

Bedwas Colliery Reclamation Scheme Factual Report on Ground Investigation

155218 February 1996

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1. INTRODUCTION

On the instructions of Rust Environmental, consulting engineers for Rhymney Valley District Council, a ground investigation was carried out by Exploration Associates Limited for the Bedwas Colliery Reclamation Scheme; the instruction to proceed was given within a letter dated 6 December 1995, reference DMB/JPV/EGMCF022-002.

The object of the investigation was to determine the geological conditions at the site, together with the chemical and engineering properties of the soil.

The scope of the works included the drilling of boreholes using cable percussion and rotary techniques, trial pitting, laboratory testing of selected samples recovered during field operations, the installation of standpipes, in situ gas and water monitoring and the compilation of a factual report.

This report provides a description of the site and summary of the investigation procedures adopted, presents the geotechnical data obtained from the site works together with results of the subsequent laboratory testing programme.

The work was carried out in general accordance with the relevant British Standards, ISRM Rock Testing (1989) and the General Notes appended.

2. THE SITE

The site is located north of Trethomas, Bedwas, Mid Glamorgan as shown on the Site Location Plan, Drawing 1. With reference to Ordnance Survey information the approximate National Grid reference of the site is approximately ST 176 893.

The site comprised an area of land previously occupied by Bedwas Colliery, with associated areas of tip material, rail sidings, coking works and a Bezol Plant. The site is currently derelict, forming a series of plateau areas generally comprising colliery spoil, hardstanding and buried foundations.

3. FIELDWORK

3.1 General

The fieldwork was carried out during the period 2 to 22 January, 1996 and comprised the drilling of twelve light cable percussion boreholes, seven rotary open holes, one rotary cored borehole, trial pitting and the installation of standpipes.

3.2 Boreholes

Twelve 200mm nominal diameter boreholes were drilled using cable

percussion techniques to depths of between 4.00 metres and 16.00 metres below existing ground level, to assess the geotechnical and chemienvironmental properties of the strata. The location of the boreholes were determined by Rust Environmental.

The depths and descriptive details of the strata encountered, comments on the groundwater conditions, details of samples taken and drilling progress are shown on the Borehole Records, Enclosure A. Standard Penetration Tests (SPT's and CPT's) were performed in cable percussion holes at regular intervals, to give information pertaining to the relative density of materials encountered, the results of which are, uncorrected for the effects of overburden pressure.

During the course of boring small (jar) and large (bulk) disturbed samples were obtained at regular intervals for identification and description, and to facilitate contaminant laboratory testing. Groundwater samples were taken after a 20 minute period of monitoring.

One cable percussion borehole was continued using rotary coring techniques to a depth of 30.00 metres below existing ground level, using mist as a flushing medium and plastic coreliner to ensure maximum recovery. During the course of the rotary coring 92mm nominal diameter cores were recovered.

In addition, seven boreholes were drilled using a combination of 101mm, 127mm and 140mm nominal diameter rotary open hole techniques, three boreholes were initiated from ground level and five continued from the base of the cable percussion boreholes.

The depths and descriptive details of the strata encountered, together with the details of samples obtained, groundwater behaviour and rates of progress are presented on the Exploratory Hole Records, Enclosure A.

Strata descriptions are based on an examination of the samples obtained during the drilling and supplemented by in situ and laboratory test result data.

The descriptions are in general accordance with the definitions contained within BS 5930: 1981 and guidelines developed by Norbury, Child and Spink.

3.3 Trial Pits

Ninety seven trial pits were excavated using a wheeled hydraulic excavator to depths of between 0.40 metres and 6.70 metres below existing ground level, including fourteen trial pits which were re-excavated close to the original positions.

During the course of the trial pitting, the following gas concentrations were

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monitored; Volatile Organic Content (VOC ppm), Hydrogen Sulphide (H₂S %), Methane (CH₄ % LEL), Carbon Dioxide (CO₂ %) and Oxygen (O₂), the results of which are presented on the trial pit records.

Small disturbed samples were obtained from the trial pits in order to facilitate laboratory testing.

The gas monitoring and sampling frequency was determined on site by Rust Environmental.

The depths and descriptive details of the strata encountered, together with the details of samples obtained and groundwater behaviour are presented within the Exploratory Hole Records, Enclosure A.

3.4 Instrumentation

Seven 50mm nominal diameter slotted standpipes were installed in Boreholes 1, 1R, 2, 4, 6A, 10 and 12 to depths of between 9.80 metres and 30.00 metres below existing ground level within pea gravel filters.

Gas valves were installed on the standpipes in Boreholes 1R and 4.

The standpipes were installed in order to facilitate the collection of water samples and the long term monitoring of gas concentrations and water levels, the results of which are tabulated in Insitu Monitoring, Enclosure B.

At the end of the site works all the standpipes were purged of three times their volume of water and a sample collected for laboratory analysis.

3.5 Survey

The positions of the exploratory holes were pre-determined by Rust Environmental.

The levels and co-ordinates of the exploratory holes were surveyed by John Vincent Surveys under the supervision of Exploration Associates Limited and are presented on Drawings 2, Enclosure D. Levels and co-ordinates are presented on the Exploratory Hole Records, Enclosure A.

4. LABORATORY TESTING

A programme of laboratory testing was scheduled by Rust Environmental. The testing was carried out by Exploration Associates Limited in accordance with BS 1377: (1990), and comprised the following tests:

- Moisture Content
- Atterberg Limits
- Particle Size Analysis

In addition, contamination suites were carried out on samples obtained during the site works. The contamination testing was carried out by ECOS Environmental Limited using a NAMAS accredited quality control and assurance system.

The laboratory test results are presented within Enclosure C.

5. GROUND CONDITIONS

5.1 Published Geology

Reference to British Geological Survey information indicates the solid geology of the site to be underlain by the Upper Pennant Measures of Carboniferous Limestone.

The superficial deposits are indicated to be Glacial Sand and Gravel.

5.2 Strata Encountered

Strata encountered generally confirmed the published geology, however a layer of Made Ground was encountered over the site.

For full details of strata encountered reference should be made to the Exploratory Hole Records, Enclosure A.

5.3 Groundwater

Groundwater was encountered in Boreholes 1, 1R, 2, 3, 4, 5, 6A, 6R, 10 and 12 at depths of between 2.90 metres and 32.00 metres below existing ground level.

Ground levels may at times vary to those recorded during the field operations due to variations in climate and other conditions.

For full details of groundwater levels and behaviour, reference should be made to the Exploratory Hole Records, Enclosure A and In Situ Monitoring, Enclosure B.

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For and on behalf of Exploration Associates Limited

A. Figgis

BSc.

Engineering Geologist

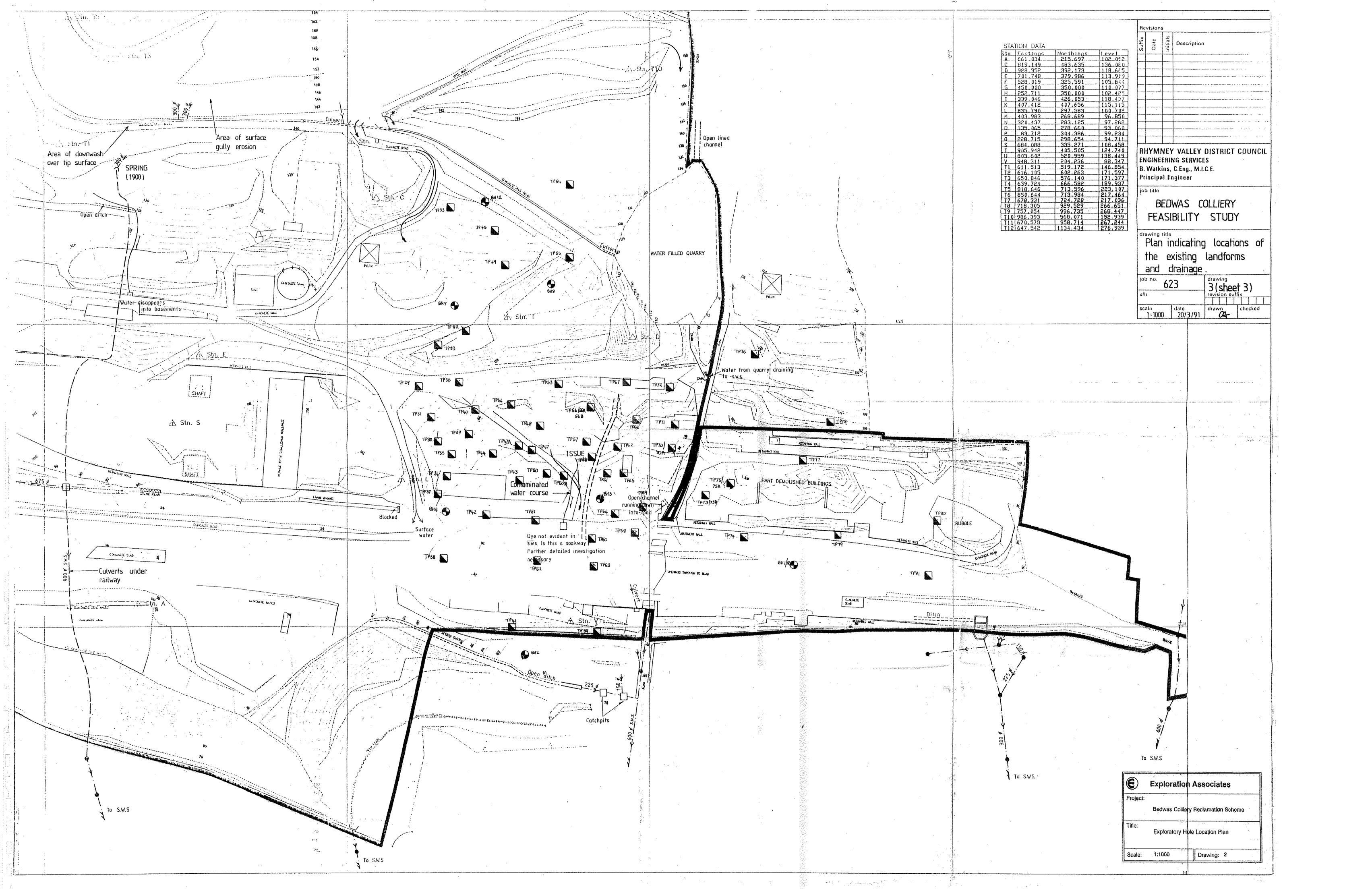
R. Griffiths

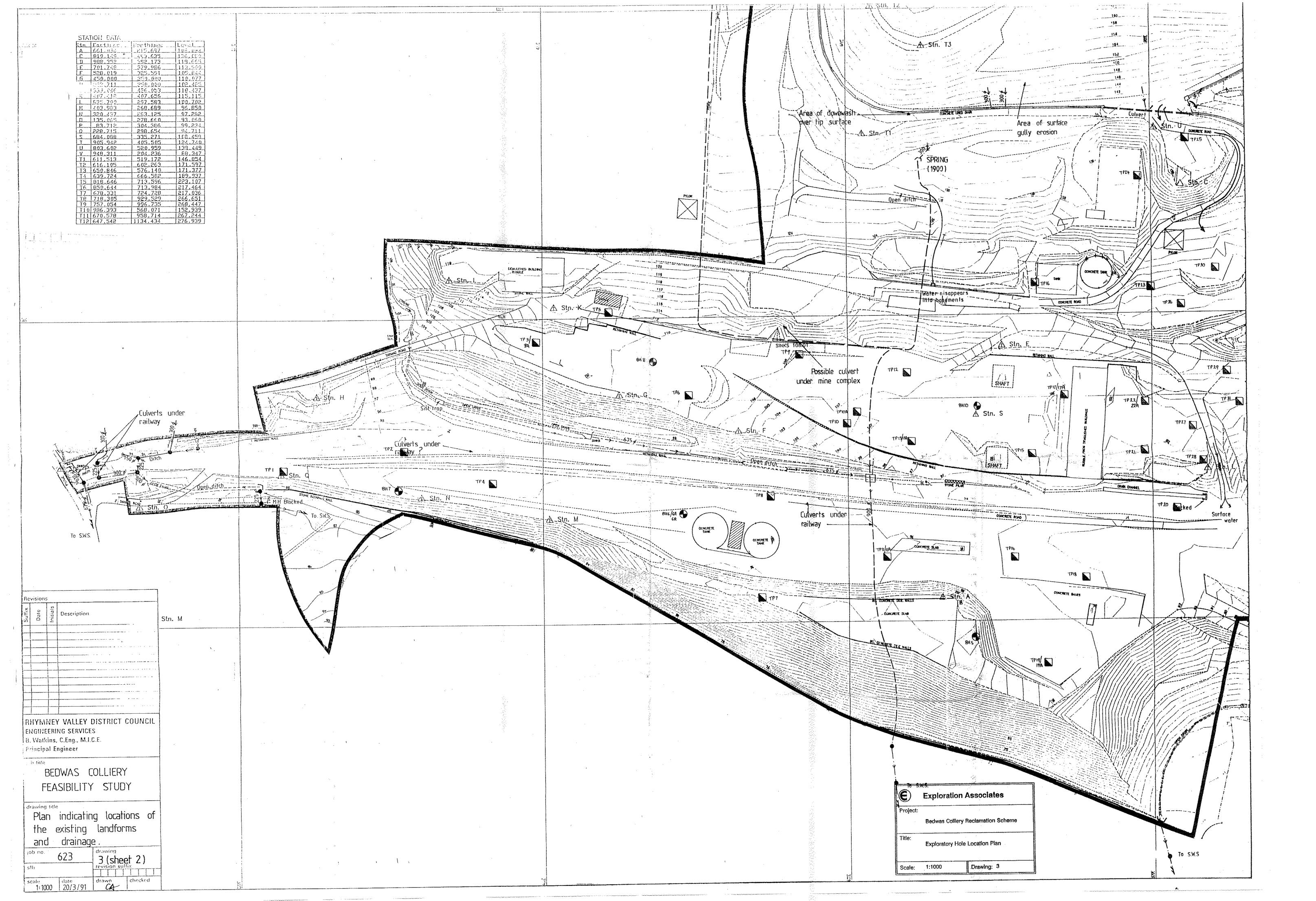
BSc(Hons), MSc., F.G.S., C.Geol. Principal Geotechnical Engineer

EXPLORATION ASSOCIATES LIMITED AF/RG/CH/155218/FEBRUARY 1996

REFERENCES

- Ordnance Survey Map No. 171. Cardiff, Newport and surrounding area. 1:50,000 Scale Series.
- o BS 5930: 1981. Code of Practice for Site Investigations. British Standards Institute.
- o BS 1377: 1990. Methods of Tests for Soils for Civil Engineering Purposes. British Standards Institute.
- o British Geological Survey Map. Sheet 249. Drift. Newport. 1:50,000 Scale Series.
- O A critical preview of section 8 (B55930) Soil and rock Description Geol. Soc. Conf. Norbury, and Child & Spink, 1984.





ENCLOSURE A

Exploratory Hole Records

Symbols

Borehole Records

BHs 1,1R,2,3,4,5,6,6A,

6R,7,8,10,11,12

Trial Pits Records

TPs 1 to 83, and

KEY TO SYMBOLS ON EXPLORATORY HOLE RECORDS

All linear dimensions are in metres or millimetres

DESCRIPTIONS

: Drillers Description

SAMPLES

Undisturbed 102mm diameter sample, () denotes number of blows to drive sampler U()

F - not recovered, P - partially recovered U()F, U()P Undisturbed 38mm diameter sample 1138

P(F),(P)Piston sample, F - not recovered, P - partially recovered

В Bulk sample - disturbed

M D

Jar Sample - disturbed M : Small Disturbed Sample (Organic Hydrocarbon Analysis)

CBR California Bearing Ratio mould sample

: Gas Sample and depth of hole at time of sampling G

CORE RECOVERY AND ROCK QUALITY

: Total Core Recovery % SCR Solid Core Recovery % ROD Rock Quality Designation %

Fracture Index (discontinuities per metre) NI - not intact, NR - not recordable, NA - not applicable

GROUNDWATER

Groundwater strike

Groundwater level after standing period

Date/Water Date of shift (day/month)/Depth to water at end of previous shift shown above the date and depth

to water at beginning of shift given below the date.

IN SITU TESTING

Standard Penetration Test - split barrel sampler S C Standard Penetration Test - solid 60° cone

V(H)(R) Vane Test (Hand) (R) demonstrates remoulded strength K(F), (C), (R), (P) Permeability Test (falling, constant or rising head, packer)

Pressuremeter Test HP Hand Penetrometer Test

MEASURED PROPERTIES

Standard Penetration Test - blows required to drive 300mm after seating drive

Denotes x blows for y mm within the Standard Penetration Test

Denotes x blows for y mm within the seating drive

Undrained Shear Strength (kN/m²)

: California Bearing Ratio

ROTARY DRILLING SIZES

	NOMINAL DIA	METER (mm)
Index Letter	Borchole	Core
N	75	54
H	99	76
P	120	92
S	146	113

EXPLORATORY HOLE SYMBOLS

Project

Contract

155218

Bedwas Colliery Reclamation Scheme Rhymney Valley District Council

Figure

Sampling					Strata			
Depth	Туре	Casing Depth	Water	SPT N (Cu)	Description	Depth (Thickness)		Legend
			08/01 1996 DRY		MADE GROUND: Very dense dark grey clayey very silty very sandy angular fine to coarse gravel of sandstone, masonry and many cobbles.	G.L.	90.68	
1.00 1.00 1.00-1.34	B M/ORG C	NIL	DRY	50/ 190		(2.70)		
2.50-2.95 2.70 2.70	C D M/ORG	2.00	DRY	34	MADE GROUND: (Danca) arey broun clayer very	2.70	87.98 87.68	
3.00	В				MADE GROUND: (Dense) grey brown clayey very silty very sandy angular to sub-rounded fine to coarse gravel of sandstone and masonry. MADE GROUND: Dense dark grey clayey very silty sandy angular to sub-rounded fine to	- 3.00	07.00	
4.00-4.45	С	3.60	DAMP	32	silty sandy angular to sub-rounded fine to coarse gravel of sandstone, masonry, brick and ash some cobbles.	[] [] [(2.80)		
5.00	В					- - -		
5.50-5.95 5.80 5.80	C M/ORG	5.00	DAMP	30	Soft to firm grey brown sandy very clayey SILT with some angular to sub-rounded fine to coarse gravel of sandstone occasional cobbles.	5.80	84.88	
7.00-7.45	СВ	6.80		18		(2.40)		
8.00 8.20 8.20	M/ORG				Very dense brown silty sandy angular fine to coarse GRAVEL of sandstone many cobbles.	8.20	82.48	* * * * * * * * * * * * * * * * * * *
9.00 9.50-9.84	M/ORG	9.50	8.80	50/ 185	TELESCO SINCE OF SURGEONE HIGHY COUNTES.	(1.80)		
9.50		9.50	9.30 09/01 9.00	10)		10.00	80.68	
Equipment: _{Cal} Borehole Dia (n 200 to 10.4	nm)	Casing	Oìa (mn o 10.40		Groundwater No. Struck Behaviour Sealed 1 8.20 Rose to 7.70m in 20 mins	Ground Le Coordinat Drilled b Logged by Checked b	es 3°	0.68 m OD 18195.77 n 89243.06 n
Remarks See key sheet and appendice or explanation:	Chise 1/4hr drill stand s washes	elling ! rs), 9. ling 4.1 dpipe in ed prior	0.60m - 70m - 1 00m - 8 nstalle	0.90m 0.00m (.00m. 0 d to 10 ving po	(1hr), 3.60m - 4.00m (1 1/2hrs), 5.40m - 5.80m (1 1/hr), 10.00m - 10.25m (1hr), 10.25m - 10.40m (1hr) asses and VOC monitored at 3.00m, 9.50m and 10.40m 1.40m, slotted 10.40m - 8.00m pea gravel filter 10 osition (1/2hr).			9.50m (1 assist meter poment jet
Borehole	Reco				Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	Contrac	15:	5218
E Expl	oratio	n As	socia	tes	Rhymney Valley District Council	Borehole	e 1((1 of 2)

Sampling					Strata				
Depth	Туре	Casing Depth	Date/ Water	SPT N (Cu)	Description	Depth (Thickness)	Level	Lege	nd
10.00 10.25-10.44 10.40	M/ORG C D	10.25	9.90	50/ 10	Grey moderately weathered medium grained SANDSTONE, moderately strong; recovered as sandy angular fine to coarse gravel some cobbles. End of Borehole.	10.40	80.28		
					End of Borehole.	-			
· · · · · · · · · · · · · · · · · · ·									
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- : :									
Equipment: Cal	ble Perd	cussion			Groundwater No. Struck Behaviour Sealed	Ground Le	es 3	0.68 m QI 18195.77	nE
Borehole Dia (n 200 to 10.4			Dia (mn o 10.40			Drilled b Logged by Checked b	1 V FF	89243.06	Им
Remarks See key sheet and appendice for explanation	s s.							Fc	orm 1/0
Borehole		rd			Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	Contrac	13	5218	
Expl	oratio	n As	socia	tes		Borehole 1(2 of 2)			

Sampling					Strata				
Orill Run	TCR (SCR)	Casing (RQD)	Date/ Water	FI	Description	Depth (Thickness)	Level	Lege	nd
0.00	1	, - ,	16/01		MADE GROUND **	G.L.	90.68	××××	
0.00	(SCR)	(RQD)	Water 16/01 1996 DRY	OH	MADE GROUND.** Clay and Boulders.**	(7.00)	I		
-						(3.00)	80.68		
	ry Mare	ted Do	l l		Groundwater	Chaired L.		1 49 = 2	\vdash
-quipinont, cor	ry noun	CGG KO	101 y		No. Struck Behaviour Sealed	Ground Lev Coordinate	2s 3	0.68 m 00 18195.77 89243.06	ט
Borehole Dia (m 150 to 10.00 127 to 30.00	កា) ៣ ៣	Casing 140 to	Dia (mm 5 10.00) n	1 9.10 Slight seepage 2 17.00 Slight seepage 3 24.00 Moderate inflow	Orilled by logged by Checked by	√ RR	57243.00	
Remarks		ole com lled to ns). **	menced 30.00 Denotes	using m, pea s drill	rotary openhole techniques GL - 30.00m. 50mm nomin gravel filter 30.00m - 24.00m, slotted 24.00m - 30 ers description.			pipe in flush	
and appendices for explanations	l appendices explanations.							Fo	orm
Borehole		rd			Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	Contract	15!	5218	
Expl	oratio	n Ass	socia	ies	Knymney vaccey district councit	Borehole	1 F	R(1 of 3)	

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Sampling		lo :	D-4-3		Strata		1		
Drill Run	TCR (SCR)	Casing (RQD)	Date/ Water	F	Description	Depth (Thickness)	Level	Leger	nd
	1		16/01		Alternating bands of sandstone and mudstone.**				
				ОН					
								28	
quipment: Lor	ım))	Groundwater No. Struck Behaviour Sealed		189	.68 m 00 3195.77 9243.06	n n
orehole Dia (mm)						Drilled by Logged by Checked by	AF		
iee key sheet nd appendices or explanations.								For	m 1
Borehole	Reco	rd			Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	Contract	1552		
E Expl	Exploration Associates				Borehole 1R(2 of 3)				

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Sampling Orill Run	TOD	Casina	Date / I		Strata		Dooth		I	
Our Hay	TCR (SCR)	Casing (RQD)	Water	۶I	Description		Depth (Thickness)	Level	Lege	nd
One puls	(SCR)	(ROD)	Date/ Water 16/01	FI	Continued from sheet (2 of 3). oil noted in flush returns below 24.00m.		(Thickness)	Level	Lege	
30.00 ——————————————————————————————————					End of Borehole. Groundwater No. Struck Behaviour	Sealed	Ground Lev Coordinate		0.68 m 00 8195.77 99243.06	
Borehole Dia (m 150 to 10.00 127 to 30.00 Remarks	nm) In	140 to	3 10.00m				Drilled by Logged by Checked by	AF		
150 to 10.00 127 to 30.00)m ————	140 to	5 10.00m	·			Checked by	ÀF ,	Fo	orm 1
150 to 10.00 127 to 30.00 ——————————————————————————————————)m		5 10.00m		Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council		Contract		Fc 5218	orm 1

Sampling					Strata			
Depth / Drill Run	Type / TCRISCRI	Casing (RQD)	Date/ Water	SPT N	Description	Depth (Thickness)		Legend
0.00-0.60	В		05/01 1996 DRY		MADE GROUND: Grey silty sandy angular to sub- angular fine to coarse gravel of sandstone.	G.L. (0.60)	81.95	
0.60-1.10	8				MADE GROUND: Grey clayey silty very sandy	0.60	81.35	
1.00 1.10-1.50	M/ORG B				angular fine to coarse gravel of sandstone. Very dense brown slightly clayey locally	1.10	80.85	
1.50-1.88 1.50	C8 D	1.50	1.00 08/01	50/ 233	clayey silty very sandy angular to sub- rounded fine to coarse GRAVEL some cobbles.	-		
2.00 2.00	8 M/ORG		0.90			- - - - -		
3.00 3.00-3.45	M/ORG CB	3.00	2.20	41	dense below 3.00m.	<u>, , , , , , , , , , , , , , , , , , , </u>		
4.00	M/ORG					(5.90)		
4.50-4.95	C8	4.50	3.30	36		- - - -		
5.00	M/ORG					-		
6.00 6.00-6.45	B C	6.00	5.50	42		- - - - - -		
6.80		6.80	5.70 -09/01			7.00	74.95	
7.00-7.30 7.30-7.38	B C	7.30	5.90	50/ 42	Grey slightly weathered medium grained SANDSTONE, moderately strong; recovered as silty sandy angular fine to coarse gravel	7.30	74.65	
7.30			22/01 DRY		Sandstone.**			
Equipment: cal Lo	ble Perc rry Moun	ussion ted Ro	tary		Groundwater No. Struck Behaviour Sealed 1 25.10 Moderate ingress	Ground Le	es 3	1.95 m OD 18018.36 i 89183.56 i
Borehole Dia (n 200 to 7.30 101 to 30.0	m ´	_	Dia (mo o 7.30m			Drilled by Logged by Checked by	AF	RB AF
Remarks See key sheet and appendice or explanation	and a Boreh s to 30	(lling 1 n - 7.30 m). Equal (line) ole com	0.30m - 0m (2hr uipment ntinued slotted	0.60m s). Wat jet wa lusing 130.00m	(1hr), 1.60m - 2.20m (1 1/2hrs), 3.60m - 4.00m (1) ser added to assist drilling GL - 6.80m. Gases and ashed prior to moving position. rotary open hole techniques 7.30m - 30.00m. 50mm on - 24.00m, pea gravel filter 30.00m - 24.00m. **D	nr), 6.10m	- 6.80m	(2hrs), 1.50m (pm installed scription. Form 1
Borehole	Reco	rd			Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	Contract	15	5218
Expl	loratio	n As	socia	tes	Total Plan for Society	Borehole	2	(1 of 3)

Sampling					Strata					
Drill Ron	TCR (SCR)	Casing (RQD)	Water	SPT N	Description		Depth (Thickness)	Level	Lege	nd
			22/01				-			
					Continued from (sheet 1 of 3).		-			
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							-			
							16.70	65.25		
					Possible collapsed working.**		-			
)					(1.00)			
						_	17.70	64.25		
					Grey mudstone.**		_ 17.70 -	04.23		
		1			or cy mads cond.					
							_		~ ~~	
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							-			$ \cdot $
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	1						- - -			
quipment: Cat	ole Perc	ussion			Groundwater No. Struck Behaviour	Sealed	Ground Le	vel 8	1.95 m of	
					300000000000000000000000000000000000000	Jeaneu	coordinat	1:	1.95 m Ol 18018.36 89183.56	mi mi
Borehole Dia (m 200 to 7,30m	nm)	Casing 200 to	Dia (mm o 7.30m)			Drilled b	v 91 1	RB	
200 to 7.30m 101 to 30.00)m	200 (, . 50 11				Drilled b Logged by Checked b	y Sti AF.	À F	
Remarks	_									
See key sheet and appendices or explanations	5									
or explanations	S .			_	Decised		0		Fo	orm 1/
Borehole	Reco	rd			Project Redwas Colliery Reclamation Scheme		Contract	15	5218	
					Bedwas Colliery Reclamation Scheme Rhymney Valley District Council		Borehole	3		
(E) Expl	oratio	n Ace	encia	00			Poleligi	2/	2 of 3)	

Sampling		<u> </u>		000	Strata			<u> </u>		
Drill Run	TCR (SCR)	Casing (AQD)	Water	SPT N	Description	Depth (Thickness)	Level	Legend		
Drill Run	TCR (SCR)	Casing (RQD)	Date/Water 22/01	SPTN	Continued from (sheet 2 of 3). Mainly grey sandstone.**	(6.30)	S7.95	Legend		
30.00 ———Equipment: Cal	ble Perc	7.30			End of Borehole. Groundwater No. Struck Behaviour Se:	30.00 aled Ground Lev	51.95 /el 8	1.95 m OD 18018.36 89183.56		
orehole Dia (mm) Casing Dia (mm) 200 to 7.30m 200 to 7.30m 101 to 30.00m						Drilled by Logged by Checked by				
Remarks										
JUD NUY UITUUL	Ś									
ind appendice or explanation	key sheet appendices explanations.						Contract 155218			
nd appendice or explanation Borehole		rd		-	Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	Contract	15			

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Sampling					Strata			-	
Depth	Туре	Casing Depth	Date/ Water	SPT N (Cu)	Description	Depth (Thickness)		Lege	end
- 0.50-0.53	С	NIL	03/01 1996 DRY DRY	50/	Very dense grey brown silty sandy sub-angular to sub-rounded fine to coarse GRAVEL and COBBLES of sandstone.	G.L.	94.24	0.0×.	
_ 1.00-1.50	В			10		(1.10)	93.14	× 0 × 0	
_ 2.00-2.45	С	1.80	DRY	31	Dense grey brown very clayey very silty sub- angular to sub-rounded fine to coarse SAND and GRAVEL of sandstone with some cobbles.			× × × × × × × × × × × × × × × × × × ×	
_ 3.00-3.50	В				(oily with a strong hydrocarbon odour below 2.80m).	- - - - - - - -		×	1 2
. 3.50-3.85 - 4.00	C M/ORG	3.50	3.25	50/ 200	very dense/large cobble at 3.50m.	- (4.90) 			
. \$.00 5.00-5.45	M/ORG BC	5.00	4.80	42				× ° ×	
5.80 5.80 6.00 6.50-6.93	M/ORG C	5.80 6.50	-04/01 5.00	50/ 275	Firm to stiff grey mottled brown sandy very clayey SILT occasional locally some subangular fine to coarse gravel of sandstone occasional cobbles above 6.90m. (Hydrocarbon	6.00	 88.24 	x x x x x x x x x x x x x x x x x x x	
7.00-7.50 7.00 7.70	B M/ORG D				odour).	7.70	86.54	x, 'x x, 'x x, x x - x x - x x - x x - x x - x x - x	
8.00-8.23	C8 D	8.00	6.80	50/ 95	Grey locally brown highly weathered medium grained SANDSTONE, moderately weak to moderately strong; recovered as silty sandy angular gravel and cobbles. (Slightly oily with hydrocarbon odour).	8.75	85.49		
- 8.75		8.75	}		End of Borehole.	- - - - - - - -			
Equipment: Cab	ım)	Casing	Dia (mm		Groundwater No. Struck Behaviour Sealed 1 2.90 Slight seepage		es 3	4.24 m 0/ 18067.81 39285.21	mΕ
Remarks See key sheet	Chise 8.25m monit		0.50m - 0.50m - 0m (3/4 t 4.00m osition	0.75m hr), 8.	(3/4hr), 4.25m - 4.60m (1hr), 5.40m - 5.80m (1 1/350m - 8.75m (1hr). Water added to assist drilling 6.50m 8.50m. Borehole backfilled with arisings.	Orilled by Logged by Checked by Phrs), 7.80r 5.00m - 5.5 Equipment	^ АF У	Om (3/4h ses and ned prio	r) voć
and appendices for explanations Borehole	S.	rd			Project	Contract	15:	F6	orm 1/0
	oratio		socia	tes	Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	Borehole	3(1 of 1)	

Sampling					Strata	David		
Pepth / Drill Run	Type / TCR(SCR)	Casing (RQD)	Date/ Water	SPT N (Cu)	Description	Depth (Thickness)	Level	Legend
1.00 1.00-1.45 2.00 2.50-2.95 2.80 3.00 3.00-3.45			Water 04/01 1996 DRY		Description MADE GROUND: Medium dense dark grey silty very sandy angular fine to coarse gravel of brick, sandstone, concrete, timber and ash some cobbles. (dense) below 2.50m. firm grey brown sandy very clayey SILT with some sub-angular to sub-rounded fine to coarse gravel of sandstone some cobbles. (Slight hydrocarbon odour).	Depth (Thickness) G.L. (2.80)	93.37 90.57	Legend
5.00 5.00	M/ORG C	4.80	DAMP	40		5.00	88.37	
5.00 5.00-5.45 5.50-5.59	D C	5.30	4.50 DAMP 15/01 DAMP	50/30	Brown grey moderately weathered medium grained SANDSTONE, moderately weak; recovered as silty sandy angular fine to coarse gravel. Alternating bands of strong sandstone and mudstone.**	5.75	87.62	
					Croundwater			
Equipment: Ca Lo Borehole Dia (r	erry Moun	ted Roi	tary Dia (mn	a)	Groundwater No. Struck Behaviour Sealed 1	Ground Lev Coordinate	es 31	3.37 m ob 17966.51 m 39276.88 m
200 to 5.75 140 to 30.0 Remarks	6m 90m ————	200 to	5,75m		3 14.50 Slight seepage	Drilled by Logged by Checked by	AF A	A.F
See key sheet and appendice or explanation	Equip Boren s insta	lling (s). Wat ment je ole com lled to iption	et wash ntinued o 30.00	ed to a ed prid using m, slot	(1 1/4hrs), 4.70m - 5.00m (1hr), 5.00m - 5.50m (1 issist drilling 3.50m - 5.00m. Gas and VOC monitore of to moving position (1/2hr). rotary open hole techniques 5.75m - 40.00m. 50mm rotary open hole techniques 5.75m - 40.00m. 50mm rotary open hole techniques 5.75m - 40.00m. 50mm rotary open hole techniques 5.75m - 40.00m. 50mm rotary open hole techniques 5.75m - 40.00m. 50mm rotary open hole techniques 5.75m - 40.00m.	d at 5.00m, ominal diar	. 5.20m , 5.20m neter st	tandpipe Tillers
Borehole		·		_	Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	Contract	155	Form 1,
(E) Exp	Ioratio	n Ass	socia	tes	Anymas, racces practice country	Borehole	4(1 of 3)

4(1 of 3)

Exploration Associates

Sampling					Strata					
Drill Run	TCR (SCR)	Casing (RQD)	Date/ Water	SPT N	Description		Depth (Thickness)	Level	Leger	nd
			15/01		_		-			٦r
					Continued from sheet (1 of 3).	ţ	-			
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quipment: cat	le Perc	ussion			Groundwater		Ground Lev	el 93	.37 m co	
quipment: Cat Lor	ry Moun	ited Rot	ary		No. Struck Behaviour	Sealed	Ground Lev Coordinate	s 31	.37 m ob 7966.51 9276.88	m Im
Borehole Dia (m	ım)	Casing	Dia (mm	1)						
200 to 5.75m 140 to 30.00	n Om	200 to	5.75m				Drilled by Logged by Checked by	FF R	8 .F	
Remarks							Checked by			-
See key sheet and appendices or explanations										
or explanations									Fo	m 1/
Borehole	Reco	rd			Project		Contract	155	218	
					Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	Į				
$\overline{}$, , , , , , , , , , , , , , , , , , , ,	- 1	Borehole			

Sampling	TOD	Cooloo	Data /	COT M	Strata	Depth			
Drill Run	TCR (SCR)	Casing (RQD)	Water	SPT N	Description	Depth (Thickness)	Level	Lege	nd
			15/01		Continued from sheet (2 of 3).				
30.00		5.75	-		End of Borehole. Groundwater		63.37		٠٠٠٠
equipment: cat Lor Borehole Dia (m	m)	Casing	Dia (mm	n)	No. Struck Behaviour Sealed	Ground Lev Coordinate		.37 m Ol 7966.51 9276.88	;
200 to 5.75m 140 to 30.00	m	200 to	5.75m			Drilled by Logged by Checked by	/ FFR AFA /	B F	
Remarks See key sheet and appendices or explanations									
or explanations Borehole		rd			Project	Contract	159	218	orm.
POLCHOIG		· u			Bedwas Colliery Reclamation Scheme Rhymney Valley District Council		,,,,		

Sampling]				Strata						
Depth	Туре	Casing Depth	Water	SPT N (Cu)	Description	Depth (Thickness)	Level	Legend			
			15/01 1996 DRY		MADE GROUND: Medium dense dark grey very silty very sandy angular fine to coarse gravel of sandstone, mudstone, brick, slag and ash some cobbles.	G.L.	102.59				
1.00 1.00 1.00-1.45	M/ORG C	NIL	DRY	17							
2.00	ж					-					
2.50-2.95	С	2.50	DRY	18		; - -					
3.00 3.00	8 M										
4.00 4.00-4.45	M/ORG C	3.50	DAMP	20		(8.50)					
5.00 5.00	М В										
5.50-5.91	С	5.50	DAMP	50/ 255	very dense/large cobble at 5.50m.	<u>-</u> - -					
7.00 7.00-7.45	M/ORG CB	6.60	DAMP	23							
8.00	H										
8.50-8.76 8.50——	С	8.50	DAMP 16/01 DRY	50/ 105	MADE GROUND: Very dense (cobbles of sandstone).	8.50	94.09				
					medium dense 10.00m - 10.45m.	-					
Equipment: Ca Lo Borehole Día (i	orry Mour	nted Ro	tary Dia (mn	n)	Groundwater No. Struck Behaviour Sealed 1 32.00 Slight seepage encountered	Ground Le Coordinat	vel 10 es 3 10	02.59 m CD 17786.52 89189.17			
200 to 16.00m 200 to 16.00m 101 to 32.00m						Drilled by FF RB Logged by AF AF Checked by					
Remarks See key sheet and appendice or explanation	Bould 8.200 14.50 added Borel is. **Dea	der exc m - 8.5 Om - 15 d to as hole co notes d	avated Om (1hr .00m (1 sist dr ntinued rillers	by hand) 8.50 1/2hrs illing lusing descri	d at 0.40m. Chiselling 5.70m - 6.10m (1 1/4hrs), 6.0m - 9.00m (1 1/4hrs), 11.20m - 11.70m (1 1/4hrs), 3), 15.00m - 16.00m (3 3/4hrs). Unable to recover 3.50m - 15.00m. Gases monitored at 5.50m, 8.50, 1 rotary opne hole techniques 16.00m - 32.00m. Bore option.	.60m - 7.00 12.20m - 1 samples 8.5 1.00m, 15.0 hole groute	m (1 1/2 2.60m (0m - 16 0m (am d 32.00	4hrs), 1hr), .00m. Water and pm). m - GL. Form			
Borehole					Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	Contract		5218			
Exp	loratio	n As	socia	tes	Anymmey valley District Council	Borehole	5((1 of 4)			

Depth / Drill Run Type / TCR(SCR)				Strata			-
	Casing (ROD)	Date/ Water	SPT N (Cu)	Description	Depth (Thickne	ss) Level	Legend
10.00-10.45 C	9.50	16/01 DRY	50/ 250	Continued from sheet (1 of 4). Fill with clayey matrix.**	(7.50)	86.59	
Equipment: Cable Perc Lorry Moun	ussion	<u> </u>		Groundwater No. Struck Behaviour	Sealed Ground		102.59 m oo
			\	THE STREET STREET	Coordi	ates .	102.59 m 00 317786.52 m 189189.17 m
Romana Dia (mm)	Casing I 200 to	Dia (mi			Drilled Logged Checked	by FF by AF by	RB AF
Borehole Dia (mm) 200 to 16.00m 101 to 32.00m				1.00m (12.7°C), 4.00m (11.4°C), 7.00m (12.6°C), Cable percussion drilling terminated at 16	6°C), 10.00m (15	3.1°C), 13	3.00m
200 to 16.00m 101 to 32.00m	rature (°C), 16	monite 16.00m	ored at (14.8°).	. Cable percussion drilling terminated at 1	6.00m on engine	ers instru	uction.
200 to 16.00m 101 to 32.00m Remarks Tempe (13.8) See key sheet	rature S°C), 16	e monit 16.00m	ored at (14.8°).	. Cable percussion drilling terminated at 10	6.00m on enginee	ers instri	
200 to 16.00m 101 to 32.00m		e monit	ored at (14.8°).	Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	6.00m on enginee		Form 1,

Sampling		Tó: :	0.4.4	·*·	Strata		C		
Drill Run	TCR (SCR)	(ROD)	Date/ SF Water	א זי	Description		Depth (Thickness)	Level	Lege
-	,,,,,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	19/01		Clay and stones.**		-		0.,0
									0,00
									0.00
							(3.20)		0 0
-	,								
_			67						0.0
-							23.20	79.39	0.0
-					Grey brown mudstone.**				
•					<u>.</u>				
-							(2.80)		
-									
_							26.00	76.59	
_					Grey sandstone, moderately strong.**				
· ·							-		
· · ·							- -		
· ·									
- -							-		
: : : -							- - -		
: - -							- - -		
- -									
Equipment: Ca	ble Perd	cussion nted Ro	tary		Groundwater No. Struck Behaviour	Sealed	Ground Le Coordinat	vel 10 es 3	02.59 m 17786.52 89189.17
Borehole Dia (n 200 to 16.0 101 to 32.0	നന) Om Om	Casing 200 to	Dia (mm) 5 16.00m				Orilled b Logged by Checked b		
Remarks					-		eneciaed 0	·	
See key sheet and appendice for explanation	s s								F
Borehole	Reco	rd			Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council		Contract	15!	5218
E Exp	loratio	n Ass	sociates	s	Surplines variety bistrict council		Borehold	5(3 of 4)

Sampling					Strata				
Orill Run	TCR (SCR)	Casing (ROD)	Water	SPT N	Description	Depth (Thickness)	Level	Lege	nd
Orill Run	TCR (SCR)	Casing (ROD)	19/01	SPTN	End of Borehole.	Depth (Thickness)	70.59	Lege	nd
Equipment: Cal Lo Borehole Dia (n	nm)	Casing		n)	Groundwater No. Struck Behaviour Sealed			2.59 m 0 7786.52 9189.17	D ME MAI
200 to 16.00 101 to 32.00 Remarks						Drilled by Logged by Checked by	/ FF R AF A	F	
See key sheet and appendice for explanations	\$ \$.				Decidat			Fo	rm 1/0
Borehole					Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	Contract		218	
(€) Expl	oratio	n Ass	social	les		Borenole	5(4	of 4)	

Sampling					Strata				
Depth	Туре	Casing Depth	Water	SPT N (Cu)	Description	Depth (Thickness)	Level	Lege	end
0.00	M/ORG		09/01 1996 DRY		MADE GROUND: Brown grey clayey silty sandy angular to sub-angular fine to coarse gravel of sandstone and masonry.	G.L. C (1.10)	94.16		
1.00 1.00 1.10 1.50-1.95	8 M/ORG M/ORG CB	1.50	DRY	19	MADE GROUND: Medium dense dark grey clayey silty sandy angular fine to coarse gravel of sandstone, ash and masonry.	1.10	93.06		
3.00-3.45	СВ	3.00	DRY	27	no samples recovered below 3.60m.				
4.50-4.72	С	4.50	DRY	50/ 65	very dense/obstruction at 4.50m.				
6.60-		6.60	DRY		End of Borehole.	6.60	87.56		
						- - - - - - - - -			
Equipment: Cal	ble Perd	cussion			Groundwater No. Struck Behaviour Seale	Ground Le	vel 9 es 3	4.16 m 0 17592.96 89269.92	D m
Borehole Dia (n 200 to 6.60	m		6.60m		No groundwater encountered	Drilled by Logged by Checked b	y SL AF Y		
Remarks See key sheet and appendice or explanations	Chise colle to pr monit s	elling 3 ect any rogress tored at	3.80m - sample Bore 6.60m	4.10m s. Chis hole te . Boreh	(1hr), 6.30m - 6.60m (1hr). Pushing obstruction/el and shell sticking at 6.60m, blocked out in orminated on engineers instruciton at 6.60m, move ole backfilled with arisings.	cobble 3.60m rder to free d 3.00m to 8	- 6.60 equipm HGA. Ga		
Borehole		rd			Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	Contract	15	5218	orm 1
Expl	oratio	n Ass	socia	tes	Anguine, value, practice council	Borehole	6	(1 of 1)	

IJ

Danth	Туре	Casing	Date/	SPTN	Description	Depth	Level	Lege	nd
Depth	туре	Depth	Water 10/01	(Cu)	Description	(Thickness)	Cevel	rege	no I
			1996 DRY		MADE GROUND: Brown grey clayey silty sandy angular to sub-angular fine to coarse gravel of sandstone and masonry.	- 6.1.			
					·				M
									M
						-			
						-			И
						(3.50)			
									И
						-			И
									И
									И
3.50-4.50	В					3.50			
					MADE GROUND: Medium dense dark grey slightly sandy angular fine to coarse gravel and cobbles of sandstone. (masonry).	Ę			
					countes of sandstone. (masonry).	F			
4.50-4.95	С	4.50	3.20	28		E			
						Ē			
						(3.30)			
									ľ
6.00-6.45	С	6,00	4.90	29		E			
3.00 3.45	ŭ	0.00	,,,,	-7					M
						<u> </u>			
6.80	M/ORG					6.80			
7.00	В			l	Dense brown slightly clayey silty very sandy angular to sub-rounded fine to coarse GRAVEL				
7.50	u				of sandstone many cobbles.	-			
7.50 7.50-7.95	Ċ	7.50	6.10	32		-		× ° , ` . ×	
						(2.70)		x** \(\frac{1}{2}\)	
				1		E			
9.00-9.45	CB	9.00	7.80	36		-		×××	
/173	-5	/		20		E			
9.50-9.80 9.50	B M/ORG					9.50		× × -	
9.80-9.93	C C	9.80	6.90	50/ 32	Grey moderately weathered medium grained SANDSTONE, moderately strong; recovered as	9.80			
9.80		9.80	-		SANDSTONE, moderately strong; recovered as sandy angular fine to coarse gravel and cobbles.	+			
quipment: Cat	ole Perc	ussion			Groundwater No. Struck Behaviour Sealed	1			
orehole Dia (m	nm)	Casing 1	Dia (mm	,	1 7.50 Rose to 7.40m in 20 mins				
200 to 9.80m			9.80m			Drilled by	AF		
Remarks	Boreh	ole con	menced	using	open hole_techniques_GL - 3.50m. Chiselling 5.40m	Checked by - 5.80m (1h		Om 9.8	30m
ee key sheet	(1hr) nomin Equin	. Gases al diam ment in	and Voneter si	oc moni tandpip ed prin	open hole techniques GL - 3.50m. Chiselling 5.40m tored at 5.50m - 9.80m. Water added to assist dri e installed to 9.80m, slotted 9.80m - 7.00m, pea r to leaving position.	lling 3.50m gravel filte	- 8.50m r 9.80m	ı. 50mm ı - 7.00m	n -
nd appendices or explanations	5			pi 13					rm 1
					Project	Contract			
Borehole	Reco	rd			Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	001111001	155	218	

Sampling			Strata				
Drill Run TCR Casing (SCR) (RQD)	Date/ Water	F <u>(</u>	Description	Depth (Thickness)	Level	Lege	nd
0.00	17/01 1996 0RY	ОН	Made Ground.** Clay and stones.**	(6.50)	94.16		
			Sandstone and mudstone.**	9.50	84 - 66		
Equipment: Lorry Mounted Rot Borehole Dia (mm) Casing	Dia (mm))	Groundwater No. Struck Behaviour Sealed 1 29.10 Moderate ingress			4.16 m 00 17592.96 89269.92	m±
101 to 30,00m			rotary open hole techniques GL - 30.00m. Borehole	Drilled by Logged by Checked by grouted 30	А F У	GL.	
**Denotes di See key sheet and appendices for explanations.	illers	OESCI I	peron-				
Borehole Record	_		Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	Contract	15	5218	orm 1/
(E) Exploration Ass	sociat	es	knymney valley District Council	Borehole	9 6	R(1 of 3)	

Sampling					Strata					
Orill Run	TCR (SCR)	Casing (RQD)	Date/ Water 17/01	FI	Description		Depth (Thickness)	Level	Lege	end
			17/01	ОН	Continued from sheet (1 of 3).		(11.30)			
Equipment: Lor Borehole Dia (m 140 to 9.50m 101 to 30.00		ted Rot Casing I)	Groundwater No. Struck Behaviour	Sealed	Ground Lev Coordinate Drilled by Logged by Checked by		.16 m 00 7592.96 9269.92) mE MM
Remarks	-						Checked by	, Af		
See key sheet and appendices for explanations	3 3.								E.	orm 1/0
Borehole		rd			Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council		Contract	155		<u>ли 1/0</u>
Expl	oratio	n Ass	ociat	es	RECOUNCIL		Borehole	6R	(2 of 3)	

Sampling					Strata	_		
Drill Run	TCR (SCR)	Casing (RQD)	Date/ Water	FI	Description	Depth (Thickness)	Level	Legend
			17/01		Continued from sheet (2 of 3).			
					Coal.**	- 20.80	73.36	
						(1.10)	72.26	
- - -					Sandstone and mudstone.**			
- - - -								
						- - -		
			6	ОН				
						- - - -		
						- - - - - -		
						-		
- - - -						-		
-						-		
<u>-</u>						- - - -		1
30.00		9.50		_	End of Borehole.	30.00	64.16	
Equipment: Lor	ry Mour	$\overline{}$			Groundwater No. Struck Behaviour Seals	Ground Lev	vel 94	.16 m 00
Borehole Dia (n 140 to 9.50n 101 to 30.00	om u om)	Casing I	Día (mm 5 9.50m)	Seale Seale	Drilled by Logged by Checked by		.16 m OD 7592.96 mE 9269.92 mN
Remarks						[S. ICONEG D		
See key sheet and appendices for explanations	S.							Form 1/0
Borehole	Reco	rd			Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	Contract	155	218
E Expi	oratio	n Ass	ocia	es	Kingmaney valuey District Council	Borehole	6R	(3 of 3)

Sampling					Strata		_	
Depth	Туре	Casing Depth	Date/ Water	SPT N (Cu)	Description	Depth (Thickness)	Level	Legend
0.00-0,10	M/ORG		11/01 1996 DRY		MADE GROUND: Medium dense dark grey very silty very sandy angular to sub-angular fine to coarse gravel of sandstone, ash and slag some cobbles.	G.L.	97.04	
1.00	8							
1.50-1.95	С	1.50	DRY	19				
3.00-3.45	C8	3.00	DRY	23		- - - - - - - - - - - - - - - - - - -		
4.50-4.95	C	4.50	DRY	21		_ (7.90) - - - - - - -		
6.00-6.45	c	6.00	DRY	30	dense below 6.00m.			
7.00 7.50-7.95	8 CB	7.50	DRY	36				
7.80 7.90	M/ORG M/ORG				Very dense brown silty very sandy angular to sub-rounded fine to coarse GRAVEL of sandstone many cobbles.	7.90	89.14	0.0
9.00	В	9.30	8.60			(2.30)		
9.30-9.68	С	9.30	12/01 8.90	51/ 225				
Equipment: Cat		cussion			Groundwater No. Struck Behaviour Sealed % groundwater encountered	Ground Leg Coordinate	vel 99 es 3	7.04 m 00 17407.28 ms 89287.15 ms
200 to 10.50	Om	200 to	10.50	m 	(1hr) 9 00m - 9 30m (1hr) 9 60m - 0 00m (4hr)	Drilled by Logged by Checked by	AF Y	hr) Desc-
See key sheet and appendices or explanations	arisi s	to ass	sist dr	illing	(1hr), 9.00m - 9.30m (1hr), 9.60m - 9.90m (1hr), 8.00m - 10.50m. Gases monitored at 5.00m - 9.30m.	Borehole b	ackfill	ed with Form 1/
Borehole		rd			Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	Contract	15.	5218
	Reco oratio		socia	tes	Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	Borehole		(1 of 2)

Sampling					Strata					
Depth	Туре	Casing: Depth	Date/ Water	SPT N (Cu)	Description		Depth (Thickness)	Level	Lege	end
			Date/Water 12/01 8.10	SPT N (Cu)		s vel	Oepth (Thickness) 10.20 10.50	Level 86.84 86.54	Lega	end
Equipment: Cable Percussion Borehole Dia (mm) Casing Dia (mm) 200 to 10.50m 200 to 10.50m				n)	Groundwater No. Struck Behaviour		Ground Le Coordinat Drilled b Logged by Checked b	v SL	7.04 m c 17407.28 89287.15	D mE mN
Remarks		_					Checked 6	Υ		
See key sheet and appendices for explanations	;								F	orm 1/0
Borehole	Reco	ord			Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council		Contract	15	5218	
Expl	Exploration Associates				KIIYAMIEY VALLEY DISTRICT COUNCIL		Borehole	9 7	(2 of 2)	

Sampling					Strata								
Depth	Туре	Casing Depth	Date/ Water	SPT N (Cu)	Description	Depth (Thickness) L G.L.	Level	Lege	end				
	B M/ORG		04/01 1996 DRY		MADE GROUND: Loose dark grey silty angular to sub-angular fine to coarse sand and gravel of coal, ash, siltstone and sandstone occasional cobbles.	- 6.L.	113.65						
- 1.00-1.50 - - 1.50-1.95	B SD	1.50	DRY	7		(3.00)							
2.00	M/ORG					-							
-	ŕ												
L 3.00 - 3.00-3.45	M/ORG SD	3.00	DRY	19	Medium dense brown silty very sandy sub- angular to sub-rounded fine to coarse GRAVEL of sandstone some cobbles.	3.00	110.86						
4.00 - 4.00	M/ORG B					-		0.0					
4.50-4.58	SD	4.50	4.20	50/ 20	possible sandstone bedrock at 4.50m.	4.50	109.36	0					
4.50					End of Borehole.	-							
<u>.</u>						- - -							
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Equipment: Ca	bla Par	NIEGIAS			Groundwater	Ground Le	Val 11	3 86 =	00				
					No. Struck Behaviour Sealed No groundwater encountered	Coordinat	es 31	3.86 m 18035.12 39425.54	mE mW				
Borehole Dia (r 200 to 4.50	ள ப	200 t	Dia (mn o 4.50m	n) I		Drilled b Logged by Checked b	y SL AF						
Remarks See key sheet and appendice	s	elling tored a filled	at 4.50 t 0.50m with ar	m (1hr) Land 4. Tisings.	no penetration. Water added to assist drilling 3 50m. Equipment jet washed prior to moving position								
for explanation Borehole	s.	ord			Project	Contract	155	F 5218	orm 1 <u>/0</u>				
	loratio		socia	tes	Bedwas Collicry Reclamation Scheme Rhymney Valley District Council	Borehole	e 8(1 of 1)					

Sampling		_			Strata					
Depth	Туре	Casing Depth	Date/ Water	SPT N (Cu)	Description	Depth (Thickness)	Level	Lege	nd	
- 0.00-0.10 0.10-1.00	B		04/01 1996 DRY		MADE GROUND: Dark grey silty fine to coarse sand of ash, coal and siltstone much gravel.	G.L. 0.10	113.86 113.76	X		
1.00	M/ORG				Orange brown very clayey silty very sandy angular to sub-angular fine to coarse GRAVEL of sandstone.	(1.40)		×		
1.50-1.95	CB	1.50	DRY	26	Medium dense brown slightly clavey silty very	1.50	112.36	×		
- 2.00 2.00	M/ORG B				Medium dense brown slightly clayey silty very sandy sub-angular to sub-rounded fine to coarse GRAVEL of sandstone some cobbles.					
3.00	M/ORG CB	3.00	2.40	22		(3.90)		X		
4.00	M/ORG 8	4.50	3.60			- - - - - -		× × ×		
4.50-4.95	CB M/ORG	4.50	3.60 -05/01 3.80	30	dense belaw 4.50m.	- - - - -		***		
5.40-5.41	С	5.40	4.40	50/ 12	<u></u>	5.40 - 5.50	108.46 108.36			
5.50					Grey silty sandy angular fine to medium GRAVEL of sandstone. (Possible Bedrock). End of Borehole.	-				
						-				
-										
-						- - - - -				
						- - - - - - - - - -				
Equipment: Cat	ole Perd	ussion			Groundwater	Ground Le	vel 1	13.86 m (DD D	
Borehole Dia (mm) Casing Dia (mm) 200 to 5.50m 200 to 5.40m					No. Struck Behaviour Sealed	Coordinate	Coordinates 317971.71 m 189411.24 m Drilled by SL Logged by Af			
Remarks See key sheet and appendices	Boren	elling A and Vo	4.30m - OC moni ckfille	4.50m tored a d with	(1/2hr), 5.40m - 5.50m (1hr). Water added to assi at 0.50m, 4.50m 5.50m. Equipment jet washed prior arisings.					
for explanations Borehole		rd			Project Bedwas Colliery Reclamation Scheme	Contract	159	Form 1/		
E Expl	oratio	n As	socia	tes	Rhymney Valley District Council	Borehole	e 9((1 of 1)		

Sampling]				Strata						
Depth / Drill Run	Type / TCR(SCR)	Casing (ROD)	Date/ Water	SPT N (Cu)/FI	Description	Depth (Thickness)	Level	Legend			
- 1.00 1.00-1.20	M/ORG CB	1,00	07/01 1996 DRY	50/ 85	MADE GROUND: Very dense dark grey silty very sandy angular fine to coarse gravel and cobbles of brick, masonry, concrete, ash and sandstone, possible metal fragments.	G.L.	106.86				
- 2.00	M/ORG					-					
2.50-2.95	С	2.40	DAMP	20		(4.90)					
3.00	M/ORG					-					
. 3.50——		3.50	DAMP 10/01 DRY			- - -					
- 4.00 4.00-4.34	M/ORG C	4.00	DRY	50/ 190		-					
- 4.90 5.00 - 5.50-5.83	D B	5.50	DRY	50/ 180	Firm brown grey mottled orange brown sandy very clayey SILT occasional angular to sub-rounded fine to coarse gravel and cobbles of sandstone.	4.90	101.96				
7.00-7.32	B M/ORG	7.00	6.50	50/ 170	Very dense brown silty very sandy angular to sub-rounded fine to coarse GRAVEL of sandstone many cobbles.	(1.80)					
8.00 8.00 8.50-8.61 8.50	M/ORG B C	8.50	8.25	50/	Brown grey highly weathered medium grained SANDSTONE, moderately weak; recovered as silty sandy angular fine to coarse gravel some cobbles.	7.50 (1.00) - 8.50	99.36				
8.50		8.50 8.50 8.50	19/01	18	Grey moderately strong to strong slightly weathered micaceous SANDSTONE, thinly bedded to thinly laminated with closely to very closely spaced near horizontal discontinuities.		70.33				
9.50	100% (70%)	(0%)				- - - -					
Equipment: Ca	ble Perc	ussion ted Rot	tory		Groundwater No. Struck Behaviour Sealed	Ground Lev Coordinate	vel 10	06.86 m GD 17785.39 mg			
Borehole Dia (r 200 to 8.50 S to 30.00m	ID.	200 to	Dia (mm o 8.50m 30.00m		1 5.70 Rose to 5.60m in 20 mins 2 29.20 slight seepage.	Drilled by Logged by Checked by	/ FF R				
Remarks See key sheet and appendice for explanation	s	lling (4hrs), OC moni	0.60m - 8.10m itored	1.20m - 8.50m at 1.00	(2 1/4hrs), 4.20m - 4.70m (1 1/4hrs), 5.80m - 6.30 (1 3/4hr). Water added to assist drilling 2.00m - m, 5.00m 8.50m.						
Borehole Record					Project	Contract	Form 1)				
					Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	Borehole	e				

Exploration Associates

10(1 of 3)

Sampling					Strata				
Drill Run	TCR (SCR)	Casing (RQD)	Water	SPT N FI	Description	Depth (Thickness)	Level	Legend	
12.00	100% (95%)	(0%)	19/01	28		(3.74)			
-	100%			10_ N A	Bituminous COAL. Very stiff grey silty friable CLAY. (SEAT EARTH).	12.24 12.33 12.60	94.62 94.53 94.26		
	100% (95%)	(0%)		5	Grey moderately weak slightly weathered MUDSIONE, with thin and thick sand laminae and widely spaced horizontal and vertical disconituities.	(2.10)			
14.70	100% (95%)	(18%)		12	Grey moderately strong to strong slightly weathered SILTSTONE, with thin and thick sandy convoluted laminae and medium spaced horizontal discontinuities.	14.70	92.16		
- 16.00	100% (100%)	(41%)		14		(4.15)		X M X X	
19.00	100%	(18%)		12	Grey strong fresh to slightly weathered micaceous SANDSTONE, with widely spaced horizontal discontinuities and widely spaced carbonaceous laminae.	18.85	88.01		
Equipment: Cat Lor Borehole Dia (m 200 to 8.50r 5 to 30.00m	rry Moun	ted Ro	tory Dia (mm o 8.50m 30.00m		Groundwater No. Struck Behaviour Sealed	Ground Le Coordinat Drilled b Logged by Checked b	1: v	06.86 m OD 17785.39 mE 89338.35 mN	
Remarks See key sheet and appendices for explanations	S S.					J. SHEEKEG D	7	Form 1/0	
Borehole Record Exploration Associates					Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	Contract	ontract 155218		

Sampling					Strata						
Driff Run	TCR (SCR)	Casing (RQD)	Date/ Water	SPT N FI	Description	Depth (Thickness)	Level	Legend			
20.20	100%		19/01	9							
21.80	(100%)	(63%)									
23.00	100% (100%)	(75%)		10							
	100%	(59%)		9							
25.60	100% (30%)	(0%)		20		1					
	100% (100%)	(66%)		7							
30.00	100% (100%)			3		30.00	76.86				
Equipment: Ca	ble Perc	8.50 ussion			End of Borehole. Groundwater	Ground Lev	el 10	6.86 m 00			
Borehole Dia (r 200 to 8.50 8 to 30.00m	nm) .	ted Rot Casing (200 to S to 3	Dia (mm)	No. Struck Behaviour Se	Drilled by Coecked by					
Remarks See key sheet and appendice for explanation	s s.					, , , , , , , , , , , , , , , , , , , ,		Form 1/0			
Borehole					Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	Contract		189338.35 mA FF RLB AF PCB Form 1/0 155218			
Exp	oratio	n Ass	ociat	es		Borenole	Borehole 10(3 of 3)				

SPT N	Date/	Casing	Depth / Drill Run
	Water 11/01 1996 DRY DRY DRY 5.10	NIL 2.00 4.00 5.50	Sampling Depth / Drill Run 1.00 1.00 1.00-1.25 2.00 2.00 2.50-2.95 3.00 4.00-4.45 4.60 4.75 5.00 5.50-5.82 6.00 6.50 6.50 6.50 6.50
Description MADE GROUND: Very dense brown clayey very silty very sandy angular fine to coarse gravel of sandstone, masonry and brick many cobbles. Dense orange brown clayey sandy SILT with occasional angular to rounded fine to coarse gravel of sandstone occasional cobbles. some gravel and cobbles below 4.00m. (Dense) brown silty sandy angular to subrounded fine to coarse GRAVEL of sandstone some cobbles. Brown highly weathered medium grained SANDSTONE, moderately strong; recovered as silty sandy angular fine to coarse gravel and cobbles. Alternating bands of strong sandstone and mudstone.**	MADE GROUND: Very dense brown clayey very sity very sandy angular fine to coarse gravel of sandstone, masonry and brick many cobbles. 19 medium dense below 2.50m. Dense orange brown clayey sandy SILT with occasional angular to rounded fine to coarse gravel of sandstone occasional cobbles. 32 some gravel and cobbles below 4.00m. (Dense) brown silty sandy angular to subrounded fine to coarse GRAVEL of sandstone some cobbles. 50/ 170 Brown highly weathered medium grained SANDSTONE, moderately strong; recovered as silty sandy angular fine to coarse gravel and cobbles.	MADE GROUND: Very dense brown clayey very silty very sandy angular fine to coarse gravel of sandstone, masonry and brick many cobbles. DRY 50/95 DRY 50/95 Dense orange brown clayey sandy SILT with occasional angular to rounded fine to coarse gravel of sandstone occasional cobbles. DRY 32 some gravel and cobbles below 4.00m. DAMP 12/01 (Dense) brown silty sandy angular to subrounded fine to coarse GRAVEL of sandstone some cobbles. 5.10 50/170 Brown highly weathered medium grained SANDSTONE, moderately strong; recovered as silty sandy angular fine to coarse gravel and cobbles. Alternating bands of strong sandstone and mudstone.**	Type / Casing (ROD) Water (CU) TOPICISCRI) (ROD) TOPICISCRI) TOPI
MADE GROUND: Very dense brown clayey very silty very sandy angular fine to coarse gravel of sandstone, masonry and brick many cobbles. medium dense below 2.50m. Dense orange brown clayey sandy SILT with occasional angular to rounded fine to coarse gravel of sandstone occasional cobbles. some gravel and cobbles below 4.00m. (Dense) brown silty sandy angular to subrounded fine to coarse GRAVEL of sandstone some cobbles. Brown highly weathered medium grained SANDSTONE, moderately strong; recovered as silty sandy angular fine to coarse gravel and cobbles. Alternating bands of strong sandstone and	MADE GROUND: Very dense brown clayey very silty very sandy angular fine to coarse gravel of sandstone, masonry and brick many cobbles. 50/ 95 Dense orange brown clayey sandy SILT with occasional angular to rounded fine to coarse gravel of sandstone occasional cobbles. 32 some gravel and cobbles below 4.00m. (Dense) brown silty sandy angular to subrounded fine to coarse GRAVEL of sandstone some cobbles. 50/ 170 Brown highly weathered medium grained SANDSTONE, moderately strong; recovered as silty sandy angular fine to coarse gravel and cobbles.	Date/ Water (Cu) Description MADE GROUND: Very dense brown clayey very silty very sandy angular fine to coarse gravel of sandstone, masonry and brick many cobbles. DRY 50/ 95 DRY 19 medium dense below 2.50m. Dense orange brown clayey sandy SILT with occasional angular to rounded fine to coarse gravel of sandstone occasional cobbles. DRY 32 DRY 32 some gravel and cobbles below 4.00m. DAMP 12/01 DRY 32 (Dense) brown silty sandy angular to subrounded fine to coarse GRAVEL of sandstone some cobbles. 5.10 50/ 170 Brown highly weathered medium grained SANDSTONE, moderately strong; recovered as silty sandy angular fine to coarse gravel and cobbles. Alternating bands of strong sandstone and mudstone.**	Type / Casing TCR(SCR) (RQD) 11/01 1996 SPT N Water (Cu) 1996 MADE GROUND: Very dense brown clayey very silty very sandy angular fine to coarse gravel of sandstone, masonry and brick many cobbles. D
	50/ 95 19	DRY 50/95 DRY 32 DAMP 1701 DRY 50/95 DRY 32 DAMP 170 5.10 50/170	Type / Casing Date/ (ROD) Water (Cu) M/ORG C NIL DRY 50/95 B M C 2.00 DRY 19 M
(RQD) Water 11/01 1996 NIL DRY 4.00 DRY 4.75 DAMP 12/01 DRY 5.50 5.10	(RQD) NIL 2.00 4.75 5.50		

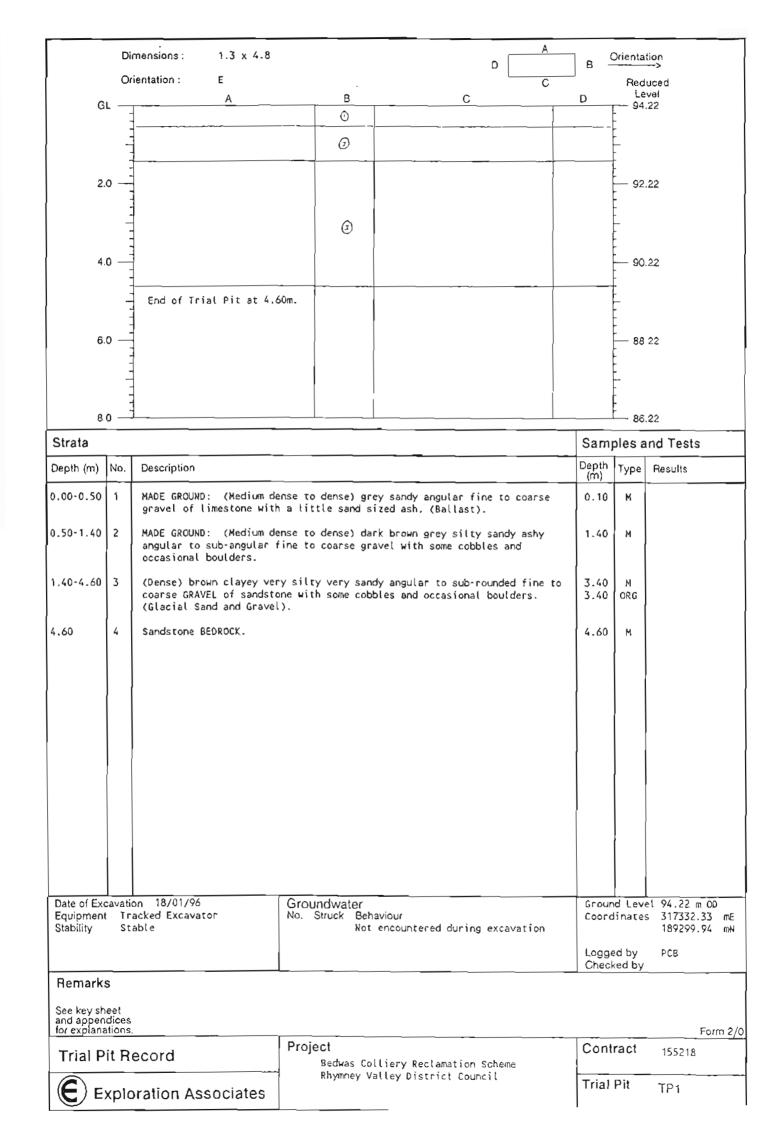
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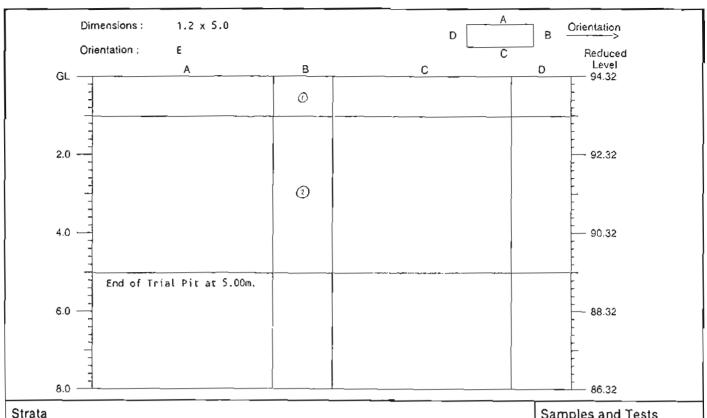
Sampling					Strata			
Drill Run	TCR (SCR)	Casing (RQD)	Date/ Water	SPT N	Description	Depth (Thickness)	Level	Legend
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Ė I					Coal.**	£ 11.70	70.29	
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Ę		\				13.00	96.99	
-					Alternating bands of sandstone and mudstone.**	-		
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F					Groundwater			
Equipment: Cab Lor	ole Perc Try Moun	ussion ited Rot	ary		Groundwater No. Struck Behaviour Sealed	Ground Lev Coordinate	vel 10 es 31	19.99 m OD 7573.84 ml 19368.86 ml
				,			18	9368.86 m
Borehole Dia (m 200 to 6.50m 101 to 30.00	111)	Casing (200 to	6.50m	,		Drilled by	/ FF R	В
101 to 30.00	ng)		_			Drilled by Logged by Checked by	, AF A	.F
Remarks								
Con landalists								
See key sheet and appendices for explanations	•							
					Project	0.5 :		Form 1/
Borehole Record					Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	Contract	155	218
<u></u>	Exploration Associates				Rhymney Valley District Council	Borehole		-
Expl	oratio	n Ass	sociat	es			11	(2 of 3)
	_							

Sampling					Strata			
Drill Run	TCR (SCR)	Casing (RQD)	Date/ Water	SPTN	Description	Depth (Thickness)	Level	Legend
-			17/01			-		
					Continued from sheet (2 of 3).	-		
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30.00						30.00	79.99	
Equipment: Cab	le Perc	ussion			Groundwater	Ground Lev	/el 109	9 00 m 00
Lor	ry Moun	ted Rot	ary		No. Struck Behaviour Sealed	Ground Lev Coordinate	s 31 189	9.99 m 00 7573.84 ml 9368.86 ml
Borehole Dia (m 200 to 6.50m 101 to 30.00	m)	Casing I	Dia (mm 6.50m	1)		Drilled by	, FF RI	3
	m					Drilled by Logged by Checked by	AF A	F
Remarks								
See key sheet and appendices for explanations								Form 1/
Borehole Record					Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	Contract	155	
Exploration Associates					Rhymney Valley District Council	Borehole	11((3 of 3)
April								. ,

Sampling					Strata								
Drill Run	TCR (SCR)	Casing (RQD)	Date/ Water	FI	Description	Depth (Thickness)	Level	Lege	nd				
- 0.00	,		17/01 1996		Made Ground.**	G.L.		****		, .			
-			DRY			Ē				4			
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						5.30				K,			
-					Grey sandstone with mudstone bands.**	-							
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Equipment: Lo	rry Mou	nted Ro	tary		Groundwater No. Struck Behaviour Sealed	-			'				
Borehole Dia (n	nm)	Casing	Dia (mn	n)	1 10.50 Slight seepage								
140 to 2.50r	140 to 2.50m 140 to 2.50m 101 to 20.00m				Drilled by RB Logged by AF Checked by								
Remarks	8ore **De 10.0	hole cor notes di Om. pea	mienced rillers gravel	dusing descri	rotary open hole techniques GL - 20.00m. Borehole ption. 50 mm nominal diameter standpipe installed - 20.00 - 9.00m.			GL. d 20.00	-				
See key sheet and appendices for explanations	s	, peo	J. 2.00							, .			
Borehole		ord			Project	Contract	15	5218	orm	1/0			
		on As		tes	Bedwas Colliery Reclamation Scheme Rhymney Valley Oistrict Council	Borehol		2(1 of 2)					

Sampling					Strata					
Dritt Run	TCR (SCR)	Casing (RQD)	Date/ Water	F)	Description	Depth (Thickness)	Level	Legend		
	TCR (SCR)	Casing (RQD)	Date/ Water 17/01	FI		Depth (Thickness)	Level	Legend		
20.00		2.50			End of Borehole.	20.00				
Equipment: Lor	ry Mour				Groundwater No. Struck Behaviour Seale					
Borehole Dia (m 140 to 2.50m 101 to 20.00	nm) n Dm	Casing 140 to	Dia (mm o 2.50m	·)	Jean	Orilled by Logged by Checked by	/ RB AF			
Remarks										
See key sheet and appendices for explanations	5 5.							Form 1/0		
Borehole	Borehole Record				Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	Contract	155			
Expl	Exploration Associates			ies	Knymney Valley District Council	Borehole	12	(2 of 2)		





Strata				Sam	Samples and Tests			
Depth (m)	No.	Description		Depth (m)	Туре	Results	_	
0.00-1.00	1	MADE GROUND: (Medium dens angular fine to coarse gra brown burnt mudstone.	se) dark brown silty sandy angular to sub- avel with some sand sized ash and pockets of pink	0.10	м			
.00-5.00	2	MADE GROUND: (Medium dens angular to sub-rounded fir cobbles and occasional boo	se becoming dense below 2.00m) brown silty sandy ne to coarse flat gravel of sandstone with some ulders.	3.00 3.00 5.00	M ORG M			
		very clayey between 1	1.00m and 1.30m.					
		with many cobbles and	d some boulders below 4.50m.					
	} [
Date of Excavation 18/01/96 Equipment Tracked Excavator Stability Some spalling		acked Excavator	Groundwater No. Struck Behaviour Not encountered during excavation		el 94.32 m 00 s 317410.21 189312.15			
				Logge	ed by ked by	PCB		

See key sheet and appendices for explanations.

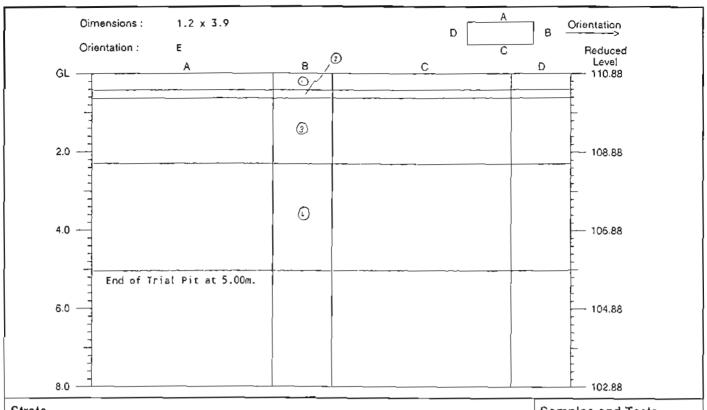
Trial Pit Record

Project

Bedwas Colliery Reclamation Scheme Rhymney Valley District Council

Trial Pit TP2

-	Dimensions :	1.2 x 3.9			0	Α] в _	Drienta	tion	
(Orientation :	E			<u> </u>	С	J	Red	uced	
GL -	 _	Α	В	T C		1	D		vel 0.88	
	1		O					-		
	End of Tri	al Pit at O.	40m.	}		ļ		-		
1.0 -	<u>-</u>							109	9.88	
								-		
	_							_		
2.0 -	=							- 10:	8.88	
									0.00	
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	1							-		
3.0 -				Ì				— 10 ⁻	7.88	
	1			1				-		
				1				-		
4.0 -	1							10	6.88	
Strata									nd Tests	
Depth (m) No	. Description						Depth (m)	Туре	Results	
0.00-0.40 1	MADE GROUND rounded fin	: (Medium d e to coarse	ense) brown silty gravel of sandsto	v sandy clayey angi one with occasional	ular to sub l cobbles.	o-				
0.40 2	MADE GROUND	: Tarmac on	concrete.							
	ation 15/01/96		Groundwater						el 110.88	
Equipment 1	racked Excavat	or	No. Struck Bet	naviour : encountered duri	ng excavat	ion	Logge	linate:	s 317497. 189382. PCB	90 mE
Remarks	Position m	noved due to	obstruction.				Uneci	ked by		
See key sheet and appendice for explanation	es ns.									Form 2,
Trial Pit I			Project				Cont	ract	155218	· •••• <u>-</u>
			Eedwas Co Rhymney V	olliery Reclamation Malley District Com	n Scheme uncil		Teinf	Dit		
Exp	loration Ass	sociates					Trial	<i>1</i> -11	TP3	



Strata							nd Tests
Depth (m)	No.	Description			Depth (m)	Туре	Results
0.00-0.40	MADE GROUND: (Medium dense to dense) brown silty sandy clayey angular to sub-rounded fine to coarse gravel of sandstone with occasional cobbles and a little sand sized ash.		to and				
0.40-0.60	2	MADE GROUND: (Dense to very dense) pink slightly clayey angular cobbles with rare boulders. (Hard core).				М	
0.60-2.30	3	MADE GROUND: (Medium dense) silty very sandy angular fine to coarse gravel of coal and mudstone with occasional cobbles and some sand sized coal derived ash. (Colliery Spoil).				ORG	
2.30-5.00 4 (Medium dense) brown v coarse GRAVEL of sands Sand and Gravel).		n very clayey ver ndstone with some	y silty very sandy sub-angular fine cobbles and rare boulders. (Glacia	2.70 5.00			
		on 15/01/96	Groundwat	ler	Groui	nd Leve	el 110.88 m OD
Equipment Tracked Excavator Stability Stable		No. Struck		Logg	dinate: ed by ked by	317497.90 m 189382.36 m	

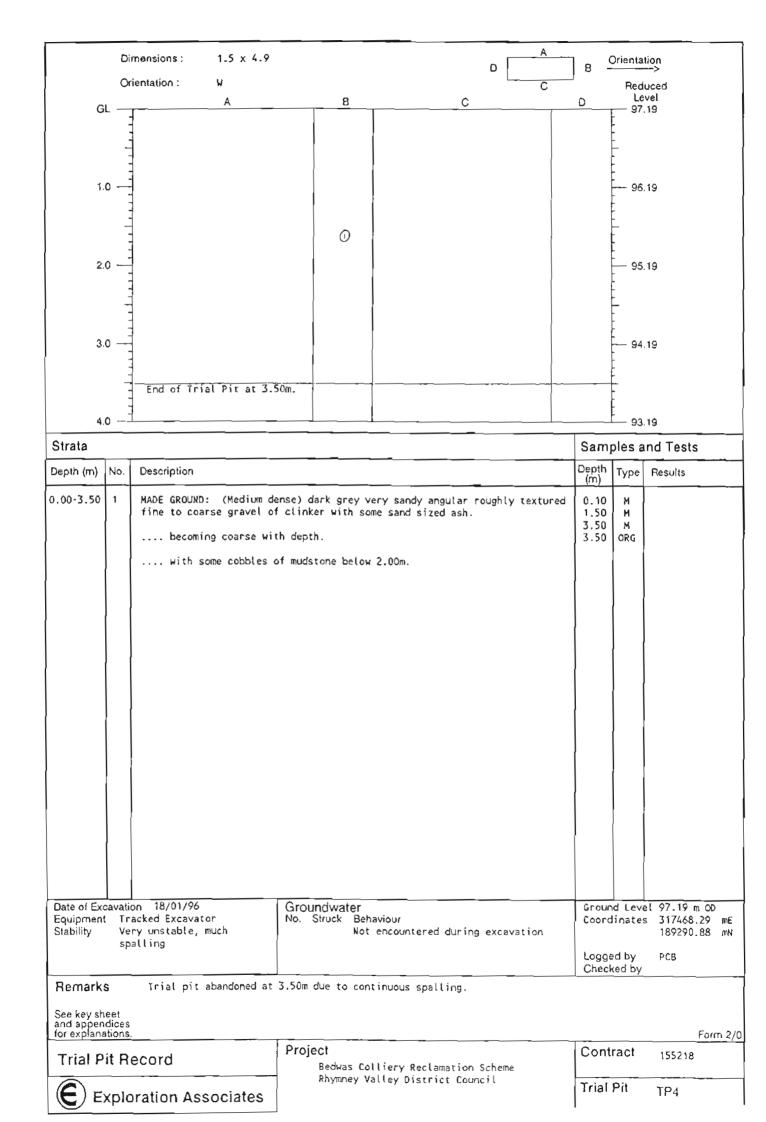
See key sheet and appendices for explanations.

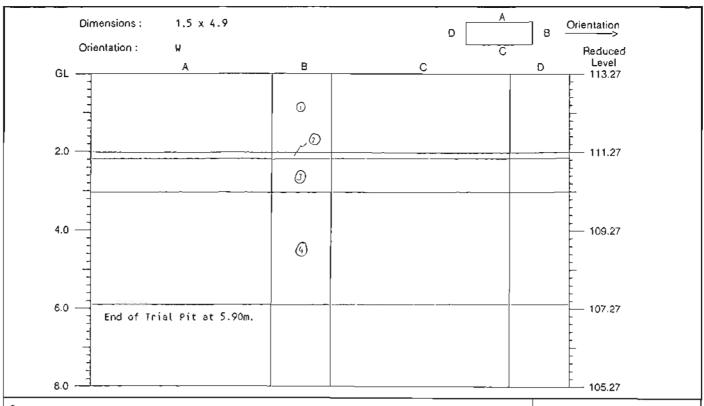
Trial Pit Record

Project

Bedwas Colliery Reclamation Scheme Rhymney Valley District Council

Trial Pit TP3A





Strata						Samples and Tests			
Depth (m)	No.	Description				Results			
.00-2.00	1	MADE GROUND: (Medium dense) concrete and many pieces of	angular cobbles of brick and boulders of plastic.						
.00-2.10	2	MADE GROUND: (Loose to medium dense) dark grey very silty fine to coarse sand with some angular fine gravel of slag and coal with a little sand sized ash.							
.10-3.00	3	Soft brown mottled orange br	own clayey very sandy SILT. (Glacial Deposit).	3.00	н				
3.00-5.90 4 (Medium dense) light brown slightly clayey very silty very sandy sub- angular to sub-rounded fine to coarse GRAVEL of sendstone with occasional cobbles.		5.00	ж						
		with many cobbles below	4.50m.						
	Tra		Dundwater Struck Behaviour Not encountered during excavation		inates d by	el 113.27 m 00 3 317544.84 m 189401.14 m			

See key sheet and appendices for explanations.

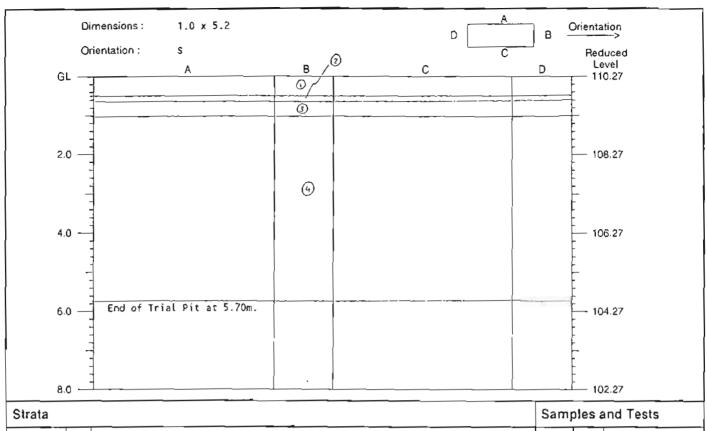
Form 2/0

Trial Pit Record	
E Exploration Associate	es

Project

Bedwas Colliery Reclamation Scheme Rhymney Valley District Council Contract 155218

Trial Pit TP5



Strata			Samples and Tests			
Depth (m)	No.	Description		Depth (m)	Туре	Results
0.00-0.50	1		ense) brown slightly clayey very silty very sandy ded fine to coarse gravel of sandstone with some rs.	0.10	ж	
0.50-0.60	2	MADE GROUND: (Very den	se) grey gravelly angular cobbles. (Hard core).			
0.60-1.00	3	MADE GROUND: (Dense to very dense) grey silty sandy angular to sub- angular fine to coarse gravel of limestone, mudstone, coal and brick fragments with some cobbles and occasional boulders with a faint hydrocarbon odour.			M ORG	
angular fine to coarse		angular fine to coarse	se) grey slightly silty sandy angular to sub- gravel of mudstone and coal with occasional cobbles l derived ash. (Colliery Spoil).	3.00	м	
Date of Exc Equipment Stability	t Tr	on 13/01/96 acked Excavator able	Groundwater No. Struck Behaviour Not encountered during excavation			el 110.27 m 00 s 317597.07 mE 189347.33 mN
					ed by ked by	PCB
Remark	s	VOC monitored at 1.00m	(Oppm).			

See key sheet and appendices for explanations.

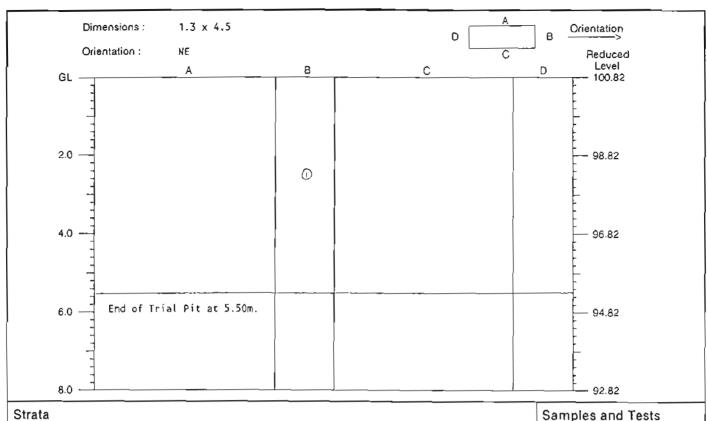
Form 2/0

Trial Pit Record	
Exploration Associates	

Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council Contract 155218

TP6

Trial Pit



Strata				Sam	ples a	ind Tests
Depth (m)	No.	Description		Depth (m)	Туре	Results
0.00-5,50	1	fine to coarse gravel of coal sized ash.	Hark grey silty sandy angular to sub-an and mudstone with some cobbles and som along the length of the bund at 1.50m	gular 0.10 e sand 1.00 1.00 3.50	M M ORG M	
Date of Ex- Equipmen Stability	t Tr Un		Indwater Struck Behaviour Not encountered during excavati	coor Logg		el 100.82 m oo s 317643.17 mE 189215.67 mN PCB

Trial Pit Record

See key sheet and appendices for explanations.

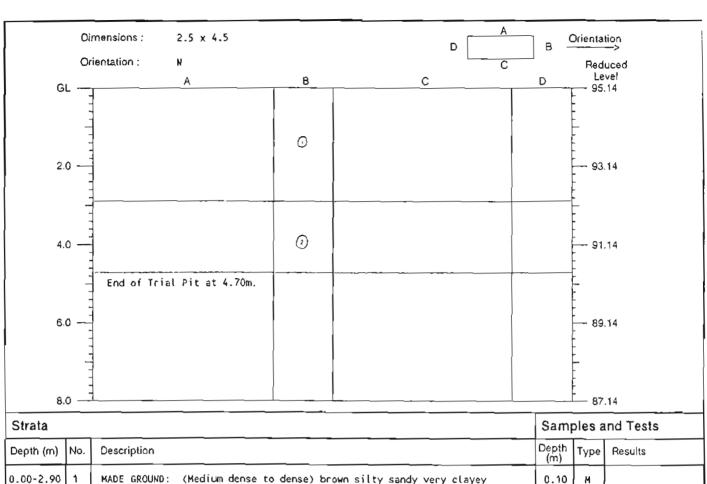
Contract 155218

Form 2/0

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Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council

Trial Pit TP7



Strata						
Depth (m)	No.	Description		Depth (m)	Туре	Results
0.00-2.90	1	MADE GROUND: (Medium angular to sub-angula	dense to dense) brown silty sandy very clayey r fine to medium gravel of sandstone.	0.10 2.00 2.00	M M ORG	
2.90-4.70	2	angular to sub-angula	dense) dark grey slightly clayey silty very sandy r fine to coarse of sandstone with many cobbles some d sized ash with occasional pieces of metal.	3.30 4.70	м	
Date of Excavation 17/01/96 Equipment Tracked Excavator Stability Some spalling		acked Excavator	Groundwater No. Struck Behaviour Not encountered during excavation	Logg	dinate	el 95.14 m OD s 317649.57 189281.01 PCB

See key sheet and appendices for explanations.

Form 2/0

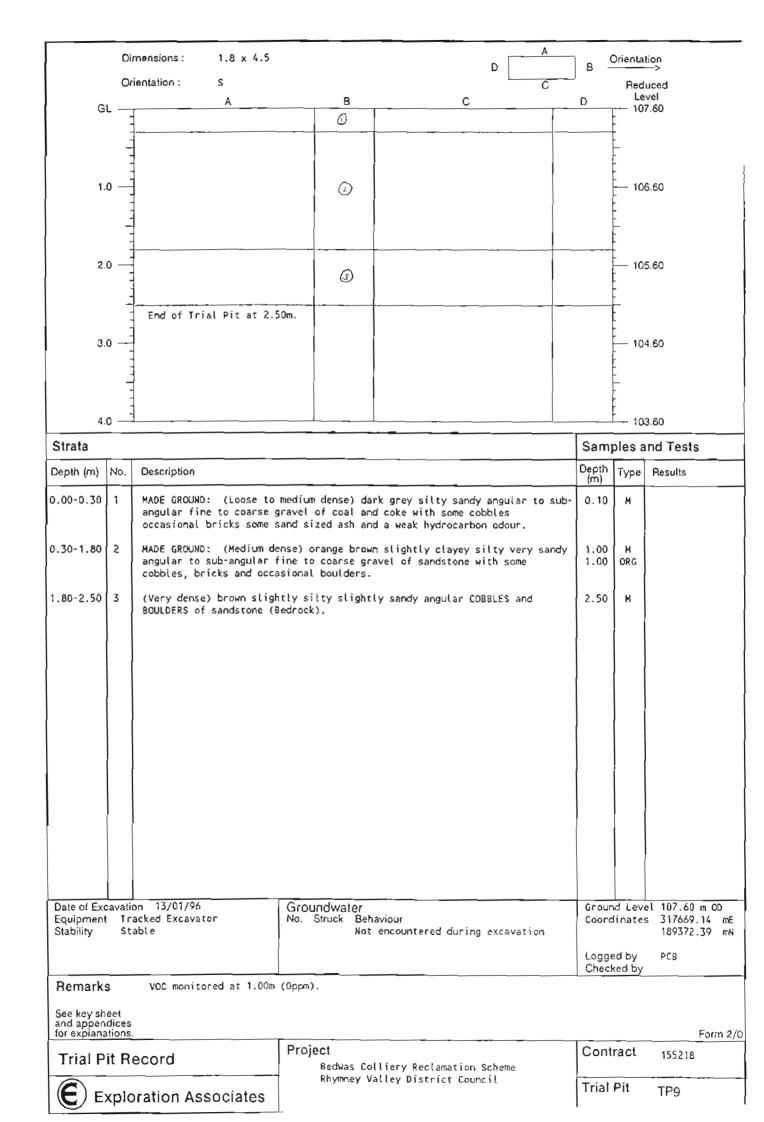
Trial Pit Record

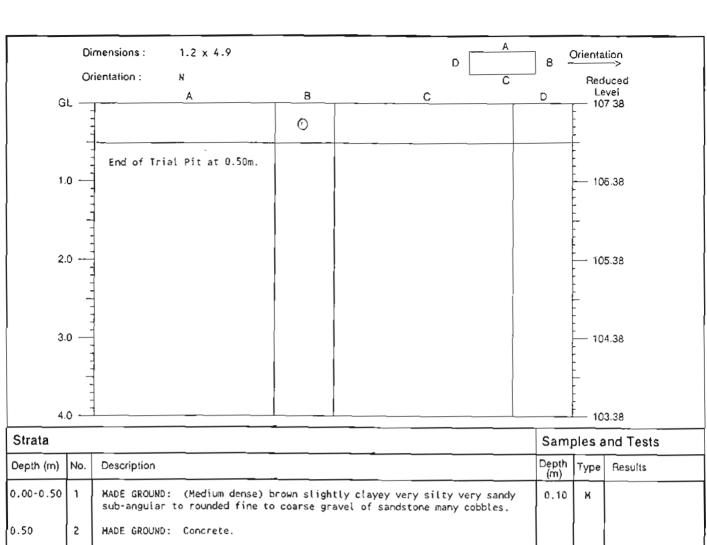
Exploration Associates

Project

Bedwas Colliery Reclamation Scheme Rhymney Valley District Council Contract 155218

Trial Pit TP8





Strata			-	Samı	oles a	nd Tests
Depth (m)	No.	Description			Type	Results
0.00-0.50	1	MADE GROUND: (Medium dense) brown slightly clayey very silty very sandy sub-angular to rounded fine to coarse gravel of sandstone many cobbles.			ж	
0.50	2	MADE GROUND: Concrete.				
Date of Ev	avatio	on 13/01/96 Groundwater		Croup	d 104	107.38 m OD
Equipment Stability	Tr	acked Excavator able Acked Excavator No. Struck Behaviour Not encountered during exc	avation		inates	
Remark		Move 7.00m NE to TP10A.		Logge Check	ed by red by	PCB

Remarks Move 7.00m NE to TP10A.

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

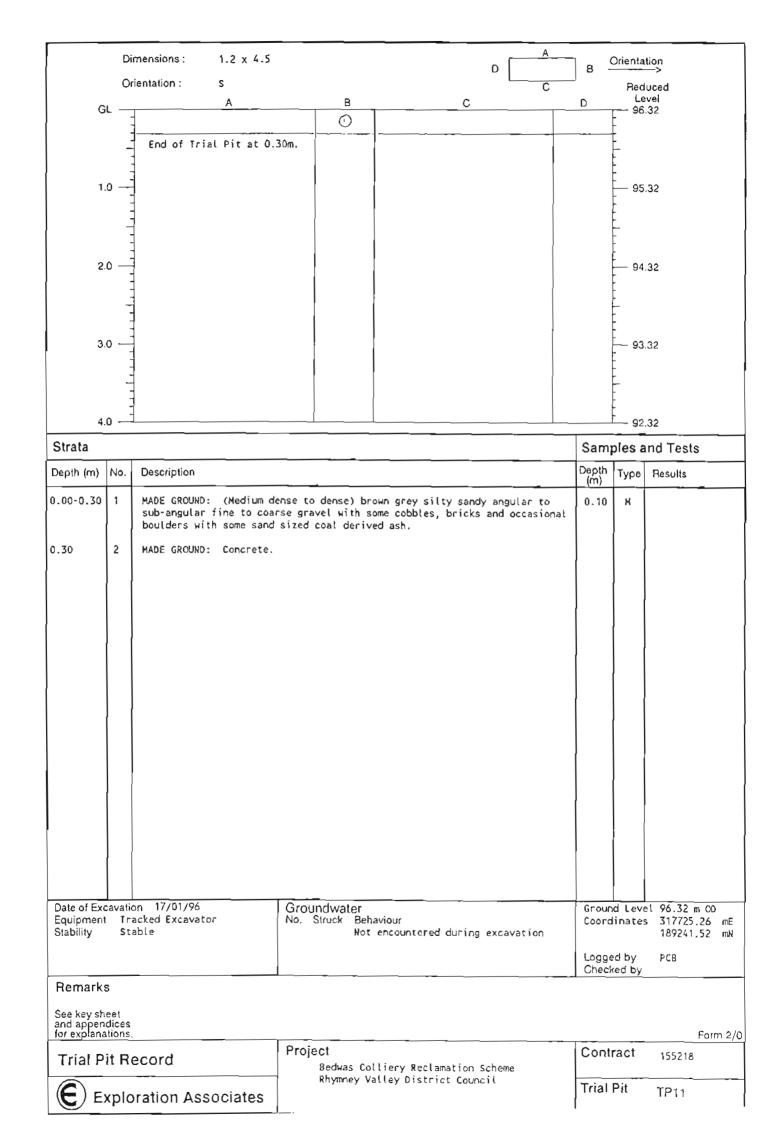
Project

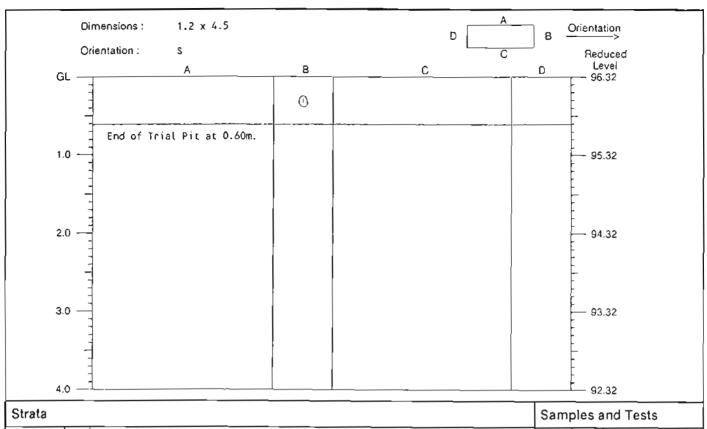
Bedwas Colliery Reclamation Scheme
Rhymney Valley District Council

Contract 155218

Trial Pit TP10

											_
	Die	mensions :	1.2 x 4.9			ρ「	Α	В	Drienta	tion >	
	Or	ientation :	N			L	С	J		uced vel	
G	_		Α	B		C		D		7.25	
	-			0			1				
		End of Tri	al Pit at O.	50m.							
1.4	o —								106	3.25	
	7										
	_								_ -		
2.	o —						}		10:	5.25	
	_						}				
3.	o								10	4.25	
	-										
	7										
4	<u> </u>								10:	3.25	
Strata								Sami		nd Tests	_
Depth (m)	No.	Description						Depth (m)	_	Results	_
0.00-0.50	1	MADE GROUND sub-angular	: (Medium d	ense) brown sl fine to coarse	ightly clayey v	ery silty ver	y sandy obbles.	(11)	_		_
0.50	2		: Concrete.			,					
								1			
	ł										
								1			
]			
Date of Exc	avatio	on 13/01/96		Groundwate	er Betaalise					el 107.25 m OD	_
Stability	St.	acked Excavat able	tor	No. Struck	Not encountered	during exca	vation	Loord	iinate	s 317706.54 m 189335.37 m	
								Logge	ed by	PCB	
Remarks	—- S							7 CHECK	ked by		_
See key sh and appen for explana	eet dices									Form 2	2/1
Trial P				Project Bedwas	Colliery Recla	mation Schem	<u> </u>	Cont	ract	155218	<u>-/'</u>
E E	(plc	oration As	sociates	Rhymne	ey Valley Distri	ct Council		Trial	Pit	TP10A	





epth (m) No. Description .00-0.60 1 MADE GROUND: (Medium dense) dark brown grey silty sandy angular to subangular fine to coarse gravel with some cobbles, bricks and occasional boulders with some sand sized coal derived ash. .60 2 MADE GROUND: Concrete.	Depth (m) 0.50 0.50	м	Results
angular fine to coarse gravel with some cobbles, bricks and occasional boulders with some sand sized coal derived ash.			
.60 2 MADE GROUND: Concrete.			}
		,	
27 / 27 / 27 / 27 / 27 / 27 / 27 / 27 /			
Date of Excavation 17/01/96 Equipment Tracked Excavator No. Struck Behaviour Stability Stable Not encountered during excavation			el 96.32 m 00 s 317725.26 m 189241.52 m
	Logg Chec	ed by ked by	PCB

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

Exploration Associates

Project

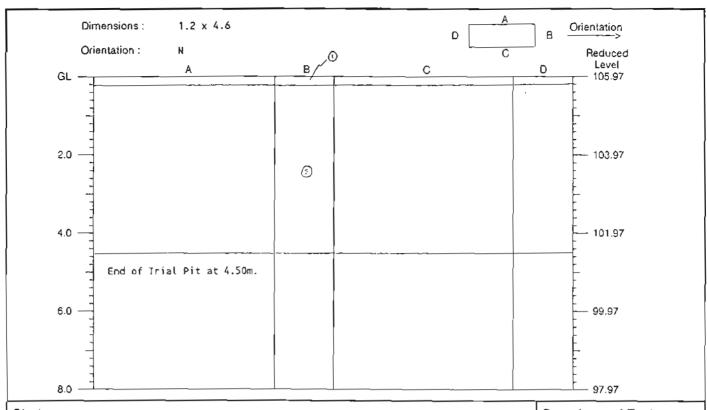
Bedwas Colliery Reclamation Scheme Rhymney Valley District Council

Contract

155218

Trial Pit

TP11A



Strata			Samples and Tests			
Depth (m)	No.	Description		Depth (m)	Туре	Results
0.00-0.20	1		dark grey silty sandy angular to sub-angular casional cobbles, occasional bricks and some	0.10	м	
angular to sub-angula cobbles rare boulders with a slightly		angular to sub-angular fine t		1.00 1.00 3.00 4.50	M ORG M M	
			bulders of sandstone below 4.00m.			
Date of Ex Equipmen Stability	t Tr		Struck Behaviour Slight seepage at 0.70m	Logge	linates	el 105.97 m oD s 317739.34 m 189360.39 m

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Project

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155218

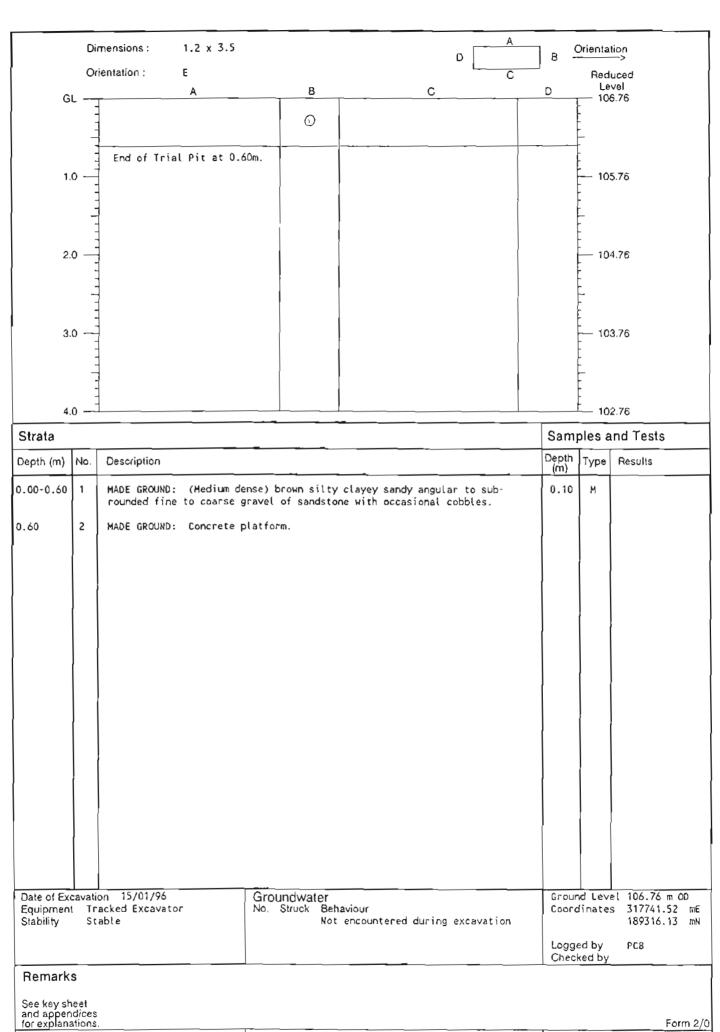
TP12

Contract

Trial Pit

See key sheet and appendices for explanations.

Trial Pit Record



Tria	l Pit	Record	
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Project

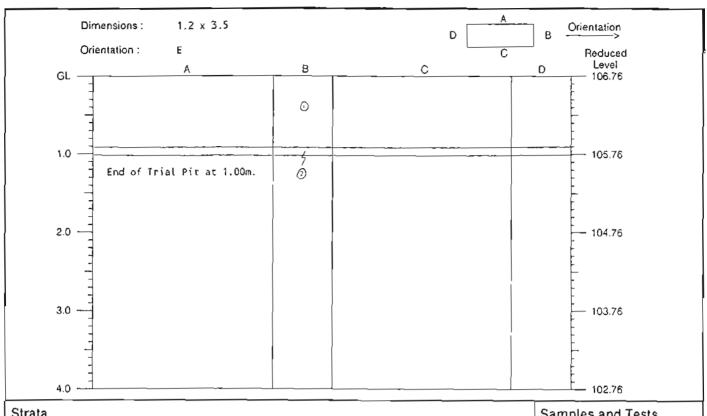
Bedwas Colliery Reclamation Scheme
Rhymney Valley District Council

Contract 155218

TP13

Trial Pit

Rhymney Valley District Co

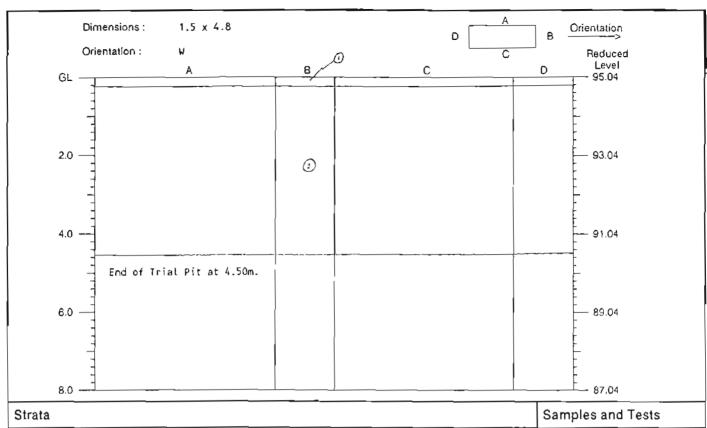


Strata			Samples and Tests			
Depth (m)	No.	Description		Depth (m)	Туре	Results
0.00-0.90	1	MADE GROUND: (Medium dense) br rounded fine to coarse gravel o	оwn silty clayey sandy angular to sub- f sandstone with occasional cobbles.	0.90	M ORG	
0.90-1.00	2	MADE GROUND: (Soft to firm) da	rk grey brown silty sandy slightly gravelly		<u> </u>	
1.00	3	MADE GROUND: Concrete platform				
	Tr		ndwater truck Behaviour Not encountered during excavation			e(106.76 m oD s 317741.52 mE 189316.13 mN
Remarks				Logge Check	ed by ked by	РСВ

See key sheet and appendices for explanations.

Project Contract 155218 Trial Pit Record Bedwas Colliery Reclamation Scheme Rhymney Valley District Council Trial Pit TP13A

Form 2/0



Strata	itrata		Samples and Tests			
Depth (m) No	0.	Description		Depth (m)	Туре	Results
0.00-0.20 1		MADE GROUND: (Medium dense) brown silty sandy angular to sub-ro to coarse gravel of sandstone with occasional cobbles. MADE GROUND: (Medium dense) dark grey silty sandy angular to su fine to coarse gravel of coal and mudstone with some cobbles occ pieces of metal and much timber and some sand sized coal derived with many cobbles of mudstone between 1.50m and 2.00m.	ounded fine b-angular asional	0.30 2.50 2.50 4.40	M M ORG	
Equipment	Tra	On 17/01/96 GROUNDWATER No. Struck Behaviour Stable Not encountered during exca	avation	Coord	linate:	el 95.04 m 00 s 317809.13 189281.01 PCB

See key sheet and appendices for explanations.

Form 2/0

Trial	Pit	Re	cord	

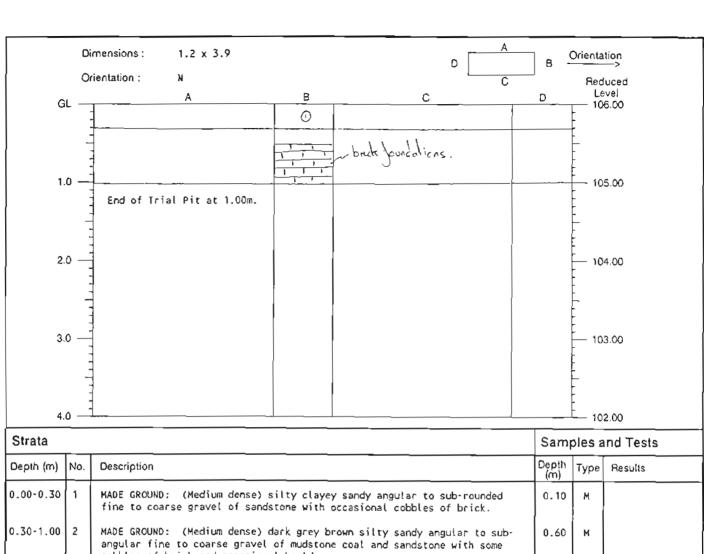
Project

Bedwas Colliery Reclamation Scheme
Rhymney Valley District Council

Contract 155218

TP14

Trial Pit



Strata			Sam	oles a	nd Tests
Depth (m)	No.	Description	Depth (m)	Туре	Results
0.00-0.30	1	MADE GROUND: (Medium dense) silty clayey sandy angular to sub-rounded fine to coarse gravel of sandstone with occasional cobbles of brick.	0.10	м	
0.30-1.00	2	MADE GROUND: (Medium dense) dark grey brown silty sandy angular to sub- angular fine to coarse gravel of mudstone coal and sandstone with some cobbles of brick and occasional boulders.	0.60	м 	
				,	
Date of Exc	avatio	on 15/01/96 Groundwater	Groun	d Leve	el 106.00 m OD
	Tra	No. Struck Behaviour No. Struck Behaviour Not encountered during excavation			317821.16 mE 189307.14 mN
Remarks		VOC monitored at 0.60m (3.5ppm). Location moved 10.00m west of priningle po		ed by	РСВ

VOC monitored at 0.60m (3.5ppm). Location moved 10.00m west of original position and concrete encountered at 0.50m.

See key sheet and appendices for explanations.

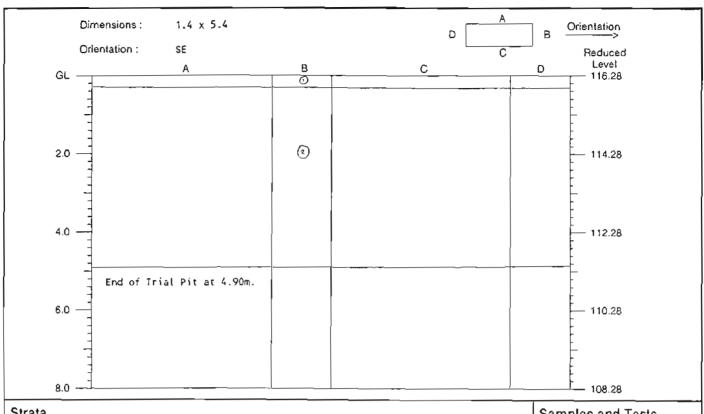
Form 2/0

Trial	Pit	Record

Project

Bedwas Colliery Reclamation Scheme Rhymney Valley District Council Contract 155218

Trial Pit TP15



Strata				Sam	ples a	and Tests
Depth (m)	No.	Description		Depth (m)	Туре	Results
0.00-0.15	1	MADE GROUND: (Medium dangular fine to coarse	ense to dense) grey silty sandy angular to sub- gravel with a little sand sized ash.			
0.15-4.90	2	MADE GROUND: (Dense) by angular fine to coarse g Glacial Sand and Gravel	rown orange brown silty clayey sandy angular to sub- gravel of sandstone with some cobbles. (Reworked).	1.20 1.20	M ORG	
		with many boulders	of sandstone below 2.50m.			
		drain encountered along 1.00m.	g Face C at 1.00m, possible natural ground below			
4.90	3	(Very dense) brown slight sandstone. (Bedrock).	htly sandy angular COBBLES and BOULDERS of	4.90 4.90	M ORG	
Date of Exc	cavation	on 12/01/96	Groundwater	Groun	nd Lev	el 116.28 m 00
Equipment Stability	t Tr	acked Excavator able	No. Struck Behaviour Slight seepage at 1.40m			s 317824.38 mE 189417.16 mN
				Logge Check	ed by ked by	PCB

See key sheet and appendices for explanations.

Form 2/0

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Exploration Associates

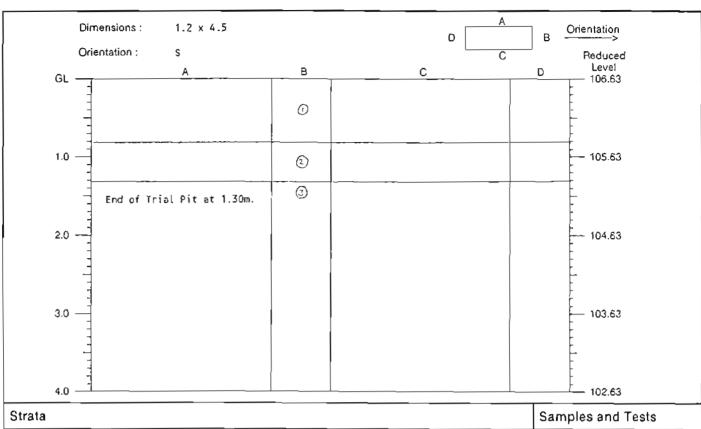
Project

Bedwas Colliery Reclamation Scheme Rhymney Valley District Council Contract

155218

Trial Pit

IPit TP16



Strata		Samples and Tests				
Depth (m)	No.	Description		Depth (m)	Туре	Results
0.00-0.80	1	MADE GROUND: (Medium dense) brown s rounded fine to coarse gravel of san and rare pieces of timber.	ilty clayey sandy angular to sub- dstone with occasional cobbles, bricks			
0.80-1.30	2	MADE GROUND: (Medium dense) dark gr angular fine to coarse gravel of coa and some sand sized ash.	ey silty very sandy angular to sub- l and coke with some cobbles of brick	1.20	М	
1.30	3	MADE GROUND: Concrete platform.				
				ĺ		
	ľΓ	on 15/01/96 Groundwal acked Excavator No. Struck				1 106.63 m OD 317842.75 m 189345.16 m
				Logge	ed by	PCB

Remarks

Location moved perpendicular to original location.

See key sheet and appendices for explanations.

for explanations.

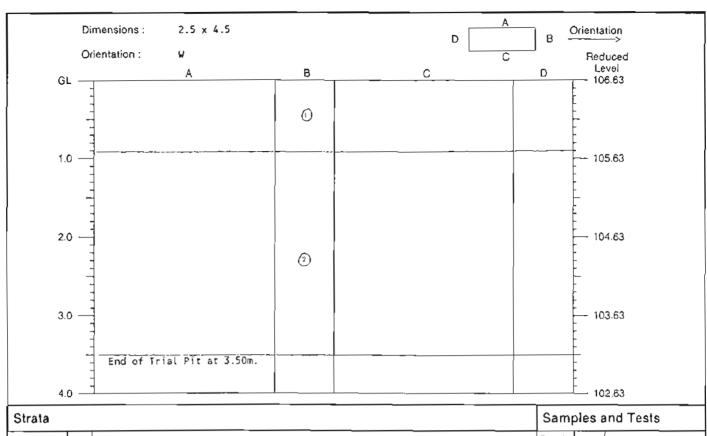
Trial Pit Record

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Contract 155218

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Trial Pit TP17



Strata Samples and Test					
Depth (m)	No.	Description	Depth (m)	Туре	Results
0.00-0.90	1	MADE GROUND: (Medium dense) brown silty clayey sandy angular to sub- rounded fine to coarse gravel of sandstone with occasional cobbles.	3.50 3.50	M ORG	
0.90-3.50	2	MADE GROUND: (Dense) silty sandy ashy angular cobbles and boulders of brick and sandstone.			
Date of Ev	avatio	on 15/01/96 Groundwater	Groun	rd Lev	el 106.63 m OD
Equipment Stability	Tr	No. Struck Behaviour stable No. Struck Behaviour Not encountered during excavation	Logge		s 317842.75 m 189345.16 m

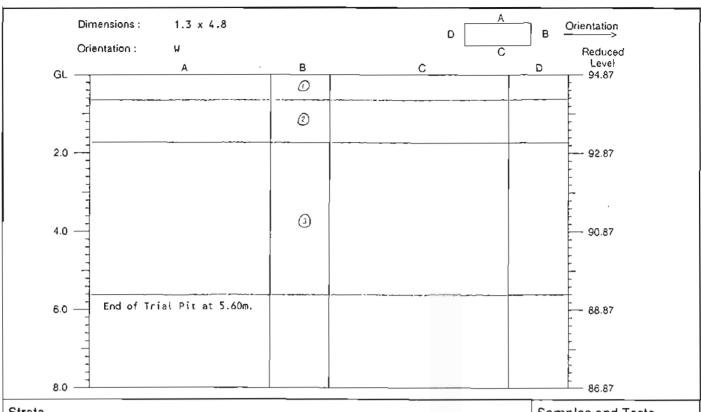
See key sheet and appendices for explanations.

Trial Pit Record

Project

Bedwas Colliery Reclamation Scheme Rhymney Valley District Council

Trial Pit TP17A



Strata	trata				oles a	nd Tests	
Depth (m)	No.	Description		Depth (m)	Туре	Results	
0.00-0.60	1		brown silty clayey sandy sub-angular to sub- l of sandstone with occasional cobbles, rare	0.10	м		
.60-1.70	2	MADE GROUND: (Medium dense) fine to coarse gravel of coal	dark grey black silty sandy very ashy angular l and mudstone with occasional cobbles.	1.30	M ORG		
1.70-5.60	3	MADE GROUND: (Medium dense) gravel of mudstone with some	brown grey silty sandy angular fine to coarse coal, cobbles and occasional boulders.	3.50 5.40 5.60	м м м		
Date of Exc Equipment Stability	Tra		Oundwater Struck Behaviour Not encountered during excavation	1		el 94.87 m 00 317855.62 189227.16	m
				Logge Check	ed by ked by	PCB	

See key sheet and appendices for explanations.

Form 2/0

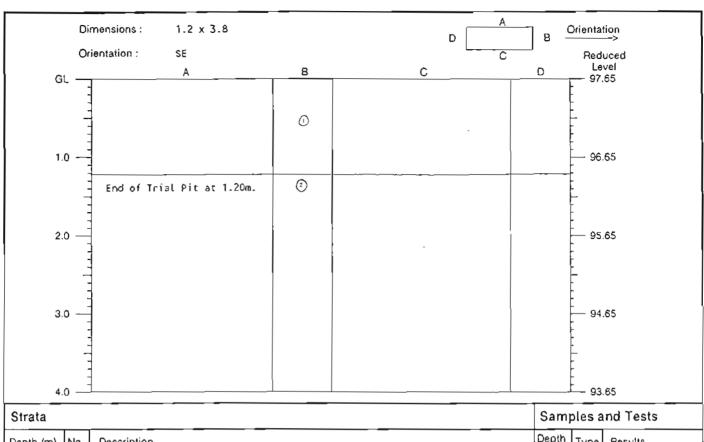
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E	xploration Associates

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Contract 155218

Trial Pit **TP18**



Strata				Sam	ples a	ind Tests
Depth (m)	No.	Description		Depth (m)	Туре	Results
0.00-1.20	1	MADE GROUND: (Loose angular fine to coars coal derived ash. (Co	to medium dense) dark grey silty sandy angular to sub- e gravel of coal and mudstone with some sand sized lliery Spoi().	0.10	T.	
1.20	2	MADE GROUND: Concret	e.			
Date of Exc Equipment Stability	l Tr	on 18/01/96 acked Excavator able	Groundwater No. Struck Behaviour Not encountered during excavation	Logg		el 97.65 m OD s 317830.07 m 189172.55 m

See key sheet and appendices for explanations.

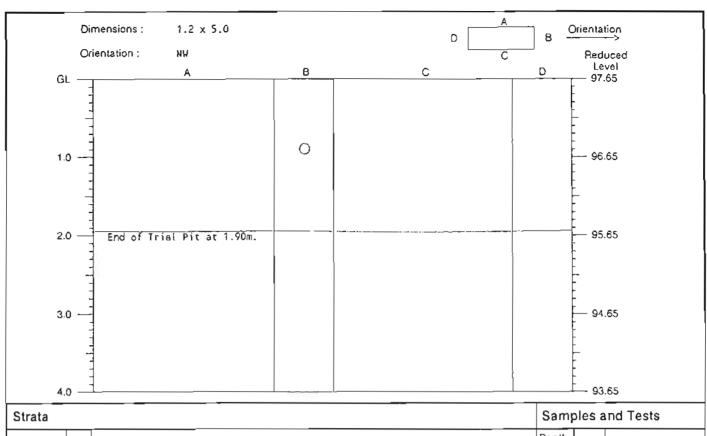
Form 2/0

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Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council Contract 155218

Trial Pit **TP19**



Strata					Samples and Tests		
Depth (m)	No.	Description		Depth (m)	Туре	Results	
0.00-1.90		MADE GROUND: (Medium de	ense) dark grey silty sandy angular to sub-angular coal and mudstone with some sand sized coal .	1.90 1.90	м		
Date of Ex Equipmen Stability	t Tr	on 18/01/96 acked Excavator	Groundwater No. Struck Behaviour Not encountered during excavation			el 97.65 m OD s 317830.07 m 189172.55 m	

See key sheet and appendices for explanations.

Form 2/0

Trial	l Pit Record	

Exploration Associates

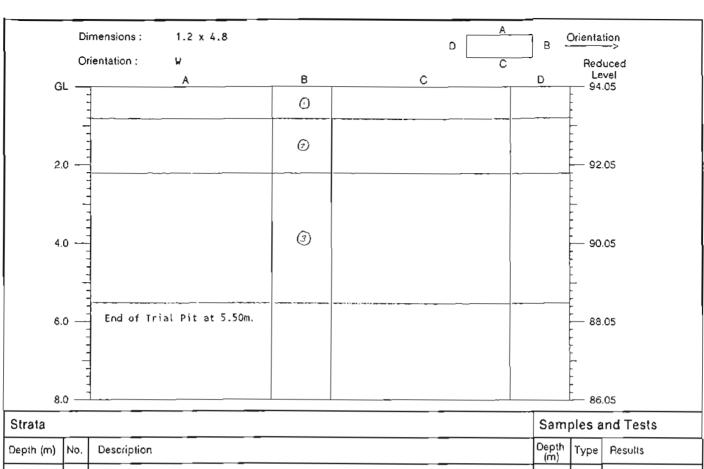
Project

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PCB

Trial Pit TP19A

Logged by Checked by



Strata			Samples and Tests				
Depth (m)	No.	Description		Depth (m)	Туре	Results	
0.00-0.80	1	MADE GROUND: (Medium dense) brown silty clayey sandy angular to sub- rounded fine to coarse gravel of sandstone with occasional cobbles.			М		
0.80-2.20	2	MADE GROUND: (Medium dense) dark brown and grey silty clayey sandy angular fine to coarse gravel of coal and mudstone with occasional cobbles and some sand sized coal derived ash.			м		
2.20-5.50	3	(Dense) orange brown clay very silty very sandy angular to sub-rounded fine to coarse GRAVEL of sandstone with occasional cobbles. (Glacial Sand and Gravel).			M M		
Date of Excavation 18/01/96 Equipment Tracked Excavator Stability Some spalling		acked Excavator No. S	Groundwater No. Struck Behaviour Not encountered during excavation			el 94.05 m OD s 317915.12 189271.20	mÆ
Remarks		VOC monitored at 3.40m (Oppm).		Logge Check		PCB	

VOC monitored at 3.40m (Oppm).

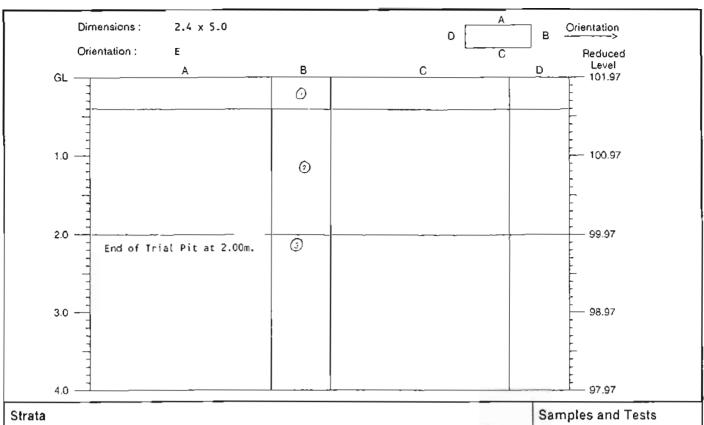
See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record	
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Trial Pit TP20



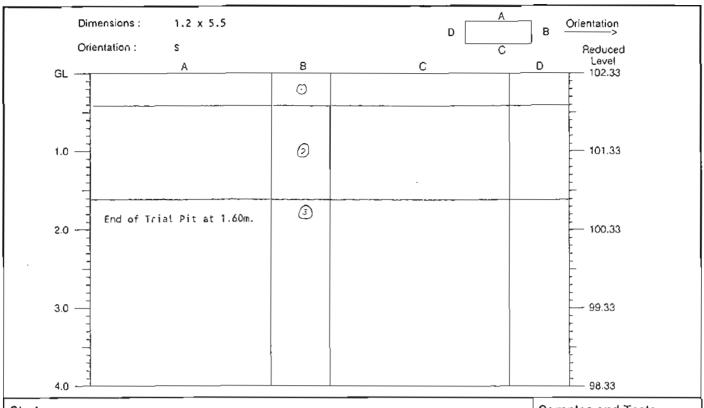
Strata					Samples and Tests		
Depth (m)	No.	Description		Depth (m)	Туре	Results	
0.00-0.40	1		dense) brown silty sandy clayey angular to vel of sandstone with occasional cobbles and boulders.				
0.40-2.00	2	fine to coarse gravel of coal	y silty very sandy angular to sub-angular and mudstone with many cobbles of brick and some sand sized coal derived ash.	1.00 2.60 2.60	M M ORG		
2.00	3	MADE GROUND: Brick wall obst	uction at 2.00m.				
					'		
) 464 63	
	t Tr		ndwater Struck Behaviour Not encountered during excavation			el 101.97 m OD s 317894.54 189308.69	
				Loggi	ed by ked by	РСВ	

See key sheet and appendices for explanations.

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Trial Pit Record	
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4.	U ~~				98	.33
Strata					oles a	nd Tests
Depth (m)	No.	Description		Depth (m)	Туре	Results
0.00-0.40	1	MADE GROUND: (Medium de sub-rounded fine to coar	ense) orange brown silty sandy clayey angular to ese gravel of sandstone with occasional cobbles.			
0,40-1.60	2	MADE GROUND: (Medium de angular fine to coarse g ash. (Colliery Spoil).	ense to dense) grey silty sandy angular to sub- gravel of coal and mudstone with some sand sized	1.00	м	
1.60	3	MADE GROUND: Concrete o	obstruction.			
	\ 					
Date of Exc Equipment Stability	Tr	on 15/01/96 acked Excavator able	Groundwater No. Struck Behaviour Not encountered during excavation		d Leve Sinate:	et 102.33 m 00 s 317984.94 mE 189640.48 mN
				Logge Check	ed by ked by	PCB
Remark	S	VOC monitored at 1.00m	(4ppm).			
See key sh and appen for explana	dices					Form 2/0
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Project

Trial Pit Record

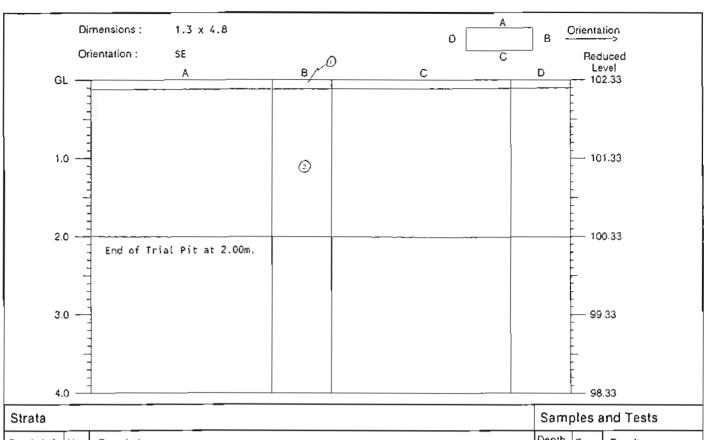
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155218

TP22

Contract

Trial Pit



Strata		Sam	Samples and Tests			
Depth (m)	No.	Description	Depth (m)	Туре	Results	
0.00-0.10	1	MADE GROUND: (Medium dense) brown silty sandy clayey angular to sub- rounded fine to coarse gravel of sandstone.				
0.10-2.00	2	MADE GROUND: (Medium dense becoming very dense) brown grey silty sandy angular to sub-angular fine to coarse gravel of coke with some sand size ash.	2.00 2.00	M ORG		
		with many cobbles of brick below 1.00m.				
Date of Exc Equipment Stability	ł ĭr	Groundwater No. Struck Behaviour Not encountered during excavation			et 102.33 m OD s 317894.83 mE 189340.48 mN	
			Logg Chec	ed by ked by	PCB	

VOC monitored at 2.00m (4ppm).

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

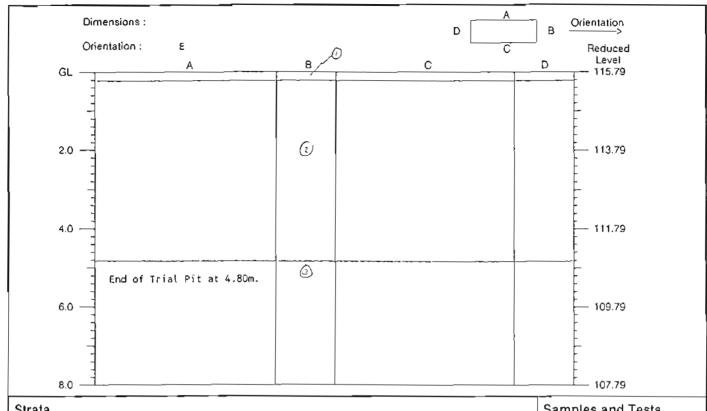
Exploration Associates

Project

8edwas Colliery Reclamation Scheme
Rhymney Valley District Council

Contract 155218

Trial Pit TP22A



Strata			Samples and Tests					
Depth (m)	No.	Description				Depth (m)	Туре	Results
0.00-0.20	1	MADE GROUND: (Medium dens coke and coal with a littl			dy gravel of			
0.20-4.80	2	(Dense) orange brown slightly clayey very silty very sandy angular to sub- angular fine to coarse GRAVEL of sandstone with occasional cobbles. (Glacial Sand and Gravel).			1.50 1.50 3.20 3.20	M ORG M ORG		
4.80	80 3 (Very dense) slightly silty slightly sandy angular COBBLES and E sandstone (Bedrock).				and BOULDERS of			
Date of Exc Equipment Stability	ŢΓ		Groundwat No. Struck		Om			el 115.79 m OD 3 317899.10 189413.76
						Logge Check	ed by ked by	РСВ

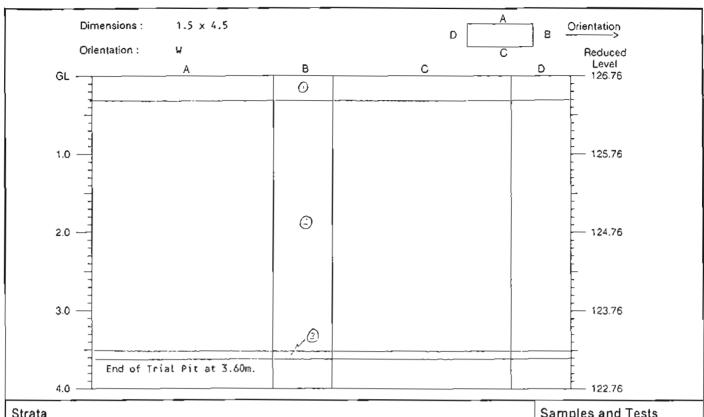
See key sheet and appendices for explanations.

Form 2/0

Trial	Pit Record
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Bedwas Colliery Reclamation Scheme Rhymney Valley District Council Contract 155218



Strata			Samples and Tests			
Depth (m) No. Description				Depth (m)	Туре	Results
0.00-0.30	1	MADE GROUND: (Medium dense) fine to coarse gravel with s metal cable and occasional b	dark grey silty sandy angular to sub-angular ome sand sized ash with occasional pieces of ricks.			
0.30-3.50	2	sub-angular fine to coarse g	light brown very silty very sandy angular to ravel of sandstone with occasional cobbles and es of brick. (Reworked Glacial Sand and Gravel)	1.50 1.50 3.30 3.30	M ORG M ORG	
	(Possibly natural ground below 1.10m).					
3.50-3.60	3	with many angular cobbl	es and boulders of sandstone. (Bedrock).			
				}		
	1 Tr		Oundwater Struck Behaviour Not encountered during excavation			el 126.76 m OO s 317890.09 mE 189485.71 mN
				Logge	ed by ked by	PCB
Remark			-	. Orrect	ked by	

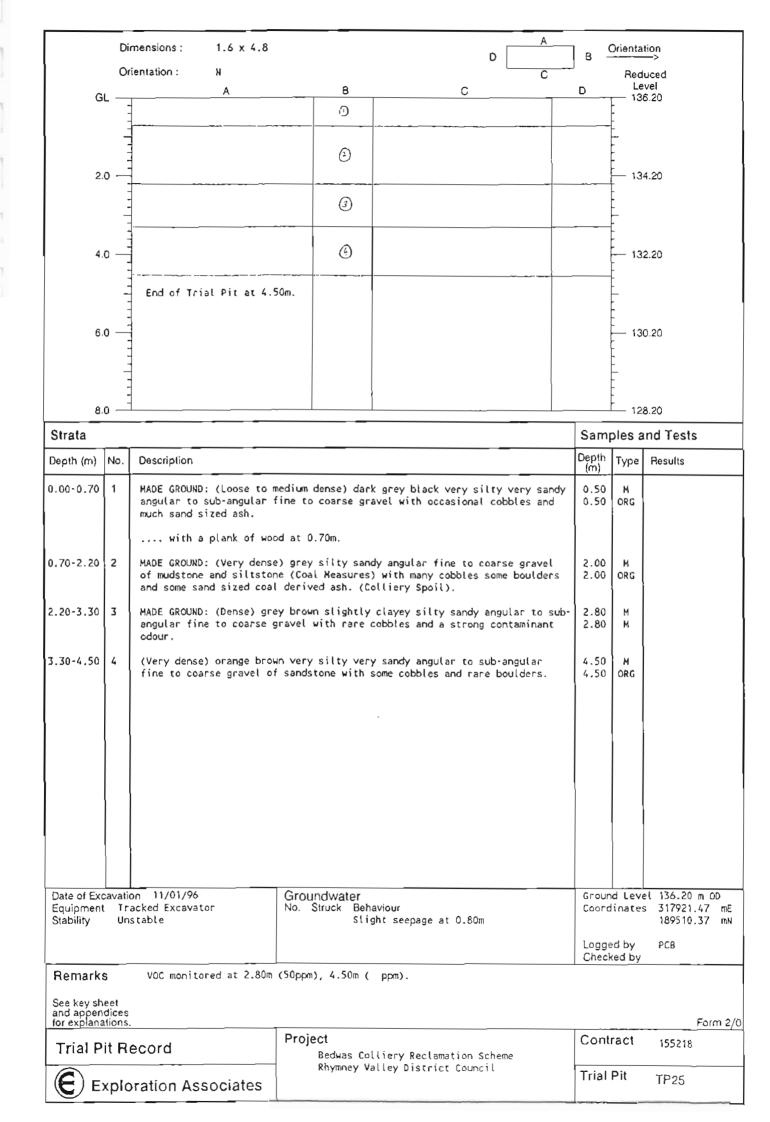
See key sheet and appendices for explanations.

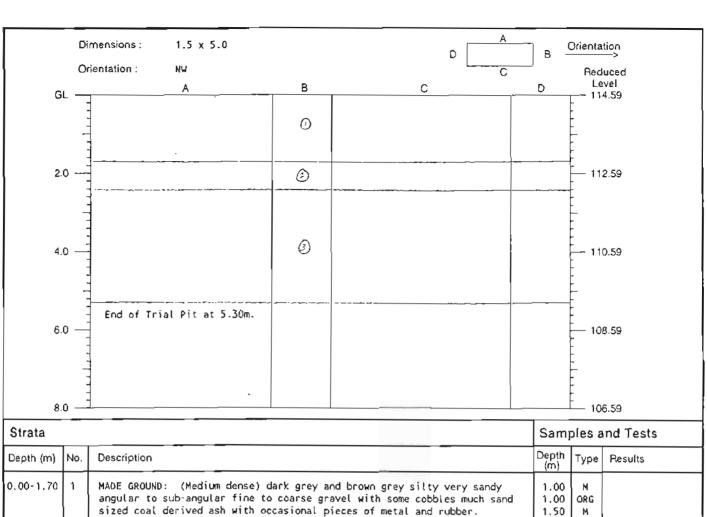
Form 2/0

Trial Pit Record
Exploration Associates

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Rhymney Valley D	District Council

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Strata			Samples and Tests			
Depth (m)	No.	Description				Results
0.00-1.70	1	angular to sub-angular	ense) dark grey and brown grey silty very sandy fine to coarse gravel with some cobbles much sand with occasional pieces of metal and rubber.	1.00 1.00 1.50 1.50	M ORG M ORG	
1,70-2.40	2	MADE GROUND: (Loose to some angular to sub-ang	medium dense) black silty fine to coarse sand with ular fine to coarse gravel of coal with much ash.			
2.40-5.30	3	(Medium dense to dense) angular to sub-angular cobbles, (Glacial Sand	orange brown slightly clayey very silty very sandy fine to coarse GRAVEL of sandstone with occasional and Gravel).	2.50 2.50 5.30 5.30	M ORG M ORG	
Date of Exc Equipment Stability	Tr	on 12/01/96 acked Excavator able	Groundwater No. Struck Behaviour Slight seepage at 1.50m			et 114.59 m OD s 317918.67 mE 189402.88 mN
				Logge	ed by ked by	PCB

See key sheet and appendices for explanations.

Trial Pit Record

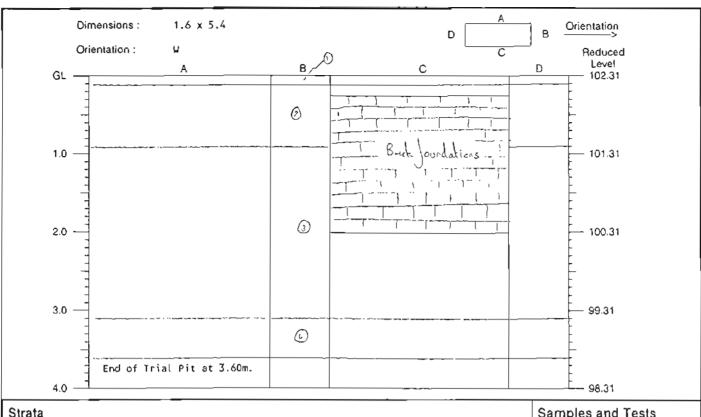
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Rhymney Valley District Council

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Strata			Sam	Samples and Tests			
Depth (m)	No.	Description		Depth (m)	Туре	Results	
0.00-0.10	1	MADE GROUND: (Medium d rounded fine to coarse	ense) brown silty clayey sandy sub-angular to sub- gravel of sandstone.				
0.10-0.90	2	angular fine to coarse some sand sized coal de		0.50 0.50	M ORG		
		metal girder along	Face D at 0.90m.				
0.90-3.10	3	MADE GROUND: (Medium dense to dense) brown grey very silty very sandy angular fine to coarse gravel with many cobbles of brick, pieces of metal occasional boulders and much silt to sand sized ash, and occasional pieces of timber.					
3.10-3.60	4	Possible MADE GROUND: SILT with some sub-angu sandstone.	(Medium dense/firm) red brown clayey very sandy lar to sub-rounded fine to coarse gravel of	3.60 3.60	M ORG		
Date of Exc Equipment Stability	Tr	on 12/01/96 acked Excavator me spalling	Groundwater No. Struck Behaviour Not encountered during excavation		nd Levi	el 102.31 m 00 s 317925.78 mE 189324.33 mN	
				Logge Check	ed by ked by	PCB	

Remarks Brick wall on Face B causing o

Brick wall on Face B causing obstruction. Space restrictions.

See key sheet and appendices for explanations.

Form 2/0

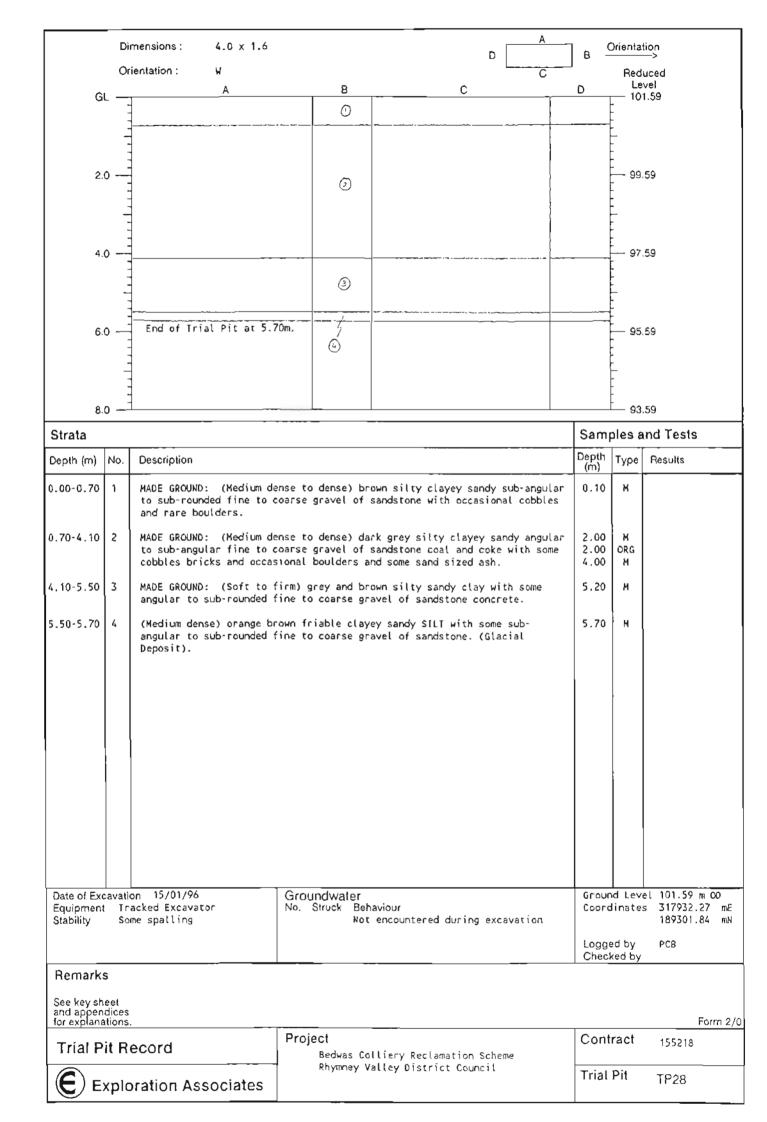
Trial Pit Record

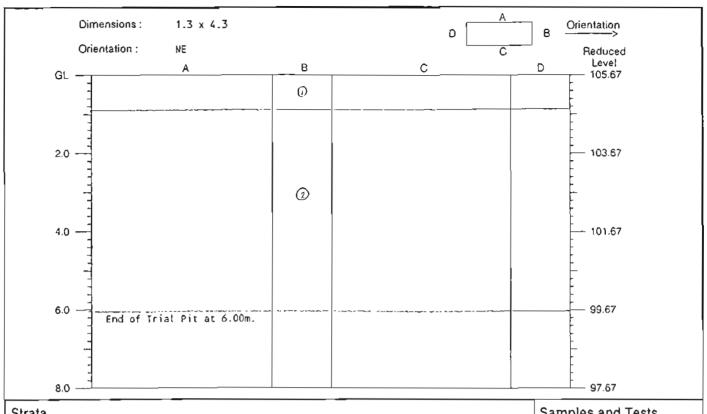
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Strata				Samples and Tests		
Depth (m)	No.	Description		Depth (m)	Туре	Results
0.00-0.90	1		ense) dark grey black silty sandy angular fine to ith occasional cobbles, rare boulders and some sand	0.50- 0.90 0.50		
0.90-6.00	2	rounded gravel of sands	•	2.00 2.00 3.00 3.00 4.00 5.00 6.00	B ORG B ORG B ORG B ORG B ORG	
Date of Excavation 02/01/96 Equipment Tracked Excavator Stability Stable Groundwater No. Struck Behaviour Slight seepage from drain		Ground Level 105.67 m GD Coordinates 317947.93 m 189359.32 m Logged by PCB Checked by				

See key sheet and appendices for explanations.

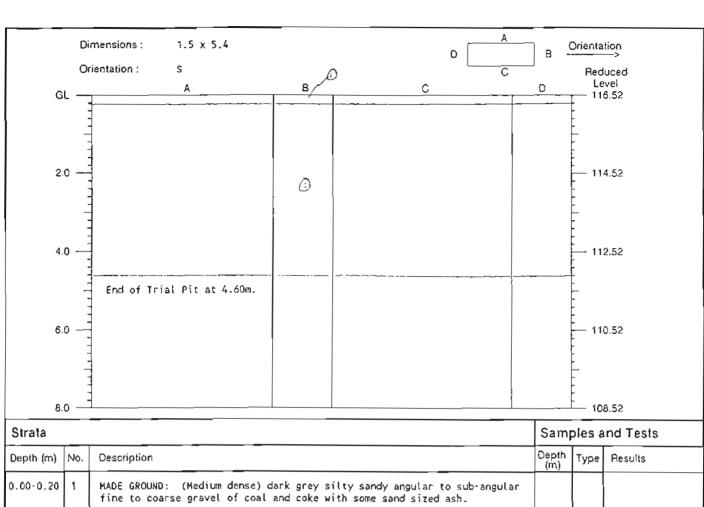
Form 2/0

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Strata		Samples and Tests				
Depth (m)	No.	Description		Depth (m)	Type	Results
0.00-0.20	1	MADE GROUND: (Medium dense fine to coarse gravel of co	e) dark grey silty sandy angular to sub-angular coal and coke with some sand sized ash.			
0.20-4.60	2		v 2.00m) orange brown slightly clayey very silty sngular fine to coarse GRAVEL of sandstone with d and Gravel).	1.70	M ORG	
4.60	3	(Very dense) slightly silty sandstone. (Bedrock).	v slightly sandy angular COBBLES and BOULDERS of	4.60	M ORG	
Date of Exc	avatio	on 12/01/96 G	roundwater	Grour	nd Leve	el 116.52 m OD

Equipment Tracked Excavator Stability \$table

Groundwate No. Struck E Behaviour

Not encountered during excavation

Coordinates 317940.78 mE

189425.95 mN

Logged by Checked by PCB

Remarks

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record



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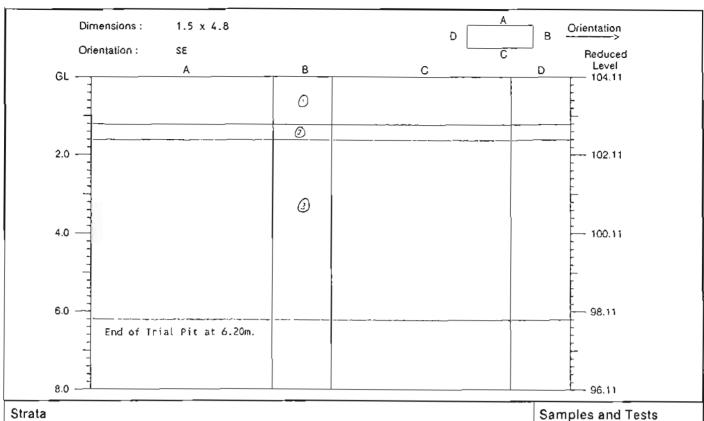
Project

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Trial Pit

TP30



Strata			Samples and Tests						
Depth (m)	No.	Description				Depth (m)	Туре	Results	
0.00-1.20	1	MADE GROUND: (Medium dens rounded fine to coarse gra occasional boulders.	e) brown s vel of san	ilty clayey sandy sub-ang dstone with some cobbles	gular to sub- and				
1.20-1.60	2	MADE GROUND: (Loose) dark derived ash with a little	grey blac angular to	k silty fine to medium sa sub-angular fine to coam	and of coal rse gravel.	1.60	м		
1.60-6.20 3 (Medium dense to dense)		(Medium dense to dense) or to sub-rounded fine to coa and rare boulders.	ange brown rse GRAVEL	clayey very silty very s of sandstone with occas	sandy angular ional cobbles	3.30 5.30 5.30 5.90	M M ORG ORG		
Date of Exc Equipment Stability	Tra	on 03/01/96 Gacked Excavator Nable	iroundwat o. Struck	er Behaviour Not encountered during (excavation			el 104.11 m od s 317956.17 i 189339.43 i	mΕ
D l.						Logge Check	ed by ked by	РСВ	

See key sheet and appendices for explanations.

Form 2/0

Trial	Pit	Record	
	_		_

Project

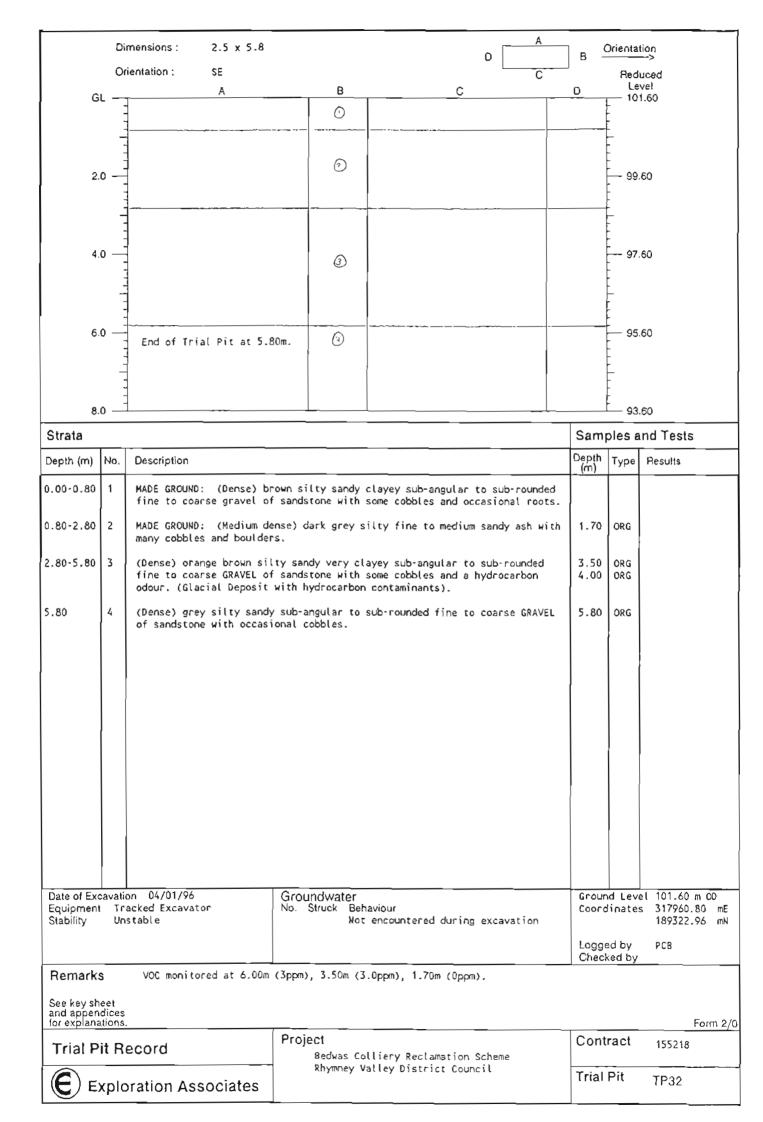
Bedwas Colliery Reclamation Scheme
Rhymney Valley District Council

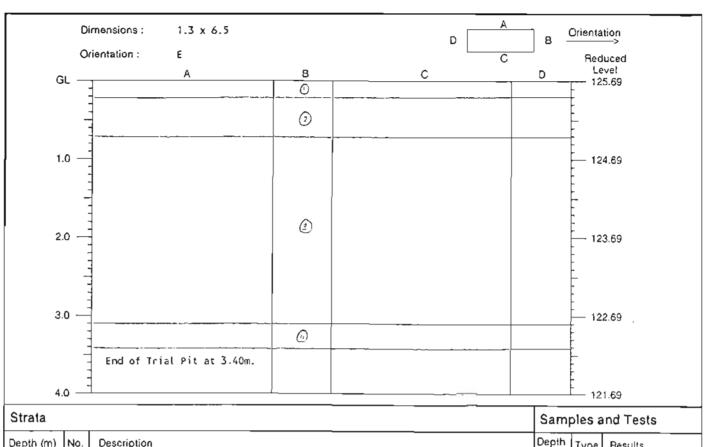
Contract 155218

TP31

Exploration Associates

Trial Pit





Strata				Sam	ples a	ind Tests
Depth (m)	No.	Description		Depth (m)	Туре	Results
0.00-0.20	1	MADE GROUND: (Medium de angular fine to coarse goal derived ash.	ense) dark grey silty very sandy angular to sub- gravel with occasional cobbles and much sand sized			
0.20-0.70	2	MADE GROUND: (firm/med-medium sand with a litt	ium dense) brown slightly clayey silty fine to e angular to sub-angular fine to coarse gravel.	1.70	м	
0.70-3.10	3	(Dense becoming very der clayey very silty very s of sandstone with some of				
3.10-3.40 4 (Very dense) brown slig BOULDERS of sandstone.		(Very dense) brown sligh BOULDERS of sandstone. (ntly silty slightly sandy angular COBBLES and (Bedrock).	3.40 3.40	M ORG	
	Tra	on 11/01/96 acked Excavator able	Groundwater No. Struck Behaviour Not encountered during excavation	Groun	d Leve linates	el 125.69 m OD s 317968.51 mE 189475.63 mN
				Logge Check	ed by ced by	PCB

See key sheet and appendices for explanations.

Trial Pit Record

Form 2/0

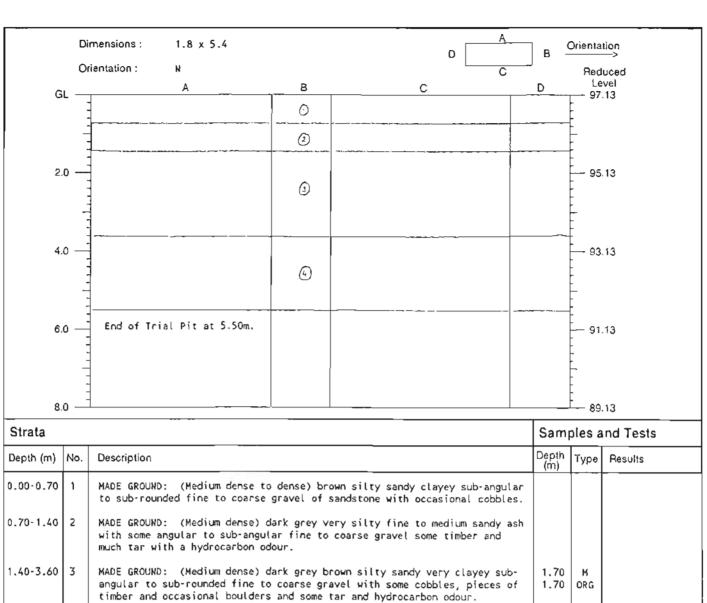


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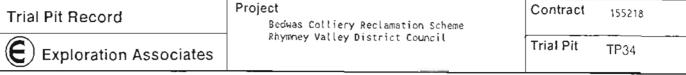
Contract 155218

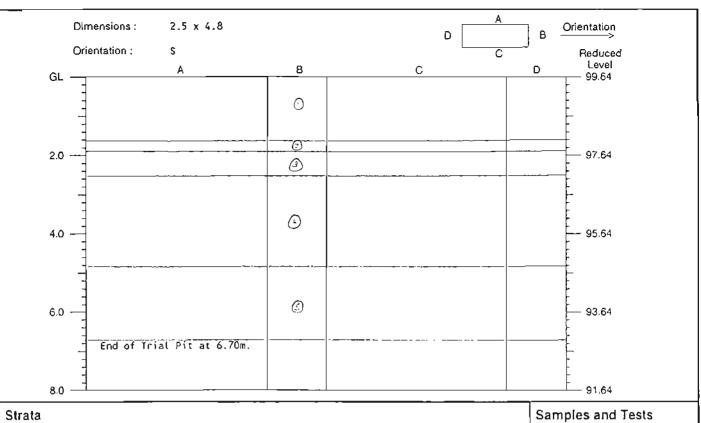


Shala		Samples and Tests					
Depth (m)	No.	Description			Depth (m)	Туре	Results
.00-0.70	1	MADE GROUND: (Medium dense to sub-rounded fine to coarse	o dense gravel) brown silty sandy clayey sub-angular of sandstone with occasional cobbles.			
.70-1.40	2		lar fin	ey very silty fine to medium sandy ash e to coarse gravel some timber and			
.40-3.60	3	angular to sub-rounded fine to	o coars	ey brown silty sandy very clayey sub- e gravel with some cobbles, pieces of ome tar and hydrocarbon odour.	1.70 1.70	M ORG	
.60-5.50	4	(Dense) grey slightly clayey s fine to coarse GRAVEL of sands Gravel).	silty v stone w	ery sandy sub-angular to sub-rounded ith some cobbles. (Glacial Sand and	4.10 5.50	ORG ORG	
		becoming brown in colour	below	4.50m.			
Date of Eve	avatio	on 04/01/96 Grou	undwat		GEOUE	d Lev	el 97.13 m 00
Equipment Stability	Tr			Behaviour Seepages of tar at 1.00m Water seepage at 2.60m			s 317966.80 r 189299.96 r
					Logge Check	ed by ked by	РСВ

See key sheet and appendices for explanations.

Form 2/0





Strata				Sam	oles a	ind Tests	
Depth (m)	No.	Description		Depth (m)	Туре	Results	
0.00-1.60	1		ty sandy clayey sub-angular to sub-rounded one with some cobbles and occasional of brick.				
1.60-1.90	2		ork grey silty very sandy angular to sub- with some tar and a hydrocarbon odour.	1.60	ORG		
1.90-2.50	3	MADE GROUND: (Medium dense to sub-rounded fine to coarse grav	dense) brown silty sandy clayey angular to vel of sandstone with occasional cobbles.				
2.50-4.80	4		ork grey very silty fine to coarse sand with fine to coarse gravel with much sand sized dour.	3.80 4.60	ORG		
4.80-6.70	5		very clayey sub-angular to sub-rounded fine with occasional cobbles and heavily stained	5.60	ORG		
Date of Exc Equipmen Stability	Tr		ndwater Struck Behaviour Stight seepages at 1.70m, 2.50m Seepages of tar	Coord	linate	el 99.64 m OD s 317969.96 189314.20 PCB	

Remarks VOC monitored at 0.60m (5ppm), 5.00m (7ppm), 5.60m (6ppm)

See key sheet and appendices for explanations.

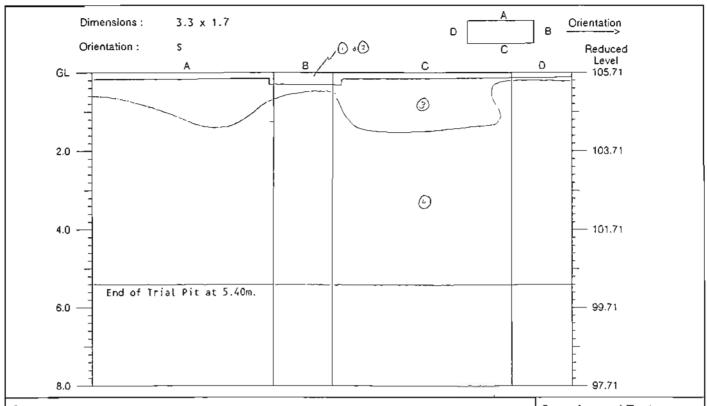
Form 2/0

Trial Pit Record	
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Bedwas Colliery Reclamation Scheme
Rhymney Valley District Council

Contract 155218



Strata		Samples and Tests				
Depth (m)	No.	Description		Depth (m)	Туре	Results
.00-0.05	1	MADE GROUND: Black tarmac	layer.			
.05-0.15	2	MADE GROUND: Concrete.		1		
.15-1.10	3	MADE GROUND: (Dense to med sandy ash (coal derived) wi coal with occasional cobble	ium dense) dark grey very silty fine to coarse th a little angular fine to coarse gravel of s and rare boulders.	1.00	M ORG	
		brown plastic pipe enc wire/cable.	ountered at 1.00m with associated metal			
		with a metal pipe enco	untered at 0.30m.			
.10-5.40	4		silty very clayey very sandy angular to sub- EL of sandstone with occasional cobbles.	2.30 2.30 4.30	M ORG M	
		becoming very dense be	low 2.50m.	5.40	м	
		,				
Date of Exc Equipment Stability	Tr		roundwater 5. Struck Behaviour Slight seepage from pipe at 1.00m. Slight seepage at 2.40m.	1 -	_	el 105.71 m OD s 317974.41 m 189361,66 m
				Loggi	ed by ked by	839

See key sheet and appendices for explanations.

Form 2/0

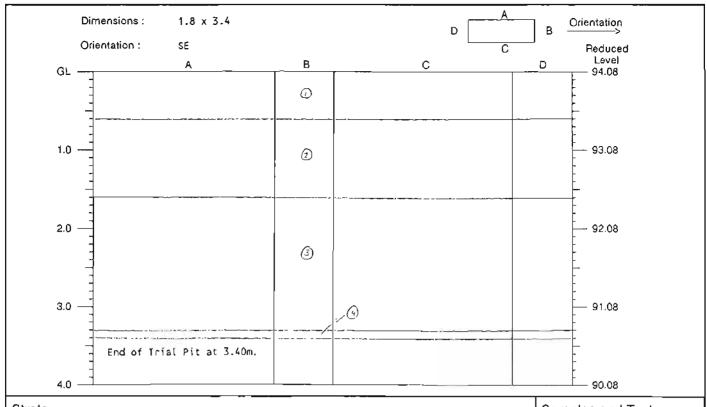
Trial Pit Record
Exploration Associates

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Contract 155218

TP36

Trial Pit



Strata				Sam	ples a	ind Tests	
Depth (m)	No.	Description		Depth (m)	Туре	Results	
0.00-0.60	1	MADE GROUND: (Medium d rounded fine to coarse occasional boulders of	ense) brown silty sandy clayey sub-angular to sub- gravel of sandstone with occasional cobbles and concrete.	0.50	М		
0.60-1.60	2	MADE GROUND: (Medium d a little angular to sub					
1.60-3.30	3	MADE GROUND: (Medium d sub-angular to sub-roun cobbles and rare boulde			i		
		(Very dense) angular CO (Fractured Bedrock).	BBLES of sandstone with some angular boulders.	3.40	ORG		
	t Tr	on 05/01/96 acked Machine stable some spalling	Groundwater No Struck Behaviour Not encountered during excavation			et 94.08 m OD s 317960.59 189288.24	mE
				Logge	ed by ked by	PCB	

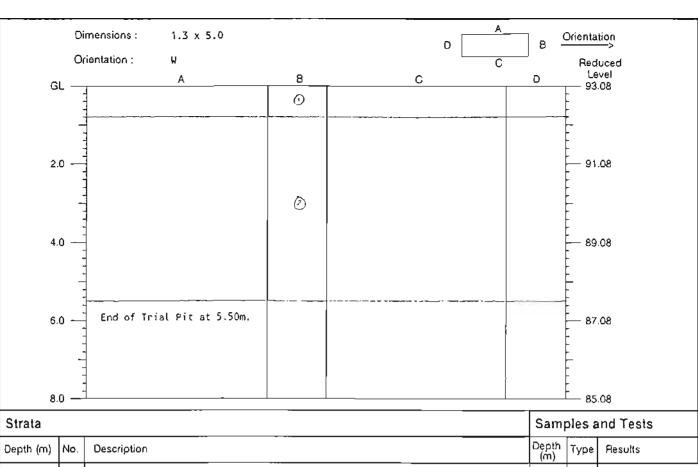
See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record	
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Strata				Sam	ples a	ind Tests
Depth (m)	No.	Description		Depth (m)	Type	Results
08.0-00,	1	MADE GROUND: (Medium rounded fine to coarse and a little sand size	dense) brown silty clayey sandy angular to sub- e gravel of sandstone with occasional cobbles, bri ed ash.	cks 0.10	м	
.80-5.50	2	angular fine to coarse and concrete and much	dark grey black silty very sandy angular to sub- e gravel of coal and mudstone with cobbles of bric sand sized coal derived ash. (Colliery Spoil). k encountered at 1.00m.	1.00 2.50 2.50 4.00	M M ORG M	
	t Tra	on 15/01/96 acked Excavator able	Groundwater No. Struck Behaviour Not encountered during excavation	Coord		el 93.08 m OD s 317964.62 m 189246.33 m PCB

See key sheet and appendices for explanations.

Form 2/0

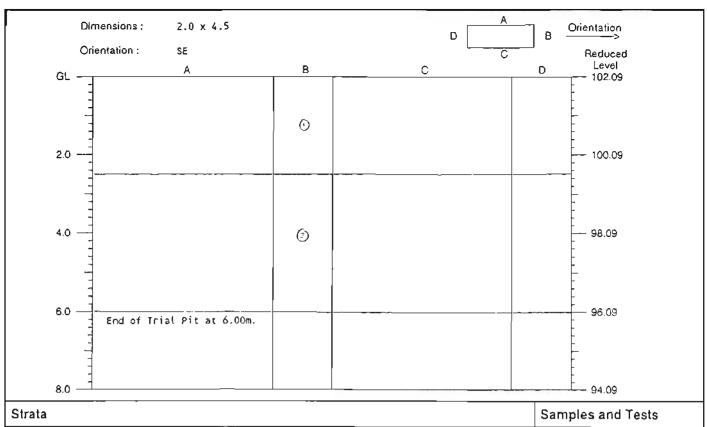
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Bedwas Colliery Reclamation Scheme
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Strata				Sam	oles a	ind Tests
Depth (m)	No.	Description		Depth (m)	Туре	Results
0.00-2.50	1		own silty clayey sandy angular to sub-rounded fine stone with occasional cobbles and rare boulders.	2.50 2.50	Ø %	
2.50-6.00	2	derived ash with some and very strong hydrocarbon (nse) black silty fine to coarse sand of coal gular to sub-angular fine to coarse gravel and a odour with occasional piece of timber and metal kets of black tar and some cobbles of brick and	2.70	ORG	
Date of Exc Equipment Stability	Tra	on 03/01/96 acked Excavator stable	Groundwater No. Struck Behaviour Not encountered during excavation	Coord	linate	el 102.09 m 00 s 317980.94 m 189327.93 m

See key sheet and appendices for explanations.

Form 2/0

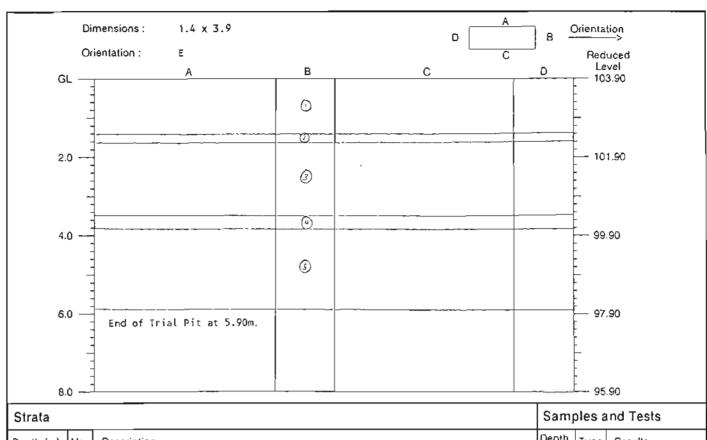
Trial Pit Record

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Strata				Sami	oles a	nd Tests
Depth (m)	epth (m) No. Description			Depth (m)	Туре	Results
0.00-1.40	1		silty clayey sandy angular to sub-rounded fine ional cobbles and rare boulders.	0.80	ж	
1.40-1.60	2		e) black sandy textile matting with a strong ional cobbles of brick and some roots and	1.50	м	
1.60-3.50	3		inge brown silty clayey very sandy angular to GRAVEL of sandstone with occasional cobbles.	3.30 3.50	ORG ORG	
3.50-3.80	4		silty clayey very sandy angular to sub-rounded andstone with occasional cobbles and a strong			
3.80-5.90	5		inge brown silty clayey very sandy angular to GRAVEL of sandstone with occasional cobbles.	5.90 4.80	ORG ORG	
					,	
Date of Ex	cavati		roundwater	Grour	nd Lev	el 103.90 m 00
Equipmen	t Tr	acked Excavator No	o. Struck Behaviour	Coord	linate	s 317985.26 m

Stability

See key sheet and appendices for explanations.

Form 2/0

189343.98 mN

PCB

	Trial	Pit	Record	
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Stable

Project

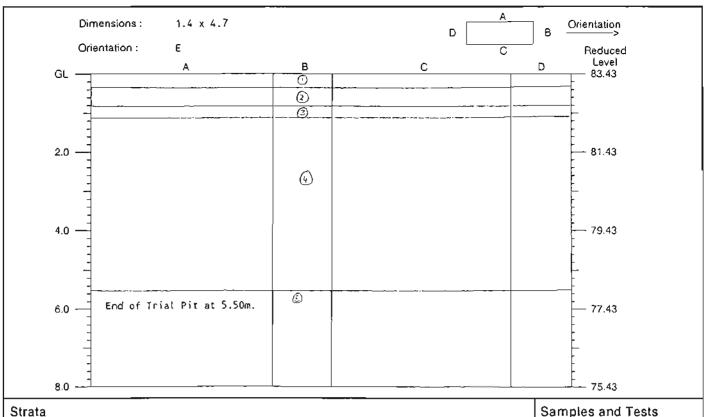
Bedwas Colliery Reclamation Scheme
Rhymney Valley District Council

Contract 155218

Slight seepage at 3.60m

Trial Pit TP40

Logged by Checked by



Strata				Sam	ples a	nd Tests	
Depth (m)	No.	Description		Depth (m)	Туре	Results	
0.00-0.30	1	MADE GROUND: (Dense) brown greangular fine to coarse gravel o	ey slightly silty sandy angular to sub- of slag with some cobbles.	0.10	м		
0.30-0.80	2	MADE GROUND: (Stiff/medium der a little angular fine to medium odour.	nse) dark green grey clayey sandy silt with n gravel of coal with a faint hydrocarbon	0.60	M		
0.80-1.10	3	(Medium dense/stiff) light brow	n clayey sandy S!LT. (Glacial Deposit).	0.90	M ORG		
1.10-5.50	4	(Dense) orange brown sandy clay to coarse GRAVEL of sandstone w	vey very silty angular to sub-rounded fine vith some cobbles. (Glacial Sand and Gravel).	3.00 5.00	×		
5.50	5	Sandstone BEDROCK.		5.50	м		
Date of Ex- Equipmen Stability	1 Tr	on 19/01/96 Group acked Excavator No. S	ndwater Struck Behaviour Not encountered during excavation			el 83.43 m OD s 318009.63 189200.83	mЕ
		ana a		Logg: Chec	ed by ked by	PCB	
Remark	s	VOC monitored 0.60m (4ppm), 0.	.90m (15ppm), 3.00m (8ppm).				

See key sheet and appendices for explanations.

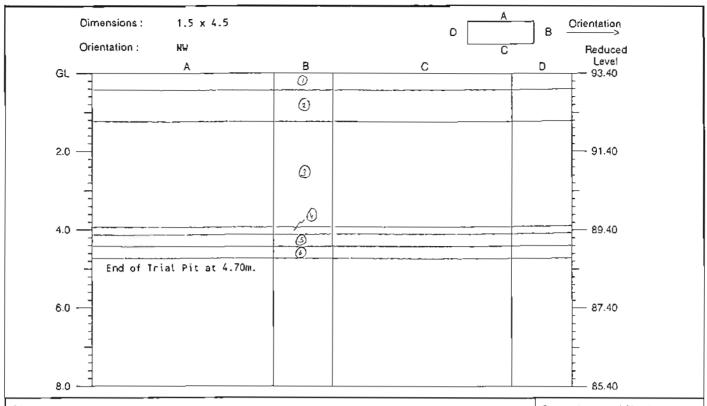
Form 2/0

Trial Pit Record
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Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council Contract 155218

Trial Pit

TP41



Strata				Sam	ples a	ind Tests	
Depth (m)	No.	Description		Depth (m)	Туре	Results	_
0.00-0.40	1		ight brown silty clayey sandy angular to sub- gravel of sandstone with occasional cobbles.				
0.40-1.20	2		ense) dark grey very sandy angular fine to coarse red clinker with some cobbles and rare boulders.	0.70 0.70	M ORG		
1.20-3.90	3	coarse sand with some s	rown and grey brown very silty very clayey fine to ub-angular to sub-rounded fine to coarse gravel of bon staining and odour. (Glacial Sand and Gravel	2.60	M ORG		
3.90-4.10	4		ense) dark grey black silty sandy angular to sub- gravel with some sand sized coal derived ash.	4.00 4.00	M ORG		
4.10-4.40	5	MADE GROUND: (Dense) b coarse sand with some s sandstone with some cob	orown and grey brown very silty very clayey fine to ub-angular to sub-rounded fine to coarse gravel of bles.				
4.40-4.70	6		range brown silty clayey very sandy angular to sub- gravel of sandstone with some cobbles and rare				
4.70	7	MADE GROUND: Possible	concrete obstruction.				
Date of Exc Equipment Stability	Tr	on 05/01/96 acked Excavator me spalling	Groundwater No. Struck Behaviour Seepage at 2.00m			el 93.40 m 00 s 317992.60 189274.84	IJ
				Logg: Check	ed by ked by	PCB	

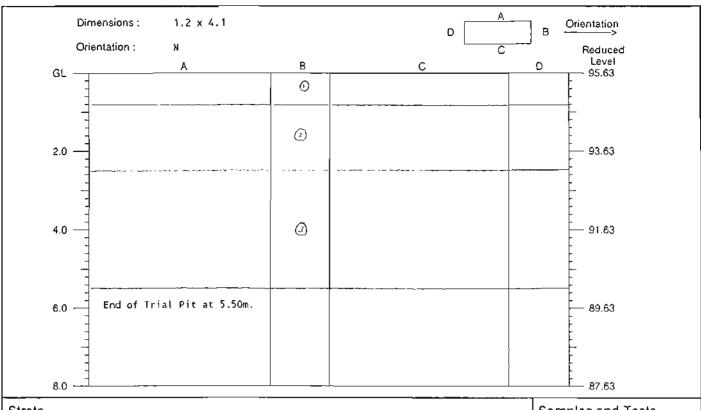
See key sheet and appendices for explanations.

Form 2/0

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Project

Bedwas Colliery Reclamation Scheme Rhymney Valley District Council Contract 155218



				-			
Strata				Sam	oles a	ind Tests	
Depth (m)	No.	Description		Depth (m)	Туре	Results	
0.00-0.80	1		own silty clayey sandy sub-angular to sub-rounded sandstone with occasional cobbles.				
0.80-2.50	2	MADE GROUND: (Dense) dar fine to coarse gravel wit concrete and a little sar	rk grey silty very sandy angular to sub-angular th some cobbles of brick and some boulders of and sized ash.	1.00	M ORG		
2.50-5.50	3		layey very silty very sandy sub-angular to sub- RAVEL of sandstone with some cobbles and	4.00 4.00 4.00 5.50 5.50	M ORG W M ORG		
			•				
	Tr	on 04/01/96 acked Excavator able	Groundwater No. Struck Behaviour Seepage at 4.00m			el 95.63 m OD s 318014.48 189297.66	
				Logge Check	ed by ked by	PCB	
Remark	5	Made two attempts at TP4	43 both encountered shallow obstructions. Two mov	es and t	No se	t ups.	

See key sheet and appendices for explanations.

Form 2/0

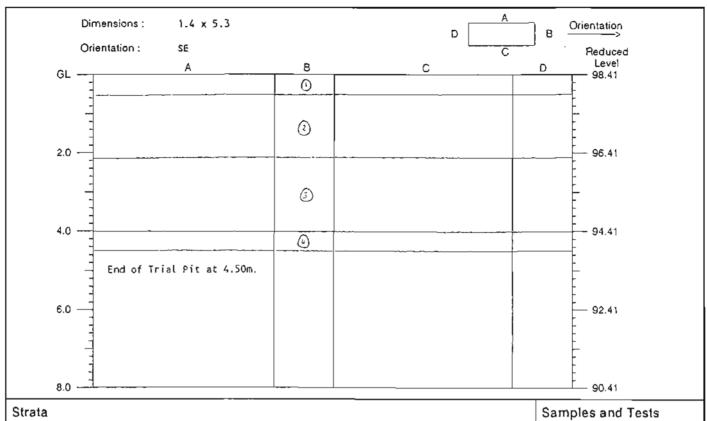
Trial Pit Record

Exploration Associates

Project

Bedwas Colliery Reclamation Scheme
Rhymney Valley District Council

Contract 155218



Strata				Sam	oles a	ind Tests
Depth (m)	No.	Description		Depth (m)	Туре	Results
.00-0.50	1	MADE GROUND: (Medium to sub-rounded fine to	dense to dense) brown silty sandy clayey sub-angular coarse gravel of sandstone with occasional cobbles.			
.50-2.10	2	sub-angular fine to co	dense) dark grey black silty very sandy angular to arse gravel with occasional cobbles, occasional ed ash and a hydrocarbon odour.	1.20 1.20 1.50	M ORG ORG	
.10-4.00	3	MADE GROUND: (Dense) rounded fine to coarse	brown grey silty very sandy sub-angular to sub- gravel of sandstone with occasional cobbles.	3.50 3.50	M ORG	
.00-4.50	4	MADE GROUND: (Loose) much tar and a strong	brown and dark grey silty fine to coarse sand with hydrocarbon odour.	4.00	ม	
	Tr	on 04/01/96 acked Excavator stable below 4.00m	Groundwater No. Struck Behaviour Seepages of tar at 1.40m and 4.00m	1		el 98.41 m ob s 317997.07 189314.84
,			, , , , , , , , , , , , , , , , , , , ,	Logge Check	ed by ked by	PCB

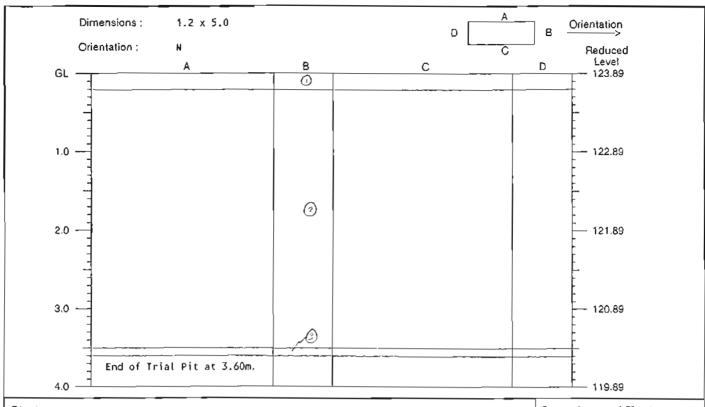
See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record	
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Project

Bedwas Colliery Reclamation Scheme Rhymney Valley District Council Contract 155218



Strata			Samples and Tests			
Depth (m)	Vo.	Description		Depth (m)	Туре	Results
0.00-0.20	1	MADE GROUND: (Mediu sub-angular fine to ash.	m dense) dark grey black silty very sandy angular to coarse gravel of coal and coke with much sand sized			
).20-3.50	2		dense below 2.00m) slightly clayey very silty very -angular fine to coarse gravel of sandstone with some al boulders.	1.20 3.10	M ORG	
3.50-3.60	3	(Very dense) slightl sandstone. (Bedrock)	y silty slightly sandy angular CO88LES and BOULDERS of			
	Tra	n 11/01/96 cked Excavator ble	Groundwater No. Struck Behaviour Not encountered during excavation			el 123.89 m OD s 317997.95 (189460.41 (
					ed by ked by	PCB

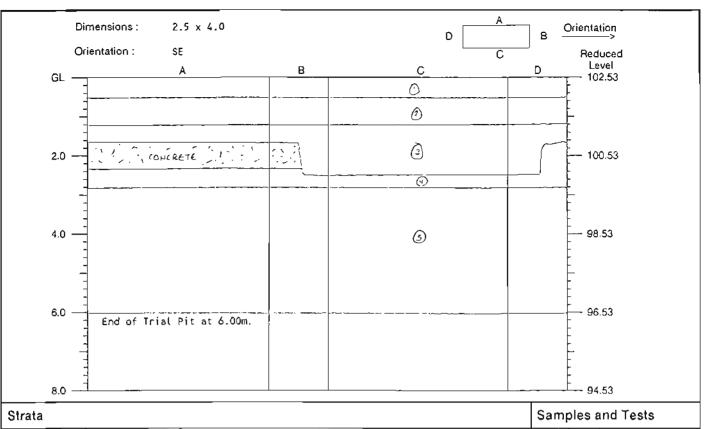
See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record
Exploration Associates

Project

Bedwas Colliery Reclamation Scheme Rhymney Valley District Council Contract 155218



Strata			Sam	ples a	ind Tests	
Depth (m)	No.	Description		Depth (m)	Туре	Results
0.00-0.55	1	MADE GROUND: (Dense rounded fine to coar occasional boulders.) brown silty very sandy very clayey angular to sub- se gravel of sandstone with occasional cobbles and			
0.55-1.20	2	organic angular to s	n dense to dense) brown grey silty sandy clayey ub-rounded fine to coarse gravel of sandstone with ond occasional boulders.	1.20	М	
1.20-2.50	3	organic angular to si cobbles and occasion	m dense to dense) dark grey black silty sandy clayey ub-rounded fine to coarse gravel with occasional al boulders with many pieces of timber, occasional ly decomposing plant matter particularly at 1.20m.	2.30 2.30	M ORG	
2.50-2.80	4		brown grey brown sandy clayey SILT with a little ed fine to coarse gravel of sandstone. (Glacíal			
2.80-6.00	5		e brown silty clayey fine to medium SAND with some ed fine to coarse gravel of sandstone with occasional posit).	3.00 3.10 4.60 4.60	M	
		angular gravel	of siltstone,	6.00	M	
		on 03/01/96 acked Excavator	Groundwater No. Struck Behaviour			el 102.53 m OD s 318009.11 mE
Stability		able	1 2.20 Seepage from underneath concrete	Logg Chec	ed by ked by	189347.58 mA PCB

Remarks Trial pit widened due to obstruction at 1.80m.

See key sheet and appendices for explanations.

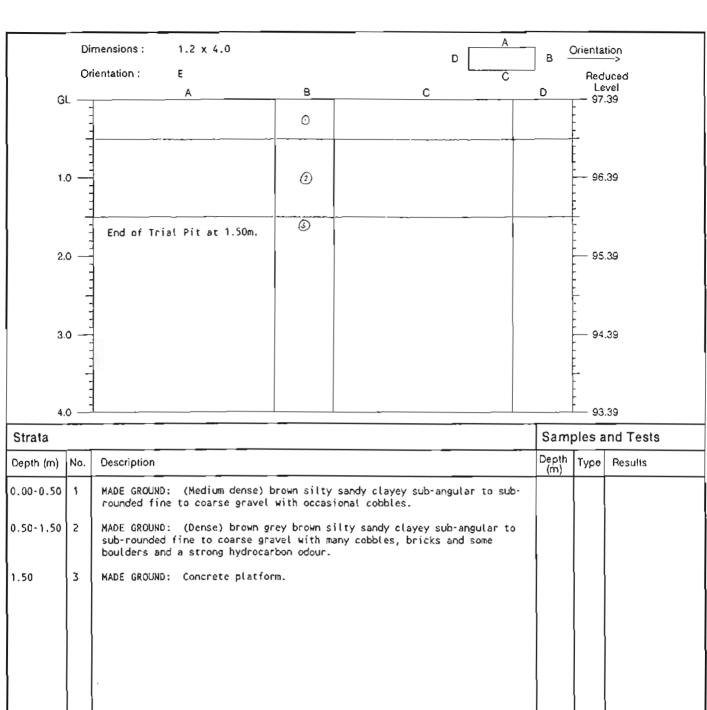
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Trial Pit Record
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Rhymney Valley District Council

Contract 155218



Depth (m)	No.	Description		Depth (m)	Туре	Results
Ceptii (iii)	140.	Bescription		(<u>m</u>)	1900	nesuns
0.00-0.50	1	MADE GROUND: (Medium de rounded fine to coarse g	ense) brown silty sandy clayey sub-angular to sub- gravel with occasional cobbles.			}
0.50-1.50	2		rown grey brown silty sandy clayey sub-angular to rse gravel with many cobbles, bricks and some ydrocarbon odour.			
1.50	3	MADE GROUND: Concrete p	olatform.			
Date of Exc Equipment Stability	Tr.	on 05/01/96 acked Excavator able	Groundwater No. Struck Behaviour Inflow at 1.40m			el 97.39 m OO s 318022.60 п 189317.20 п

See key sheet and appendices for explanations.

Remarks

Form 2/0

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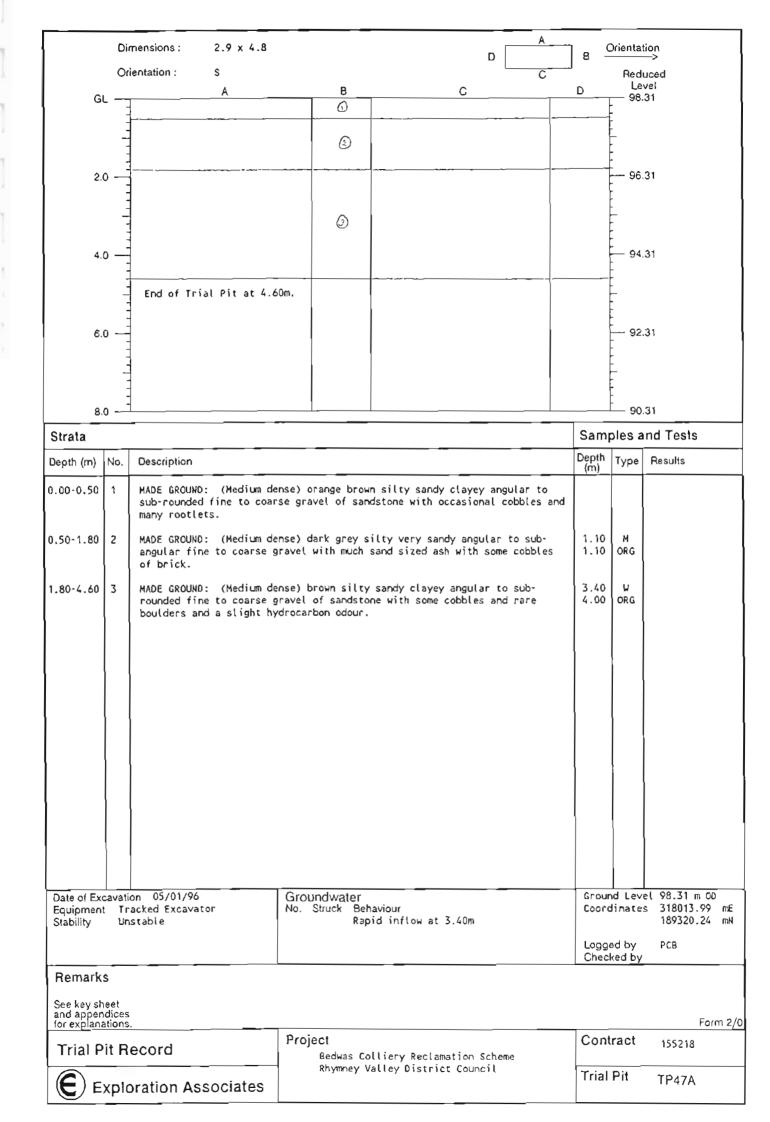
Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council

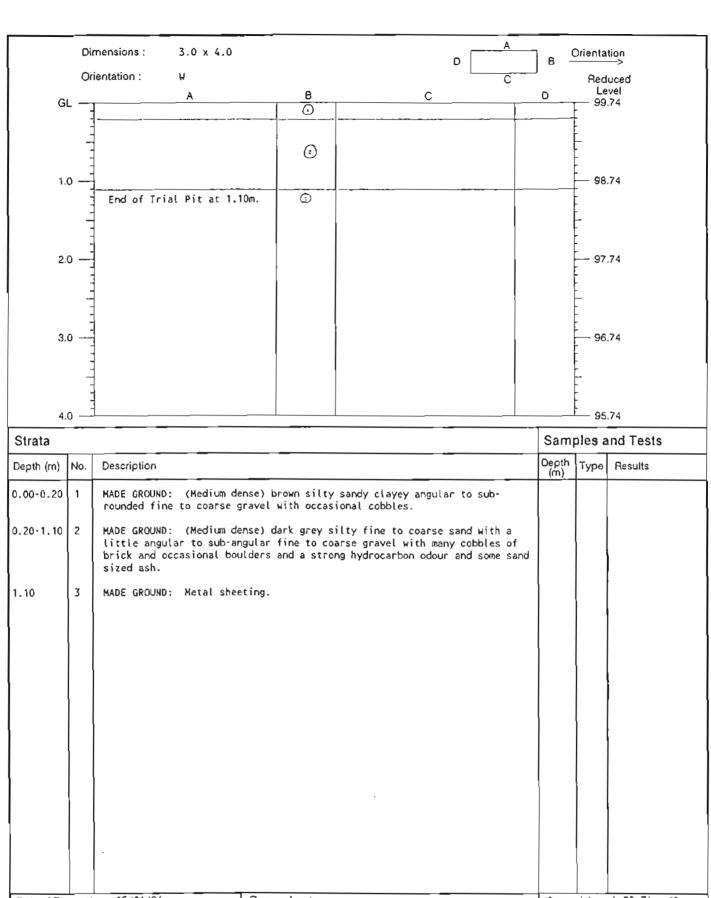
Contract 155218

PCB

Trial Pit TP47

Logged by Checked by





Date of Excavation 05/01/96 Equipment Tracked Excavator Stability Stable	Groundwater No. Struck Behaviour Not encountered during excavation			1 99.74 m 00 318028.11 189333.65	mΕ
		Logged Checke	•	PC8	

See key sheet and appendices for explanations.

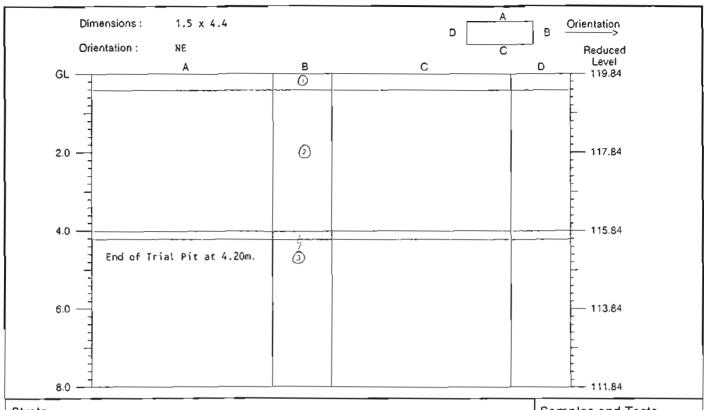
Form 2/0

Trial Pit Record	
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Strata			Samples and Tests			
Depth (m)	No.	Description		Depth (m)	Туре	Results
0.00-0.40	1		ense) brown silty sandy clayey angular to sub- gravel of sandstone with occasional cobbles.			
0.40-4.00	2		n some red brown iron staining very silty very gular fine to coarse gravel of sandstone with many boulders.	1.50 3.50	M ORG	
		becoming very dense	e below 3.00m.			
4.00-4.20	3	(Very dense) light brown BOULDERS of sandstone. (n slightly silty slightly sandy angular COBBLES and (Bedrock).	4.20	м	
			•			
Date of Ex	cavati	on 11/01/96 acked Excavator	Groundwater No. Struck Behaviour			el 119.84 m OD s 318004.84 mE
Stability		able	Not encountered during excavation	2001	111146	189437.94 mN
					ed by ked by	PCB
Remark	s					
See key st and apper for explan	neet ndices					·
tor explan	ations	·				Form 2/0

Bedwas Colliery Reclamation Scheme Rhymney Valley District Council

Project

Trial Pit Record

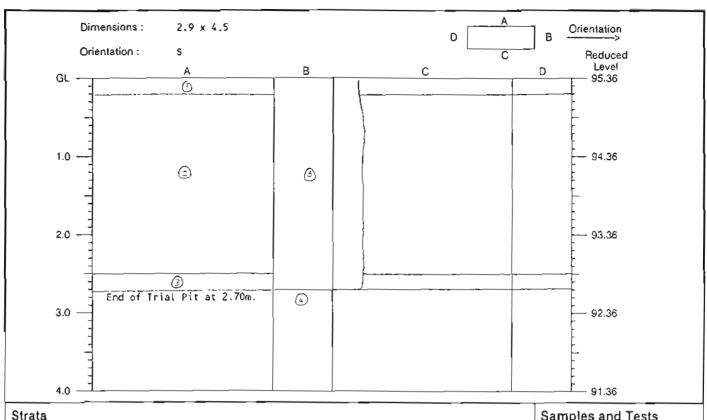
Exploration Associates

155218

TP49

Contract

Trial Pit

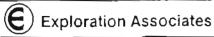


Strata		Samples and Tests				
Depth (m)	No.	Description		Depth (m)	Туре	Results
0.00-0.20	1	MADE GROUND: (Medium dense) brown s rounded fine to coarse gravel of san	ilty sandy clayey angular to sub- dstone with occasional cobbles.			
0.20-2.50	2	MADE GROUND: (Medium dense) black s fine to coarse gravel with some cobb a hydrocarbon odour and two large ty	ilty very sandy angular to sub-angular les and boulders, much sand sized ash res and some rubber cable.	0.80 0.80	M ORG	
2.50-2.70	3	MADE GROUND: (Medium dense) green b with some sub-angular to sub-rounded	rown grey silty fine to coarse sand fine to coarse gravel.			
2.70	4	MADE GROUND: Concrete platform.				
0.00-2.70	5	MADE GROUND: Concrete wall.				
				}		
					\ 	
Data of Fu		on 05/01/96 Groundwat		6	4 (***	95.36 m OD
	Tr	acked Excavator No. Struck				318032.67 m 189302.08 m
_				Logge Check	ed by ked by	PCB

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

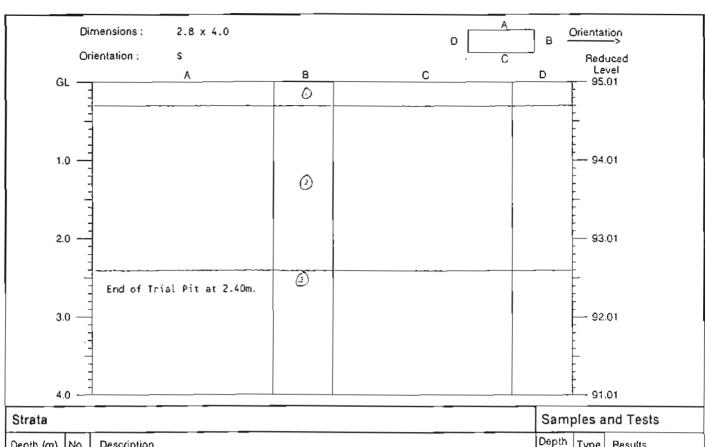


Project

Bedwas Colliery Reclamation Scheme Rhymney Valley District Council Contract

Trial Pit TP50

155218



Strata	Strata Samples and Tes			ind Tests		
Depth (m) No. Description			Depth (m)	Туре	Results	
0.00-0.30	1	MADE GROUND: (Medium dense) brown silty sandy clayey angular to sub- rounded fine to coarse gravel of sandstone with some cobbles.				
0.30-2.40	2	MADE GROUND: (Medium de to coarse gravel with so sand sized ash and a stu	ense) black silty sandy angular to sub-angular fine ome cobbles, boulders, rubber tyres, metal pipes, rong hydrocarbon odour.	1.60 1.60	ORG W	
2.40	3	MADE GROUND: Concrete s	platform.		}	
Date of Exc Equipment Stability	Tr	on 08/01/96 acked Excavator stable	Groundwater No. Struck Behaviour Rapid inflow at 1.60m		nd Lev	el 95.01 m OD s 318043.71 189300.42

Logged by Checked by

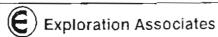
PCB

Remarks

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record

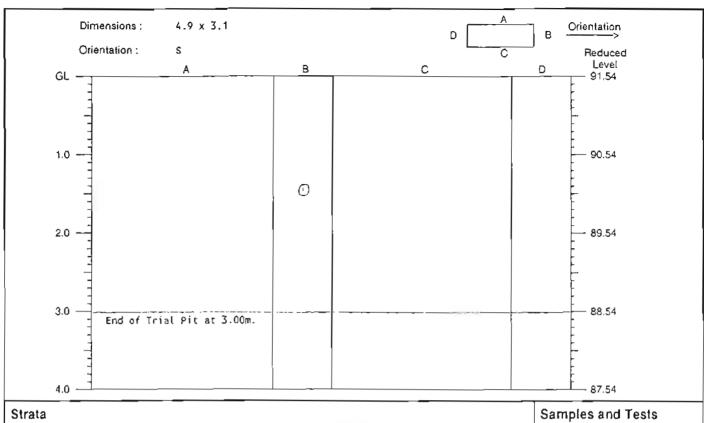


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Contract 155218

Trial Pit TP50A

	Di	mensions: 1.6 x 5.4		D	Α	В -	Orienta	tion
	Or	ientation : S						uced
G	L —	A	8	С		D	Le 93	ve! .00
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1	_		3				-	
	-						-	
4.	۰ —						89.	.00
	-						-	
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6.	0 —	End of Trial Pit at 5.	70m.				87. -	.00
	-						-	
	-						_	
	_						_ ^-	^^
8.						1	 85.	
Strata							oles a	and Tests
Depth (m)	No.	Description				Depth (m)	Туре	Results
0.00-0.50	1	MADE GROUND: (Medium de fine to coarse gravel or	ense to dense) silty f sandstone with occa	sandy angular to sub-rou asional cobbles.	nded			
0.50-1.20	2	MADE GROUND: (Medium do with some angular to sub sized ash.	ense) dark grey black b-angular fine to coa	k silty fine to coarse sa arse gravel with much san	nd d	0.70 0.70	M ORG	
1.20-4.70	3	MADE GROUND: (Medium de clayey sandy angular to cobbles occasional bould	sub-rounded fine to	prown and dark grey silty coarse gravel with some ized ash.		4.10 4.10	M ORG	
4.70-5.70	4	MADE GROUND: (Dense) gr sub-rounded fine to coar	rey brown silty clayers rse gravel of sandsto	ey very sandy sub-angular one with occasional cobbl	to es.	5.70 5.70	M ORG	
Date of Excavation 09/01/96 Equipment Tracked Excavator Stability Stable			Groundwater No. Struck Behavio Seepage	our e at 3.30m		Coord	linate	el 93.00 m OD s 318025.07 mE 189271.35 mA
						Logge Check	ed by ced by	PCB
Remark	s							
See key sh and appen for explana	dices							Earn 2.11
			Project			Cont	ract	Form 2/0 155218
Trial P	π H	ecora 	Bedwas Collie	ery Reclamation Scheme ey District Council				122510
Exploration Associates			KDJOOS VALLE	-, District Council		Trial	Pit	TP51



Strata					Samples and Tests			
Depth (m)	No.	Description		Depth (m)	Туре	Results		
0.00-3.00	1	coarse gravel of mudstor of mudstone. with a soft brown s	ense) dark grey silty sandy ashy angular fine to the and coal with some angular cobbles and boulders silty sandy clay (ayer between 1.60m and 1.75m. coulders of mudstone below 2.50m.	0.10 1.50 1.50 3.00	M M ORG			
Date of Excavation 19/01/96 Equipment Tracked Excavator Stability Much spalling		acked Excavator	Groundwater No. Struck Behaviour Not encountered during excavation			el 91.54 m OD s 318040.08 mE 189245.22 mN		

VOC monitored at 1.50m (Oppm). Trial pit terminated due to continuous spalling and undermine of pit sides.

See key sheet and appendices for explanations.

Form 2/0

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Project

Bedwas Colliery Reclamation Scheme
Rhymney Valley District Council

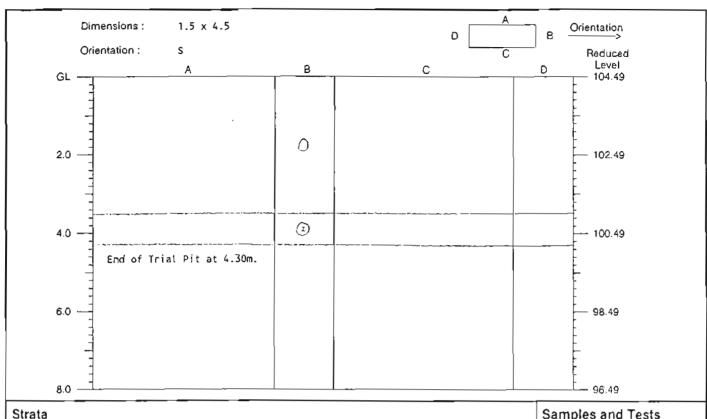
Contract 155218

PCB

Trial Pit TP52

Logged by

Checked by



Strata	Samples and Tests				ind Tests
Depth (m)	No.	Description	Depth (m)	Туре	Results
0.00-3.50	1	MADE GROUND: (Medium dense to dense) brown silty clayey sandy sub-angula to sub-rounded fine to coarse gravel of sandstone with occasional cobbles becoming stained dark grey black with a strong hydrocarbon oddur between 3.20m and 3.50m.	2.00 2.00 3.50 3.50	M	
3.50-4.30	2	(Medium dense to dense) light grey very silty very sandy sub-angular to sub-rounded fine to coarse gravel of sandstone with some cobbles and rare boulders. (Glacial Sand and Gravel).	4.30		
Date of Exc Equipment Stability	Υr	Groundwater No. Struck Behaviour stable Groundwater No. Struck Behaviour Inflow at 3.00m	Logg		et 104.49 m OD s 318040.08 m 189360.92 m

VOC monitored at 3.50m (30ppm).

See key sheet and appendices for explanations.

Form 2/0

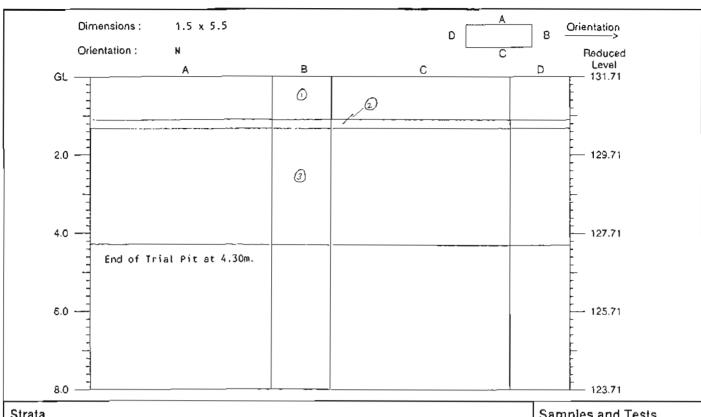
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Rhymney Valley District Council

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Strata				Sam	oles a	ind Tests
Depth (m)	No.	Description		Depth (m)	Туре	Results
0.00-1.10	1	MADE GROUND: (Medium de to coarse gravel of muds sand sized coal derived	ense) grey slightly clayey silty sandy angular fine stone (Coal Measures) with some cobbles and some ash. (Colliery Spoil).	1.00	M ORG	
1.10-1.30	2		tly clayey slightly sandy very organic SILT with cootlets. (Original buried surface).			
1.30-4.30	3	coarse GRAVEL of sandsto Sand and Gravel).	light brown very silty very sandy angular fine to one with some cobbles and rare boulders. (Glacial coulders of sandstone below 4.00m. (Possible	2.60 2.60 4.30 4.30	M ORG M ORG	
		Bedi JEK).				
	Tr	on 11/01/96 acked Excavator able	Groundwater No. Struck Behaviour Not encountered during excavation	1 '		el 131.71 m OD s 318046.98 mE 189490.78 mN
				Logge Check	ed by ked by	PCB

See key sheet and appendices for explanations.

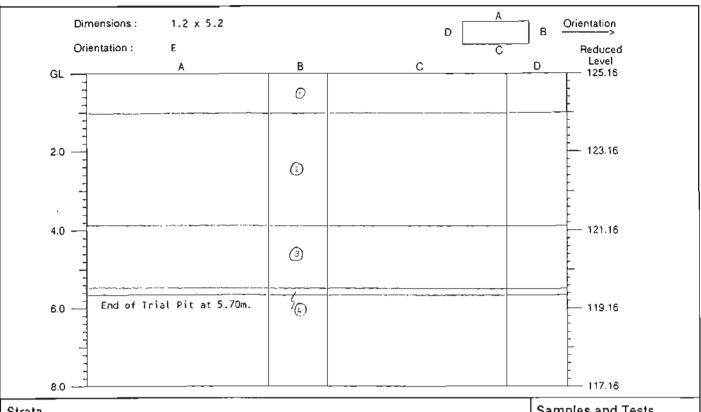
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Bedwas Colliery Reclamation Scheme
Rhymney Valley District Council

Contract 155218



Strata			Samples and Tests			
Depth (m)	No.	Description		Depth (m)	Туре	Results
0.00-1.00	1		ense) dark grey silty very sandy angular to sub- gravel with occasional cobbles rare bricks and some			
1.00-3.90	2	coarse sand with much st	ense) brown grey slightly clayey very silty fine to ub-angular fine to coarse gravel of sandstone with l bricks and rare pieces of metal pipe.	1.20 1.20 2.80	M ORG ORG	
3.90-5.50	3	MADE GROUND: (Loose to medium dense) dark grey black silty very sandy angular to sub-angular fine to medium gravel of coal and coke with much sand sized ash.				
		large piece of tim	per at 4.40m.			
5.50-5.70	4	(Medium dense) light bro to sub-angular to sub-ro Sand and Gravel).	own slightly clayey very silty very sandy angular punded fine to coarse gravel of SANDSTONE. (Glacial	5.70 5.70	M ORG	
	Date of Excavation 11/01/96 Equipment Tracked Excavator Stability Unstable Groundwater No. Struck Behaviour Slight seepage at 1.20m				el 125.16 m OD s 318047.24 m 189443.09 m	
				Logged by PCB Checked by		
Remark	s	VOC monitored at 1.20m	(25ppm), 2.80m (15ppm), 4.00m (8ppm), 5.70m (8ppm).			

Remarks VOC monitored at 1.20m (25ppm), 2.80m (15ppm), 4.00m (8ppm), 5.70m (8ppm)

See key sheet and appendices for explanations.

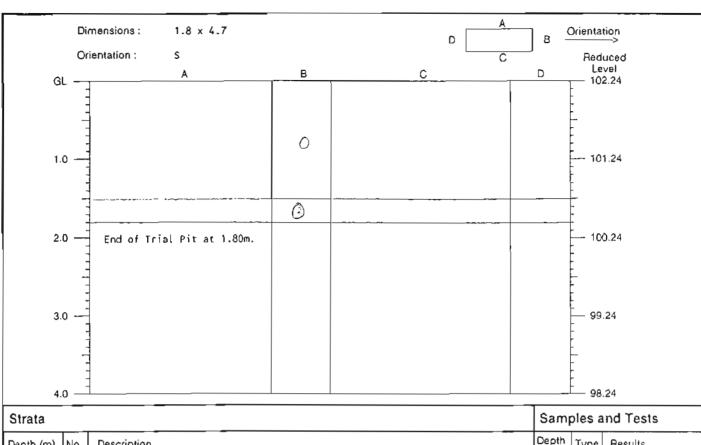
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Trial Pit Record	
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Rhymney Valley District Council

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Strata			Samples and Tests			
Depth (m)	No.	Description		Depth (m)	Туре	Results
0.00-1.50	1		ayey silty sandy sub-angular to sub-rounded stone with some cobbles occasional boulders.			
		timber sleeper at 1.70m.				
1.50-1.80	2	MADE GROUND: (Dense) dark broangular fine to coarse gravel and occasional bricks.	own and grey silty clayey angular to sub- with occasional cobbles and rare boulders			
1.80	3	MADE GROUND: Concrete obstru	ction with some bricks.			
Date of Ex	cavati	on 08/01/96 Gro	undwater	Groun	nd Lev	el 102.24 m OD
Equipmen Stability	t Tr	acked Excavator No. me spalling	Struck Behaviour Not encountered during excavation	Coord	dinate	s 318061.43 mE 189346.04 mN
				Logge	ed by ked by	PC8

See key sheet and appendices for explanations.

Form 2/0

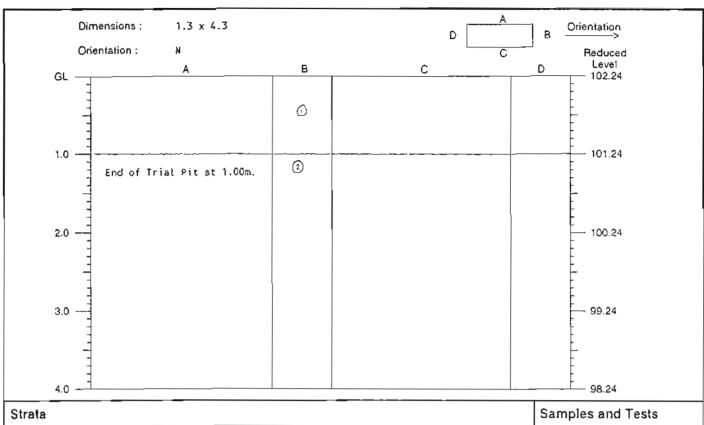
Trial Pit Record	1
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Project

Bedwas Colliery Reclamation Scheme Rhymney Valley District Council Contract 155218



Strata				Sam	ples a	and Tests
Depth (m)	No.	Description		Depth (m)	Туре	Results
0.00-1.00	1	MADE GROUND: (Medium sub-rounded fine to c rare boulders and som	dense to dense) brown silty clayey sandy ang parse gravel of sandstone with occasional cob e bricks.	ular to		
.00	2	MADE GROUND: Concret	e platform.			
		acked Excavator	Groundwater No. Struck Behaviour Not encountered during excava	Coor		et 102.24 m 00 s 318061.43 ft 189346.04 ft
				Logg Chec	ed by	PCB

See key sheet and appendices for explanations.

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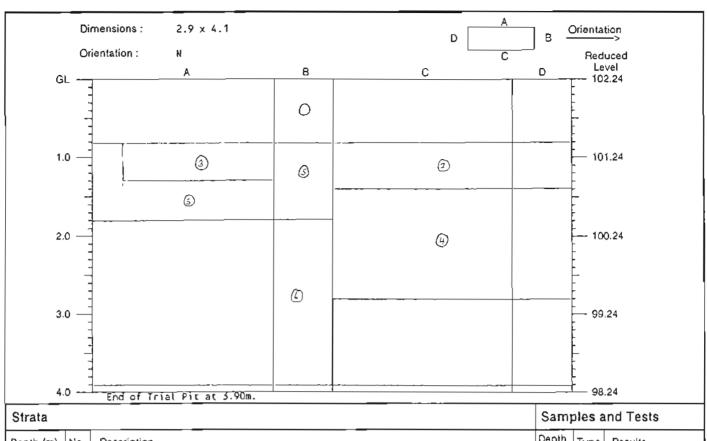
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Bedwas Colliery Reclamation Scheme
Rhymney Valley District Council

Contract 155218

Trial Pit

TP56A



Strata			Samples and Tests			
Depth (m)	No.	Description		Depth (m)	Туре	Results
0.00-0.80	1	MADE GROUND: (Medium de to sub-rounded fine to d and rare boulders.	ense to dense) brown silty clayey sandy sub-angular coarse gravel of sandstone with occasional cobbles			
0.80-2.10	2		ense to dense) brown silty clayey very sandy sub- fine to coarse gravel with occasional cobbles,			
0.80-1.30	3	MADE GROUND: Corrugated	d metal sheet.			
1.40-2.80	4	MADE GROUND: Brick wall				
0.80-1.80	5	MADE GROUND: (Dense) re silty sandy gravelly ash	ed brown angular cobbles of brick with a matrix of	1.70 1.70	M ORG	
2.10-3.90	6		rown grey angular cobbles and boulders of sandstone gravelly matrix and a strong diesel occur.	2.90 2.90 3.70 3.90 3.90	M ORG W M ORG	
		acked Excavator	Groundwater No. Struck Behaviour Rapid inflow at 3.70m			el 102.24 m OD s 318061.43 mE 189346.04 mN
Domork			(80nom) 3 90m (75nom). Pit avacuated to 1 00m tile	Chec	ed by ked by	

VOC monitored at 2.90m (80ppm), 3.90m (75ppm). Pit excavated to 1.00m tiled platform encountered. Corner of tiled platform lifted so excavation could continue.

See key sheet and appendices for explanations.

Form 2/0

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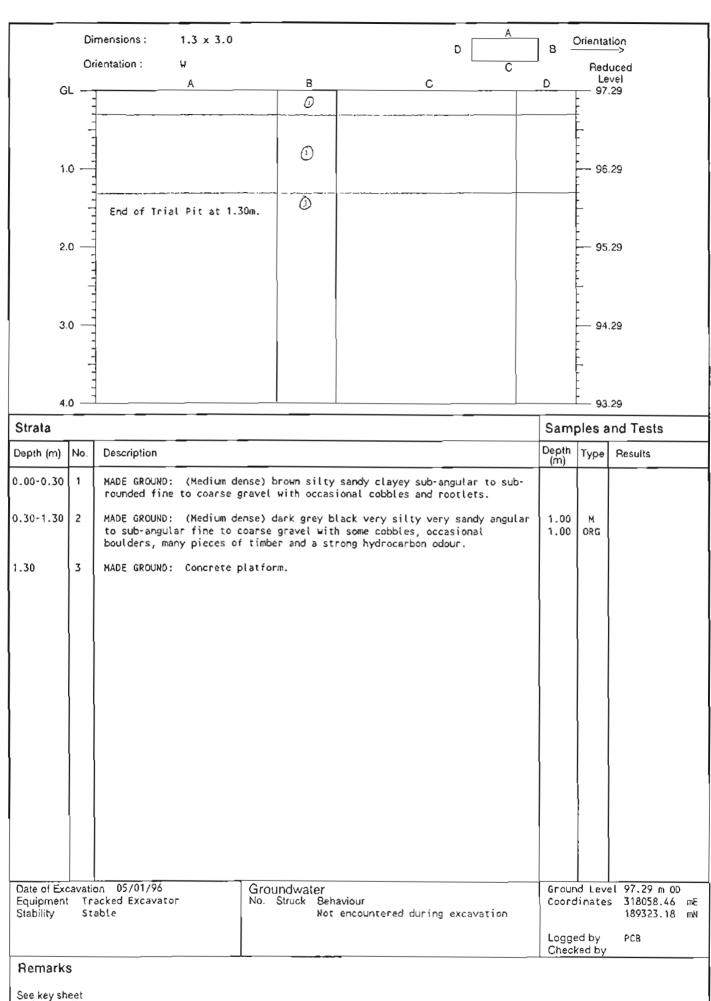
Project

Bedwas Colliery Reclamation Scheme
Rhymney Valley District Council

Contract 155218

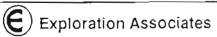
Trial Pit

TP56B



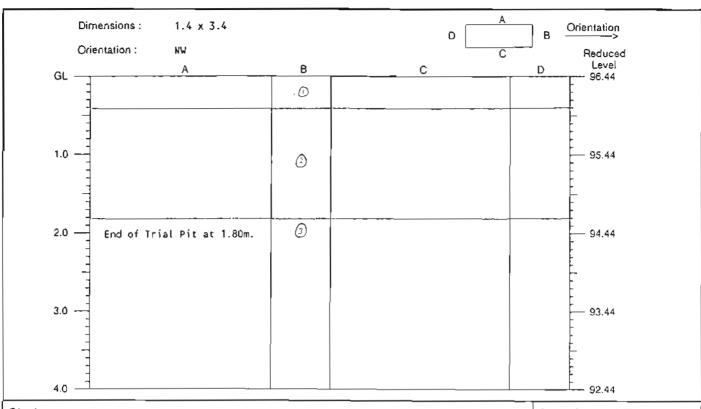
and appendices for explanations.

Form 2/0



Project

Contract 155218



rounded fine to coarse gravel MADE GROUND: (Dense) dark gracoarse gravel with many cobble stained with hydrocarbon and stained with	of brick occasional boulders of concrete	Depth (m)	Туре	Results	
0.40-1.80 2 MADE GROUND: (Dense) dark grocoarse gravel with many cobblistained with hydrocarbon and	f sandstone with occasional cobbles. sandy ashy angular to sub-angular fine to of brick occasional boulders of concrete				
coarse gravel with many cobble stained with hydrocarbon and	of brick occasional boulders of concrete		l	I .	
0.40-1.80 3 MADE GROUND: Concrete.	MADE GROUND: (Dense) dark grey sandy ashy angular to sub-angular fine to coarse gravel with many cobbles of brick occasional boulders of concrete stained with hydrocarbon and a strong hydrocarbon odour.				
		1			
Date of Excavation 05/01/96 Grou	dwater	Grour	nd Lev	el 96.44 m OD	
	ruck Behaviour Not encountered during excavation	Coord	dinate	s 318062.81 m 189313.22 m	
		Logge Check	ed by ked by	PCB	

See key sheet and appendices for explanations.

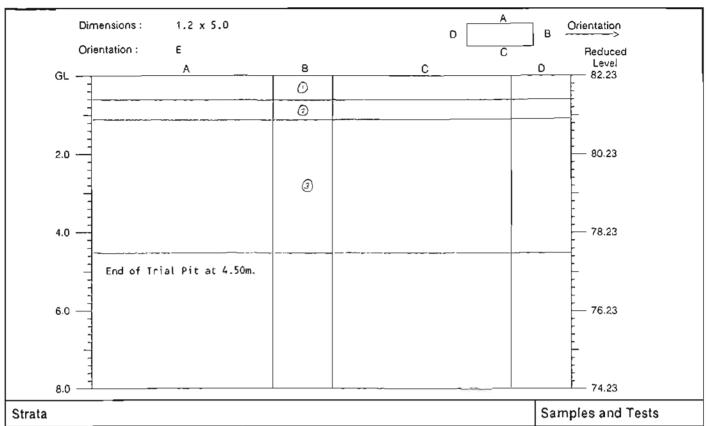
Form 2/0

Trial	Pit Record
<u>E</u>	Exploration Associates

Project Be

Bedwas Colliery Reclamation Scheme Rhymney Valley District Council Contract 155218

Trial Pit TP58



Strata				Samples and Tests			
Depth (m)	No.	Description	•	Depth (m)	Туре	Results	
0.00-0.60	1	MADE GROUND: (Dense) grey silty sandy ashy angular to sub-angular fine to coarse gravel of coal and mudstone with occasional cobbles occasional bricks.				E.	
0.60-1.10	2	MADE GROUND: (Stiff/m with a little angular cobbles with a slight	0.60	M ORG			
			brown slightly clayey silty very sandy angular to arse gravel of sandstone with some cobbles and rare	3.00 4.50	м		
		with fragments of	coal, ash and mudstone below 2.00m.				
		with many angular	cobbles of sandstone at 4.50m. (Bedrock).				
		possible natural	ground at 2.50m,				
Data of Ev		on 19/01/96	Groundwater	G C C L U	rd 1 614	el 82.23 m 00	
Equipmen Stability	t Tr	acked Excavator able	No. Struck Behaviour Slight seepage at 2.00m.			et 62.23 m 05 s 318065.90 mE 189197.63 mA	
					ed by ked by	PCB	
Remark	S	VOC monitored at 0.60	m (Зррт), 4.50m (2ppm).				

See key sheet and appendices for explanations.

Form 2/0

Ппап	PII	Record	
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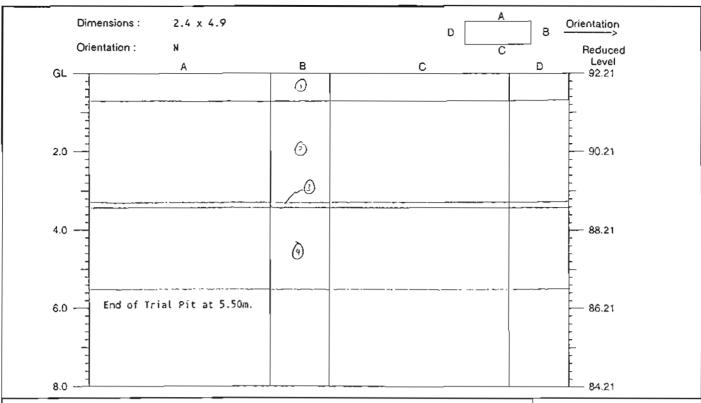
Project

Bedwas Colliery Reclamation Scheme
Rhymney Valley District Council

Contract 155218

Trial Pit

Pit TP59



Strata		Samples and Tests				
Depth (m)	No.	Description		Depth (m)	Туре	Results
0.00-0.70	1	MADE GROUND: (Mediu to sub-rounded fine boulders and occasio	m dense to dense) brown silty clayey sandy sub-angular to coarse gravel of sandstone with some cobbles, rare nal brick fragments.			
0,70-3.30	2	MADE GROUND: (Medium dense to dense) dark grey sandy angular fine to coarse gravel with many cobbles of sandstone occasional boulders with occasional pockets of orange brown silty gravelly very sandy clay and pockets of colliery spoil and ash.				
3.30-3.40	3	MADE GROUND: (Mediu angular fine to coar	3.40 3.40	M ORG		
to coarse sand with a		to coarse sand with	m dense) brown grey brown and orange brown silty fine a little sub-angular to sub-rounded fine to coarse and occasional cobbles.	5.50 5.50	M ORG	
Date of Exc Equipment Stability	Tr	on 09/01/96 acked Excavator stable	Groundwater No. Struck Behaviour Stight seepage at 3.40m			el 92.21 m OD s 318062.50 189259.48
				Logge	ed by ked by	PCB

See key sheet and appendices for explanations.

Form 2/0

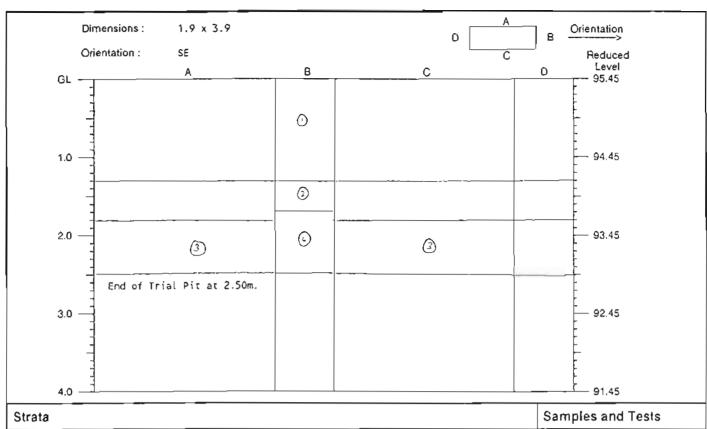
Iria	I Pit Record
<u>E</u>	Exploration Associates

Project

Bedwas Colliery Reclamation Scheme Rhymney Valley District Council Contract 155218

Trial Pit

TP60



Strata				Samp	oles a	nd Tests	
Depth (m)	No.	Description	Depth (m)	Туре	Results		
0.00-1.30	1	MADE GROUND: (Medium dense to dense) sub-rounded fine to coarse gravel of some boulders.					
1.30-1.80	2	MADE GROUND: (Dense) dark grey black some angular to sub-angular fine to co	very silty fine to medium sand with oarse gravel with much sand sized ash.	1.30 1.30	M ORG		
1.80-2.50	3	MADE GROUND: (Dense) dark grey black fine to coarse gravel with many cobble hydrocarbon odour.	silty sandy angular to sub-angular es and some boulders and a strong	2.30 2.30	M ORG		
1.70-2.50	4	MADE GROUND: Brickwall.					
						l	
				\ 			
				'			
7		on 08/01/96 Groundwate		C==//=		el 95.45 m oo	
	Tra	acked Excavator No. Struck				s 318072.47 189302.56	mΕ
				Logge	ed by	PCB	

VOC monitored at 2.50m (80ppm), H2S (0ppm).

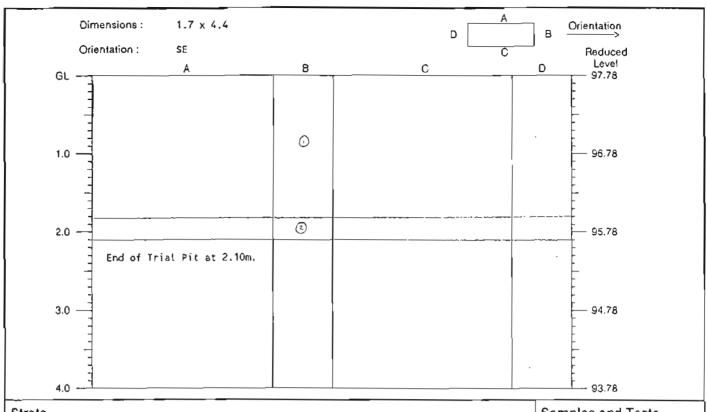
See key sheet and appendices for explanations.

Form 2/0

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Exploration Associates

Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council Contract 155218



					90	.73
Strata				Samı	ples a	and Tests
Depth (m) No. Description				Depth (m)	Туре	Results
0.00-1,80	1	MADE GROUND: (Medium de angular to sub-rounded a and occasional boulders	ense to dense) dark brown silty clayey sandy fine to coarse gravel with some cobbles of brick of concrete.	1.80	M ORG	
very clayey angular fir		very clayey angular fine	ense to dense) brown and dark brown silty sandy e to coarse gravel with some cobbles of brick, e sand sized ash and a strong hydrocarbon odour.	2.10	ORG	
See key sheet	Groundwater No. Struck Behaviour Inflow at 2.10m (upwelling) (1ppm), spoil (1ppm) H2s.	Logge	linate	el 97.78 m OD s 318079,10 m 189320.41 m		
and apper	dices					Form
			Desirat	0		_

Bedwas Colliery Reclamation Scheme Rhymney Valley District Council

Project

Trial Pit Record

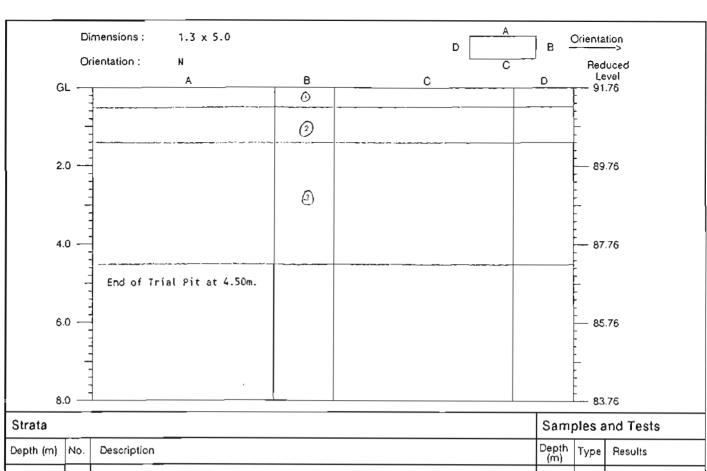
Exploration Associates

155218

TP62

Contract

Trial Pit



Strata		Samples and Tests							
Depth (m)	No.	Description				Depth (m)	Туре	Results	
0.00-0.50	1	MADE GROUND: (Medium dense rounded fine to coarse grav	e) brown s rel of san	ilty clayey sandy angular dstone with occasional col	to sub- obles.	0.10	М		
0.50-1.40	2	MADE GROUND: (Loose to medium dense) dark grey black silty sandy ash (coal derived) with a little angular to sub-angular fine to coarse gravel of coal.				1.10 1.10	M ORG		
gravel of mudstone wit		MADE GROUND: (Medium dense gravel of mudstone with som and occasional bricks and p	dense) dark grey silty sandy angular fine to coarse n some coal, many cobbles and occasional boulders and pieces of timber.		2.20 4.20				
١.									
)								
	Tr		roundwat o. Struck	er Behaviour Not encountered during ex	ccavation			91.76 m OD 318063.94 189241.69	mΕ
						Logge Check	d by ed by	PCB	

VOC monitored at 1.10m (Oppm). Due to continuous caving unable to advance.

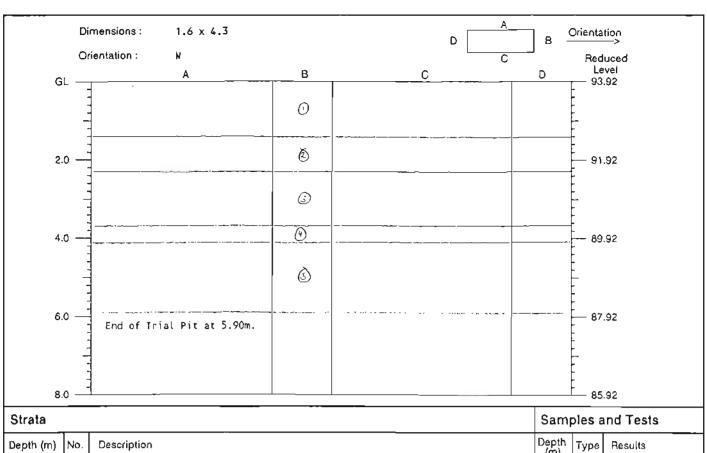
See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record
Exploration Associates

Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council

Contract 155218 Trial Pit **TP63**



Strata				Samples and Tests			
Depth (m)	No.	Description		Depth (m)	Туре	Results	
).00-1.40	1	MADE GROUND: (Medium sub-rounded fine to sandstone and brick a					
.40-2.30	2	MADE GROUND: (Medium angular to sub-angular boulders and occasion	1.50 1.50	M ORG			
.30-3.70	3	MADE GROUND: (Medium some sub-angular to some cobbles and rand	3.30 3.30 3.30	M ORG D			
.70-4.10	4	MADE GROUND: (Medium with a little sub-and sandstone with a slig					
.10-5.90	.90 5 MADE GROUND: (Dense) brown silty very clayey fine to coarse sand with a little sub-angular to sub-rounded fine to coarse gravel of sandstone with occasional cobbles.		4.80 5.90 5.90	ORG ORG W			
Date of Excavation 09/01/96 Equipment Tracked Excavator Stability Unstable	Groundwater No. Struck Behaviour Stight seepage at 2.80m		-	el 93.92 m OD s 318077.71 189275.72	ηĮ		
Ombinity	On.		The seepage of Elbonic	Logge Check	ed by ked by	PCB	119

(5ppm).

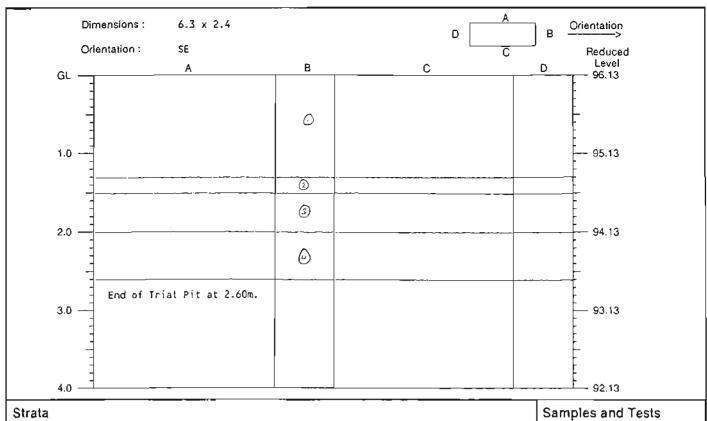
See key sheet and appendices for explanations.

Trial Pit Record

Form 2/0

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Project Bedwas Colliery Reclamation Scheme Rhymney Valley District Council Contract 155218 Trial Pit **TP64**



Strata			Sam	oles a	ind Tests
Depth (m)	No.	Description	Depth (m)	Туре	Results
0.00-1.30	1	MADE GROUND: (Medium dense to dense) brown silty sandy clayey angular to sub-rounded fine to coarse gravel with some cobbles occasional boulders.			
1.30-1.50	2	MADE GROUND: (Medium dense to dense) dark grey brown silty clayey very sandy angular fine to coarse gravel with many cobbles of brick and wire cable.			
1.50-2.00	3	MADE GROUND: Top of a brickwall.			
2.00-2.60	4	MADE GROUND: (Dense) dark grey silty sandy gravelly cobbles of brick with some wire cable, timber and a strong hydrocarbon odour.	2.50 2.50 2.50	M ORG W	
Date of Exc Equipment Stability	Tr	on 08/01/96 acked Excavator ne spalling Groundwater No. Struck Behaviour Inflow at 2.80m			et 96.13 m od s 318083.35 m 189302.84 m
			Logge	ed by ked by	РСВ

See key sheet and appendices for explanations.

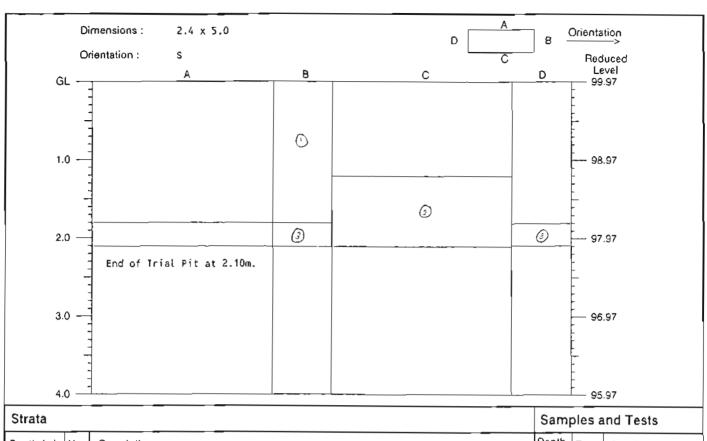
Trial Pit Record

Project

Bedwas Colliery Reclamation Scheme
Rhymney Valley District Council

Form 2/0
Contract 155218

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Strata				Sam	ples a	and Tests
Depth (m)	No.	Description		Depth (m)	Туре	Results
0.00-1.80	1	MADE GROUND: (Medium coarse gravel with man roots.	dense to dense) silty clayey sandy angular fine to by cobbles and occasional boulders with occasional			
1.20-2.10	2	MADE GROUND: Brick wa	itt.			
1.80-2.10	3	MADE GROUND: (Medium coarse gravel with muc	dense) black silty clayey sandy angular fine to h sand sized ash and a slight hydrocarbon odour.	1.80 1.80	M ORG	
2.10	4	MADE GROUND: Concrete	obstruction.			
Date of Exc Equipment Stability	Tra	on 08/01/96 acked Excavator ne spalling	Groundwater No. Struck Behaviour Inflow at 1.80m			el 99.97 m 00 s 318091.29 mE 189338.15 mN

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Re	cord
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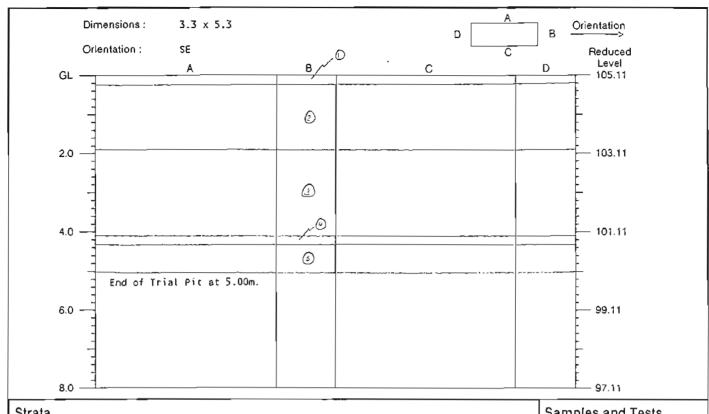
Exploration Associates

Project

PCB

Trial Pit TP66

Logged by Checked by



Strata	Strata		Samples and Tests		
Depth (m) No.		Description	Depth (m)	Туре	Results
0.00-0.20	1	MADE GROUND: (Medium dense) brown silty clayey sandy sub-angular to sub-rounded fine to coarse gravel of sandstone with occasional cobbles and many rootlets.			
.20-1.90	2	MADE GROUND: (Medium dense) brown and grey slightly clayey silty sandy angular fine to coarse gravel of mudstone with occasional cobbles and rare boulders.			
.90-4.10	3	MADE GROUND: (Dense) brown reddish brown silty sandy angular fine to coarse gravel of sandstone and mudstone with occasional cobbles.	2.10 2.10 3.40 3.40	M ORG M ORG	
.10-4.30	4	MADE GROUND: Stiff dark brown silty slightly sandy amorphous peat with occasional woody remnants.			
4.30-5.00	5	(Dense) red brown silty sandy sub-angular to sub-rounded fine to coarse gravel of sandstone with occasional cobbles.	5.00	м	
		on 10/01/96 Groundwater			el 105.11 m 00

Date of Excavation 10/01/96
Equipment Tracked Excavator
Stability Much spalling

Grounds
No. Stru

Groundwater No. Struck Behaviour Slight seepage at 4.20m Ground Level 105.11 m 00 Coordinates 318084.63 mE 189362.26 mN

Logged by Checked by PCB

Remarks

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record



Exploration Associates

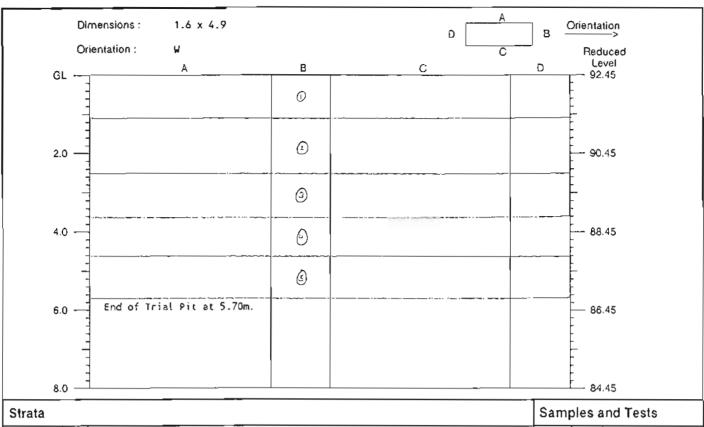
Project

Bedwas Colliery Reclamation Scheme Rhymney Valley District Council Contract

155218

Trial Pit

TP67



Strata				Samı	ple s a	nd Tests	
Depth (m)	No.	Description		Depth (m)	Туре	Results	
0.00-1.10	1		dense) dark grey slightly silty very sandy angular coarse gravel with some cobbles and much sand sized	1.00	M ORG		
1.10-2.50	2		prown silty very sandy angular to sub-rounded fine ndstone with occasional cobbles and rare boulders.				
		with band of grey	silty sandy gravelly ash between 2.30m and 2.50m.				
2.50-3.60	3		prown silty clayey very sandy sub-angular to sub- gravel of sandstone with some cobbles and	3.50 3.50	M ORG		
3.60-4.60	4		grey brown silty sandy angular to sub-angular fine ndstone with many angular cobbles of sandstone and				
4.60-5.70	5		ty fine to coarse SAND with some sub-angular to sub- gravel of sandstone with occasional cobbles. el).	5.10 5.10	M ORG		
Date of Exc Equipment Stability	Tr	on 09/01/96 acked Excavator stable	Groundwater No. Struck Behaviour Not encountered during excavation			et 92.45 m OD s 318090.44 189263.55	mΕ
					ed by ked by	PCB	
Remark	s						

See key sheet and appendices for explanations.

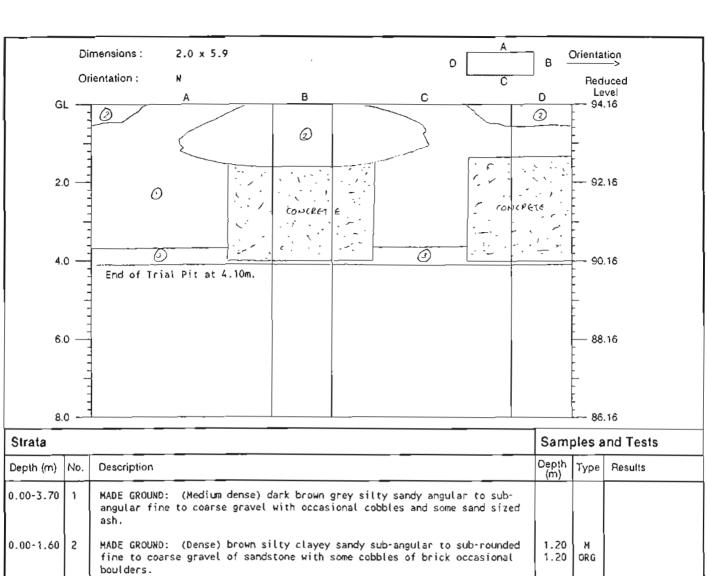
Form 2/0

Trial	Pit	Record	

Exploration Associates

Project

Bedwas Colliery Reclamation Scheme Rhymney Valley District Council Contract 155218



Strata				Sam	ples a	nd Tests
Depth (m)	No.	Description		Depth (m)	Туре	Results
0.00-3.70	1	MADE GROUND: (Medium dense angular fine to coarse grav ash.	e) dark brown grey silty sandy angular to sub- vel with occasional cobbles and some sand sized			
0.00-1.60	2		n silty clayey sandy sub-angular to sub-rounded andstone with some cobbles of brick occasional	1.20 1.20	M ORG	
3.70-4.10	3		grey silty very sandy sub-angular to sub- vel of sandstone with occasional cobbles and acial Sand and Gravel).	2.90 4.10 4.10	ORG M ORG	
					}	
					,	
Date of Exc Equipment Stability	Tr		roundwater o. Struck Behaviour Not encountered during excavation			el 94.16 m od s 318096.65 mE 189280.22 mN
	_			Logge Check	ed by ked by	PCB

VOC monitored at 2.90m (1ppm), 4.10m (1ppm).

See key sheet and appendices for explanations.

Form 2/0

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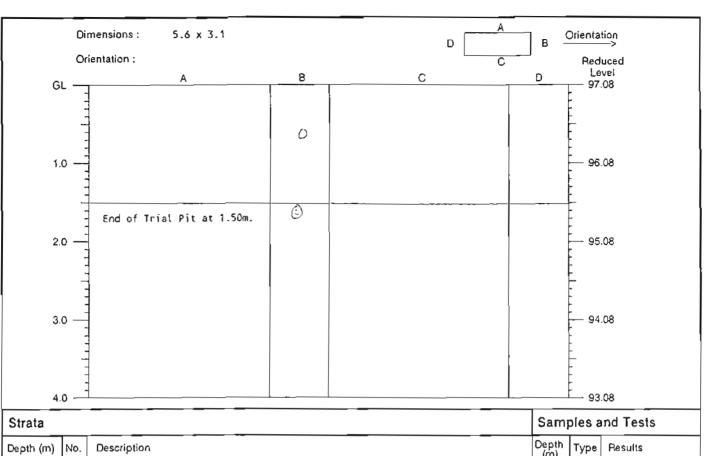
Project

Bedwas Colliery Reclamation Scheme
Rhymney Valley District Council

Contract 155218

Trial Pit

TP69



Strata				Sam	ples a	ind Tests
Depth (m)	No.	Description		Depth (m)	Туре	Results
0.00-1.50	1	MADE GROUND: (Dense) brown s to coarse gravel with many co boulders of solidified tar po	ilty sandy clayey angular to sub-rounded fine bbles occasional boulders some bricks and ssibly tarmac.			
1.50	2	MADE GROUND: Platform obstru	ction.			
		on 08/01/96 Gro acked Excavator No.	Undwater Struck Behaviour Slight seepage at 1.50m	Logge	dinate	el 97.08 m 00 s 318115.07 189318.55 PC8

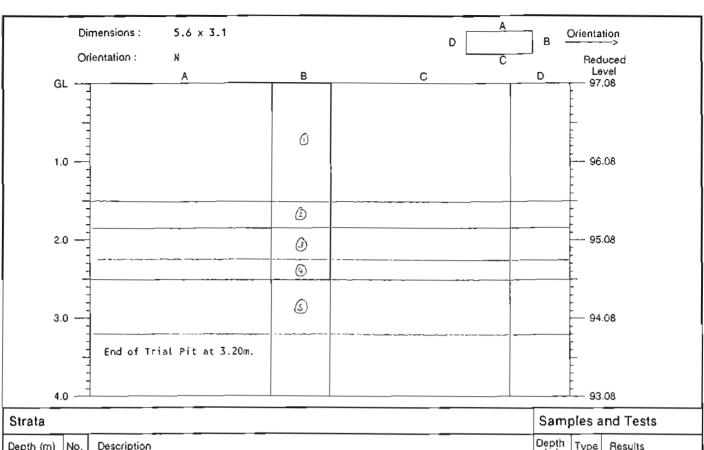
See key sheet and appendices for explanations.

Form 2/0

Trial	Pit Record
<u>(E)</u>	Exploration Associates

Project

Bedwas Colliery Reclamation Scheme Rhymney Valley District Council Contract 155218



Strata	Strata		Samples and Tests			
Depth (m)	No.	Description		Depth (m)	Туре	Results
0.00-1.50	1		silty sandy clayey angular to sub-rounded fine obbles occasional boulders some bricks and ossibly tarmac.			
1.50	2	MADE GROUND: Platform obstr	uction.			
1.50-1.85	3	MADE GROUND: Concrete.		1.80	w	
1.85-2.25	4	MADE GROUND: (Dense) brown occasional angular cobbles.	slightly sandy angular coarse gravel with (sub-base).			
1.85-2.50	5	MADE GROUND: (Medium dense angular fine to coarse grave hydrocarbon odour.	to dense) dark grey silty sandy angular to sub- l with some cobbles rare boulders and a strong	2.30	M ORG	
2.50-3.20	6	MADE GROUND: (Loose to medi ash with some sub-angular to strong hydrocarbon odour.	um dense) dark grey slightly sandy very silty sub-rounded fine to coarse gravel and a	2.60 2.60	M ORG	
Date of Exc Equipment Stability	Tr		Dundwater Struck Behaviour Slight seepage at 1.50m			: (97.08 m OD : 318115.07 mE 189318.55 mN
•			·	Logge Check	ed by ced by	PCB

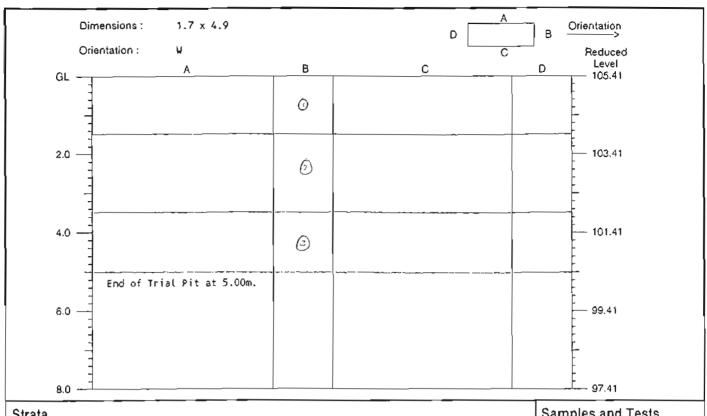
VOC monitored at 2.60m (500ppm). Continuous inflow at Face B at 1.80m.

See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record	Project Bedwas Colliery Reclamation Scheme	Contract	155218
Exploration Associates	Rhymney Valley District Council	Trial Pit	TP70A

	Di	mensions: 1.8 x 5.8			A		3 -	Orienta	tion
	O	ientation ; S			С				uced
G	L —	Α	B	С		D		Le 98.	vel 29
	_ :							-	
)	-		(2)					_	
									
2.	o —		0					 96. -	29
	-							-	
ì			(O					_	
4.	o —							- 94.	.29
		End of Trial Pit at 4.4						-	
	-							_	
						1			•
6.	0 —							92. -	.29
	-							-	
	;							-	
8.	o —							90.	29
Strata						S	amı	oles a	nd Tests
Depth (m)	No.	Description		-		De	epth (m)	Туре	Results
0.00-0.15	1	MADE GROUND: Concrete.					()		
0.15-1.30	2	MADE GROUND: (Medium de	nse to dense) grey b	rown silty sandy		1	.20	и	
				. ,		1	.20	ORG	
1.30-2.00	3	MADE GROUND: (Dense) or fine to coarse gravel of				ded			
2.00-2.60	4	MADE GROUND: (Dense) br rounded fine to coarse g and a strong hydrocarbon	ravel of sandstone wi			ers			
2.60-4.00	5	MADE GROUND: (Very dens sandstone with some cobb	e) brown silty angula les. (Possible bedroo	ar fine to coars ck at 3.60m).	e gravel of	4	08.9	ORG M ORG	
4.00-4.40	6	MADE GROUND: (Very dens	e) brown slightly sam	ndy angular fine	to coarse			OKC	
l)	gravel of sandstone with	many cobbles. (Bedro	ock).					ı
						- }			
l									
1									
	ĺ								
D		10/01/0/	Consideration				<u> </u>		el 98.29 m 00
Equipment	Tr	on 10/01/96 acked Excavator	Groundwater No. Struck Behaviou					-	318116.87 mE
Stability	Oc	casional spalling	Inflow a	at 0.15m					189334.96 mN
								ed by	PC8
Remark	s	VOC monitored at 1.20m	(150ppm), 2.80m (30pp	om), 4.00m (25pp	m).				
See kev sh	eet								
See key sh and appen for explana	dices ations	·							Form 2/
Trial P	it R	ecord	Project			C	ont	ract	155218
			Bedwas Collie Rhymney Valley	ry Reclamation S y District Counc	cheme il	-	rial	Di+	T07:
(E) E:	xplo	oration Associates				'	ııdı	L 11	TP71

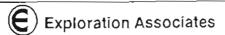


Strata	trata			Samples and Tests		
Depth (m)	No.	Description		Depth (m)	Туре	Results
0.00-1.50	1	angular to sub-rounded 1	ense) brown slightly clayey silty very sandy fine to coarse gravel of sandstone with some as and rare boulders and occasional polythene	1.00	M ORG	
1.50-3.50	2		medium dense) dark grey black very silty fine to little angular fine to coarse gravel with some bles of brick.	2.00	M ORG	
3.50-5.00	3		prown iron staining clayey silty very sandy angular coarse gravel of sandstone with some cobbles and	4.00 4.00 5.00 5.00	M ORG M ORG	
Date of Ex Equipmen Stability	t Tr	on 11/01/96 acked Excavator stable in stratum 2	Groundwater No. Struck Behaviour Not encountered during excavation	Logg	inate	el 105.41 m OD s 318113.46 m8 189359.23 mA

See key sheet and appendices for explanations.

Form 2/0

Tria	Pit F	Record



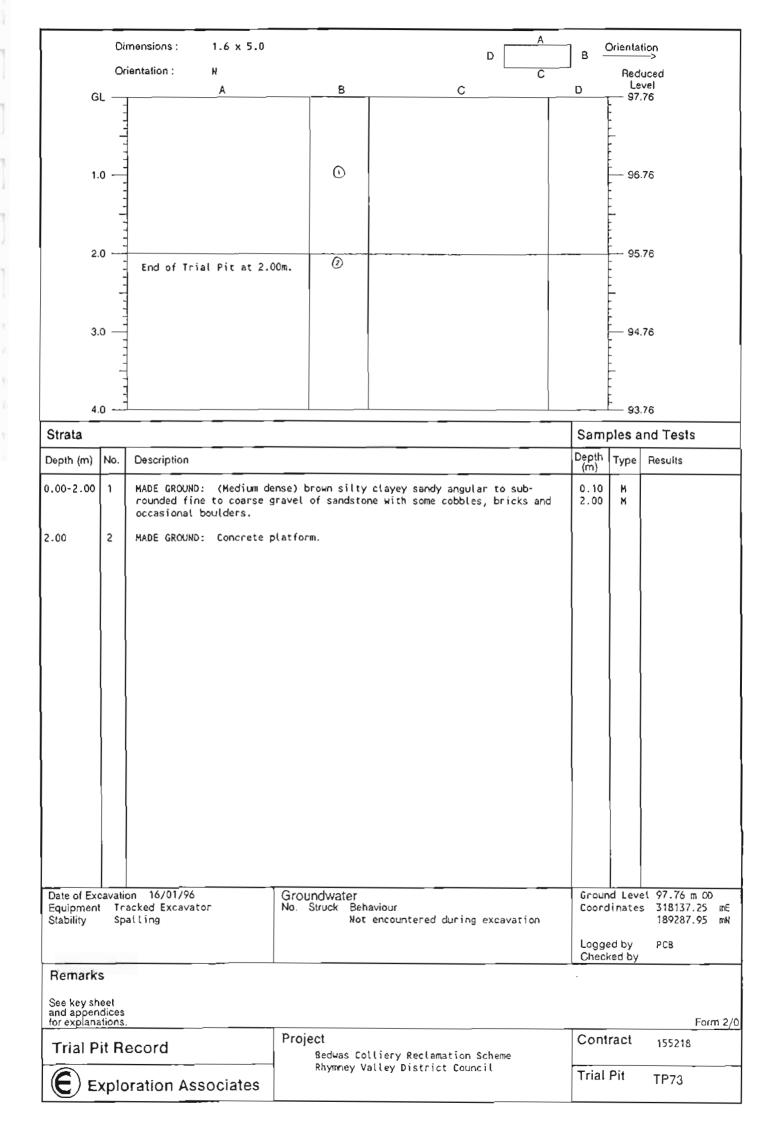
Project

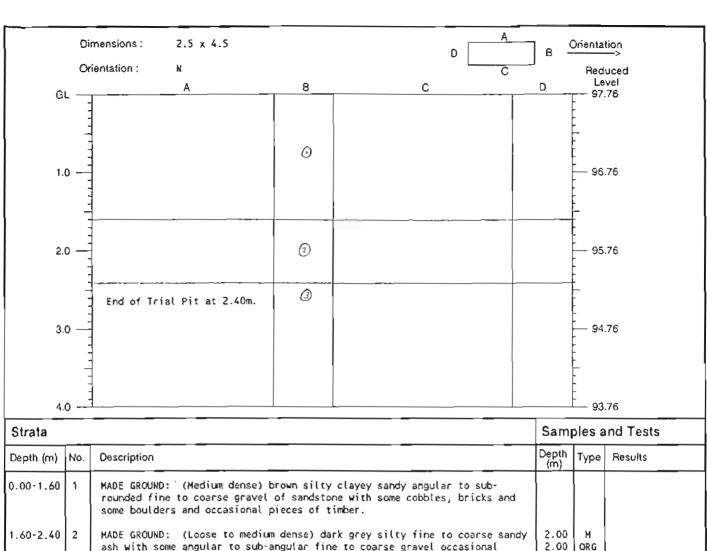
Bedwas Colliery Reclamation Scheme
Rhymney Valley District Council

Contract 155218

Trial Pit TP72

Checked by





Strata	trata			Samples and Tests			
Depth (m)	No.	Description		Depth (m)	Туре	Results	
0.00-1.60	1	MADE GROUND: (Medium d rounded fine to coarse some boulders and occas	ense) brown silty clayey sandy angular to sub- gravel of sandstone with some cobbles, bricks and ional pieces of timber.				
1.60-2.40	2	ash with some angular t	medium dense) dark grey silty fine to coarse sandy o sub-angular fine to coarse gravel occasional casional pieces of timber.	2.00	MORG		
2.40	3	MADE GROUND: Concrete	obstruction.				
					<u> </u>		_
Date of Exc Equipment Stability	Tr	on 16/01/96 acked Excavator stable	Groundwater No. Struck Behaviour Not encountered during excavation			el 97.76 m OD s 318137.25 189287.95	m/
				Logge	ed by ked by	PCB	

See key sheet and appendices for explanations.

Form 2/0

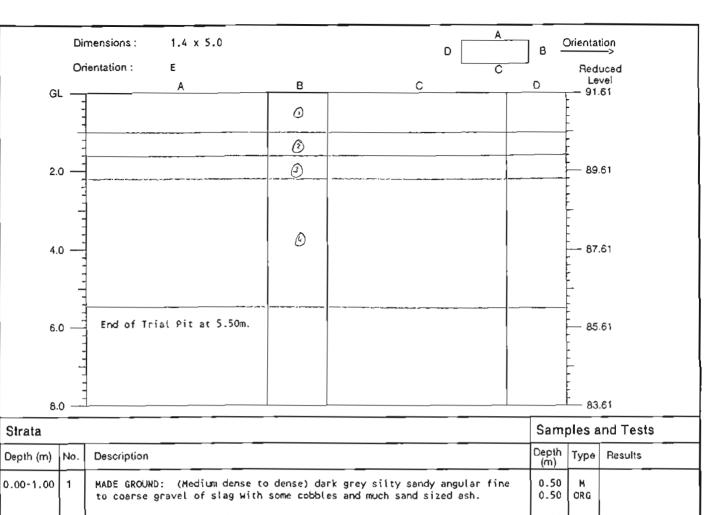
Trial	Pit	Record
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Project

Bedwas Colliery Reclamation Scheme Rhymney Valley District Council Contract 155218

Trial Pit TP73A



Strata			Samples and Tests			
Depth (m)	No.	Description		Depth (m)	Туре	Results
0.00-1.00	1		ense to dense) dark grey silty sandy angular fine with some cobbles and much sand sized ash.	0.50 0.50	M ORG	
1.00-1.60	2		ense to dense) orange brown clayey silty very sandy fine to coarse gravel of sandstone with some al Sand and Gravel).	1.20	М	
1.60-2.20	3	MADE GROUND: (Dense) ar some bricks.	ngular flat cobbles and boulders of sandstone with			ı
2.20-5.50			tled grey clayey very silty very sandy angular to se GRAVEL of sandstone with some cobbles. (Glacial	3.50 5.50	м	
Date of Ex Equipmen Stability	t Tr	on 16/01/96 racked Excavator ome spalling	Groundwater No. Struck Behaviour Slight seepage at 2.40m			el 91.61 m OD s 318162.89 mE 189261.03 mW

Logged by Checked by PCB

Remarks

See key sheet and appendices for explanations.

Form 2/0

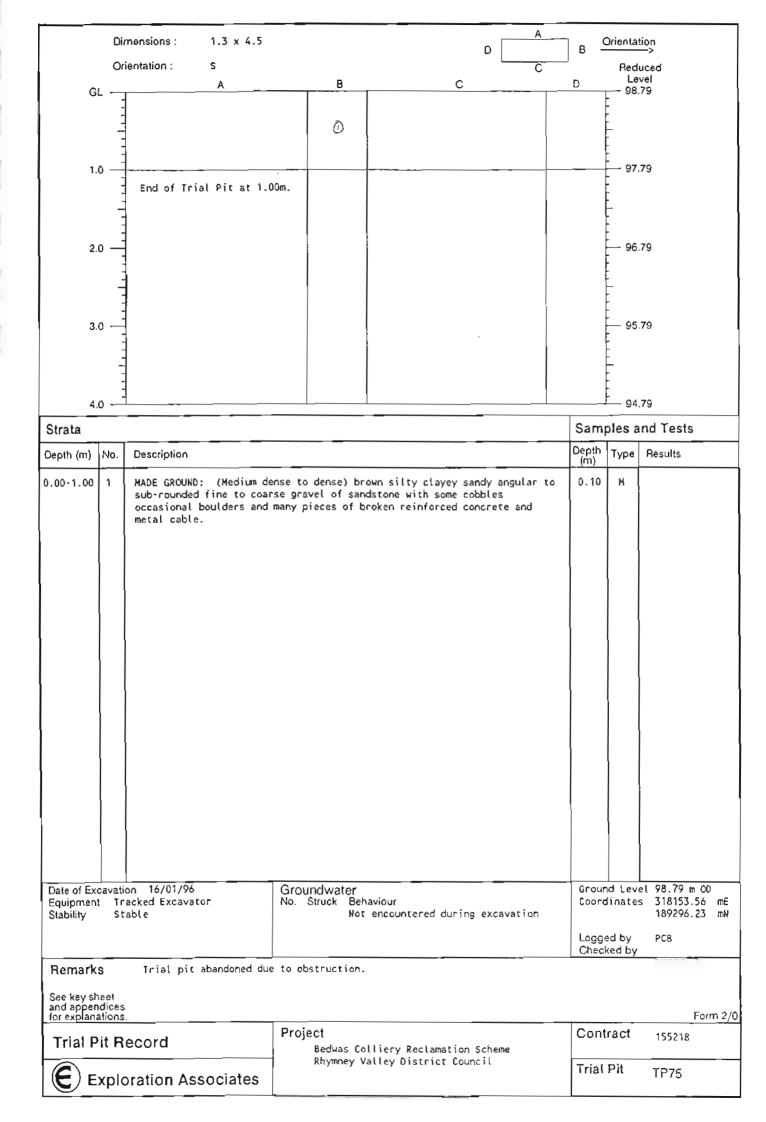
Trial	Pit	Rec	ord

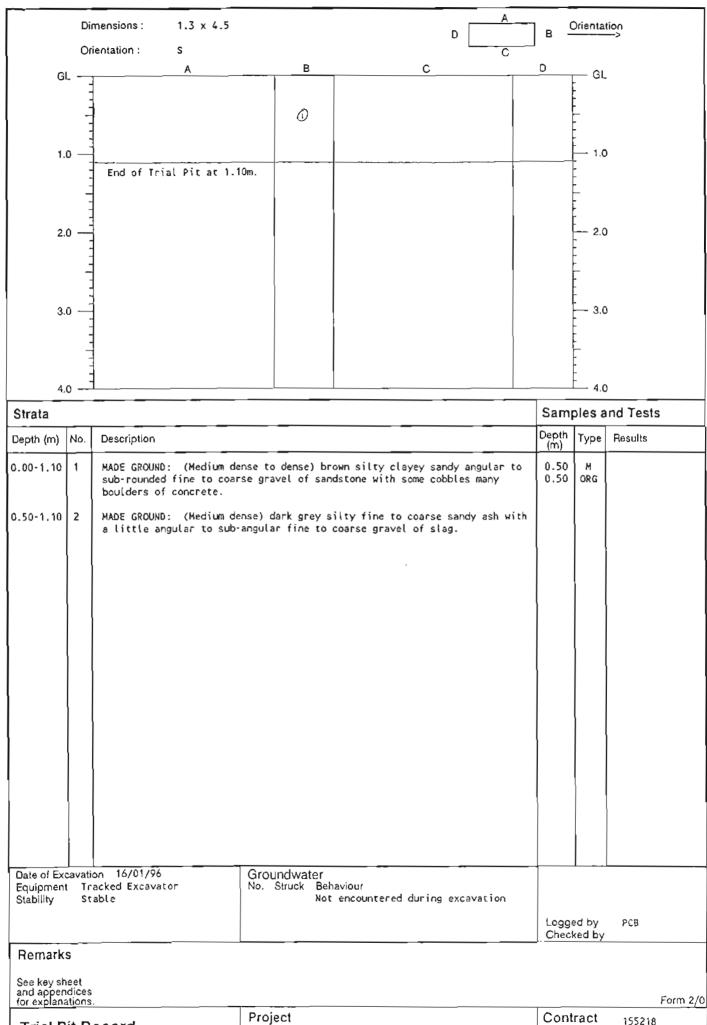


Project

Bedwas Colliery Reclamation Scheme Rhymney Valley District Council

Contract 155218





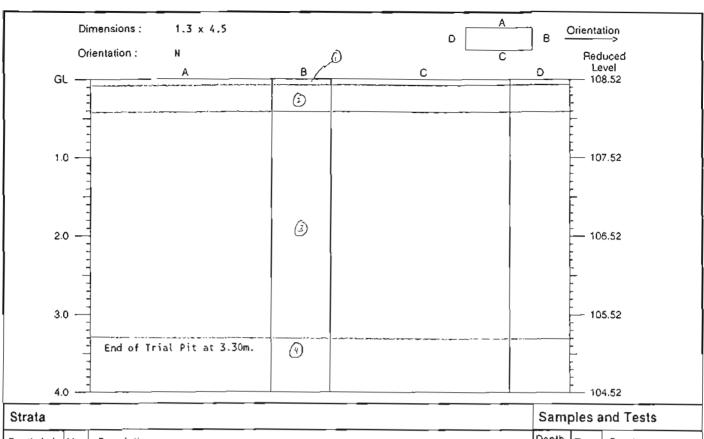
Trial Pit Record

Exploration Associates

Bedwas Colliery Reclamation Scheme Rhymney Valley District Council

155218

Trial Pit TP75A



Strata	ata			Samples and Tests		
Depth (m)	No.	Description	Depth (m)	Туре	Results	
0.00-0.05	1	MADE GROUND: (Medium dense) brown grey silty fine to coarse sand with a little angular to sub-angular fine to coarse gravel and many rootlets.				
0.05-0.40	2	(Medium dense) orange brown sandy SILT with a little angular to sub- angular fine to coarse gravel of sandstone.	0.10	м		
0.40-3.30	3	(Medium dense to dense) light brown silty sandy angular fine to coarse GRAVEL of sandstone with some cobbles.	1.00 1.00 3.00	M ORG M		
3.30	4	Sandstone BEDROCK.				
Date of Ext Equipment Stability	t Tr	on 17/01/96 acked Excavator able Groundwater No. Struck Behaviour Not encountered during excavation			el 108.52 m OD s 318169.95 m£ 189380.58 mN	
			Logge Checi	ed by ked by	PCB	

Remarks VOC monitored at 1.00m (Oppm).

See key sheet and appendices for explanations.

Form 2/0

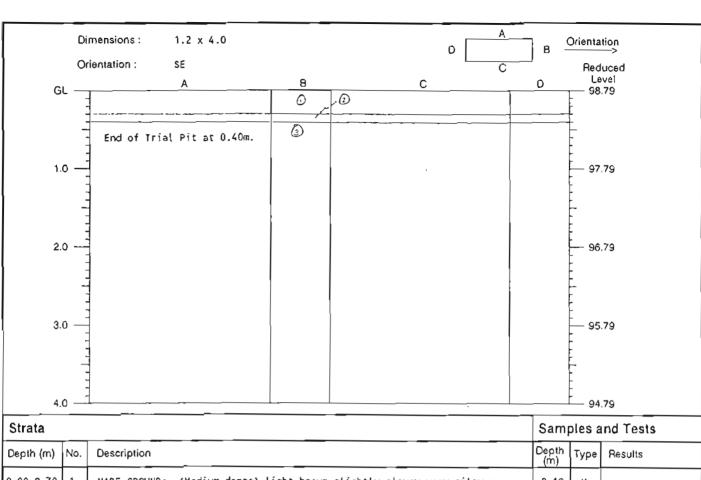
Exploration Associates

Trial Pit Record

Project

Bedwas Colliery Reclamation Scheme Rhymney Valley District Council Contract 155218

Trial Pit TP76



Strata			Samples and Tests				
Depth (m)	No.	Description		Depth (m)	Туре	Results	
0.00-0.30	1	MADE GROUND: (Medium dense) l sandy angular to sub-rounded f occasional cobbles and occasion	ight brown slightly clayey very silty very ine to coarse gravel of sandstone with nal bricks.	0.10	М		
0.30-0.40	2	MADE GROUND: (Dense) dark grey with metallic sheen silty sandy angular to sub-angular fine to coarse gravel of (solidifed tar/bitumen) with some cobbles and a hydrocarbon odour.			M ORG		
0.40	3	MADE GROUND: (Concrete).					
Data of Five		17/01/04	n division	C	4.1 ***	1 00 70 00	
= 4 - 1 · · ·		acked Excavator No. S	NOWATER Struck Behaviour Not encountered during excavation	Ground Level 98.79 m OD Coordinates 318201.64 mb 189311.37 mb			mΕ
				Logge Check	ed by ed by	PCB	

VOC monitored at 0.30m (41ppm). Position moved 10.00m east. TP77A strata and depths identical. No samples taken, no water 1.2m x 2.5m.

See key sheet and appendices for explanations.

Project

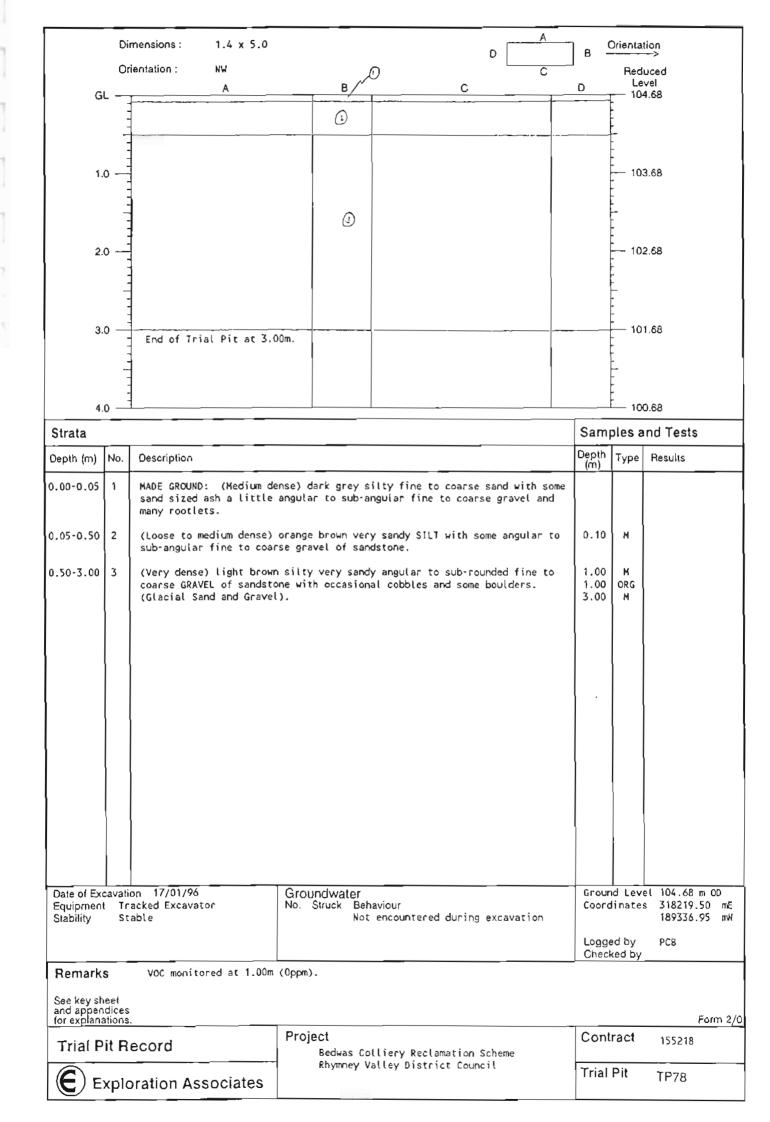
Bedwas Colliery Reclamation Scheme Rhymney Valley District Council

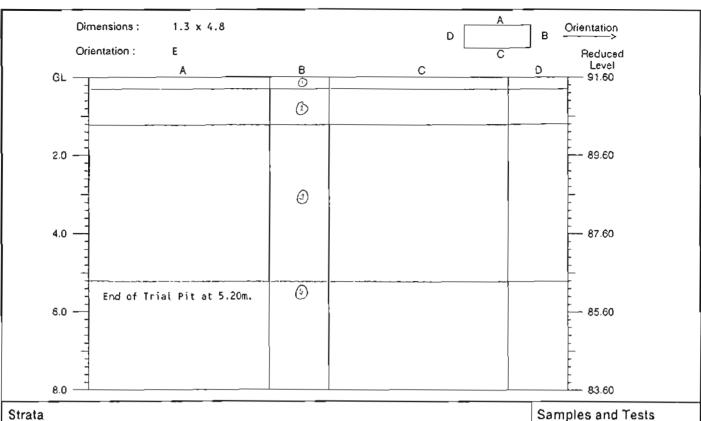
Form 2/0 Contract 155218

Trial Pít

TP77

Trial Pit Record





Strata			Samples and Tests						
Depth (m)	No.	Description	_			Depth (m)	Туре	Results	
0.00-0.30	1			e) black very silty fine t ub-angular fine gravel an		0.10	м		
0.30-1.20	2	MADE GROUND: (Medium dense to dense) dark grey brown silty very sandy very ashy angular to sub-angular fine to coarse gravel of slag, sandstone and brick fragments with some cobbles and occasional boulders.			0.50	ORG			
1.20-5.20	3	(Medium dense becoming dense below 3.50m) orange brown very silty very sandy angular to sub-rounded fine to coarse GRAVEL of sandstone with occasional cobbles and occasional boulders.			1.80 3.80	M M			
\ 		with many angular	to sub-rounde	ed boulders of sandstone b	elow 4.50m.				
5.20	4	Sandstone bedrock at 5.0	20m.			5.20	M		
Date of Ex	Date of Excavation 16/01/96 Groundwater		Grour	nd Lev	el 91.60 m OD				
Equipment Stability	Equipment Tracked Excavator No. Struck Behaviour		xcavation			318225.08 189264.31	mΕ		
					Logge Chect	ed by ked by	PCB		

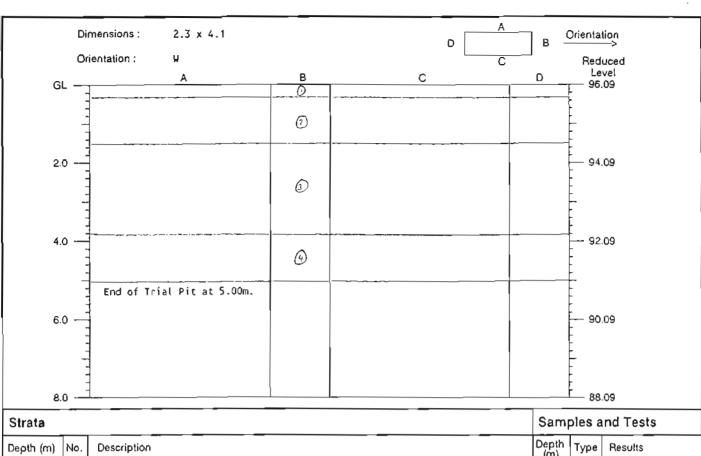
See key sheet and appendices for explanations.

Form 2/0

Trial Pit Record	
E Exploration	Associates

Project

Bedwas Colliery Reclamation Scheme Rhymney Valley District Council Contract 155218



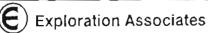
Strata			Samples and Tests				
Depth (m)	No.	Description		Depth (m)	Туре	Results	
0.00-0.30	1	MADE GROUND: (Medium dense) dark grey silty fine to coarse sandy ash with many cobbles of brick.			M ORG		
0.30-1.50	2	MADE GROUND: (Medium dense) light brown very silty fine to coarse sand with some angular to sub-rounded fine to coarse gravel of sandstone with some cobbles, bricks and occasional boulders.			м		
1,50-3.80	3		MADE GROUND: (Medium dense) grey silty very sandy very ashy angular to sub-angular fine to coarse gravel with some cobbles, bricks and many boulders of concrete.				
3.80-5.00	4	(Loose) soft fine to medium orange brown clayey sandy SILT with some angular to sub-rounded fine to coarse gravel of sandstone with occasional cobbles. (Glacial Sand and Gravel).			ж		
		becoming very gravelly below 4.50m.					
Date of Exe Equipment Stability	Date of Excavation 16/01/96 Equipment Tracked Excavator Stability Unstable Groundwater No. Struck Behaviour Not encountered during excavation				96.09 m OD s 318290.33 189272.48	mΕ	
				Logge Check	ed by ked by	PC8	

VOC monitored at 0.10m (3.4ppm), 2.00m (3.6ppm). First position uncovered concrete under thin cover of grass, weeds and colliery spoil (0.10m).

See key sheet and appendices for explanations.

Form 2/0

Т	rial	Pit	Reco	rd
		_		

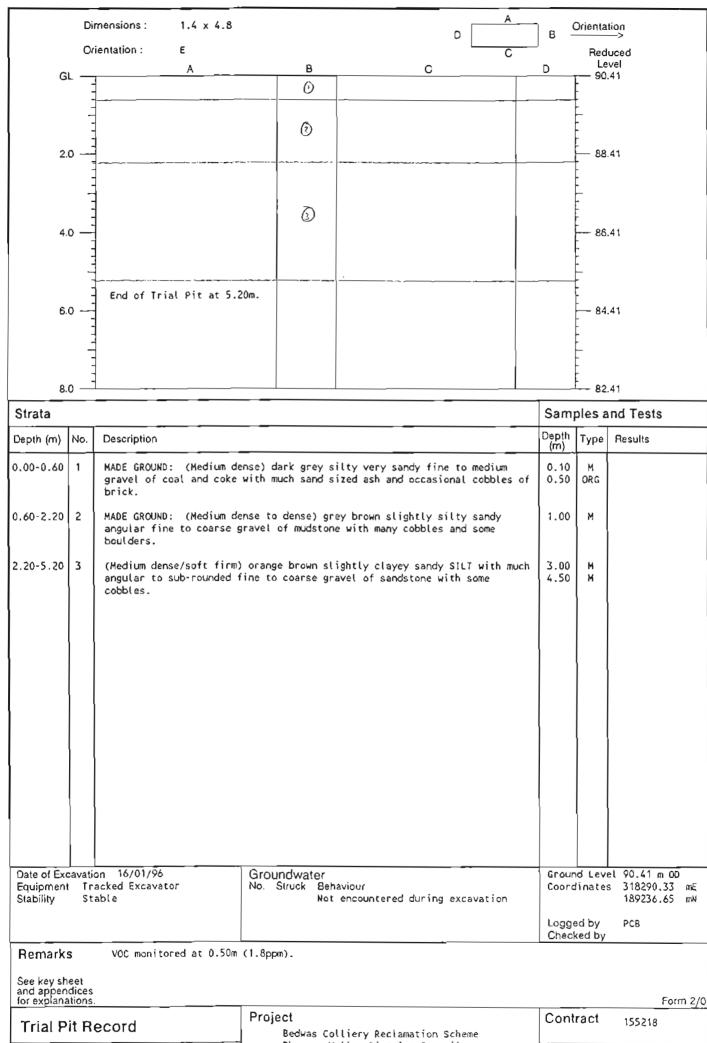


Project

Bedwas Colliery Reclamation Scheme

Rhymney Valley District Council

Contract 155218



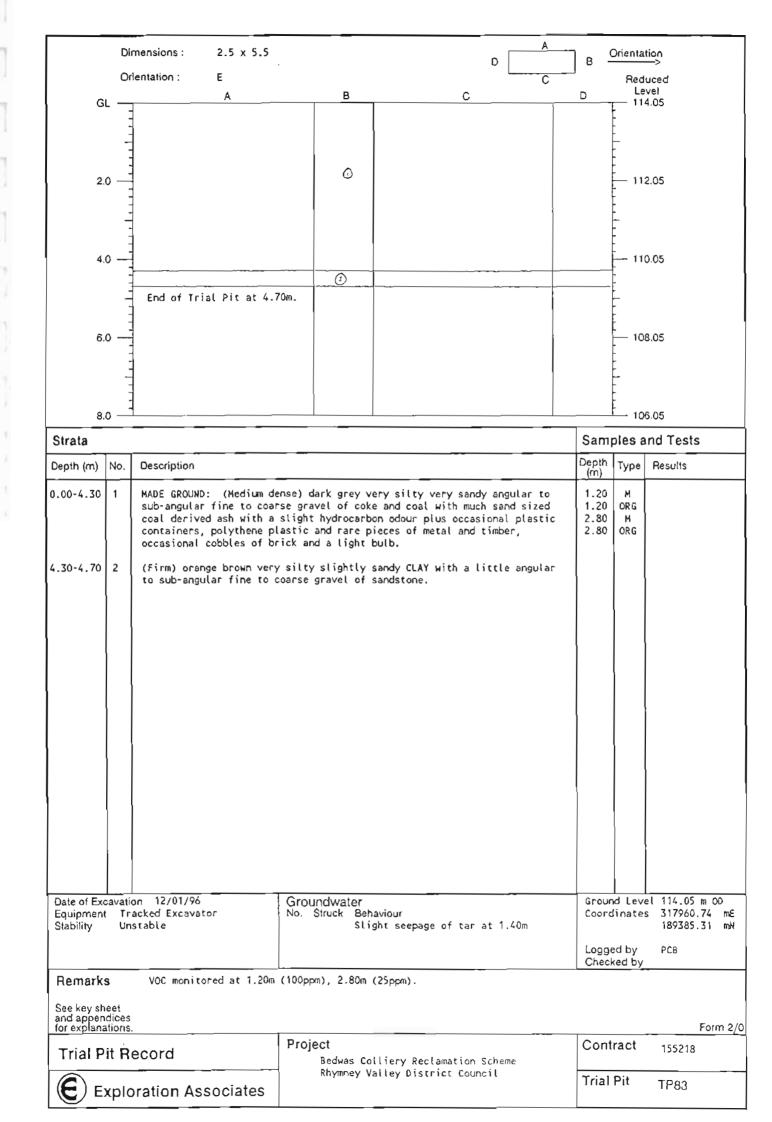
Exploration Associates

| Trial Pit Record | Bedwas Colliery Reclamation Scheme Rhymney Valley District Council | Trial Pit | TP81

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	Dir	mensions: 1.3 x 5.4		ο	A] в 🕹	Orientat	ion ->
	Ori	ientation: S			С	J	Redu	
GI	_	A		С		D	Le\ 114	
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	-						-	
			0				-	
2.0)						— 112 -	1.46
	_					ļ		
	-						-	
4.0	o —					,	110	.46
	-	End of Trial Pit at 4.	30m,					
	1						_	
							-	
6.	o —						108	3.46
	-						- -	
							-	
8.	o						- 106	5.46
Strata						Samı	oles a	nd Tests
Depth (m)	No.	Description				Depth (m)	Туре	Results
0.00-3.20	1	MADE GROUND: (Medium d	ence) grav varv ciltu v	acy sandy angular to	ub-	1.00	м	
0.00-3.20	'	angular fine to coarse	gravel with some cobble	s much sand sized ash	some	1.30	м	
	- {	pieces of timber, metal hydrocarbon odour and r	, paint pots, polythene are pieces of white spe	plastic and a strong nt oxide (lime derive	d).	1.30	ORG	
3.20-4.30	2	Possible MADE GROUND:				3.20	м	
		slightly clayey very si coarse GRAVEL of sandst		to sub-angular fine to	3	3.20	ORG M	
						4.30		
		H:						
		12101101						1 447 77 =-
Date of Exc Equipment	٦r	acked Excavator	Groundwater No. Struck Behaviour				d Leve linates	
Stability	So	me spalling	Seepages	at 1.60m				189395.50 mN
					Logge	ed by ked by	PC8	
Remarks	<u>-</u>	VOC monitored at 1.30m	(85ppm), 3.20m (50ppm)	, 4.30m (20ppm).		2.7551		
See key sh								
and appen for explana	dices tions	,						Form 2/
Trial P			Project			Cont	ract	155218
Tilal P		- -	Bedwas Colliery Reclamation Scheme Rhymney Valley District Council				D 1:	
Exploration Associates			,,	,		Trial	Pit	TP82

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E



ENCLOSURE B

In Situ Monitoring

Standpipe Readings	SWL 1
Gas Monitoring	GML 1-6

		1	1	Installat	ion Details	S				
Borehole No.	18	6A	1	2	4	10	12			
Гуре	s	s	s	s	s	s	s			
Date Installed	16/01/96	11/01/96	09/04/96	22/01/96	15/01/96	22/01/96	17/01/96			
Depth to Base (m)	30.00	9.80	10.40	30.00	30.00	30.00	20.00			
Ground Level m OD	90.68	94-16	90.68	81.95	93.37	106.86				
Date/Time					Depth to \	Water (m)				
10/01/96			7.15							
11/01/96			7.05							İ
12/01/96		8.86	7.00							
13/01/96		9.10	7.12							
15/01/96	1	9.15	7.30							
16/01/96		9.21	7.36		27.50					ļ
17/01/96	_	-	_	,	_					
18/01/96	28.45	DRY	7.45		26.75		7.65		İ	
19/01/96	-	_	-		_		-			
22/01/96	27.90	DRY	7.54	20.70	26.48	22.97	7.30			
26/01/96	_	_	_	DRY	_	-	-			
14/02/96	28.50	_	6.80	20.30	25-38		_			
				20.30						
								li.		
	ļ t									
							}			
	,									

Water Level Readings

(E) Exploration Associates

Project
Bedwas Colliery Reclamation Scheme Rhymney Valley District Council

Form 50/1 Contract 155218 SWL/1

Borehole	Depth of Installation (m)	Explosive Gases/CH ₄ (%)	CO ₂ (%)	O ₂ (%)	CH ₄ (% LEL)	VOC (ppm)
1	3.00	0	-	21.5	0	0
	9.50	0	-	21.8	0	0
	10.40	0	-	22.0	0	0

Remarks:

* Monitoring carried out during drilling

Borehole	Depth of Installation (m)	Explosive Gases/CH ₄ (%)	CO ₂ (%)	O ₂ (%)	CH ₄ (% LEL)	VOC (ppm)
2	1.50	0	-	21.2	0	0
	1.50	0	-	21.8	0	0
	6.80	0	-	21.6	0	0
-	6.80	0	-	21.7	0	0
Remarks:	Remarks: * Monitoring carried out during drilling					

Borehole	Depth of Installation (m)	Explosive Gases/CH ₄ (%)	CO ₂ (%)	O ₂ (%).	CH₄ (% LEL)	VOC (ppm)
3	4.00	0.1	_	22.1	0	0
	5.80	0	-	22.0	0	0
	6.50	0	-	21.5	0	0
	8.50	0.1	•	22.0	0	60
Remarks:	Remarks: * Monitoring carried out during drilling					

Gas Monitoring Record	Project	Contract 155218
Exploration Associates	Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	Figure GM1

Borehole	Depth of Installation (m)	Explosive Gases/CH ₄ (%)	CO ₂ (%)	O ₂ (%)	CH₄ (% LEL)	VOC (ppm)	
4	5.00	0	-	21.5	0	3	
	5.20	0	-	22.5	0	0	
	5.75	0	-	22.0	0	0	
Remarks:	Remarks: * Monitoring carried out during drilling						

Borehole	Depth of Installation (m)	Explosive Gases/CH ₄ (%)	CO ₂ (%)	O ₂ (%)	CH ₄ (% LEL)	VOC (ppm)
5	1.00	0	-	21.4	0	0
	4.00	0	-	21.6	0	0
	11.00	0	-	21.4	0	0
	15.00	0	-	21.6	0	0
Remarks: * Monitoring carried out during drilling						

Borehole *	Depth of Installation (m)	Explosive Gases/CH ₄ (%)	CO ₂ (%)	O ₂ (%)	CH ₄ (% LEL)	VOC (ppm)
6	6.60	0	_	21.5	0	0
Remarks:	* Monitor	ing carried out	during drillin	ng		

Borehole	Depth of Installation (m)	Explosive Gases/CH ₄ (%)	CO ₂ (%)	O ₂ (%)	CH ₄ (% LEL)	VOC (ppm)
6A	5.50	0	-	22.2	0	0
	9.80	0	•	22.4	0	0
Remarks: * Monitoring carried out during drilling						

Gas Monitoring Record	Project Bedwas Colliery Reclamation Scheme	Contract 155218
Exploration Associates	Rhymney Valley District Council	Figure GM2

Borehole	Depth of Installation (m)	Explosive Gases/CH ₄ (%)	CO ₂ (%)	O ₂ (%)	CH ₄ (% LEL)	VOC (ppm)	
8	1.50	0	0	21.5	0	0	
	4.50	0	0	20.5	0	0	
Remarks:	Remarks: * Monitoring carried out during drilling						

Borehole	Depth of Installation (m)	Explosive Gases/CH ₄ (%)	CO ₂ (%)	O ₂ *(%)	CH ₄ (% LEL)	VOC (ppm)	
9	0.50	0	-	21.0	0	0	
	4.50	0	-	21.2	0	0	
Remarks:	Remarks: * Monitoring carried out during drilling						

Borehole	Depth of Installation (m)	Explosive Gases/CH ₄ (%)	CO ₂ (%)	O ₂ (%)	CH ₄ (% LEL)	VOC (ppm)				
10	1.00	0	-	21.7	0	0				
	5.00	0	-	22.4	0					
	8.50	0	-	22.0	0	0				
Remarks:	Remarks: * Monitoring carried out during drilling									

Borehole	Depth of Installation (m)	Explosive Gases/CH ₄ (%)	CO ₂ (%)	O ₂ (%)	CH ₄ (% LEL)	VOC (ppm)				
11	1.00	0	-	21.5	0	0				
	4.75	0	-	21.5	0	0				
Remarks: * Monitoring carried out during drilling										

Gas Monitoring Record	Project Bedwas Colliery Reclamation Scheme	Contract	155218
Exploration Associates	Rhymney Valley District Council	Figure	GM3

	- State Of the proposition of	1000 - 1 1880003	yeza, a Mi	C0003047070	Burre	www.awail	and the same trade of				
Date: 12/1/96	Meteorolog	ical & Site Con	ditior	ıs			- Nahara				
Time: 2.00pm	State of gr	ound:	Dry	. 4/.		Moist	*	Wet		Ti Suran	
Operator: AF	Wind:	4	Cal	m		Light	*	Mod.		. Stro	ong
	Wind Direc	tion:						_			
	Cloud Cov	er:	Noi	ne		Slight	*	Cloud	dy	Ove	ercast
	Precipitation	n:	Noi	ne	*	Slight		Mod.		Hea	avy
	Barometric	pressure (mba	rs):				Air Te	emp °C:			
Instrumentation Details:				-							
	GI Infra	ser		GMI Lar	ndsurvey	or -	*	GMI CO	Porta	ble	
Equipment Used		(specify):					_				
Borehole/	Depth of	Explosive) ₂ (%)	02 (941	CP (6	% LEL)	H ₂ S	/0//	voc
Installation	Installation (m)	Gases/CH ₄ (%)		2 (%)	021	<i>λ</i> ο)	———		123	(%)	(mad)
1	10.40	0	0		20.8	.8 0			0	0	
6A	9.80	0	0		21.0		0		0		0
			L								L
											<u> </u>
									_		
-											
			1								
									_		+

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11

Gas Monitoring Record	Project Bedwas Colliery Reclamation Scheme	Contract	155218
Exploration Associates	Obumany Vallay Ofataiat Causail	Figure	9M 4

Date: 16/1/96	ν	leteorolog	Ical & Site Cor	iditio	ns								
Time: 3.00pm	S	tate of gro	ound:	Dry	/ .			Moist	*	We	School et;		
Operator: AF	٧	vind:		Ca	lm			Light	*	Мс	od;	35	Strong
	V	Vind Direc	tion:										
	C	loud Cove	er:	No	ne			Slight	*	Clo	oudy	(Overcast
	P	recipitatio	n:	No	ne·			Slight	*	Мо	od.	}	le avy
	В	arometric	pressure (mba	ars):					Air	Temp '	C:	_	
Instrumentation Details:													
		GI Infra	Red Gas Analy	/ser		G	MI Lan	dsurvey	or -	*	T _{GN}	MI CO, Po	rtable
Equipment Used		Others									009 (0.00.00		
Borehole/ Installation		oth of allation	Explosive Gases/CH ₄ (%)	С	O ₂ (%))	02 (5	~)	CH ₄	(% LEL	_}	H ₂ S (%)	VOC (ppm)
1	10.4	40	0	0			21.2		0			0	0
6A	9.80)	0	0			21.1	17	0			0	0
4	30.0	00	0	0			20.1		0			0	5
	_												
	_			\perp				_					
				\perp									
				_									
				\perp									
				_									
				_									
									_				
				+									
Remarks:													
_													

C

Gas Monitoring Record	Project	Contract	155218
Exploration Associates	Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	Figure	9M 5

Date: 22/1/96	M	leteorolog	ical & Site Con	ditions								
Time: 11.00am	S	tate of gro	ound:	Dry			Moist.	*	Wet			
Operator: PB	W	/ind:	100	Calm			Lìght	*	Mod.		Strong	
	W	find Direc	tion:									
	С	loud Cove	er:	None			Slight	*	Cloudy	Overcast		
	P	Precipitation: N			None Slight			*	Mod.		Heavy	
	8	arometric	pressure (mba	rs):				Air	Temp °C:			
Instrumentation Details:												
		GI Infra	Red Gas Analy	ser	G	MI Lan	dsurveyo	or	* G	MI CO ₂ Po	rtable	
Equipment Used			(specify):									
Borehole/ Installation			Explosive Gases/CH ₄ (%)	CO ₂ (%)	02 (%)	CH ₄ (% LEL)		H ₂ S (%)	VO (pp	om)
1	10.4	10	0	0		20.9		0		0	0	
6A	9.80)	0	0		21.4		0		0	0	
4	30.0	0.00		0	0			0		0	25	
1R	30.0	00	0			20.7		0		0	0	
12	20.0	00	0 0		21.0			0		0	0	
10	30.0	00	0 0		20.7			0		0	0	
2	30.0	00	0	0		20.5		0		0	0	
										1		
												_
										_		
											_	
						1						
									_			
Remarks:												

Gas Monitoring Record		Contract	155218	
Exploration Associates	Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	Figure	9M6	

ENCLOSURE C

Laboratory Test Results

Symbols	
Summary Sheet	L1/1
Particle Size Distribution	L2/1
Chemical Testing	Parts 1 - 6

KEY TO SYMBOLS ON LABORATORY TEST RESULTS SHEETS

U	Undisturbed Sample
P	Piston Sample
8	Bulk Sample - Disturbed
	Jor Sample Disturbed a M Small Disturbed Sample (Metal Analysis)
D	Jar Sample - Disturbed { M : Small Disturbed Sample (Metal Analysis) Water Sample (ORG : Small Disturbed Sample (Organic Hydrocarbon Analysis)
W	
pН	Acidity/Alkalinity Index
SO ₃	Total Sulphate Content (acid) - Soluble Sulphate
NP	Non Plastic
ام	Plasticity Index
I _p <u>%</u> W _L W _p	% of material in sample passing 425 micron sieve
W.	Liquid Limit
W.	Plastic Limit
w	Water Content
	Bulk Density
Υ _b	Undrained Triaxial
U	
CU	Consolidated Undrained Triaxial
CD	Consolidated Drained Triaxlal
Ŧ	Single Stage Triaxial
М	Multistage Triaxial
100/40	Sample Diameter (mm)
REM	Remoulded Triaxial Test Specimen
LVT	Laboratory Vane Test
DSB	Drained Shear Box
RSB	Residual Shear Box
	Cell Pressure
σ_3	Deviator Stress
σ ₁ -σ ₃	Cohesion
c c'	
	Effective Cohesion Incercept
φ	Angle of Shearing Resistance - Degrees
φ′	Effective Angle of Shearing Resistance
m_v	Coefficient of Volume Decrease
c_{V}	Coefficient of Consolidation
γ_d	Dry Density
Opt	Optimum
Std	Standard Compaction
Hvy	Heavy Compaction
CBR	California Bearing Ratio
*	Failed under 1st Load
**	Failed under 2nd Load
#	Untestable
##	Excessive Strain
	Calcareous Reaction
+ ¶	
•	CBR Remoulded with 2.5kg rammer
§	CBR Remoulded with 4.5kg rammer
•	CBR Undisturbed Sample
• •	CBR Remoulded to 5% air voids at Natural Moisture Content
VT	Hand Vane Test
Cl	Chloride Content
S.G.	Particle Density
Sat m.c.	Saturation Moisture Content
p'o	Effective Overburden Pressure



Sam	ples			Classification					Stre	ength	1	Other Tests		
Hole	Depth	Туре	Description	<425 I _P	Prep W _L	w _P	Water	γ _b Mg/m	Test	σ ₃ kPa	C kPa			
1	1.00	8	MADE GROUND: Dark grey clayey very silty very sandy gravel									Particle Size Analysis		
ì	5.80	D	Soft to firm sandy very clayey SILT with some gravel and occasional cobbles	52% 14	WASHE 34	20 20	24							
1	7.00	В	Soft to firm sandy very clayey SILY with some gravel and occasional cobbles	52%	WASHE 21	ИÞ	13					Particle Size Analysis		
1	8.20	В	Brown silty sandy fine to coarse GRAVEL									Particle Size Analysis		
3	1.00	В	Grey brown very clayey very silty fine to coarse SAND and GRAVEL with some cobbles									Particle Size Analysis		
3	7.00	8	Firm to stiff grey sandy very clayey SILT with occasional gravel	96% 18	WASHE	D 25	21					Particle Size Analysis		
4	3.00	В	Firm grey brown sandy very clayey SILT with some fine to coarse gravel									Particle Size Analysis		
5	1.00	В	MADE GROUND: Dark grey very silty very sandy fine to coarse gravel and some cobbles									Calorific Value≃4212cal/g		
5	3.00	В	MADE GROUND: Dark grey very silty very sandy fine to coarse gravel with some cobbles									LOI= 43.39%		
Rem														

Remar	ks
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Form 10/2

Laboratory - Results Summary

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Project

Bedwas Colliery Reclamation Scheme Rhymney Valley District Council Contract 155218
Sheet

Exploration Associates

Samples		Cla	ssific	atio	n		Strength			Other Tests		
Hole	Depth	Туре	Description	<425 I _P	Prep w _L	wp	Water	γ _b Mg/m	Test	σ ₃ kPa	C kPa	
5	5.00	В	MADE GROUND: Dark grey very silty very sandy fine to coarse gravel and some cobbles							}		Calorific Value=2967cal/g
5	7.00	В	MADE GROUND: Dark grey very silty very sandy fine to coarse gravel with some cobbles									LO!= 40.94%
9	0.10	В	Orange brown very clayey silty very sandy fine to coarse GRAVEL									Particle Size Analysis
10	6.00	B	Brown silty very sandy fine to coarse GRAVEL									Particle Size Analysis
	}											
		}					}					
		}					}			}		

Remarks

Form 10/2

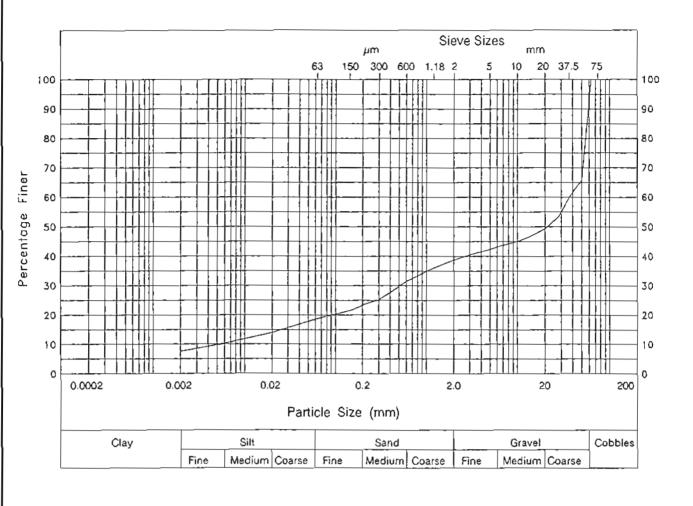
Laboratory - Results Summary

Project

Bedwas Colliery Reclamation Scheme Rhymney Valley District Council Contract 155218
Sheet

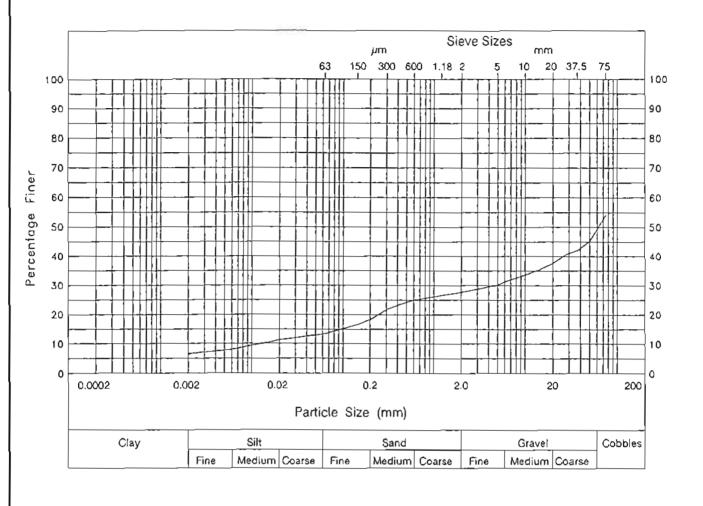
L1

Exploration Associates



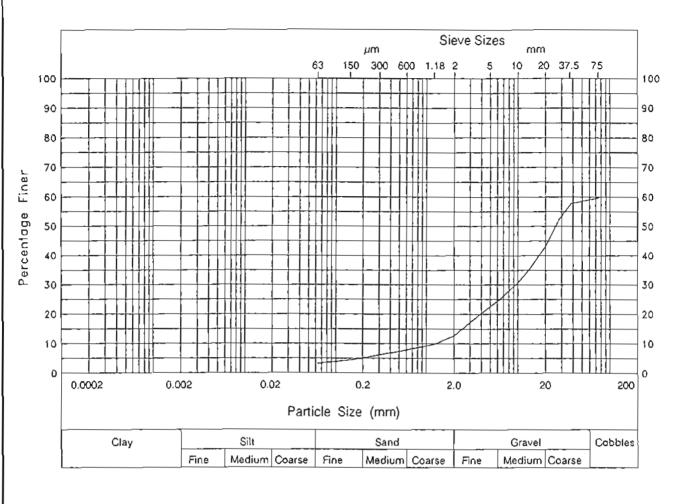
Particle Size	% Passing	Particle Size	% Passing
63 mm	100	1.18 mm	36
50 mm	66	600 μm	31
37.5 mm	61	425 μm	28
28 mm	53	300 µm	25
20 mm	49	212 µm	24
14 mm	47	150 µm	22
10 mm	45	63 μm	19
6.3 mm	43	20 μm	14
S mm	42	6 μm	10
3.35 mm	41	2 μπ	8
2 mm	39		
Hole 1	Test Performed: Sedimentation sam	WET aple pretreated using	hydrogen peroxide
Depth 1.00			
Type B			

			Form 25/3
Laboratory - Particle Size Plot	Project Bedwas Colliery Reclamation Scheme	Contract	155218
Exploration Associates	Rhymney Valley District Council	Sheet	L2/1



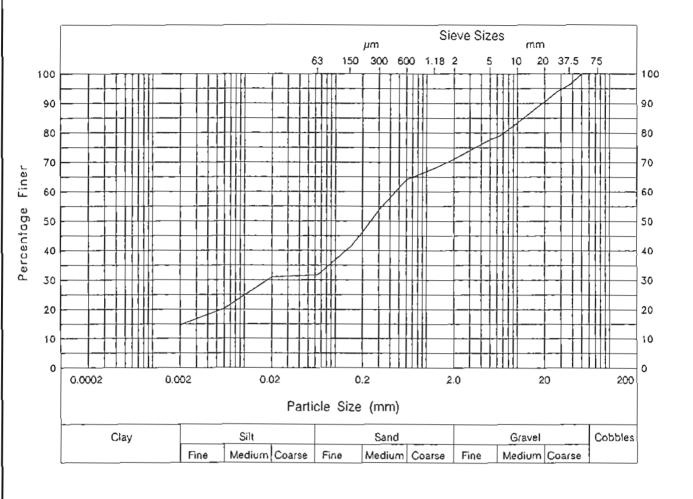
Particle Size	% Passing	Particle Size	% Passing
75	54	4 40	27
75 mm	I	1.18 mm	27
50 mm	45	600 μm	25
37.5 mm	42	425 µm	24
28 mm	41	300 μm	22
20 mm	38	212 μm	19
14 mm	35	150 μm	17
10 mm	34	63 µm	13
6.3 mm	32	20 μm	11
5 mm	30	6 µm	8
3.35 mm	29	2 μm	7
2 mm	28		
Hole 1	Test Performed: Sedimentation sam	WET ple pretreated usin	g hydrogen peroxide
Depth 7.00			
Туре			

			Form 25/3
Laboratory - Particle Size Plot	Project Bedwas Colliery Reclamation Scheme	Contract	155218
Exploration Associates	Rhymney Valley District Council	Sheet	L2/2



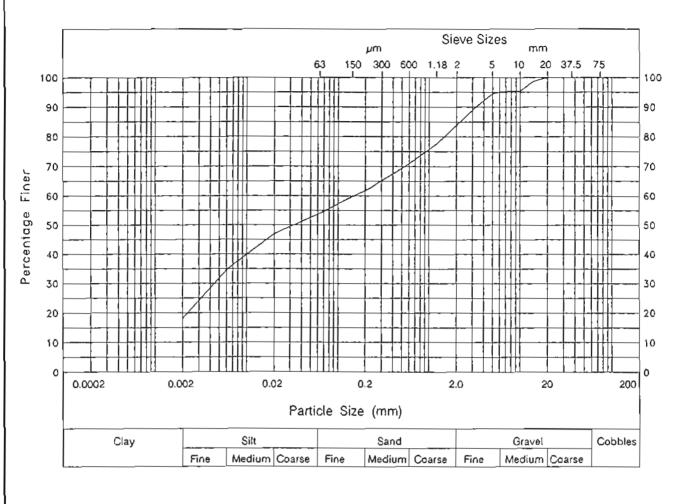
Particle Size	% Passing	Particle Size	% Passing
75 mm	60	2 mm	13
37.5 mm	58	1.18 mm	10
28 mm	52	600 μm	8
20 mm	43	425 μm	7
14 mm	36	300 hru	6
10 mm	31	212 μm	5
6.3 mm	25	150 μm	4
5 mm	23	63 μm	3
3.35 mm	18		
Hole 1	Test Performed:	WEY	_
Depth 8.20			
Туре			

			Form 25/3
Laboratory - Particle Size Plot	Project Bedwas Colliery Reclamation Scheme	Contract	155218
Exploration Associates	Rhymney Valley District Council	Sheet	L2/3



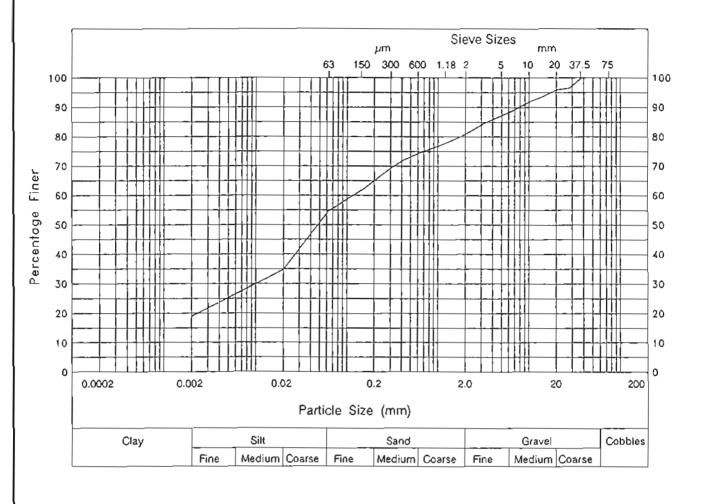
Particle Size	% Passing	Particle Size	% Passing
50 mm	100	1.18 mm	68
37.5 mm	96	600 µm	64
28 mm	94	425 µm	59
20 mm	90	300 μm	54
14 mm	87	212 µm	47
10 mm	83	150 μm	42
6.3 mm	79	63 μm	32
5 mm	78	20 μm	31
3.35 mm	75	6 μm	20
2 mm	71	2 µm	15
Hole 3	Test Performed: Sedimentation sam	WET ople pretreated using	hydrogen peroxide
Depth 1.00			
Type 8			

			Form 25/3
Laboratory - Particle Size Plot	Project Bedwas Colliery Reclamation Scheme	Contract	155218
Exploration Associates	Rhymney Valley District Council	Sheet	L2/4



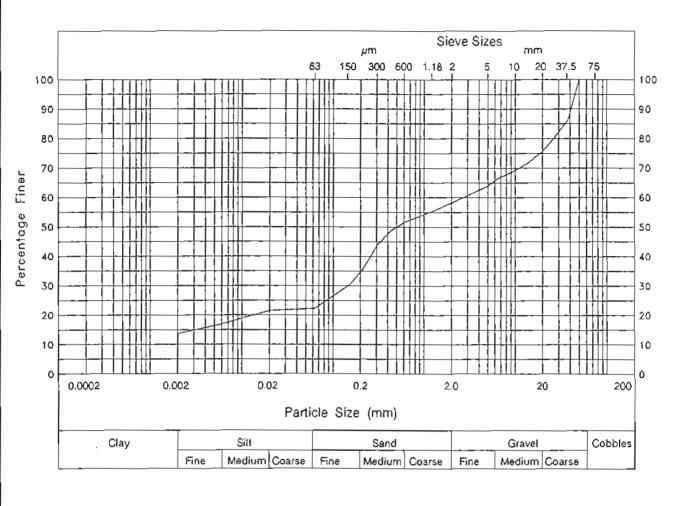
Particle Size	% Passing	Particle Size	% Passing
20 mm	100	425 μm	68
14 mm	99	300 μm	65
10 mm	95	212 μm	62
6.3 mm	95	150 µm	60
5 mm	95	63 µm	54
3.35 mm	90	20 <i>μ</i> m	47
2 mm	84	6 дл	35
1.18 mm	77	2 μm	18
600 для	71		
Hole 3	Test Performed: Sedimentation sam	WET ple pretreated usin	g hydrogen peroxide
Depth 7.00			
Туре			

			Form 25/3
Laboratory - Particle Size Plot	Project Bedwas Colliery Reclamation Scheme	Contract	155218
Exploration Associates	Rhymney Valley District Council	Sheet	L2/5



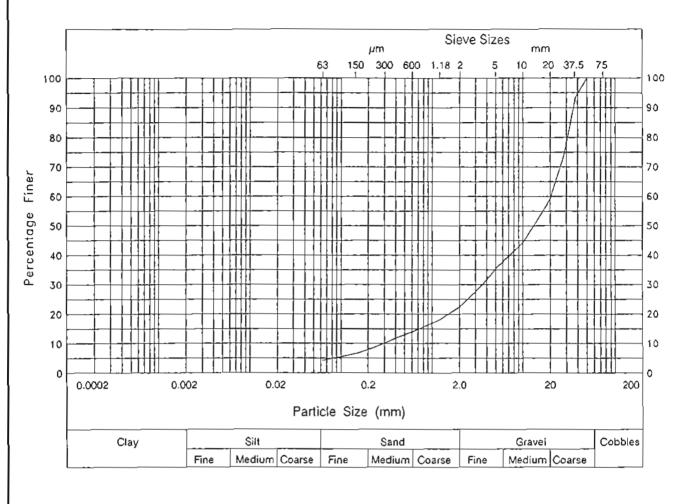
Particle Size	% Passing	Particle Size	% Passing
37.5 mm	100	600 μm	74
28 mm	97	425 µm	72
20 mm	96	300 µm	69
14 mm	94	212 μm	66
10 mm	92	150 µm	62
6.3 mm	88	63 µm	55
5 mm	87	20 μm	35
3.35 mm	85	6 μm	26
2 mm	81	2 μm	19
1.18 mm	78		
Hole 4	Test Performed: Sedimentation sam	WET ple pretreated using	g hydrogen peroxide
Depth 3.00			-
Type 8			

			Form 25/3
Laboratory - Particle Size Plot	Project	Contract	155218
Exploration Associates	Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	Sheet	L2/6



Particle Size	% Passing	Particle Size	% Passing
50 mm	100	1.18 mm	55
37.5 mm	86	600 µm	52
28 mm	81	425 μm	49
20 mm	76	300 µm	44
14 mm	72	212 µm	36
10 mm	69	150 µm	30
6.3 mm	66	63 µm	22
5 mm	64	20 μm	22
3.35 mm	61	6 µm	17
2 mm	58	2 μm	14
Hole 9	Test Performed: Sedimentation sam	WET uple pretreated using	g hydrogen peroxide
Depth 0.10			
Туре			

			Form 25/3
Laboratory - Particle Size Plot	Project Bedwas Colliery Reclamation Scheme	Contract	155218
Exploration Associates	Rhymney Valley District Council	Sheet	L2/7



Particle Size	% Passing	Particle Size	% Passing
50 mm	100	2 mm	22
37.5 mm	93	1.18 mm	18
28 mm	74	600 µm	14
20 mm	59	425 µm	12
14 mm	51	300 μm	10
10 mm	44	, 212 μm	8
6.3 mm	38	150 μm	7
5 mm	35	63 дт	4
3.35 mm	29		
Hole 10	Test Performed:	WET	
Depth 6.00			-
Type 8			

			Form 25/3
Laboratory - Particle Size Plot	Project Bedwas Colliery Reclamation Scheme	Contract	155218
Exploration Associates	Rhymney Valley District Council	Sheet	L2/8

Analytical Test Report For

EXPLORATION ASSOCIATES LIMITED BEDWAS COLLIERY (PART 1)

Report No.: R96/0025

Copies To: Mr J Grainger File





What's so special about a NAMAS report or certificate?

- NAMAS is the acronym for National Accreditation of Measurement and Sampling.

Accreditation of NAMAS testing is granted by the United Kingdom Accreditation Service (UKAS).

 It's your assurance that the work has been carried out to the highest standards.

- The laboratory issuing the test report has been stringently assessed by independent experts.

 You are assured that the agreed or specified methods and procedures have been followed.

 Measurements are traceable to national and international standards.

Comments:

Tests marked † in this report are not included in the NAMAS Accreditation Schedule for the testing laboratory. However, with the continuing development of our QC protocols, these tests will be included in the near future.

Any opinions and interpretations expressed herein are outside the scope of the testing laboratory's NAMAS Accreditation. Coefficient of Variation (CV_T) is better than 15%

ANALYTE	METHOD OF DETECTION	LIMIT OF DETECTION
Metals PAH/coal tar Phenols Cyanide Thiocyanate Sulphate Sulphide TPH VOCs	AAS/AA-Hydride HPLC-UV HPLC-UV HPLC-PAD Colorimetry Turbidity Colorimetry Infra-red GC-FID	0.1 mg/kg (or better) 10 mg/kg 1.0 mg/kg 25 mg/kg 10 mg/kg 100 mg/kg 100 mg/kg 0.1 mg/kg 0.1 mg/kg

Dichlorobenzene identified by retention time only. Other unidentified compounds were found in the same region of the chromatograph. Further investigation would be required to confirm the identity of the peaks.

Date submitted for analysis: 11/01/96

Your Job/Order Number: 151825

Analyst(s) : HTL AGP JS RH RLG SM

Results approved by: A Bondswell (Technical Director)

Signature : L. K. July

Report date : 26 January 1996

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Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 1)

ANALYTES	UNITS	TP29 0.50m	TP29 2.00m	TP29 3.00m	TP29 4.00m	TP29 5.00m	TP29 6.00m	TP36 1.00m	TP36 2.30m	TP36 4.30m	TP36 5.40m	TP46 1.20m	TP46 2.30m
		\$9600286 S		9600287 89600288 89600289 89600290 89600291 89600292 89600293 89600294 89600295 89600296 89600297	89600289	89600290	\$9600291	29600292	29600293	59600294	59600595	39500368	59600297
Arsenic	mg/kg	17.6	##	#	#	#	**	#	#	#	G 11-	26.2	The:
Cadmium	mg/kg	<0.1	#	#	#	4	#	**	∓	华	- Tags	<0.1	#
Chromium	mg/kg	12.2	7#	#	#	#	#	-Re-	#	#	华	19.7	18.9
Lead	mg/kg	41.9	#	#	#	7#=	#	#	*	*	*	28.2	#
Mercury	mg/kg	<0.1	#	#	#	#	#	#	#	**	*	<0.1	#
Copper	mg/kg	48.1	#	#	#	#	#	*	¥±.	₩.	782	63.8	the .
Nickel	mg/kg	29.6	#	#	##	#	#	#	#	#	#4	32.1	#
Zinc	mg/kg	76.5	#	#	#	#	#	##	7#	714	711	122.8	9.68
Cyanide (total)	mg/kg	<25	#	#	#	#	#	#	H	*#	#	*	71±
PAH/coal tar	:mg/kg	45	<10	#	#	<10	#	338	<10	<10	#	71k	36
Cyanide (complex)	mg/kg	#	Ħ	#	#	#	#	#	#	=# 2-	*	<25	<25
Sulphide	mg/kg	**	**	#	#	#	#	#	*	##	₩.	2.1	3.8
Phenols (total)	mg/kg	**	*	#	72:	*	#	#	#	#	7#	#	<1.0

Results for soil samples expressed as dry weight ℓ : Analyte not requested

Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 1)

ANALYTES	UNITS	TP46 3.10m	TP46 4.60m	TP46 6.00m	TP40	TP40 1.50m	TP40 3.30m	TP40 3.50m	TP40 4.80m	TP40 5.90m	TP31 3.30m	TP31 3.50m	TP31 5.30m
		89600298	89600299	89600300	29600301	59600302	59600303	59600304	\$9600305	29600306	29600307	89600308	29600309
PAH/coal tar	mg/kg	#	<10	*	₩	11350	#	102	#	<10	¥£.	14	34:
Phenols (total)	mg/kg	##	<1.0	#	*	<1.0	#	<1.0	#	<1.0	ŧ.	本	***
Cyanide (total)	mg/kg	#	#	#	<25	路	#	堆	4⊭	342	#	#2	≉
Arsenic	mg/kg	#	#	#	9.3	#=	***	#	#	7#=	724	#:	7#
Cadmium	mg/kg	蛛	#	#	<0.1	*	±14c) **	14≒	#	#	7#	712
Lead	mg/kg	#	#	#	24.0	莽	#	#	*	7#	华	7#12	744
Sulphide	mg/kg	74:	#	*	4.1	##	#	#	**	#	*	*	#
Trans-1,2-Dichloroethene	mg/kg	#	#	#	#	琳	#	<0.1	*	<0.1	a⊭	<0.1	*
Chloroform	mg/kg	#	#	#	#	žija.	#	<0.1	34≿	<0.1	34:	<0.1	#
1,1,1-Trichloroethane	mg/kg	#	#	#	#	#	**	<0.1	#	<0.1	##	<0.1	#
Carbon Tetrachloride	mg/kg	*	#	74:	#	基	#	<0.1	#	<0.1	=#=	<0.1	#
Вепгепе	mg/kg	#	#	#	#	#	Ħ	<0.1	#	<0.1	**	<0.1	#
1,2-Dichloroethane	mg/kg	#	#	44×	#	#	#	<0.1	#	<0.1	#	<0.1	#
Trichloroethene (TCE)	mg/kg	#	#	##	#	#	u _{tr}	<0.1	***	<0.1	#	<0.1	- 7‡=
1,2-Dichloropropane	mg/kg	#	#	#	#	#	#	<0.1	#	<0.1	#	<0.1	#
Toluene	mg/kg	**	#	#	*	#	#	<0.1	†#	<0.1	Ħ	1,4	३₺
1,1-Dichloropropane	mg/kg	##	#	#	##	#	#	<0.1	#	<0.1	#	<0.1	#
1,1,2-Trichloroethane	mg/kg	#	72	華	7#=	##	#	<0.1	#	<0.1	≒ 0 32	<0.1	*
Tetrachloroethane (PCE)	mg/kg	#	#	址	神	#	₹	<0.1	#	<0.1	#	<0.1	*
Tetrachloroethene	mg/kg	71:	##	-\$ta:	Ħ	#	#	<0.1	74:=	<0.1	7#	<0.1	#

Results for soil samples expressed as dry weight h : Analyte not requested

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Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 1)

ANALYTES	UNITS	TP46 3.10m	TP46 4.50m	TP46 6.00m	TP40	ТР40 1.50m	TP40 3.30m	TP40 3.50m	TP40 4.80m	TP40 5.90m	TP31 3.30m	TP31 3.50m	TP31 5.30m
		89600398	89600299	29600300	29600301	29600302	89600303	<u> </u>	29600305	\$9600306	29600307	S9600308	89600309
Oibromoch loromethane	mg/kg	#:	***	- ‡±	#	#	#	<0.1	#	<0.1	1	<0.1	#
Ethyl Benzene	mg/kg	#	#	#	#	#	#	<0.1	#	<0.1	#	<0.1	#
Chlorobenzene	mg/kg	#	#	#	#	#	#	<0.1	#	<0.1	拼	<0.1	#
Xylenes	mg/kg	#	#	iib:	#	#	#	<0.1	Ħ	<0.1	#	<0.1	#
Bromoform	mg/kg	#	#	Ž#C.	#	#	#	<0.1	#	<0.1	#	<0.1	*
1,1,2,2-Tetrachloroethane	mg/kg	#	#	#	#	#	#	<0.1	#	<0.1	#	<0.1	#
1,3-Dichlorobenzene	mg/kg	#	#	#	4	#	#	<0.1	#	<0.1	##	<0.1	#
1,4-Dichlorobenzene	mg/kg	#	#	*	#	#	¥	<0.1	*	<0.1	#	1.6	华
1,2-Dichlorobenzene	mg/kg	#	#	**	#	#	#	<0.1	##	<0.1	#	0.2	#

Results for soil samples expressed as dry weight θ : Analyte not requested

Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 1)

ANALYTES	UNITS	TP31 5,90m	TP39 2.50m	TP39 2.70m	TP39 6.00m	TP35 1.60m	7P35 3.80m	TP35 4.60m	TP35 5.60m	TP32 1.70m	TP32 3.50m	TP32 4.00m	TP32 5.80m
		29600310	59600311	59600312	59600313	\$9600314	29600315	59600316	29600317	\$9600318	89600319	89600320	59600321
PAH/coal tar	mg/kg	14	#	102500	4370	2000	65	#	3170	06	22	38th	<10
Trans-1,2-Dichloroethene	mg/kg	<0.1	#	#	#	#	ᅋ	थ⊭	**	711	<0.1	≒≂	<0.1
Chloroform	mg/kg	<0.1	#	#	#	#	#	#	782a	**	<0.1	≠	<0.1
1,1,1-Trichloroethane	mg/kg	<0.1	₹#>	#	#	H	#	#	#	#	<0.1	#	<0.1
Carbon Tetrachloride	mg/kg	<0.1	##	Ħ	*	#	#	State:	#	*	<0.1	712	<0.1
Benzene	mg/kg	<0.1	推	#	#	**	* #c	地	#	#4	<0.1	725	<0.1
1,2-Dichloroethane	mg/kg	<0.1	*#=	#	#	#	#	440	*=	#	<0.1	#	<0.1
Trichloroethene (TCE)	mg/kg	<0.1	井	#	#	#	#	#	*	*	<0.1	*	<0.1
1,2-Dichloropropane	mg/kg	<0.1	味	#	#	#	*	≉⊫	=1:=	#	<0.1	4-	<0.1
Toluene	mg/kg	<0.1	#	H	#	#	#	#	#	=	1.7	**	<0.1
1,1-Dichloropropane	mg/kg	<0.1	**	#	#	#	##	7#±	#	** ,	<0.1	#±	<0.1
1,1,2-Trichloroethane	mg/kg	<0.1	#	#	#	#	##	#	SE.	, # <u></u>	<0.1	312-	<0.1
Tetrachloroethane (PCE)	mg/kg	<0.1	**	#	#	排	#	= \$£	₹4.	**	<0.1	#±=	<0.1
Tetrachloroethene	mg/kg	<0.1	#	#	#	華	=#L	#	¥ 3 14	#=	<0.1	##	<0.1
Dibromochloromethane	mg/kg	<0.1	#	#	#	#	#	≒ ±	4	##:	<0.1	##	<0.1
Ethyl Benzene	mg/kg	<0.1	*1k	#	#	#	#	##	=	**	<0.1	≉⊨	<0.1
Chlorobenzene	mg/kg	<0.1	74	#	#	坩圾	#	~pr	#	##	<0.1	**	<0.1
Xylenes	mg/kg	<0.1	*	#	#	#	#	Ħ	#	#	<0.1	#	<0.1
Bromoform	mg/kg	<0.1	*	4	#	#	₽#.	đi.	742	#	<0.1	#	<0.1
1,1,2,2-Tetrachloroethane	mg/kg	<0.1	**	#	#	###	₹#:	#	#	*	<0.1	**	<0.1

Results for soil samples expressed as dry weight # : Analyte not requested

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Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 1)

ANALYTES	UNITS	TP31 5.90m	TP39 2.50m	TP39 2.70m	TP39 6.00m	TP35 1.60m	тр35 3.80ш	TP35 4.60m	TP35 5.60m	7P32 1.70m	TP32 3.50m	1P32 4.00m	TP32 5.80m
		59600310	59600311	59600312	59600313	\$9600314	\$1600965	59600316	59600317	9600311 59600312 59600313 59600314 59600315 59600316 59600317 59600318 59600319 59600320 59600321	\$9600319	59600320	59600321
1,3-Dichlorobenzene	mg/kg	<0.1	- TRE	#	*#=	#	#	#	#	≭±	<0.1	Ħ	<0.1
1,4-Dichlorobenzene	mg/kg	<0.1	**	#	#	*	#	#	Ħ	#	8.0	#	1.2
1,2-Dichlorobenzene	mg/kg	<0.1	*	#	#	#	#	#	*	#	0.4	#	<0.1
Phenols (total)	mg/kg	#	#	0.687	108,6	<1.0	<1.0	#	<1.0	<1.0	<1.0	#≒	<1.0
Arsenic	mg/kg	毗	#	#	**	8,4	#	T#	71=	#	#	7\$20a	742
Cadmium	mg/kg	#	#	#	#	0.2	*	#	34	#	74	**	#±
Chromium	mg/kg	#	坳	#	¥£	17.5	D##	#	#	**	486	#	H
Lead	mg/kg	#	#	#	¥at⊨	101.7	žβ⊑	#	#	#	淮	#	#
Mercury	mg/kg	*	#	#	#	2.2	*#	#	#	#	¥85.	#	#
Copper	mg/kg	#	##	#	144 <u>1</u> 2	137.3	#	#	#	#	7#	#	**
Nickel	mg/kg	3 #	#	#	책:	30.8	#4	#	*	#	≈u⊨	sq ₂	**
Zinc	mg/kg	#	#	#	陆	211.0	#	#	#	#	4-	≂ta.	-#t-
Cyanide (total)	mg/kg	###	#	#	#	<25	#	#	В	†ata	¥4±	7%	#

Results for soil samples expressed as dry weight if : Analyte not requested

Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 1)

ANALYTES	UNITS	1934 1.70m	TP34 3.80m	TP34 5.50m	7944 1.20m	TP44 1.50m	TP44 3.50m	ТР44 4.00m	TP43 1.00m	TP43 4.00m	TP43 5.50m	8H3 4.00m	BH3 5.00m
		\$9600322	\$9600323	59600324	S9600325	29600326	59600327	82600368	89600329	89600330	\$9600331	\$9600332 \$9600333	59600333
Cyanide (total)	mg/kg	<25	#	#	##	#	78k	i i i i i i i i i i i i i i i i i i i	#	¥#±	*#	₩	<25
Sulphide	mg/kg	6.4	#	#	#	#	#	#	#	7#≐	714	= t=	14.5
Thiocyanate	mg/kg	<10	#	#	#	#	超	#	772	- #±	712	**	₹4=
PAH/coal tar	mg/kg	35700	3405	#	195	7#	1805	本	6950	#	188	#	125
Phenols (total)	mg/kg	254.1	#	##	<1.0	#	<1.0	3 ±	<1.0	7#1	<1.0	***	<1.0
Trans-1,2-Dichloroethene	mg/kg	#	<0.1	<0.1	##	#	74:	#	#	#	坤	742	<0.1
Chloroform	mg/kg	#	<0.1	<0.1	7#:	#	#	≉≒	#	##	#	#	<0.1
1,1,1-Trichloroethane	mg/kg	#	<0.1	<0.1	#	#	#	#	#	≇⊭	out-	=1±	<0.1
Carbon Tetrachloride	mg/kg	##	<0.1	<0.1	#	#	#	71:	**	#] ⊐ <u>t</u> =	4 tz	<0.1
Benzene	mg/kg	#	<0.1	<0.1	#	#	#	#	#	715	3 ±=	*	<0.1
1,2-Dichloroethane	mg/kg	#	<0.1	<0.1	#	#	#	**	#	*#±	₹±	#	40.1
Trichloroethene (TCE)	mg/kg	#	<0.1	<0.1	#	#	#	**	**	3 ±	¤‡:	745	<0.1
1,2-Dichloropropane	mg/kg	#	<0.1	<0.1	#	#	#	#	#	at⊧	*#C	3 £	<0.1
Toluene	mg/kg	#	2.6	0.5	#	#	#	4 tt	₩	#	34 5	*	<0.1
1,1-Dichloropropane	mg/kg	#	<0.1	<0.1	*	44	蛛	##	###	**	*	Ð	<0.1
1,1,2-Trichloroethane	mg/kg	#	<0.1	<0.1	i#	य⊭	##	#	#	⊐t≞	#	#	<0.1
Tetrachloroethane (PCE)	mg/kg	#	<0.1	<0.1	#	#	#	#4	Ħ	¥±-	~ — ↓	#	<0.1
Tetrachloroethene	mg/kg	#	<0.1	<0.1	#	#	#	Ħ	#	**	ય⊧	#	<0.1
Dibromochloromethane	mg/kg	#	<0.1	<0.1	#	*#=	71:	#	#	7#⊨	#	#	<0.1
Ethyl Benzene	mg/kg	*	<0.1	<0.1	#	#	##	*	#	#	##	#	<0.1

Results for soll samples expressed as dry weight $\mbox{\it H}$: Analyte not requested

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Report No. R96/0025

Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 1)

ANALYTES	UNITS	TP34 1.70m	TP34 3.80m	TP34 5.50m	TP44 1.20m	TP44 1.50m	TP44 3.50m	TP44 4.00m	TP43 1.00m	TP43 4.00m	TP43 5.50m	вн3 4.00m	внз 5.00m
		59600322	59600323	59600324	23600325	59600326		S9600327 S9600328 S9600329	\$9600329	89600330 8960033	59600331	\$9600332 \$96003	59600333
Chlorobenzene	mg/kg	**	<0.1	<0.1	Ħ	#	#	#	#	¥8±	**	*	<0.1
Xylenes	mg/kg	#	<0.1	0.3	#	*	#	**	*	3#:	*	#	40.1
Bromoform	mg/kg	#	<0.1	<0.1	#	#	the:	7#1	*	*1=	妆	#	<0.1
1,1,2,2-Tetrachloroethane	mg/kg	#	<0.1	<0.1	##	#	#	#	#	*	*	7\$±	<0.1
1,3-Dichlorobenzene	mg/kg	#	<0.1	<0.1	#	₩	*	*8 1:	#	**	半	#	<0.1
1,4-Dichlorobenzene	mg/kg	#	0.4	2.6	#	粒	**	蛛	##	#=	#	##	<0.1
1,2-Dichlorobenzene	mg/kg	#	<0.1	0.5	#	###	妆	*	#	*	#6	*	<0.1

Results for soil samples expressed as dry weight $\it f$: Analyte not requested

Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 1)

ANALYTES	UNITS	вн3 6.00m	BH3 7.00m	TP42 0.70m	TP42 2.60m	ТР42 4.00m	TP37 0.50m	TP37 3.40m	TP50 0.80m	TP50A 1.50m	TP47A 1.10m	TP47A 3.00m	TP47A 4.60m
		59600334	\$500935	29600336	59600337	59600338	\$9600339	S9600340	\$9600341	59600342	\$9600343	89600344	\$9600345
Cyanide (total)	mg/kg	#	<25	<25	-14:	- 1t	- 412	≭ 11=	<25	#	<25	¥₽	**
Sulphide	mg/kg	#	6.9	#	#	#	7#	#	3.8	#	*	┸	34
PAH/coal tar	mg/kg	741	14	41	6450	955	#	569	**	1980	₹.	8	+
Phenois (total)	mg/kg	#	<1.0	#	<1.0	1.3	#	<1.0	#	<1.0	**	<1.0	#
Trans-1,2-Dichloroethene	mg/kg	#	<0.1	#	<0.1	<0.1	#	<0.1	380	妆	#12	<0.1	***
Chloroform	mg/kg	#	<0.1	#	<0.1	<0.1	#	<0.1	1 1 1 1	₩	194	<0.1	#
1,1,1-Trichloroethane	mg/kg	##	<0.1	#	<0.1	<0.1	#	<0.1	#	äta.	#	<0.1	神
Carbon Tetrachloride	mg/kg	#	<0.1	#	<0.1	<0.1	*	<0.1	Н	#	#	<0.1	**
Benzene	mg/kg	#	<0.1	7#	<0.1	<0.1	3 ±	<0.1	#	*	710	<0,1	**
1,2-Dichloroethane	mg/kg	#	<0.1	**	<0.1	<0.1	7#±	<0.1	ft.	*	*	<0.1	妆
Trichloroethene (TCE)	mg/kg	#	<0.1	#	<0.1	<0.1	ant.	<0.1	#	=0=	*	<0.1	##
1,2-Dichloropropane	mg/kg	#	<0.1	482	<0.1	<0.1	±4 <u>+</u>	<0.1	#	₹ a	蚍	<0.1	74:
Toluene	mg/kg	华	0.3	#	<0.1	1.1	*	1.9	ite:	=#±	-#1=	<0.1	*#=
1,1-Dichloropropane	mg/kg	#	<0.1	独	<0.1	<0.1	#	<0.1		*	*	<0.1	*#=
1,1,2-Trichloroethane	mg/kg	#	<0.1	#	<0.1	<0.1	##	<0.1	*	*	#	<0.1	#
Tetrachloroethane (PCE)	mg/kg	7#	<0.1	#	<0.1	<0.1	7#	<0.1	3 1±	#	毒	<0.1	址
Tetrach Oroethene	mg/kg	拼	<0.1	740	<0.1	<0.1	#	<0.1	*	#	₹#	<0.1	#±
Dibromochloromethane	mg/kg	42-	<0.1	*	<0.1	<0.1	#	<0.1	*	**	*	<0.1	¥#=
Ethyl Benzene	mg/kg	41:	0.4	#	<0.1	<0.1	*	<0.1	华	4=	*=	<0.1	#
Chlorobenzene	mg/kg	#	<0.1	#	<0.1	<0.1	±	<0.1	#	*#±	3 tt	<0.1	#

Results for soil samples expressed as dry weight # : Analyte not requested

Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 1)

ANALYTES	UNITS	BH3 6.00m	ВНЗ 7.00m	TP42 0.70m	TP42 2.60m	TP42 4.00m	TP37 0.50m	TP37 3.40m	TP50 0.80m	TP50A 1.60m	TP47A 1.10m	TP47A 3.00m	TP47A 4.60m
		\$9600334	59600335	29600336	\$9600337	85600338	\$9600338 \$9600339 \$9600340	\$9500340	\$9600341	\$9600342	29600343	\$9600344	\$9600345
Xylenes	mg/kg	Ħ	3.1	#	0.1	<0.1	#=	<0.1	#	*	##	<0.1	#
Bromoform	mg/kg	###	<0.1	#	<0.1	<0.1	£	<0.1	Ħ	#	#	<0.1	*#
1,1,2,2-Tetrachloroethane	mg/kg	3 #	<0.1	#	<0.1	<0.1	¥≒	<0.1	#=	436	×tk.	<0.1	# <u></u>
1,3-Dichlorobenzene	mg/kg	#	0.8	#	<0.1	<0.1	744	<0.1	न्याः	#	#	<0.1	72
1,4-Dichlorobenzene	mg/kg	#	2.7	##	1.6	3.1	725	<0.1	#	*#	*	<0.1	*
1,2-Dichlorobenzene	mg/kg	#	1.5	Ħ	1.5	<0.1	340	<0.1	啪	3₩=	34	<0.1	##
Arsenic	mg/kg	#	#	57.7	#	78≒	*	*	745	≉	18.5	#	31:
Cadmium	mg/kg	#	#	<0.1	#	#	#	#	· #	#	0.2	#	*
Chromium	mg/kg	#	#	41.5	H	31:	*	*	7#	#	21.2	#	**
Lead	mg/kg	#	#	13.7	#	#	#	#	7712	井	137.8	***	3 ±:
Mercury	mg/kg	#	井	<0.1	74	#	#	≐ba	#	**	24.9	**	#
Copper	mg/kg	#	#	64.1	井	#	#	#	#	Ħ	63.9	**	¥L:
Nickel	.mg/kg	并	#	27.1	***	#	H	*b=	#	#	33.2	#=	#
Zinc	mg/kg	#	#	42.4	井	*#1	#	#	#	#	304.5	#	l etc
Total Petroleum Hydrocarbons	mg/kg	#	#	#	#	*	744	₩.	#	#	7#	27	#

Results for soil samples expressed as dry weight ℓ : Analyte not requested

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Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 1)

ANALYTES	UNITS	TP57 1.00m	TP58 1.20m	BH4 1.00m	8H4 2.00m	BH4 3.00m	8H4 4.00m	8H4 5.00m	8H8 1,00m	BH8 2.00m	BH8 3.00m	BH8 4.00m	BH2 1.00m
		\$9600346	59600347		\$9600349	29600350	<u> </u>	29600352	59600353	S9600354	\$9600355	29600356	59600357
PAH/coal tar	mg/kg	#	1050	#	#	203	#	510	370	#	31	#	344
Phenols (total)	mg/kg	#	<1.0	4	#	<1.0	#	<1.0	<1.0	1712±	<1.0	壮	<1.0
Arsenic	mg/kg	#	78:	10.7	Ħ	5.3	#	9.9	8.62	3452	13.6	312	-# <u></u>
Cadmium	mg/kg	#	#	<0.1	#	<0.1	#	<0.1	0.1	*	<0.1	7250	- Table
Chromium	mg/kg	#	Ħ	25.0	7#	24.3	*	20.7	24.9	#±	17.2	#	#
Lead	mg/kg	#	#	24.1	#	13.3	*	6.8	89.3	*	37.6	742	71±
Mercury	mg/kg	#	#	9.0	#	0.1	#	0.1	9.0	41=	<0.1	址	#
Copper	mg/kg	H	#	44.5	#	25.6	#	14.1	89.5	#=	49.7	≠k	神
Nickel	mg/kg	#	#	28.8	#	36.8	#	22.3	46.5	71±	34.0	⊐ts.	#
Zinc	mg/kg	4#	#	78.2	#	80.4	#	54.6	247.9	#	125.3	**	#
Cyanide (total)	mg/kg	**	#	<25	#	<25	H	<25	<25	***	<25	#	7#2
Sulphate (acid sol.)	mg/kg	#	#	873	*	485	#	388	631	#	377	##	本
Total Petroleum Hydrocarbons	mg/kg	#	**	*	***	5	3 t⊾	Ψ.	≈¥ta	449	24 <u>2</u> 2	#	148

Results for soil samples expressed as dry weight $\ensuremath{\vartheta}$: Analyte not requested

Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 1)

ANALYTES	UNITS	8H9 5.00m											
		83600358											
PAH/coal tar	mg/kg	<10	#	*	¥ 0 ±	#	*	*	幸	≠te	=#ta	#	#
Total Petroleum Hydrocarbons mg/kg	mg/kg	<1	#	#	#	#	#	711	백리	#	40t) ¥85	च् _{रिक}
Phenols (total)	mg/kg	<1.0	#	34	*	#	#	≇⊭	at⊨	*	#	==	*

Results for soil samples expressed as dry weight it :Analyte not requested

Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 1)

ANALYTES	UNITS	TP50A 1.6m water	7947A 3.4m water	BH4 5.0m Stream water near 1958 water	Stream near 1P58 water	TP46 water	TP44 4.0m water	TP43 4.0m water	BH3 5.8m water				
		29600365	\$3600367	89600368	89600369		59600370 59600371 59600372	\$9600372	89600373				
Нф	N/A	7.4	6.9	6.5	7.1	7.0	7.0	7.2	6.8	#	722	#	3 4:
Phenols (total)	mg/)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	#±	莽	本	742
Cyanide (total)	mg/l	<2.0	<2.0	<2.0	<2.0	#	#	<2.0	<2.0	**	#=	=44-	*
Sulphide	1/gm	0.04	0.26	90.0	0.04	0.22	0.23	0.32	0.04	*#	#	##	1 2c
Trans-1,2-Dichloroethene	mg/l	<0.01	<0.01	#	<0.01	鞋	3#1	#	*	#	本	3⊨	411
Chloroform	լոց/1	<0.01	<0.01	#	<0,01	4 12	The .	74	*	**	4t.	*	3 1:
1,1,1-Trichloroethane	mg/1	<0.01	<0.01	#1	<0.01	堆	**	###	*	744	9t=	#	æ
Carbon Tetrachloride	mg/l	<0.01	<0.01	#	<0.01	*# -	#	**	壮	**	#	7#4	#±=
Benzene	[/gm]	<0.01	<0.01	Ħ	<0.01	4	#	**	**	*	7#	7	740
1,2-Dichloroethane	mg/l	<0.01	<0.01	牡	<0.01	7b:	*	#11	#	*	#	和	- 3±:
Trichloroethene (TCE)	mg/l	<0.01	<0.01	#	<0.01	#=	#	2 14	*	721:	#	2372	#
1,2-Dichloropropane	mg/l	<0.01	<0.01	712	<0.01	=±=	*	##	#	*	~#c	*	#
Toluene	mg/l	0:30	<0.01	વ⊧	0.10	#	*	44:	*	745	#4	Чas	**
1,1-Dichloropropane	mg/l	<0.01	<0.01	#	<0.01	#	₹=	#	#	34=	坩	神	31±
1,1,2-Trichloroethane	тд/1	<0.01	<0.01	#	<0.01	722	inte:	*	*	742	**	342	*
Tetrachloroethane (PCE)	mg/1	<0.01	<0.01	#	<0.01	*\$=	#	#	*	7112	#2	*Q2	- THE
Tetrachloroethene	mg/l	<0.01	<0.01	#	<0.01	#4	*	**	-25:	*	坤	ztą:	±12±
Dibromochloromethane	mg/l	<0.01	<0.01	#	<0.01	#	#	#	#	7±-	#=	Ħ	#
Ethyl Benzene	mg/1	<0,01	<0.01	#	<0.01	±	3 4 2	**	**	34	3 4⊾	#	**
Chlorobenzene	ш д /}	<0.01	<0.01	#	<0.01	24-	#	722	*#	#	742	41-	3E

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Results for soi) samples expressed as dry weight # : Analyte not requested Report No. R96/0025

Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 1)

ANAL YTES	UNITS	TP50A 1.6m water	TP47A 3.4m water	BH4 5.0m Stream water near TP58 water		1P46 water	TP44 4.0m water	TP43 4.0m water	BH3 5.8m water				
		29600365	29600367	89600368	29600369	59600370	\$9600367 \$9600368 \$9600369 \$9600370 \$9600371 \$9600372 \$9600373	59600372	59600373				
Xylenes	mg/l	0.17	<0.01	妆	<0.01	#	#te	*#=	#	**	异	7	in the second
Bromoform	mg/1	<0.01	<0.01	4≒	<0.01	#	H	#	#	#	714	Н	#
1,1,2,2-Tetrachloroethane	mg/l	<0.01	<0.01	#	<0.01	#	#	#	34:	#	#	#	#
1,3-Dichlorobenzene	mg/1	<0.01	<0.01	#	<0.01	#	#	#	#	#	##	#	*#=
1,4-Dichlorobenzene	mg/1	<0.01	<0.01	#	<0.01	#	#	#	#	#	#	#	≒ a e
1,2-Dichlorobenzene	mg/1	<0.01	<0.01	#	<0.01	#	#	#	#	#	#	#	*
РАН	mg/1	<1.0	#	2.6	<1.0	<1.0	<1.0	<1.0	<1.0	1 4	#	#	#
Arsenic	mg/1	<0.01	#	10.0	<0.01	#	H	#	#	#	#	#	¥1±
Cadmium	mg/1	<0.01	#	<0.01	<0.01	#	#	44=	## ##	#	#	#	₹ti
Chromium	mg/1	<0.01	f#	0.01	0.03	#	#	拼	#	#	#	#	**
Lead	mg/1	<0.01	*	0.10	0.02	#	#	7#	#	धाः	#	7#±	7#4
Mercury	mg/l	<0.01	2#	<0.01	<0.01	#	#	7#±	#	3 0:	#	Ħ	*

Results for soil samples expressed as dry weight $\boldsymbol{\ell}$: Analyte not requested



Analytical Test Report For

EXPLORATION ASSOCIATES LIMITED BEDWAS COLLIERY (PART 2)

Report No.: R96/0037

Copies To: Mr J Grainger File





What's so special about a NAMAS report or certificate?

 NAMAS is the acronym for National Accreditation of Measurement and Sampling.

- Accreditation of NAMAS testing is granted by the United Kingdom Accreditation Service (UKAS).

 It's your assurance that the work has been carried out to the highest standards.

- The laboratory issuing the test report has been stringently assessed by independent experts.

- You are assured that the agreed or specified methods and procedures have been followed.

- Measurements are traceable to national and international standards.

Comments:

Tests marked \dagger in this report are not included in the NAMAS Accreditation Schedule for the testing laboratory. However, with the continuing development of our QC protocols, these tests will be included in the near future.

Any opinions and interpretations expressed herein are outside the scope of the testing laboratory's NAMAS Accreditation. Coefficient of Variation (CV_T) is better than 15%

ANALYTE	METHOD OF DETECTION	LIMIT OF DETECTION
Metals PAH/coal tar Phenols Cyanide Sulphate Sulphide pH TPH VOCs	AAS/AA-Hydride HPLC-UV HPLC-UV HPLC-PAD Turbidity Colorimetry pH-Meter Infra-red GC-FID	0.1 mg/kg (or better) 10 mg/kg (total) 1.0 mg/kg 25 mg/kg 100 mg/kg (total) 0.01 mg/l N/A 1 mg/kg 0.1 mg/kg

Date submitted for analysis: 12/01/96

Your Job/Order Number: 151825

Analyst(s) : HTL RLG AGP RH JS

Results approved by: A Bondswell (Technical Director)

Signature : A federal

Report date: 13 February 1996

Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 2)

ANALYTES	UNITS	TP61 1.3m	7P61 2.3m	TP62 1.8m	TP62 2.1m	TP66 1.8m	TP65 2.5m	TP69 1.2m	7P69 2.9m	TP69 4.1m	TP64 1.5m	1P64 3.3m	TP64 4.8m
		S9600406	S9600407	\$9600408	59600409	S9600410	S9600411	59600412	S9600413	29600414	39600415	S9600416	S9600417
Arsenic	mg/kg	18.3	#	#	#	¥	#	17.9	£ £	ate	25.0	7111	≒tax
Cadmium	mg/kg	0.4	#	#	#	74	**	3.4	#	*	<0.1	**	*
Chromium (total)	mg/kg	23.1	#	#	74	#	31=	20.9	*	≒	18.1	क्र	***
Lead	mg/kg	163.2	#	Ste.	#	#	*	204.2	*	*	9.69	3 4±	#
Mercury	mg/kg	2.2	#	#	#	#	#	9.0	#	41=	<0.1	ete.	+_
Copper	mg/kg	68.5	#	#	#	#	#	117.6	#	*	131.3	75.	7#
Nickel	mg/kg	43.3	#	#	#	*	3#±	29.8	₹:	- 8h	43.6	312	4
Zinc	mg/kg	408.1	#	#	#	**	#	354.9	*	*	53.1	74	3#1
Sulphate (acid sol.)	mg/kg	1310	#	#	*	#±	坦	1746	#	×41±	2959	±#±	***
Cyanide (total)	mg/kg	<25	#	#	#	#	- 12	<25	##	#	<25	#	*
PAH/coal tar	mg/kg	18300	#	#	136.0	0.008	26000	35 2	7	*	43900	**	#
Total Petroleum Hydrocarbons	mg/kg	353	#	#	#	476	2740	\ ₹	#	*#±	堆	44	**
Phenols (total)	mg/kg	18.9	#	#	9.6	73.5	252.9	#	<1.0	₩.	#	***	#=
Trans-1,2-Dichloroethene	mg/kg	#	<0.1	#	*	#	#	7	<0.1	<0.1	n#	<0.1	*=
Chloroform	mg/kg	#	<0.1	#	#	**	#	***	<0.1	<0.1	*	<0.1	*# p
1,1,1-Trichloroethane	mg/kg	*#:	<0.1	#	#	#	#	#	<0.1	<0.1	¥#=	<0.1	41=
Carbon Tetrachloride	mg/kg	#	<0.1	#	#	#	#	#	<0.1	<0.1	7#4	<0.1	i sta:
Benzene	mg/kg	#	<0.1	#	##	##	#	*	<0.1	<0.1	址	<0.1	華
1,2-Dichloroethane	mg∕kg	#	<0.1	#	珠	Ħ	#	****	<0.1	<0.1	非	<0.1	3#2
Trichloroethene (TCE)	mg/kg	*	<0.1	±4cc	##	#	*	742	<0.1	<0.1	7#	<0.1	**E

Results for soil samples expressed as dry weight # : Analyte not requested

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Report No. R96/0037

Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 2)

ANALYTES	UNITS	TP61 1.3m	TP61 2.3m	TP62 1.8m	TP62 2.1m	TP56 1.8m	TP65 2.5m	TP69 1.2m	TP69 2.9m	TP69	TP64 1.5m	TP64 3.3m	TP64 4.8m
		89600406	\$5600407	S960040B	S9600409 S9600410 S9600411	\$9600410	59500411		\$9600412 \$9600413	S9600414	S9600415 S9600416	59600416	\$9600417
1,2-Dichloropropane	mg/kg	*	<0.1	#	#1.	#	#	#	<0.1	<0.1	≒⊭	<0.1	at:
Toluene	mg/kg	च ±	<0.1	#	*	#	#	#	1.0	<0.1	**	<0.1	*
1,1-Dichloropropane	mg/kg	#	<0.1	#	#	#	#	#	<0.1	<0.1	*B2	<0.1	址
1,1,2-Trichloroethane	mg/kg	#	<0.1	¥	#	744	**	≄⊨	<0.1	<0.1	31=	<0.1	李
Tetrachloroethane (PCE)	mg/kg	#	<0.1	#	7#	#	#	=#	<0.1	6.1	=#=	<0.1	742
Tetrachloroethene	mg/kg	#-	<0.1	#	#	##	-# 1 -	#	<0.1	<0,1	74	<0.1	4
Dibromoch loromethane	mg/kg	#	<0.1	#	#	70	##	3#	<0.1	<0.1	4:	<0.1	华
Ethyl Benzene	mg/kg	特	1.8	#	#	#	#Ib	*#=	<0.1	<0.1	≉⊧	<0.1	#
Chlorobenzene	mg/kg	#	<0.1	#	#	#	4	-34=	<0.1	<0.1	716	<0.1	*
Xylenes	mg/kg	#	6.2	#	#	#	7#	蛛	<0.1	<0.1	∓ac.	<0.1	ĦĿ
Bromoform	mg/kg	#	<0.1	#	华	#	#	桃	<0.1	<0.1	#	<0.1	ta:
1,1,2,2-Tetrachloroethane	mg/kg	#	<0.1	#	#	砒	Ħ	#	<0.1	<0.1	*	<0.1	妆
1,3-Dichlorobenzene	mg/kg	##	<0.1	#	#	#	#	#	<0.1	<0.1	神	<0.1	*
1,4-Dichlorobenzene	mg/kg	#	<0.1	44:	#	#	#	**	<0.1	<0.1	₹	<0.1	*
1,2-Dichlorobenzene	mg/kg	##	<0.1	7#L	#	¥##	#	Ψ.	<0.1	<0.1	#	<0.1	44

Results for soil samples expressed as dry Weight # : Analyte not requested

Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 2)

ANALYTES	UNITS	TP64 5.9m	TP50 1.2m	TP60 2.9m	TP60 3.4m	TP60 5.5m	TP68 1.1m	1P68 3.5m	TP68 5.1m	TP51 0.7m	TP51	TP51 5.7m	
		81800418	59600419	59600420	S9600421	59600422	59600423	59600424	S9600424 S9600425	S9600426	S9600427	89600428	
Total Petroleum Hydrocarbons	mg/kg	440	#	7 1 12	099	#	#	≭aba	\ \	≒abe	##:	≭ac	32≥
Trans-1,2-Dichloroethene	mg/kg	<0.1	#	#	#	#	#	3124	#	**	#	#	*
Chloroform	mg/kg	<0.1	#	H.	#	#	#±	æ⊨	*#	#	-#-	24:	*### cd##
1,1,1-Trichloroethane	mg/kg	<0.1	##	#	#	#	#	類	#⊨	74	**	华	**
Carbon Tetrachloride	mg/kg	<0.1	4 12	#	#	#	*	**	≒3 1=	782	- Tape	74-	3 42
Benzene	mg/kg	<0.1	#	¥ 2 812	華	#	#	*	*	30 23	*	#	न≒
1,2-Dichloroethane	mg/kg	<0.1	#	址	7#	#	#	#	#	#	*#=	74:	**
Trichloroethene (TCE)	mg/kg	<0.1	7112	**	#	#	#	#	#	#±	#	2 430	34:
1,2-Dichloropropane	mg/kg	<0.1	#	#	#	744	*	#	₹4.	44	#	th:	73±
Toluene	mg/kg	<0.1	**	*	# 442	7#	#	#	#	*=	≉⊨	4#	±tac .
1,1-Dichloropropane	mg/kg	<0.1	≒ttz	#	4	#	#	4	#	≇⊨	**	###	#
1,1,2-Trichloroethane	mg/kg	<0.1	*	*	#	址	#	#	th.	*#=	#	雅	#
Tetrachloroethane (PCE)	mg/kg	<0.1	#	#	#	711	#	*	**	**	the .	*	*##
Tetrachloroethene	mg/kg	<0.1	#	#	₹1.	#	#	Φ‡	*##	- THE	#	#	787
Dibromochloromethane	mg/kg	<0.1	*	*	*#	芈	*	#	*	*	*	#	#
Ethyl Benzene	mg/kg	<0.1	#	#	74	#	#	#	34:	***	*	#	#
Chlorobenzene	mg/kg	<0.1	#	#	#	Ħ	#	#	720	*# ₽		#	**
Xylenes	mg/kg	<0.1	т.	#	#	74:	琳	#	#	-tac	#	#	an.
Bromoform	mg/kg	<0.1	#	#	#	#	#	#	#	#	#	#	*
1,1,2,2-Tetrachloroethane	mg/kg	<0.1	#	≒a±	74:	华	*	华	#	₹⊨	#	##	7#

Results for soil samples expressed as dry weight $\pmb{\ell}$: Analyte not requested

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Report No. R96/0037

Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 2)

AMALYTES	UNITS	TP64 5.9m	TP60 1.2m	7P60 2.9m	TP60 3.4m	TP60 5.5m	TP68 1.1m	TP68 3.5m	TP68 5.1m	TP51 0.7m	TP51 4.1m	TP51 5.7m	
		\$9600418	89600418 89600419 89600420 89600421 89600422 89600423 89600424 89600425 89600426 89600427	S9600420	59600421	\$9600422	59600423	S9600424	S9600425	S9600426	59600427	S9600428	
1,3-Dichlorobenzene	mg/kg	<0.1	#	⇒ t±	Ψ=	≠b	#	7#	742	3 42	¥#2	生	#4
1,4-Dichlorobenzene	mg/kg	<0.1	#	#	*	*	*	#	#	#	3 \$	#	**
1,2-Dichlorobenzene	.mg/kg	<0.1	#	#	*	# ≥	#	**	#≿	妆	#	712	34 €
Phenols (total)	mg/kg	#	#	#	<1.0	<1.0	<1.0	#£	<1.0	<1.0	712	<1.0	7#=
PAH/coal tar	mg/kg	**	*	#	#40	#	187.5	4	यार	407.0	#	***) # <u>t</u>

Results for soil samples expressed as dry weight $^{\emph{k}}$: Analyte not requested

Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 2)

ANALYTES	UNITS	TP62 2.1m water	TP61 2.3m water	TP64 5.9m water									
		\$9600432	59600433	S9600434									
Н	N/A	7.1	8.2	9.9	-3±	恭	*# *	#⊭	₩.	7#	1 7#	4⊭	和
Sulphide	mg/1	90.0	0.40	0.04	#	*	址	782	#	34:	#	**	#
Cyanide (total)	mg/1	<2.0	<2.0	<2.0	*	批	#	#	#	**	**:	##	#
Phenols (total)	mg/1	<1.0	#	1.4	etr.	3 122	772	#	**	#	₹	4 #	*
РАН	mg/l	<1.0	#	#	*	**************************************	**	P tk	神	**	#	*35 2	**
Trans-1,2-Dichloroethene	mg/l	#	#	<0.01	#=	粕	*	31±	742	et:	***	34±	32:
Chloroform	mg/1	7#2	#	<0.01	702	#=	≓æ	₩.	孝	*	珠	₹1=	#
1,1,1-Trichloroethane	mg/1	#	#	<0.01	**	#1:	#LE	*	#	#	#	વા⊭	782
Carbon Tetrachloride	mg/l	#	#	<0.01	址	4:	#	41c	**	**	*##	742	*
Велzene	mg/l	#	#	<0.01	担	神	#	##	*	1744	캭눖	#	#.
1,2-Dichloroethane	mg/l	#	#	<0.01	华	*##	*	#	#	The Control	*	**	4 ₽
Trichloroethene (TCE)	mg/1	#	#	<0.01	##=	174	**	**	740	**	##	#	121=
1,2-Dichloropropane	mg/1	#	#	<0.01	캠	¤æ	##	#	*	#	9#	#	4
Toluene	1/bu	#	#	<0.01	#	#	北	#	*	#⊏	#12	≥tb:	q _E
1,1-Dichloropropane	l/gm	#	#	<0.01	#	#	##	#	the the	*	31;=		7#A
1,1,2-Trichloroethane	mg/l	#	#	<0.01	##	#	#	#	¥#:	a t:	વ⊭	#£	*#±1
Tetrachloroethane (PCE)	mg/1	712	#	<0.01	7#	*	#	7412	#	*	*#=	*±	31⊨
Tetrach loroethene	mg/l	#	#	<0.01	#	7	#	#	4	#	#	##	-dep
Dibromochloromethane	mg/l	#	#	<0.01	714±	#	#	母	7#	**	本	-⊋e.	≠ ‡
Ethyl Benzene	mg/l	#	#	<0.01	#	#	*	#	*	4#	*	ž	本

Results for soil samples expressed as dry weight ℓ : Analyte not requested

Report No. R96/0037

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Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 2)

ANALYTES	UNITS	TP62 2.1m water	TP61 2.3m water	TP64 5.9m water									
		59600432	S9600433 S9600434	S9600434									
Chlorobenzene	mg/l	#	#±	<0.01	₹#	퍄	#	# #	#	#	i dae	4 E	31≥
Xylenes	1/вш	#	700	<0.01	7 4	72	#	f	#	=#±	**	础	*#£
Bromoform	mg/1	#	*# ±	<0.01	r#	#	堆	7#	*#	#	쿼	≒a⊨	32≥
1,1,2,2-Tetrachloroethane	mg/l	ff.	#	<0.01	#	#	***	#	**	#	*	**	*
1,3-Dichlorobenzene	mg/1	#	H	<0.01	P\$	##	#	24±	11:	**	#4	***	#
1,4-Dichlorobenzene	mg/1	#	#	<0.01	#	#	#	#	##	3 ta	stg.	*	##
1,2-Dichlorobenzene	mg/1	#	#	<0.01	711	#	#	7#	#	7212	#	#	#=

Results for soil samples expressed as dry weight $\mbox{\ensuremath{\mu}}$: Analyte not requested



Analytical Test Report For

EXPLORATION ASSOCIATES LIMITED BEDWAS COLLIERY (PART 3)

Report No.: R96/0076

Copies To: Mr J Grainger File





What's so special about a NAMAS report or certificate?

NAMAS is the acronym for National Accreditation of Measurement and Sampling. Accreditation of NAMAS testing is granted by the

United Kingdom Accreditation Service (UKAS).

- It's your assurance that the work has been carried out to the highest standards.

The laboratory issuing the test report has been stringently assessed by independent experts.

You are assured that the agreed or specified methods and procedures have been followed.

Measurements are traceable to national and international standards.

Comments:

Tests marked f in this report are not included in the NAMAS Accreditation Schedule for the testing laboratory. However, with the continuing development of our QC protocols, these tests will be included in the near future.

Any opinions and interpretations expressed herein are outside the scope of the testing laboratory's NAMAS Accreditation. Coefficient of Variation (CV_T) is better than 15%

ANALYTE	METHOD OF DETECTION	LIMIT OF DETECTION
Metals PAH/coal tar Phenols Cyanide Sulphate Sulphide pH TPH	ICP HPLC-UV HPLC-UV HPLC-PAD Turbidity Colorimetry pH-Meter Infra~red	0.1 mg/kg (or better) 10 mg/kg (total) 1.0 mg/kg 25 mg/kg (total) 100 mg/kg (total) 0.1 mg/kg N/A 1 mg/kg
VOCs	GC-MS	0.1 mg/kg
PCBs	GC-MS	0.1 mg/kg (total)

Date submitted for analysis: 19/01/96

Your Job/Order Number: 151825

Analyst(s) : RH RLG CAT HTL PGS CBA

Results approved by: A Bondswell (Technical Director)

Signature :

Report date: 20 February 1996

Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 3)

ANALYTES	UNITS	7P70 2.3m	TP70 2.6m	TP71 1.2m	TP71 2.8m	7P71 4.0m	TP56A 1.7m	ТР56А 2.9ш	7P56A 3.9m	1P53	TP53	TP53	TP67 2.1m	
		59600791	29600792	89600793	296000968	39500796	29600797	86200968	89600799	29600800	29600801	29600802	29600803	T
Trans-1,2-Dichloroethene	mg/kg	if the state of th	<0.1	<0.1	#	74-	ä⊫	#4	#	714	**	本	*	+
Chloroform	mg/kg	#	<0.1	<0.1	#	#	#	#	#	#	#	*	淮	+
1,1,1-Trichloroethane	mg/kg	#	<0.1	<0.1	#	#	#	#	##	地	#	## <u></u>	7#2	+-
Carbon Tetrachloride	mg/kg	#	<0.1	<0.1	#	#	#	#	*	*	-#=	-4x	#	+-
Вепzепе	mg/kg	#	<0.1	<0.1	#	#	#	3 4 2	#±	#	#	**	#	+-
1,2-Dichloroethane	mg/kg	#	<0.1	<0.1	#	#	**	#	#2	at⊧	#	#	≠æ	+
Trichloroethene (TCE)	mg/kg	#	<0.1	<0.1	#	#	#	#2	*8 5	#	##	#	*	+
1,2-Dichloropropane	mg/kg	#	<0.1	<0.1	¾ ±	#	#	*#±	784	#	74:	**	1422	+
Toluene	mg/kg	#	<0.1	<0.1	#	7 #:	ott.	**	#	#	742	*	难	+
1,1-Dichloropropane	mg/kg	#	<0.1	<0.1	#	#	#	≠b :	*	742	#	74:	₹tb:	+
1,1,2-frichloroethane	mg/kg	##	<0.1	<0.1	#	#	#	妆	eg _t	#	*	3 t≥	742	+
Tetrachloroethane (PCE)	mg/kg	#1	<0.1	<0.1	#	*#£	华	*	#=	*	苹	#	#	+
Tetrachloroethene	mg/kg	#	<0.1	<0.1	**	#	#	*11=	*	* C	#	#	#	+
Dibromochloromethane	mg/kg	#	<0.1	<0.1	郡	#	#	≄⊭	#=	***	#	#	782	+
Ethy] Benzene	mg/kg	并	<0.1	<0.1	#	ч.	*	#	*	#	712	et⊨	744	+-
Chlorobenzene	mg/kg	#	<0.1	<0.1	#	#	#	742	#	#	#	#2	: ⊐t⊨	+
Xylenes	mg/kg	7£	<0.1	<0.1	#	#	#	坤	*	#	#	34 2	31≿	+-
Bromoform	mg/kg	#	<0.1	<0.1	#	#	#	*	#	*	珠	≒±-	-30≥	-
1,1,2,2-Tetrachloroethane	mg/kg	#	<0.1	<0.1	并	*	#	#4	₩.	#	7#	7112	ogt≃	4-
1,3-Dichlorobenzene	mg/kg	*#±	<0.1	<0.1	#	*	*	#	72	7#	**	:#a	#	+
														1

Results for sofl samples expressed as dry weight $\ensuremath{\mathcal{R}}$: Analyte not requested

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Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 3)

ANALYTES	UNITS	7P70 2.3m	7P70 2.6m	TP71 1.2m	TP71 2.8m	TP71 4.0m	TP56A 1.7m	TP56A 2.9m	TP56A 3.9m	TP53 2.0m	TP53 3.5m	TP53	TP67 2.1m
		59600791	29600395	89600793	29600795	39600796	29600797	86/00965	89600799	29600800	10800965	S9600791 S9600792 S9600793 S9600795 S9600796 S9600797 S9600798 S9600799 S9600800 S9600801 S9600802 S9600803	\$9600803
1,4-Dichlorobenzene	mg/kg	拇	<0.1	<0.1	⊐સ≃	*	#	itte.	#=	#	#	*#	#
1,2-Dichlorobenzene	mg/kg	¥	<0.1	<0.1	**	*	≉	#	#	7#	#	**	₹#
рН	N/A	ff.	#	6.7	*	*	7.6	#	#	# #	#	#	#
Sulphate	mg/kg	#	747	1067	#	#	#	=14 2	#	#	2 #4	#	琳
Cyanide (total)	mg/kg	#	#1	<25	#	#	<25	742	<25	#	种	#	#4
ТРИ	mg/kg	#	#	2701	#	163	st⊨	2171	509	#	1100	5	#
Phenols (total)	mg/kg	#	#	<1.0	华	<1.0	7#4	<1.0	#	#	<1.0	#	*
Sulphide	mg/kg	#	#	74	#	#	<0.1	#	<0.1	#	#	#	#
PAH/coal tar	mg/kg	#	#	Ħ	*	#	7 4 2	298	址	#	砒	莽	- #a

Results for soil samples expressed as dry weight $\boldsymbol{\ell}$: Analyte not requested

Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 3)

ANALYTES	UNITS	TP67 3.4m	TP67 5.0m	TP72 1.0m	TP72 2.0m	TP72 4.0m	TP72 5.0m	TP55 1.2m	1P55 2.8m	TP55 4.0m	TP55 5.7m	TP49 1.5m	TP49 3.5m
		\$9600804	29600805	29600806	29600807	S9600808 S9600809 S9600810	59600809	29600810	59600811	59600812	29600813	\$9600814	29600815
Нд	N/A	#	#	712	3.2	#	#	*##	44	*±	₹	- 3 C	340
Sulphate	mg/kg	#	#4	*	2813	#	#	1552	742	#	44-	*#	*
Cyanide (total)	mg/kg	#	#	74	<25	#	#	<25	¥£	<25	乖	**	#
PAH/coal tar	mg/kg	#	##	Tabe	<10	#	*	4000	₹2=	3 #±	** <u></u>	#	#
Phenols (total)	mg/kg	#	#	#	<1.0	#	<1.0	<1,0	#	¥#±	<1.0	蛛	==
Trans-1,2-Dichloroethene	mg/kg	#	#	#	#	#	#	#	<0.1	淋	#	7#	+ #
Chloroform	mg/kg	#	Ħ	74:	#	#	#	#	<0.1	-34=	*	#	*
1,1,1-Trichloroethane	mg/kg	#	724	41 4.	***	#E	#	#	<0.1	육	妣	**	*
Carbon Tetrachloride	mg/kg	#	#	#	Hate .	#	*	*#=	<0.1	**	#	#	#
Benzene	mg/kg	#	#	743	#	-24- -	##	#	<0.1	#	3 ±	1 74:	#
1,2-Dichloroethane	mg/kg	井.	#	71:	#	#	#	#	<0.1	*	#	#	#
Trichloroethene (TCE)	mg/kg	开	#	#	#	7111	7#	71:	<0.1	#	#	*	#
1,2-Dichloropropane	mg/kg	妆	#	#	#	Đ.	#	**	<0.1	*	#	#	+-
Toluene	mg/kg	*	#	#	#	#	The.	#	<0.1	#=	#	**	+
1,1-Dichloropropane	mg/kg	#	#	*	#	724	#4	#4	<0.1	#	#	珠	#
1,1,2-Trichloroethane	mg/kg	*	th.	蛛	₩.	#	7#	*	<0.1	#	- T#	31≿	*
Tetrachloroethane (PCE)	mg/kg	##	#	7742	#	74	#	#	<0.1	#	#	#	+-
Tetrachloroethene	mg/kg	#	#	#	#	#	*	#	<0.1	#	*	#	+
Dibromochloromethane	mg/kg	#	#	¥£	Ĥ	± ta	742	#	<0.1	#	#	#	#
Ethyl Benzene	mg/kg	津	78tz	4 ±	d#	***	±0;	**	<0.1	#	#	*	#

Results for soil samples expressed as dry weight # : Analyte not requested

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Report No. R95/0076

Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 3)

ANALYTES	UNITS	TP67 3.4m	TP67 5.0m	TP72 1.0m	TP72 2.0m	TP72 4.0m	TP72 5.0m	TP55 1.2m	7P55 2.8m	TP55 4.0m	TP55 5.7m	TP49 1.5m	7P49 3.5m
		89600804 89		29600806	29600807	89600808	1600805 S9600806 S9600807 S9600808 S9600810 S9600811 S9600812 S9600813 S9600814 S9600815	\$9600810	59600811	\$9600812	59600813	59600814	29600815
Chlorobenzene	mg/kg	#	**	#	≈#=	**	#	742	<0.1	य⊭	*	7112	a ta
Xylenes	mg/kg	#	e#.	#	₩:	#	**	*	<0.1	**	#	744	*
Bromoform	mg/kg	#	782	#	→	31::	#	- Tap	<0.1	a ta	*	#	*15
1,1,2,2-Tetrachloroethane	mg/kg	#	#	*#±	#	#	#:	***	<0.1	*	#=	∃ ±	#
1,3-Dichlorobenzene	mg/kg	#	#	#	4≒-	#	#	i-be:	<0.1	*	#	#4	¥≇⊨
1,4-Dichlorobenzene	mg/kg	#	#	#	*	#	**	712	<0.1	*	*	7\$	#
1,2-Dichlorobenzene	mg/kg	#	#	**	aut=	#	otz:	#	<0.1	#	78	#	*
Arsenic	mg/kg	#	*	#	#	392. ;	*	1 4.	#1≥	11.0	742	#	**
Cadmium	mg/kg	#	#	**	#	*	#	742	#	<0.1	큐	**	#
Chromium (total)	mg/kg	#	#	#	#	*	7#:	#	722	6.6	#4	#	41
Lead	mg/kg	址	并	#	#	H	#	#	**	64.1	**	#	712
Mercury	mg/kg	#	ч ь	#	#	#	#	d _t	#	0.1	#	742	#

Results for soil samples expressed as dry weight # : Analyte not requested

Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 3)

ANALYTES	UNITS	1P49 4.2m	1945 1.2m	TP45	TP33 1.7m	TP33	TP54 1.0m	TP54 2.6m	TP54 4.3m	TP25 0.5m	TP25 2.0m	TP25 2.8m	TP25
		68 91800968	29600817	600817 \$9600818 \$9600820 \$9600821 \$9600822 \$9600823 \$9600824 \$9600825 \$9600826 \$9600827 \$9600828	89600820	59600821	\$9600822	59600823	59600824	\$9600825	59600826	59600827	29600828
PAH/coal tar	mg/kg	#	-3tc	<10	15 ‡	#	<10	44:	#	#	#	1335	#
Phenols (total)	mg/kg	*	*	<1.0	wite:	*	<1.0	Ħ	<1.0	## <u></u>	#	<1.0	<1.0
Su lphate	mg/kg	120	325	#	#	#=	1116	#	#	41-	1455	¥51=	₩
Cyanide (total)	"mg/kg	华	#	#4	**	≄	<25	#	#	#	<25	44 2	*
Arsenic	mg/kg	24 5	*	#	##=	*	14.9	#	*	3 43	8.5	**	₩
Cadmium	mg/kg	#	#	#	44	#	<0.1	#	#	**	<0.1	牲	31±
Chromium (total)	mg/kg	H	*	#	742	##	10.9	# £	幸	124	12.7	¥#=	**
Lead	mg/kg	£	≉	71:	#	*	36.3	*=	*#=	#	79.1	720	440
Mercury	mg/kg	*	*	#	址	SE:	6.0	44.	**	⊐ #≃	1.0	784	≄tz
Н	N/A	#	#	#:	##	#	**	*	#	#	8.2	#	71kz
Calorific Value	kJ/kg	#	#=	#	¥±.	71:	*	#₽	***	#	11570	**	×32=
													١

Results for soil samples expressed as dry weight \hbar ; Analyte not requested

Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 3)

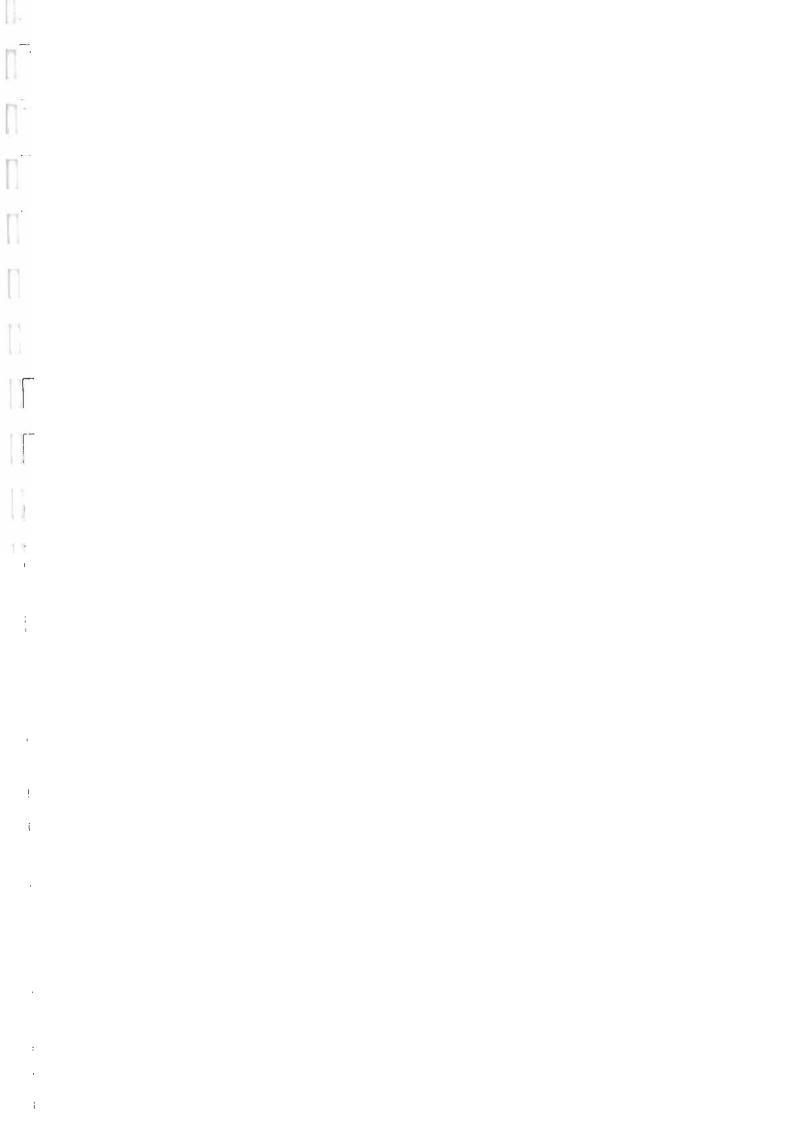
ANALYTES	UNITS	TP24 1.5m	7P24 3.3m	вн9 1.0m	вн9 2.0m	вн9 1.0m вн9 2.0m вн9 3.0m вн9 4.0m	BH9 4.0m						
		89600829	\$9600831	\$9600832	59600834	S9600831 S9600832 S9600834 S9600835 S9600836	92800968						
PCBs	mg/kg	<0.1	#	**	#	#	#	#	#	781	74#2	#	#
Arsenic	mg/kg	#	ij	5.0	#.	5.7	#	#	#	#	×38=	#	#
Cadmium	mg/kg	#	742	<0.1	*	<0.1	71:	7#	#	#	*	744	Ð
Chromium (total)	mg/kg	78=	#	15.5	#	21.3	#	72:	#	#	≒ #=	#	#
Lead	mg/kg	#	#	1.4	#	4.0	#	#	#	### #	782	#	#
Mercury	mg/kg	輯	#	0.4	#	0.1	#	*	*#	*	74:	#	#
Copper	mg/kg	#	Ħ	9.5	#	12.2	#	***	#	##	#	***	># ≥
Nickel	mg/kg	華	4	20.1	#	33.7	#	74	#	##	*	#	*
Zinc	mg/kg	#	Ħ	50.9	#	71.4	#	#	#	#	*##	#	#
Cyanide (total)	mg/kg	和版	#	<25	#	<25	#	#	#	¥.	**	44	#
Sulphate	mg/kg	착뇨	*	226	#	728	#	#	#	**	##	#	#

Results for soil samples expressed as dry weight f : Analyte not requested

Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 3)

ANAL YTES	UNITS	1P70 1.8m	7P56A 3.7m	TP53 3.0m			_						
		89600838 89	600840	59600841									
Hd	N/A	7.9	7.5	6.9	PEE:	792 4	*	*	***	**	#	- TF	幸
Cyanide (total)	mg/l	<2.0	<2.0	<2.0	*	#	*	74:	苹	**	**	*	#
Sulphide	mg/1	0.03	<0.01	<0.01	#	*	*#12	#	311=	*	#	파	7144
Phenols (total)	mg/l	0.33	<0.01	<0.01	*	#	**	#	#	#	#	7.00	***

Results for soil samples expressed as dry weight $\#: {\sf Analyte}$ not requested



Analytical Test Report For

EXPLORATION ASSOCIATES LIMITED BEDWAS COLLIERY (PART 4)

Report No.: R96/0077

Copies To: Mr J Grainger File





What's so special about a NAMAS report or certificate?

 NAMAS is the acronym for National Accreditation of Measurement and Sampling.

- Accreditation of NAMAS testing is granted by the United Kingdom Accreditation Service (UKAS).

- It's your assurance that the work has been carried out to the highest standards.

- The laboratory issuing the test report has been stringently assessed by independent experts.

- You are assured that the agreed or specified methods and procedures have been followed.

 Measurements are traceable to national and international standards.

Comments:

Tests marked t in this report are not included in the NAMAS Accreditation Schedule for the testing laboratory. However, with the continuing development of our QC protocols, these tests will be included in the near future.

Any opinions and interpretations expressed herein are outside the scope of the testing laboratory's NAMAS Accreditation. Coefficient of Variation (CV $_{\rm T}$) is better than 15%

ANALYTE METHOD OF DETECTION LIMIT OF DETECTION

Metals	AAS/AA-Hydride	0.1 mg/kg (or better)
PAH/coal tar	HPLC-UV	10 mg/kg
Phenols	HPLC-UV	1.0 mg/kg
Cyanide	HPLC-PAD	25 mg/kg (total)
Sulphate	Turbidity	100 mg/kg (total)
Sulphide	Colorimetry	0.1 mg/kg
рН	pH-Meter	N/A
VOCs	GC-MS	0.1 ma/ka

Date submitted for analysis: 19/01/96

Your Job/Order Number: 151825

Analyst(s) : HTL RLG PGS NAD RH

Results approved by: A Bondswell (Technical Director)

Signature : A Lodsiel

Report date: 26 February 1996

Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 4)

ANALYTES	UNITS	TP16 1.2m	TP16 4.9m	TP26 1.0m	TP26 2.5m	TP26 5.3m	TP26 1.5	TP30 1.7m	TP30 4.6m	TP82 1.3m	1.0m	7P82 3.7m	TP82
		59600843	\$9600845	S9600846 S9600847		S9600848	S9600848 S9600849		\$9600851	\$9600850 \$9600851 \$9600852	\$9600853	29600855	39600856
Arsenic	mg/kg	7.3	6.8	#	#	#	#	##	#	t	<0.1	142	本
Cadmium	mg/kg	<0.1	<0.1	#	#	#	#	#	4 12	#	0.8	70	Ħ
Chromium (total)	mg/kg	18.6	20.2	#	*	#	#	744	44-	3 4≥	8.2	#	*
Lead	mg/kg	4.5	12.7	H H	#	#	#	#	#	堆	4.6	***	#
Mercury	mg/kg	0.1	0.1	#	#	*	¥#.	**	#	*	0.1	*#2	7\$
Copper	mg/kg	12.5	27.7	7#	₹	*	**	#) **	*	7#	7#	#
Nickel	mg/kg	24.3	37.7	*	**	≉⊨	\$\$£	*	华	*	¥ 1 ⊏	⊐tta	#
Zinc	mg/kg	55.6	91.1	¥n.	7#	#4	742	*	₩.	#	*	#	th:
Н	N/A	7.6	7.4	8.3	743	#	井	-#at-	545	7.5	11.6	#	#
Sulphate	mg/kg	922	728	1358	#	#	3 ta	anta a	*	Æta	##	742	+
Cyanide (total)	mg/kg	<25	<25	<25	#	#	વધા	**	*	25.6	<25	带	+
Phenols (total)	mg/kg	#	#	#	#	<1.0	<1.0	#	*	21.6	3 4	-11:	<1.0
PAH/coal tar	mg/kg	#	#	#	#	#	<10	4 ‡	#	71100	##	*	496
Sulphide	mg/kg	#b	**	#	#	#	#	3 ta	##	6.0	166.3	724	#

Results for soil samples expressed as dry weight f : Analyte not requested

Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 4)

ANALYTES	UNITS	TP23	TP23 4.1m	TP27 0.5m	1P27 2.0m	7P27 3.0m	TP83 1.2m	7P83 2.8m	TP83				
		29600858	89600859		\$9600860 \$9600861	29800965	59600863	\$9600864	29600866				
PH	N/A	*	#	4 #2	7.1	ᅲ	*	#	742	*	≒⊭	7254	≒
Sulphate	mg/kg	##	#	==	21049	71:	¥tx	#	7115	#∓	ot:	**	⊐t⊨
Cyanide (total)	mg/kg	#	#:	#	<25	#	ithe:	72	ott:	##	#	-#t-	712
Arsenic	mg/kg	#	#	#	21.3	क⊭	#	#	**E	*	≄=	2212	**
Cadmium	mg/kg	TE.	#	7Ma	<0.1	#	础	148 11	-tr	- TAIL	#1	7#1	#
Chromium (total)	mg/kg	#	#	#	12.1	**	サ	#	≒ac:	₩	#	¥t⊨	##
Lead	mg/kg	#	*	4	58.8	#	≅Ç≭	7#	⇒tp	*	*	-Zh-,	#
Mercury	mg/kg	#	#	推	1.6	神	*	#	#	#	*	7780	**
PAH/coal tar	mg/kg	#	#	#	韩	<10	321	3#4	<10	3±	#	#	30 2
Phenols (total)	mg/kg	Ĥ	#	#	784	<1.0	<1.0	- Tabe	<1.0	#	#	7212	≈ 0=
Trans-1,2-Dichloroethene	mg/kg	#	#	#	Ħ	#	雅	<0.1	*	#	*	74	#
Chloroform	mg/kg	#	#	#	#	#	*	<0.1	##	*	742	**	eltr
1,1,1-Trichloroethane	mg/kg	#	#	#	#	#	#	<0.1	#	#	**	7#	41 ⊑
Carbon Tetrachloride	mg/kg	#	析	#	#	#	#	<0.1	310	*	**	7772	et⊭
Benzene	mg/kg	#	#	#	#	#	*	<0.1	#	#	#	a#⊨	#
1,2-Dichloroethane	mg/kg	#	#	#	址	#	#	<0.1	#	박	*	#	# =
Trichloroethene (TCE)	mg/kg	#	#	#	#	#	#	<0.1	#	#	#	*B=	**
1,2-Dichloropropane	mg/kg	##	#	#	#	#	#	<0.1	#	#	#	7#	**
Toluene	mg/kg	· #	#	#	#	744	##	<0.1	姓	7#	#	Æ	##
1,1-Dichloropropane	mg/kg	#	the.	#=	71≒	#	¤t⊨	<0.1	₩.	#	址	*#	#

Results for soil samples expressed as dry weight ℓ : Analyte not requested

Page 4 of 5

Report No. R96/0077

Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 4)

ANALYTES	UNITS	TP23 1.5m	TP23 4.lm	TP27 0.5m	TP27 2.0m	TP27 3.0m	7P83 1.2m	TP83 2.8m	TP83 4.3m					
		83600858	89600859	9600859 89600860	\$9600861	\$9600861 \$9600862 \$9600863 \$9600864 \$9600866	\$9600863	\$9600864	29600866					
1,1,2-Trichloroethane	mg/kg	3 ±	#	神	#	#	#	<0.1	#	#=	#	j u	##	+
Tetrachloroethane (PCE)	mg/kg	#	#	#	#	#	#	<0.1	#	#	#	#	#	+
Tetrachloroethene	mg/kg	3114	-# <u>-</u>	742	445	莽	#	<0.1	#	##	2H2	#	*#=	+
Dibromochloromethane	mg/kg	740	#	===	#	:3t:	##	<0.1	#	Ħ	#	#	3 ±	4
Ethyl Benzene	mg/kg	#	#	#	#	#	#	<0.1	#	#	##	#	#	+
Chlorobenzene	mg/kg	#	#	##	#	#	#	<0.1	#	±	78 122	#	≉⊨	<u>+</u>
Xylenes	mg/kg	#	#	41a	#=	#	#	<0.1	#	1 -	#	#	#	+
Bromoform	mg/kg	#	#	#	inda in the second	#	#	<0.1	#	#	##	#	*	+
1,1,2,2-Tetrachloroethane	mg/kg	#	걔	#	*	#	#	<0.1	#	#	74 ±	Ħ	#	+
1,3-Dichlorobenzene	mg/kg	#	#	*	#	#	#	<0.1	#	#	華	#	#	+
1,4-Dichlorobenzene	mg/kg	Ħ	#	#	#	#	#	<0.1	#:	#	#	#	#	+
1,2-Dichlorobenzene	mg/kg	#	7th	ij	#	#	# #2	<0.1	#	#	⊅≉	#	¥ф.	+-

Results for soil samples expressed as dry weight # : Analyte not requested

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Analytical Test Report For

EXPLORATION ASSOCIATES LIMITED BEDWAS COLLIERY, PART 5

Report No.: R96/0123

Copies To: Mr J Grainger File





What's so special about a NAMAS report or certificate?

 NAMAS is the acronym for National Accreditation of Measurement and Sampling.

 Accreditation of NAMAS testing is granted by the United Kingdom Accreditation Service (UKAS).

 It's your assurance that the work has been carried out to the highest standards.

 The laboratory issuing the test report has been stringently assessed by independent experts.

- You are assured that the agreed or specified methods

and procedures have been followed.

- Measurements are traceable to national and international standards.

Comments:

Tests marked † in this report are not included in the NAMAS Accreditation Schedule for the testing laboratory. However, with the continuing development of our QC protocols, these tests will be included in the near future.

Any opinions and interpretations expressed herein are outside the scope of the testing laboratory's NAMAS Accreditation.

Coefficient of Variation (CVT) is better than 15%

Metals ICP 0.1 mg/kg (or better) PAH/Coal tar HPLC-UV 10 mg/kg (total) Phenols Colorimetry 0.1 mg/kg Sulphate Turbidity 100 mg/kg (total) pH pH-Meter N/A VOCs GC-MS 0.1 mg/kg TPH Infra-red 1 mg/kg PAHs GC-MS 0.01 mg/l	ANALYTE	METHOD OF DETECTION	LIMIT OF DETECTION
	PAH/Coal tar Phenols Sulphate pH VOCs	HPLC-UV Colorimetry Turbidity pH-Meter GC-MS Infra-red	10 mg/kg (total) 0.1 mg/kg 100 mg/kg (total) N/A 0.1 mg/kg

Date submitted for analysis: 30/01/96

Your Job/Order Number: 151825

Analyst(s) : RLG CAT PGS HTL RH CBA

Results approved by: A Bondswell (Technical Director)

Signature : [Landened

Report date: 4 March 1996

Summary Of Results Exploration Associates Limited - Bedwas Colliery, Part 5

ANALYTES	UNITS	TP6 1.0m TP12 1.0m	TP12 1.0m	TP5 2.0m	TP5 2.0m TP9 1.0m TP22A		TP38 2.5m	TP38 5.5m	TP80 0.1m	TP80 2.0m	TP80 5.0m	TP79 0.5m	TP79 1.8m	
	~	29601306	89601308	89601309	59601310	\$9601311	59601312	59601313	\$9601314	S9601306 S9601308 S9601309 S9601310 S9601311 S9601312 S9601313 S9601314 S9601315 S9601316 S9601317 S9601318	31610368	59601317	89601318	
PAH/coal tar	mg/kg	48	<10	<10	<10	<10	142	at⊨	232	*	≒ #±	221	和	+
ТРН	mg/kg	120	96	#	29	44-	#	7#	#	#	ale:	*#=	#	
Phenols (total)	mg/kg	1.3	1.9	<0.1	1.0	2.8	1.5	₹1=	2.9	#	41=	0.7	≉⊧	+
Calorific Value	kJ/kg	#	#	1410	#	#	*	3660	#	2200	ante	#	#	+
Hd	N/A	#	#	7.9	#	#	#	#	#	8.4	#=	7#2	7.5	
Arsenic	mg/kg	#	#	8.7	#4	87.2	13.7	17.2	*	9.5	5.2	坤	7.0	+
Cadmium	mg/kg	#	址	1.2	*	<0.1	9.0	<0.1	#	0.4	<0.1	at⊨	<0.1	+
Chromium (total)	mg/kg	#	#	13.0	#	15.4	14.0	14.9	#⊭	16.3	17.0	#	16.9	+
Lead	mg/kg	#	#	9.69	#	106.4	62.1	42.7	#	130.7	28.3	#	26.4	+
Mercury	mg/kg	#	#	6.0	*	1.1	1.1	0.7	#	1.4	0.5	H E2	0.7	+-
Sulphate (acid sol.)	mg/kg	#	#	#	**	#	742	₩.	##	026	#	#	#	+-

Results for soil samples expressed as dry weight ℓ : Analyte not requested

Summary Of Results Exploration Associates Limited - Bedwas Colliery, Part 5

ANALYTES	UNITS	TP81 0.5m	TP73A 2.0m	TP8 2.0m TP8 4.7m TP77 0.3m	ТРВ 4,7m	TP77 0.3m	TP76 0.1m	тр76 1.0m	7P76 3.0m	TP14 2.5m	TP14 4.4m	TP11 0.5m	TP1 1.4m
		\$9601319	\$9601319 \$9601320	\$9601321	89601323	59601321 59601323 59601324 59601325	\$9601325	59601326	59601327	59601328	59601328 59601329	89601330	59601331
PAH/coal tar	mg/kg	141	<10	异	₹	4750	#	22	ar	10	a⊧	38	#4
Phenols (total)	mg/kg	2.4	3.2	⇒ t	#	5.2	4 12c	2.0	#	2.0	-Na	3.6	31±
Arsenic	mg/kg	*	24.2	11.3	10.2	21.8	5.8	**	5.4	13.0	13.4	#	11.9
Cadmium	mg/kg	#	0.8	1.4	0.4	2.0	0.1	21 5	0.2	0.2	0.2	1425	<0.1
Chromium (total)	mg/kg	#	21.6	22.1	12.5	34.4	18.2	啪	18.9	4.7	9.8	=4=	31.9
Lead	mg/kg	#	2844	58.4	57.4	389.6	26.3	#	39.2	35.3	45.9	₹.	31.7
Mercury	mg/kg	#	1.3	0.5	0.8	1.4	0.7	- #	0.7	1.2	1.2	#	0.8
Copper	mg/kg	*	111.5	39.5	#.	*	16.4	**	26.2	8.69	#	7#=	26.4
Nickel	mg/kg	*	30.7	43.2	*	#	20.6	À	42.3	39.3	神	*	40.1
Zinc	mg/kg	#	586.1	226.3	*	H	91.0	7812	94.1	77.3	坩	**	92.2
Нд	N/A	#	7.4	8.0	#	#	9.6	#	6.2	8.6	31±	*	7.3
Sulphate (acid sol.)	mg/kg	#	1552	1407	#	#	#4	#	च⊭	1310	3≵:	nt:	728
Calorific Value	kJ/kg	井	##	1380	#	3940	*	#	##	**	6040	3 ±	} :4a=

Results for soil samples expressed as dry weight \ensuremath{t} : Analyte not requested

Summary Of Results Exploration Associates Limited - Bedwas Colliery, Part 5

ANALYTES	UNITS	трі 3.4ш	TPI 3.4m TP2 3.0m TP2 5.0m TP4 1.5m TP4 3.5m TP7 1.0m TP7 3.5m TP19A	TP2 5.0m	TP4 1.5m	TP4 3.5m	TP7 1.0m	TP7 3.5m	TP19A 1.9m	TP20 1.4m	TP20 5.5m	TP20 3.4m	TP41 0.6m	
		\$9601332	\$9601332 \$9601333	\$9601334	59601334 59601335 59601336 59601337	59601336		85601338	\$9601339	59601340	\$9601338 \$9601339 \$9601340 \$9601341	S9601342	59601343	
Arsenic	mg/kg	7.5	વ≱⊨	7.6	20.5	7#	15.3	20.4	#	8.8	7.8	HI:	15.4	+-
Cadmium	mg/kg	<0.1	₩	0.1	0.2	#	0.2	0.3	#	0.1	<0.1	₩-	0.1	+_
Chromium (total)	mg/kg	16.4	⊅⊭	20.3	16.0	7#=	15.4	11.8	#	16.9	21.0	**	20.5	+
Lead	mg/kg	24.5	#	23.3	79.0	#	70.8	206.5	**	30.8	26.0	#	57.8	+-
Mercury	mg/kg	9.0	#	9.0	0.7	#±	1.4	1.7	#	1.2	0.4	#	0.4	+
PAH/coal tar	mg/kg	#	<10	72 E	#	54	630	#4	1185	#	#	<10	#	+
Phenols (total)	mg/kg	#	3.5	#	3#	4.5	4.2	₩.	3.9	#	#	3.7	7#	+
Copper	mg/kg	리노	7#	23.5	₹2	#	72.5	*	#	#	#	#	35.0	+-
Nickel	mg/kg	#	#	39.4	#	#	43.7	#	4#	#	H H	#	22.6	+_
Zinc	mg/kg	#	#	87.8	#	#	123.4	₹#:	#	#	井	#	117.2	+
hd	N/A	華	762	#	7.6	#	8.5	#	#	7.5	#	#	6.6	
Calorific Value	kJ/kg	₹E	#	井	5476	#	itt.	#	#	270	#	#	#	+
ТРН	mg/kg	#	#	#	#	**	#	#	40	#	#	#	- 7\$:	

Results for soil samples expressed as dry weight f : Analyte not requested

Summary Of Results Exploration Associates Limited - Bedwas Colliery, Part 5

ANALYTES	UNITS	TP41 0.9m	TP59 0.6m	TP59	TP63 1.1m	BH1 7.0m BH1 10.0m	BH1 10.0m	BH2 5.0m BH10 3.0m	BH10 3.0m	BH10 7.0m	8H10 5.0m	8116A 6.8m	BH7 7.8m
		59601344	S9601345	S9601346	\$9601347	S9601348	59601349	29601350	S9601351	59601352	59601353	\$9601354	29601355
PAH/coal tar	mg/kg	<10	<10	#	83	<10	神	<10	**	#±	<10	<10	≭e
Phenols (total)	mg/kg	6.3	3.6	#12	4.6	5.5	*#±	3.8	721	7212	4.2	4.4	*
Arsenic	mg/kg	#	4.2	3.4	#	341	5.6	#	16.2	6.4	*#=	782	12.0
Cadmium	mg/kg	#	<0.1	0.2	#	#	0.3	#	2.0	0.1	*	782	9.0
Chromium (total)	mg/kg	#	17.2	14.4	#	1412	20.5	#	21.3	17.8	O#£	:##	4.2
Lead	mg/kg	#	26.2	19.2	#	#	25.5	7#	257.1	24.3	¥tte	**	38.4
Mercury	mg/kg	#	0.2	<0.1	#	#	0.2	#	9.0	0.3	#	#	<0.1
РН	N/A	#	6.4	₩	#	##	***	≉ा⊭	Ab:	₹2.	*#	#ate	7#±
Calorific Value	kJ/kg	ff	#	<10	#	:12±:	#	⋾ ҍ	44	#	- Table	#	#
Trans-1,2-Dichloroethene	mg/kg	#	#	#	#	#	#	<0.1	#	#	Web.	<0.1	<0.1
Chloroform	mg/kg	#	#	##	#	#	#	<0.1	#	#	*	<0.1	<0.1
1,1,1-Trichloroethane	mg/kg	#	#	#	#	#	Ħ	<0.1	#	#	¥#:	<0.1	<0.1
Carbon Tetrachloride	mg/kg	*	#	##	*	#	*	<0.1	th.	#	#	<0.1	<0.1
Benzene	mg/kg	#	牛	#	#	#	#	<0.1	#	#	DE:	<0.1	<0.1
1,2-Dichloroethane	mg/kg	#	7#4	#	#	##=	#	<0.1	#	т.	#	<0.1	<0.1 +
Trichloroethene (TCE)	mg/kg	*	华	*#=	井	यः	#	<0.1	#	Н	#	<0.1	<0.1
1,2-Dichloropropane	mg/kg	72	W:	#	*	7#	Ħ	<0.1	H H	#	#	<0.1	<0.1
Toluene	mg/kg	#	*	#20	*	3 ₽z	Pate:	<0.1	#	*	3#±	<0.1	<0.1
1,1-Dichloropropane	mg/kg	华	##	äts	#	4 +-	#	<0.1	#	##	#	<0.1	<0.1
1,1,2-Trichloroethane	mg/kg	#:	#£	3# <u>\$</u>	*	#	≃an	<0.1	α.	*#c	**	<0.1	<0.1

Results for soil samples expressed as dry weight # : Analyte not requested

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Report No. R96/0123

Summary Of Results Exploration Associates Limited - Bedwas Colliery, Part 5

Tetrachloroethane (PCE) mg/kg # Tetrachloroethane mg/kg # Dibromochloromethane mg/kg # Ethyl Benzene mg/kg # Chlorobenzene mg/kg # Sylenes mg/kg # Bromoform mg/kg # 1.1.2,2-Tetrachloroethane mg/kg #	344 S9601345 #			10.01		3.0m	7.0m	5.0m	6.8m	
nane (PCE) mg/kg nethane mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	the z	601345 89601346 89601347 89601348 89601359 89601350 89601351 89601352 89601353 89601354 89601355	01347 5960	1348 596013	349 8960135	0 \$9601351	\$9601352	59601353	S9601354	\$9601355
nethane mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg ng/kg mg/kg	"	*#±	=#a: ≠a:	* D	<0.1	3#=	**	#	<0.1	<0.1
mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg mg/kg	ta.	#	#	42≿	<0.1	#=	#	#	<0.1	<0.1
mg/kg mg/kg mg/kg mg/kg mg/kg	7#	#4	# #	*	<0.1	#	#	報	<0.1	<0.1
mg/kg mg/kg mg/kg mg/kg mg/kg	*	**	# #	45	<0.1	46	7	#	<0.1	<0.1
mg/kg mg/kg strachloroethane mg/kg	##	7##	# #	#	<0.1	**	#	*	<0.1	<0.1
mg/kg etrachloroethane mg/kg	#	#	# #	#	<0.1	#	74:	#	<0.1	<0.1
mg/kg	#	#	# #	#	<0.1	#	井	≒CEx	<0.1	<0.1
	#	#	#	#	<0.1	#	#	*	<0.1	<0.1
1,3-Dichlorobenzene mg/kg #	#	#	#	#	<0.1	#	#	#	<0.1	<0.1
1,4-Dichlorobenzene mg/kg #	#	#	# #	#	<0.1	#	**	#=	<0.1	<0.1
1,2-Dichlorobenzene mg/kg #	##	#	华	722	<0.1	ᆲ	#4	#=	<0.1	<0.1

Results for soil samples expressed as dry weight ∤ : Analyte not requested

Summary Of Results Exploration Associates Limited - Bedwas Colliery, Part 5

ANALYTES	UNITS	BH11 4.0m	BH11 5.0m	BH11 5.0m	BH5 3.0m	BH5 3.0m BH5 7.0m							
		\$9601357 \$9601358	59601358	89601359	59601359 59601360 59601361	29601361							
Arsenic	mg/kg	5.4	#	17.0	4.6	18.2	#	#	ä t e	¥ 1 1:	≒aba	*	ᄷ
Cadmium	mg/kg	0.3	#	0.4	0.4	0.4	₩.	#	Ħ	#	₩.	**	#
Chromium (total)	mg/kg	13.0	#	7.1	10.5	7.6	神	**	#	*#=	#	≒ 11=	31≿
Lead	mg/kg	24.8	#	61.1	20.4	63.6	##	#	#	#=	#	7#	315
Mercury	mg/kg	5.0	#	1.1	<0.1	<0.1	71	#	₽ #=	#	#	₩.	本
PAH/coal tar	mg/kg	#	<10	##	Ħ	1060	#.	#	the	妆	Чtх	#	 = #=
Phenols (total)	mg/kg	#	4.6	*	#	4.5	H	#	74:	*	**=	7412	 =12±

Results for soil samples expressed as dry weight # : Analyte not requested

Summary Of Results Exploration Associates Limited - Bedwas Colliery, Part 5

ANALYTES	UNITS	BH12 7.3m	BH1R 27.40m	BH1 7.54m	ВН4 26.48m	Brook at Quarry TP20	Quarry	8H10 22.97m					
		59601363	59601364	59601366	29601367	89601368	59601369	89601406					
Arsenic	mg/1	<0.01	<0.01	*#=	725	#	- to	<0.01	報	th:	#=	琳	***
Cadmium	mg/1	<0.01	<0.01	#	ing.	#	#	<0.01	#	#	7#	#	3±=
Chromium (total)	mg/l	<0.01	<0.01	¥	#	#	#	<0.01	#	#	41:	*	淮
Lead	mg/1	<0.01	<0.01	#	The state of	#	#	0.02	#=	*	÷#1	#	atra.
Mercury	mg/1	<0.03	<0.01	#	#	#	#	<0.01	742	4=	*#	*	##=
Phenols (total)	mg/l	3.00	0.37	0.21	0.14	<0.01	0.02	<0.01	<u>#</u>	*	*#=	CE P.	3#
Н	N/A	6.3	7.0	#	7.3	7.4	7.2	7.1	43 L	#	生	742	#
Trans-1,2-Dichloroethene	mg/l	<0.01	<0.01	<0.01	<0.01	#	#	<0.1	Ħ	*	*	本	#
Chloroform	mg/1	<0.01	<0.01	<0.01	<0.01	#	#	<0.1	⊐ 0≒	*	#14	妆	*#
1,1,1-Trichloroethane	mg/1	<0.01	<0.01	<0.01	<0.01	#	#	<0.1	4	*	퍄	74:	240
Carbon Tetrachloride	mg/l	<0.01	<0.01	<0.01	<0.01	#	#	<0.1	≯ #=	*#	41≒	74:	**
Benzene	mg/1	<0.01	<0.01	<0.01	<0.01	#	#	<0.1	o#£	华	74	#	粒
1,2-Dichloroethane	mg/l	<0.01	<0.01	<0.01	<0.01	#	#	<0.1	742	址	**	**	*
Trichloroethene (TCE)	mg/l	<0.03	<0.01	<0.01	<0.01	#	#	<0.1	#	#	*#1	*	7#4
1,2-Dichloropropane	T/gm	<0.01	<0.01	<0.01	<0.01	#	#	<0.1	#	*	址	**	井
Toluene	mg/l	<0.01	<0.01	<0.01	<0.01	#	#	<0.1	###	**	*	*#=	3 0≥
1,1-Dichloropropane	mg/1	<0.01	<0.01	<0.01	<0.01	#	#	<0.1	#	#	#	\$ t:	#
1,1,2-Trichloroethane	mg/l	<0.01	<0.01	<0.01	<0.01	#	#	<0.1	#	#	华	#	7#
Tetrachloroethane (PCE)	mg/l	<0.01	<0.01	<0.01	<0.01	#1	#	<0.1	#	#	#	Ħ	#
Tetrach loroethene	1/bm	<0.01	<0.01	<0.01	<0.01	**	##	<0.1	7	華	724	₹t:	#

Results for soil samples expressed as dry weight ℓ : Analyte not requested

Report No. R96/0123

Summary Of Results Exploration Associates Limited - Bedwas Colliery, Part 5

ANALYTES	UNITS	BH12 7.3m	BH1R 27.40m	BK1 7.54m	ՑН4 26.48m	Brook at TP20	at Quarry	BH10 22.97m					
		89601363	59601364	59601366	29601367	S9601368	89601369	89601406					
Dibromochloromethane	mg/1	<0.01	<0.01	<0.01	<0.01	*	71:	<0.1	Ħ	#	址	===	≭ #=
Ethyl Benzene	mg/1	<0.01	<0.01	<0.01	<0.01	**	##	<0.1	¥16	#	雅	#	3 ±
Chlorobenzene	ιπg/1	<0.01	<0.01	<0.01	<0.01	484	3 ≒-	<0.1	#	#	#	≠₽	3 \$±
Xy lenes	l/bm	<0.01	<0.01	<0.01	<0.01	**	#	<0.1	妆	*	**	₹≿	#
Bromoform	l/gm	<0.01	<0.01	<0.01	<0.01	×b:	₩.	<0.1	***	=14:	#	#	38 2
1,1,2,2-Tetrachloroethane	mg/l	<0.01	<0.01	<0.01	<0.01	##	##	<0.1	¥ac	啪	咻	*	¥a⊾
1,3-Dichlorobenzene	mg/1	<0.01	<0.01	<0.01	<0.01	**	***	<0.1	##	74	#	*#c	华
1,4-Dichlorobenzene	mg/1	<0.01	<0.01	<0,01	<0.01	*	#	<0.1	뿌	31:	*	##	121±
1,2-Dichlorobenzene	mg/1	<0.01	<0.01	<0.01	<0.01	끂	#	<0.1	ᆲ	华	#	种	≇⊭
TPH	1/gm	<0.01	<0.01	<0,01	<0.01	#	#	<0.01	# +	*	#	#	**
100	9,40	#	<0.1	*	1,0>	<0.1	<0.1	#	41:	#	*	#	734
Acenaphthene	mg/l	**	<0.01	*	<0.01	#	#12	<0.1	-#t-	#	74	***	*#
Acenaphthylene	mg/1	#	<0.01	7#	<0.01	#	#:	<0.1	#	42	#	#	≒apa
Anthracene	mg/l	74.	<0.01	*	<0.01	Ħ	#	<0.1	3 20	***	#	41±	*
Benz(a)anthracene	ng/l	#	<0.01	*	<0.01	#	*	<0.1	402	**	#	#£	≠ ±
Benzo(b)fluoranthene	mg/1	#	<0.01	#	<0.01	#	H.	<0.1	442	*	#	*	#
Benzo(k)fluoranthene	mg/1	#	<0.01	#	<0.01	#	#	<0.1	વ⊭	±±	48 2	#±	#
8enzo(g.h,i)perylene	mg/l	#	<0.01	#	<0.01	#	#	<0.1	#	*	#	34c	3te
Benzo(a)pyrene	l/gm	#	<0.01	#	<0.01	#	74tc	<0.1	#	#	#	##=	ille p
Chrysene	mg/1	苹	<6.01	711	<0.01	7#4	#	<0.1	*	745	种	#	#

Results for soil samples expressed as dry weight ! : Analyte not requested

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Summary Of Results Exploration Associates Limited - Bedwas Colliery, Part 5

ANALYTES	UNITS	BH12 7.3m	BH1R 27.40m	BH1 7.54m	BH4 26.48m	Brook at Quarry TP20		BH10 22.97m					
		29601363	\$9601364	39601366	89601367	89601368	89601364 89601366 89601367 89601368 89601369 89601406	89601406					
Dibenz(a,h)anthracene	mg/1	#	<0.01	#	<0.01	-3#=	य⊧	<0.1	₹.	*	-a±=	225	* 45:
Fluoranthene	mg/1	#	<0.01	#	<0.07	#	H	<0.1	742	#	#	#	坤
Fluorene		#	<0.01	7#=	<0.01	#	華	<0.1	*	ta:	*	**	#
Indeno(1,2,3-cd)pyrene	mg/1	#	<0.01	#	<0.01	#	#	<0.1	7#	#	#	##	#
Naphtha lene	mg/j	#	<0.01	#	<0.01	#=	妆	<0.1	**	#	¥#=	#=	#
Phenanthrene	mg/1	#	<0.01	*240	<0.01	#	#£	<0.1	华	#	#	**	74=
Pyrene	mg/1	#	<0.01	#	<0.01	754	O#E	<0.1	- Tale	*	atc.	*	7#

Results for soil samples expressed as dry weight f : Analyte not requested

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Analytical Test Report For

EXPLORATION ASSOCIATES LIMITED BEDWAS COLLIERY (PART 6)

Report No.: R96/0215

Copies To: Mr D McArthur File





What's so special about a NAMAS report or certificate?

- NAMAS is the acronym for National Accreditation of Measurement and Sampling.

- Accreditation of NAMAS testing is granted by the United Kingdom Accreditation Service (UKAS).

 It's your assurance that the work has been carried out to the highest standards.

- The laboratory issuing the test report has been stringently assessed by independent experts.

- You are assured that the agreed or specified methods and procedures have been followed.

Measurements are traceable to national and international standards.

Comments:

Tests marked † in this report are not included in the NAMAS Accreditation Schedule for the testing laboratory. However, with the continuing development of our QC protocols, these tests will be included in the near future.

Any opinions and interpretations expressed herein are outside the scope of the testing laboratory's NAMAS Accreditation. Coefficient of Variation (CV_T) is better than 15%

ANALYTE	METHOD OF DETECTION	LIMIT OF DETECTION
Metals PAHs VOCs Phenols TOC pH TPH	ICP GC-MS GC-MS Colorimetry Colorimetry pH-Meter Infra-red	0.01 mg/l 0.01 mg/l 0.01 mg/l 0.01 mg/l 0.1 % N/A 0.01 mg/l

Date submitted for analysis: 15/02/96

Your Job/Order Number: 151825

Analyst(s) : PGS RH CAT RLG HTL

Results approved by: A Bondswell (Technical Director)

Signature : A Reds rel

Report date: 29 February 1996

Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 6)

ANALYTES	UNITS	BH1 14/2/96	BH2 14/2/96	BH4 14/2/96										
		S9602118	89602119	S9602121										_
Phenols (total)	mg/l	0.52	0.36	0.50	722	#	#	74:	堆	#	址	=15-	*#:	+
Acenaphthene	mg/l	<0.01	<0.01	<0.01	堆	74	#	#:	*	4 12:-	***	*	*	
Acenaphthy lene	mg/1	<0.01	<0.01	<0.01	#	7#2	#	#	4	##	***	*41=	74p.	
Anthracene	mg/l	<0.01	<0.01	<0.01	#	#	#6	*	3 te	Hts.	~	7#	*	
Benz(a)anthracene	mg/1	<0.01	<0.01	<0.01	#±	淮	蚦	本	**	3 1 =	#	*#z	#	
Benzo(b)fluoranthene	l/gm	<0.01	<0.01	<0.01	#	#	#	inth.	*	3 432	**	#	本	,
Benzo(k)fluoranthene	mg/1	<0.01	<0.01	<0.01	#	786	#	#	*	*	=	#	≥t⊫	
Benzo(g,h,i)perylene	mg/l	<0.01	<0.01	<0.01	#	78 2	#	#	#	41-	=4tz	#	3 ±	
Benzo(a)pyrene	mg/1	<0.01	<0.01	<0.01	¥12	ಀ	**	*	*	*	7#	桒	#	
Chrysene	mg/l	<0.01	<0.01	<0.01	牛	#	#	#	**	##	*# ±	批	**	
Dibenz(a,h)anthracene	mg/l	<0.01	<0.01	<0.01	蛛	#	#	#	#	#	712	4	*	
Fluoranthene	тg/1	<0.01	<0.01	<0.01	312:	#	#	1#	832	*	Hitz	**	淮	
Fluorene	.mg/1	<0.01	<0.01	<0.01	#	42	#	*	#	#	7620	7£	淮	
Indeno(1,2,3-cd)pyrene	mg/1	<0.01	<0.01	<0.01	*	#2	非	#	*	**	¥#=	#	₩	
Naphthalene	mg/l	<0.01	<0.01	<0.01	Ħ	₩.	ente	#	===	##	址	74th	****	
Phenanthrene	mg/1	<0.01	<0.01	<0.01	*	*	#	#	**	-ta-	7#s	44	##	
Pyrene	mg/1	<0.01	<0.01	<0.01	<i>¥</i>	础	Ħ	□	**	#	**	**	71:	
Trans-1,2-Dichloroethene	mg/l	<0.01	<0.01	<0.01	#	7#1	#	3#2	*	*## <u></u>	₹#	*	740	+
Chloroform	mg/l	<0.01	<0.01	<0.01	#	#	ite	*	**	±-	⊐ t≥	#	*	+
1,1,1-Trichloroethane	mg/1	<0.01	<0.01	<0.01	##	¥	#	#	**	#	*	推	#	+

: Analyte not requested

Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 6)

ANALYTES	UNITS	BH1 14/2/96	BH2 14/2/96	ВН4 14/2/96									
		81120968	\$9602119	59502121									
Carbon Tetrachloride	mg/1	<0.01	<0.01	<0.01	¤ 8≈	#	*	#	##=	*	≉⊳	3 1±	¥15.
Benzene	mg/J	<0.01	<0.01	<0.01	#	#	241 2	#	#£	*#=	*	#	##
1,2-Dichloroethane	mg/}	<0.01	<0.01	<0.01	#	并	an:	4	*	#	745.	#=	址
Trichloroethene (TCE)	mg/1	<0.01	<0.01	<0.01	#	#	#	#	#	班	- #±	**	캬
1,2-Dichloropropane	mg/1	<0.01	<0.01	<0.01	쁘	神	带	78	#	#	72	*	#
Toluene	mg/1	<0.01	<0.01	<0.01	78:	畦	#	*	*	#5	#	=Bc	74=
1,1-Dichloropropane	mg/l	<0.01	<0.01	10.0>	*	¥4:	#	#	31:	**	7#	742	**
1,1,2-Trichloroethane	mg/l	<0.01	<0.01	<0.01	**	#:	*	*	#	*	**	#	#
Tetrachloroethane	mg/l	<0.01	<0.01	<0.01	₩-	*	*#=	#	#	**	PIL:	7412	#
Tetrachloroethene	mg/l	<0.01	<0.01	<0.01	⊐# -	**	#	**	В	*	742	##	#=
Oibromochloromethane	mg/1	<0.01	<0.01	<0.01	*	#	#	址	#	*	442	72	#
Ethyl Benzene	mg/l	<0.01	<0.01	<0.01	#	TE:	#	***	≉	at⊭	45	3 1:	***
Chlorobenzene	mg/l	<0.01	<0.01	<0.01	**	Ħ:	#	7200	**	*	41=	塩	##
Xy lenes	mg/l	<0.01	<0.01	<0.01	*	a#b	*	**	#	74:	d‡	#	*
Bromoform	mg/l	<0.01	<0.01	<0.01	#	41 14	#≒	#	Pitte	*	#	*	4 ±
1,1,2,2-Tetrachloroethane	mg/l	<0.01	<0.01	<0.01	#	#	*	CBI:	#	1	7412	#	***
1,3-Dichlorobenzene	mg/l	<0.01	<0.01	<0.01	#	#	#:	#	#	착	*	#	=1±
1,4-Dichlorobenzene	mg/l	<0.01	<0.01	<0.01	#	#	#	**	#	#	#	#	7#
1,2-Dichlorobenzene	mg/1	<0.01	<0.01	<0.01	#	#	#	#	#	*	#	#	**
ТРН	mg/1	<0.01	<0.01	<0.01	#	李	苹	#	#	#	#	#	Ħ

! Analyte not requested

Report No. R95/0215

Summary Of Results Exploration Associates Limited - Bedwas Colliery (Part 6)

ANALYTES	UNITS	BH1 BH2 14/2/96		ВН4 14/2/96										
		89602118 89602119	89602119	59602121										
Hd	N/A	≒ 122	7.1	6.9	#	atta	#	#	* #	#	B.	#	#	
T0C	%_	#	<0.1	<0.1	*	34:	#1	₩.	73t=	=	#	₹45-	≈ 55	_
Arsenic	mg/1	#	<0.01	#	华	#	#	≒ t≥	#	址	≉⊨	抽	¥#-	+
Cadmium	mg/1	#	<0.01	#	#	**	a #±	#	'H	*	**	#	≉⊨	+
Chromium (total)	mg/1	#	<0.01	#	7#4	#	#	#	#	#	#	*	#	-
Lead	mg/1	#	<0.01	#	##	#	#	74	#	#	7111	*	#≒	+
Mercury	mg/1	#	<0.01	#	**	#	7#	#	**	#	#4	#	3444	+

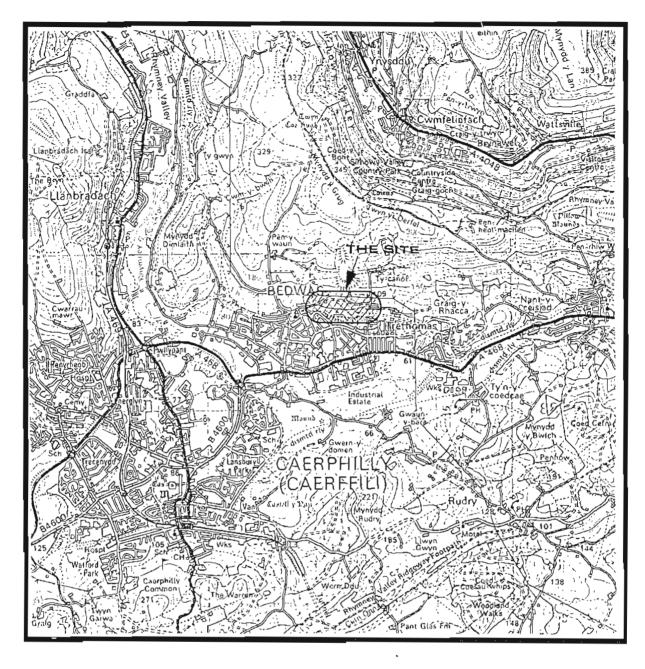
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ENCLOSURE D

Drawings

Site Location Plan	1
Exploratory Hole Location Plan	2 & 3



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Site Location Plan	Project Caltian Darkers in Oakses	Contract	155218
Exploration Associates	Bedwas Colliery Reclamation Scheme Rhymney Valley District Council	Drawing	1

APPENDIX

General Notes

General Notes

These notes, which accompany the ground investigation report, are intended to assist the user of the information contained in the report. They point out some inevitable shortcomings of any ground investigation and do not constitute a disclaimer of responsibility for the results obtained by Exploration Associates Limited.

- 1. The information in this report is based on the ground conditions encountered during the ground investigation work and the results of any field and laboratory testing. The exploratory records describe the ground conditions at their specific locations and should not be regarded as representative of the ground as a whole.
- 2. Ground investigations are performed by the company in general accordance with the recommendations in BS 5930 (1981) "Code of Practice for Site Investigations". The testing of soils, rocks and aggregates generally follow the recommendations of BS 1377 (1990) "Methods of test for soils for Civil Engineering Purposes", the International Society of Rock Mechanics (Brown, 1981) "Rock characterisation, testing and monitoring, ISRM suggested methods", and BS 812 (1975) "Methods of sampling and testing of mineral aggregates, sands and filters", respectively.
- 3. The primary purpose of ground investigation boreholes and trial pits is to probe the stratified sequences of soil and/or rock. From the results of these probings no conclusions should be drawn concerning the presence of size, lithological nature and numbers per unit volume of ground of cobbles and boulders in soil types such as glacial till (boulder clay).
- 4. When cable percussion boring techniques are used in superficial and drift deposits some mixing of thin-layered soils inevitably occurs. If strong randomly-occurring pieces of rock are encountered in soil material then the rock may be either pushed aside or penetrated and broken up in which case the arisings that are recovered may not be indicative of the nature of the material in situ.
- 5. Rotary drilling techniques may sometimes be used for drilling through superficial deposits and rocks in order to provide a very general indication of the nature of the ground. Where open-hole methods have been used for the ground investigation the description of the ground is based on the cuttings recovered from the flushing medium and the rate of progress in advancing the hole. Descriptions of strata and the depths of changes in strata may not be accurate under these conditions.
- 6. Groundwater conditions noted during boring may be subject to change through seasonal and/or other effects such as, for example, boring and constructional excavation. When a groundwater inflow is encountered during boring, work on the hole is suspended, typically for 20 minutes, and any change in level is recorded. The groundwater level recorded on resumption of boring may not be the natural pre-boring standing water level. When piezometers are installed in boreholes the reported groundwater levels may also be subject to variation due to seasonal and/or other effects.
- 7. The factual information contained within the ground investigation report should not be used for any purpose other than for the development project for which it was prepared unless a check has been carried out on its applicability. Where the ground investigation report contains an interpretation of the factual information that interpretation must be considered in the context of the stated development proposals and should not be used in any other context.
- 8. This report is for the use of the person or organisation that commissioned the work. Exploration Associates Limited accepts no responsibility if the information is used by any other party. The information is the property and copyright of the person or organisation that commissioned the investigation. It should not be reproduced or transmitted in any form without the owner's written permission.

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