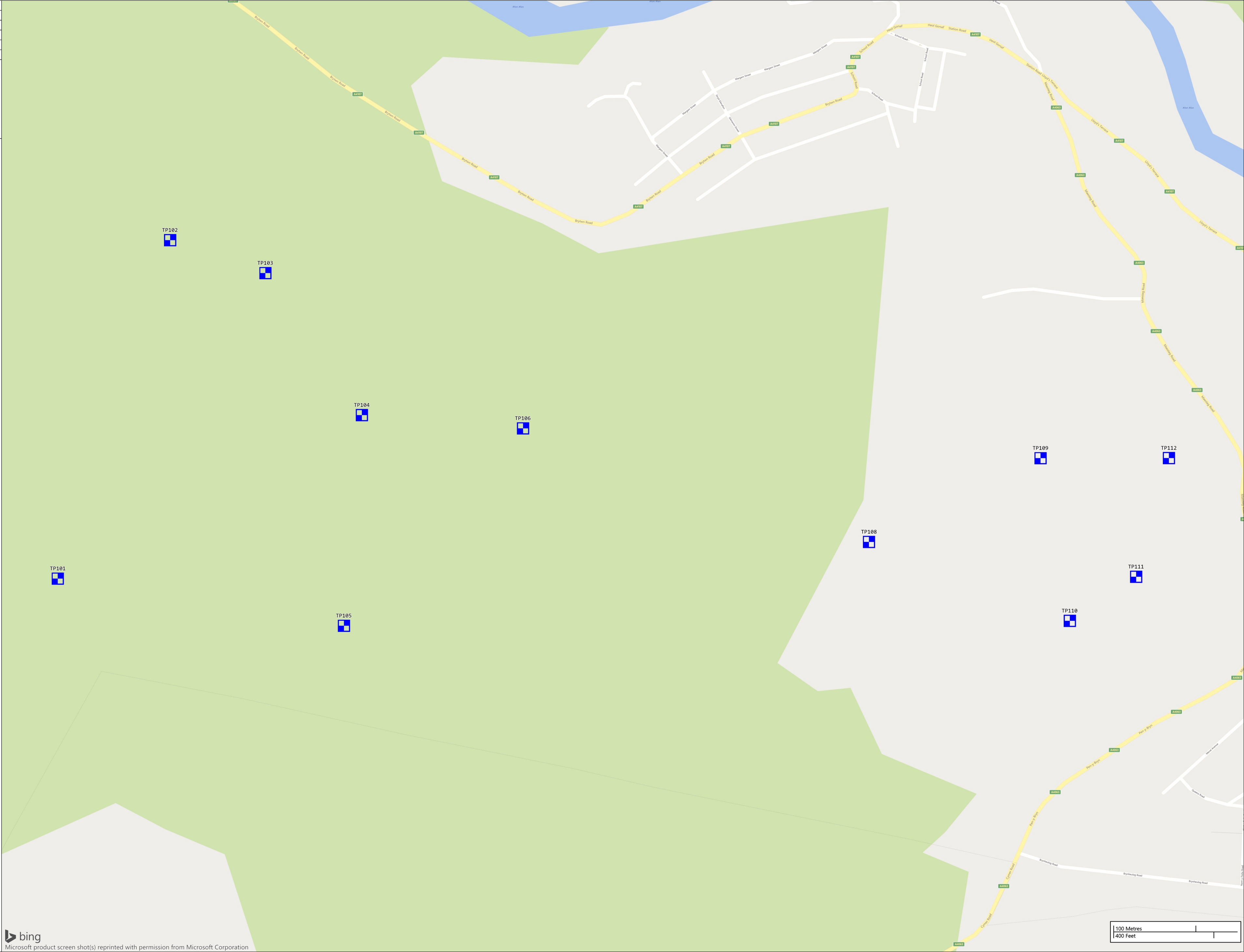
Project	Afan Valley Adventure Resort
Client	Wildfox Resorts - Afan Valley
Project Number	G22033
Drawing Number	G22033-JGS-001
Scale	1:3000
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Legend Key

 Locations By Type - TP

SITE PLAN



Appendix II

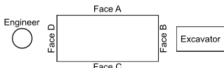
Exploratory Hole Logs and In-situ Testing

Trial Pit Logs and Photographs

TP101 to TP106, TP108 to TP112

Soil Soakaway Infiltration test

TP101 test 1 to 3, TP102 test 1 to 3,
TP103 test 1 to 3, TP104 test 1 to 3,
TP105 test 1 to 3, TP106 test 1, TP108
test 1, TP109 test 1 to 3, TP110 test 1,
TP111 test 1 to 4, TP112 test 1 to 3

		TRIAL PIT EXPLORATORY HOLE LOG						Exploratory Hole Progress by Time			Exploratory Hole		
								Date and Time		Depth	Water Depth	TP101	
								05/07/2022 10:45 05/07/2022 11:20		0.00 1.20	Dry		
Project	Afan Valley Adventure Resort			Equipment	13 tonne tracked excavator					Sheet 1 of 1			
Client	Wildfox Resorts - Afan Valley			Method	TP					Scale	1:20		
Project No	G22033	Level	291.51 mAOD	Orientation		180 degrees				Logged	SC		
Easting	285062.28	Northing	195492.52	Length		2.90				Checked	AP		
Termination Reason		Terminated on sandstone slab			Width		0.90						
Samples	Sampling and Testing Depths	Insitu Testing and Depth Related Remarks		Depth (Thickness)	Level (mAOD)	Legend	Description			Scale	Backfill		
1 D	0.20 - 0.40			0.00	291.31		Dark brown soft organic slightly sandy SILT with abundant rootlets. Sand is fine to medium. (TOPSOIL)			0.50			
				(0.20)									
				0.20									
2 B	0.80 - 1.20			(0.20)	291.11		Soft to firm orangish brown sandy gravelly CLAY. Sand is fine to medium. Gravel is angular to subangular fine to coarse of sandstone. (Weathered RHONDDA MEMBER)			1.00			
				0.40									
				(0.80)									
					290.31		Greyish brown clayey gravelly medium to coarse SAND with low cobble content. Gravel is angular to subangular fine to coarse of sandstone. Cobbles are angular to subangular of sandstone. (Weathered RHONDDA MEMBER)			4.00			
End of Exploratory Hole at 1.20m													
Weather		Overcast	Trial Pit Excavation Onsite Layout 				Water Strikes						
Shoring		None					Date and Time	Strike	Rising to	Time	Remarks		
Stability		Stable											
Remarks													
Machine excavated trial pit from GL to 1.20m. No groundwater encountered. 3 soakaway testing cycles in accordance with BRE365 was completed. Backfilled with arisings.													

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		EXPLORATORY HOLE PHOTOGRAPHS			Remarks Machine excavated trial pit from GL to 1.20m. No groundwater encountered. 3 soakaway testing cycles in accordance with BRE365 was completed. Backfilled with arisings.	Exploratory Hole TP101
Project	Afan Valley Adventure Resort	Easting	285062.28	Equipment	13 tonne tracked excavator	Sheet 1 of 2
Client	Wildfox Resorts - Afan Valley	Northing	195492.52	Method	TP	
Project No	G22033	Level	291.51 mAOD	Termination Reason	Terminated on sandstone slab	



TP101 Face A

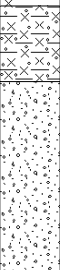
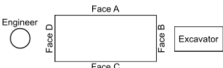


TP101 Face B

		EXPLORATORY HOLE PHOTOGRAPHS		Remarks Machine excavated trial pit from GL to 1.20m. No groundwater encountered. 3 soakaway testing cycles in accordance with BRE365 was completed. Backfilled with arisings.		Exploratory Hole
						TP101
Project	Afan Valley Adventure Resort	Easting	285062.28	Equipment	13 tonne tracked excavator	Sheet 2 of 2
Client	Wildfox Resorts - Afan Valley	Northing	195492.52	Method	TP	
Project No	G22033	Level	291.51 mAOD	Termination Reason	Terminated on sandstone slab	



TP101 Spoil

		TRIAL PIT EXPLORATORY HOLE LOG						Exploratory Hole Progress by Time			Exploratory Hole		
								Date and Time		Depth	Water Depth	TP102	
								04/07/2022 11:00 04/07/2022 11:35		0.00 1.60	Dry		
Project	Afan Valley Adventure Resort			Equipment	13 tonne tracked excavator			Sheet 1 of 1		Scale 1:20			
Client	Wildfox Resorts - Afan Valley			Method	TP								
Project No	G22033	Level	264.21 mAOD	Orientation		180 degrees		Logged SC		Checked AP			
Easting	285208.94	Northing	195902.59	Length		2.80							
Termination Reason		Terminated at scheduled depth			Width		0.70						
Samples	Sampling and Testing Depths	Insitu Testing and Depth Related Remarks		Depth (Thickness)	Level (mAOD)	Legend	Description			Scale	Backfill		
1 D	0.90 - 1.00			0.00	263.31		Brown slightly gravelly silty CLAY with low cobble content. Gravel is subangular fine to coarse of sandstone. Cobbles are subangular of sandstone. (Weathered RHONDDA MEMBER) 0.00m - 0.30m Abundant rootlets			0.50			
				(0.90)									
2 B	1.20 - 1.40			0.90	263.11		Mottled grey and orangish brown slightly gravelly clayey SILT. Gravel is subangular to subrounded fine to medium of mudstone. (Weathered RHONDDA MEMBER)			1.00			
				(0.20)									
				1.10	262.61		Brown very clayey SAND and GRAVEL. Sand is medium to coarse. Gravel is subangular to subrounded fine to coarse of sandstone and mudstone. (Weathered RHONDDA MEMBER)			1.50			
				(0.50)									
							End of Exploratory Hole at 1.60m			2.00			
										2.50			
										3.00			
										3.50			
										4.00			
Weather	Overcast	Trial Pit Excavation Onsite Layout 					Water Strikes						
Shoring	None						Date and Time		Strike	Rising to	Time	Remarks	
Stability	Stable												
Remarks													
Machine excavated trial pit from GL to 1.60m. No groundwater encountered. 3 soakaway testing cycles in accordance with BRE365 was completed. Backfilled with arisings.													

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