

APPENDIX C

Exploratory Hole Logs (ExCAL and Mott MacDonald)

**EXCAL LIMITED
SITE INVESTIGATION
AUGUST 2010**

Contract : The Avenue, Llanelli Client : Excal UK Limited											Borehole No. BH1	
Dates : - Location :					Job Number : X101450 Engineer : Excal UK Limited					Ground Level : Coordinates:		

	Run Details				Test Details		Samples		STRATA				Water
	Core Run	TCR	SCR	RQD	FI	Depth	Test Results	Depth	Type-No.	Depth (Thickness)	Description	Legend	
1	1.20							1.20 - 2.70	C1	(1.70)	MADE GROUND: Light brown slightly silty gravelly sand (f-c). Gravel is angular to subangular fine to coarse of sandstone and siltstone. Occasional gravel size fragment of brick.		(1.70)
2	100							2.70 - 4.20	C2	1.70 (0.25) 1.95	Light brown sand (f-c) with occasional gravel size fragment of shell.		1.70 (0.25) 1.95
3	2.70							4.20 - 5.70	C3		MADE GROUND: Black and dark brown slightly clayey slightly silty sand and gravel. Sand is fine to coarse. Gravel is angular to rounded fine to coarse of coal, clinker, ash, sandstone and siltstone.		
4	4.20							5.70 - 7.20	C4				
5	87							7.20 - 8.70	C5	(5.85)			(5.85)
6	5.70							8.70 - 10.20	C6				
7	100												
8	93									7.80 (0.70)	MADE GROUND: Black slightly clayey slightly silty sandy angular fine to coarse gravel of clinker, brick and ash.		7.80 (0.70)
9	8.70									8.50 (0.40)	NO RECOVERY.		8.50 (0.40)
	100									8.90 (1.40)	Soft black slightly sandy clayey SILT. ...Becoming firm from 9.20m.	x x x x x x x x x x x x x x x x x x	8.90 (1.40)

Drilling Progress and Water Observations						Groundwater			Flush		
Date / Time	Depth	Casing	Case Dia.	Water	Struck	Sealed	Flow Rate	Remarks	Depth	Type	Returns

Remarks: Comacchio 305 Drill Rig. Hand dug inspection pit from GL to 1.20m. Dynamic sampling with in-situ testing from 1.20m to 15.00m

	Ty Berwig, Bynae Llanelli, Carmarthenshire SA14 9ST Tel: 01554 744880 Fax: 01554 776150 email: enquiries@quantum-gb.co.uk	Operator: P.Kenny	Logged By: DM	Sheet No. 1 Of 2	Scale: 1:60.83	All measurements in metres unless otherwise stated	
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Contract : The Avenue, Llanelli Client : Excal UK Limited											Borehole No. BH1	
Dates : - Location :					Job Number : X101450 Engineer : Excal UK Limited					Ground Level : Coordinates:		

	Run Details				Test Details		Samples		STRATA				Water
	Core Run	TCR	SCR	RQD	FI	Depth	Test Results	Depth	Type- No.	Depth (Thickness)	Description	Legend	
11	10.20	100						10.20 - 11.70	C7		Soft black slightly sandy clayey SILT.	x x x	
										10.30 (0.40)	Grey brown clayey sandy subangular fine to coarse GRAVEL of sandstone.	o o o	10.30 (0.40)
12		100								10.70 (0.60)	Firm to stiff grey mottled brown slightly sandy slightly gravelly CLAY. Gravel is subangular fine to medium of sandstone, siltstone and mudstone.	o o o	10.70 (0.60)
										11.30 (0.10)	Very soft black and brown sandy SILT.	x x x	11.30 (0.10)
13	11.70							11.70 - 12.70	C8		Brown very clayey gravelly SAND (f-c). Gravel is subrounded to rounded fine to coarse of sandstone.	o o o	11.40 (0.60)
		100								12.00 (0.70)	Stiff grey and brown slightly sandy gravelly CLAY. Gravel is subrounded to rounded fine to coarse of sandstone.	o o o	12.00 (0.70)
14	12.70							12.70 - 13.20	N/R9		...Wet from 12.20m to 12.30m.		12.70 (0.50)
		0								13.20 (0.50)	...Refusal at 12.70m.		13.20 (0.50)
15	13.20							13.20 - 14.70	C10		NO RECOVERY.	o o o	13.20
		100								(1.80)	Grey brown very clayey sandy subrounded to rounded fine to coarse GRAVEL of sandstone and siltstone.	o o o	(1.80)
	14.7										...Slightly clayey from 14.35m.	o o o	
	15.00									15.00	End of borehole at 15.00m. Terminated on Engineers instruction.		15.00

Drilling Progress and Water Observations						Groundwater			Flush		
Date / Time	Depth	Casing	Case Dia.	Water	Struck	Sealed	Flow Rate	Remarks	Depth	Type	Returns
					12.20			Groundwater encountered from 12.20m to 12.30m.			

Remarks: Comacchio 305 Drill Rig. Hand dug inspection pit from GL to 1.20m. Dynamic sampling with in-situ testing from 1.20m to 15.00m

	Ty Berwig, Bynea Llanelli, Carmarthenshire SA14 9ST Tel: 01554 744880 Fax: 01554 776150 email: enquiries@quantum-gb.co.uk	Operator: P.Kenny	Logged By: DM	Sheet No. 2 Of 2	Scale: 1:60.83	All measurements in metres unless otherwise stated	
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Contract: Trostre Landfill										Trial Pit No.																																																													
Client: Carmarthenshire County Council										TP1																																																													
Dates: 11/8/2010					Job Number: 45-05-01					Ground Level:																																																													
Location: Car Park B Trostre					Engineer: R Holmes					Coordinates:																																																													
STRATA <table><thead><tr><th></th><th>Depth (Thick- ness)</th><th>Description</th><th>Legend</th><th>Depth (Thick- ness)</th><th>Water</th></tr></thead><tbody><tr><td rowspan="2">1</td><td>0.00 (0.30)</td><td rowspan="2">MADE GROUND: Loose light grey gravel to cobble of limestone aggregate surface cover over grey slightly silty very gravelly sand with angular to subangular pebbles and cobbles of limestone</td><td rowspan="2"></td><td>0.00 (0.30)</td><td rowspan="10"> PHOTOGRAPHS </td></tr><tr><td>0.30</td></tr><tr><td>1</td><td>(1.70)</td><td>MADE GROUND: Black silty very sandy gravelly clay with cobbles, made ground and cobbles are of brick, concrete, siltstone and mudstone.</td><td></td><td>(1.70)</td></tr><tr><td>2</td><td>2.00 (0.50)</td><td>Firm brown silty CLAY</td><td></td><td>2.00 (0.50)</td></tr><tr><td rowspan="2">3</td><td>2.50</td><td rowspan="2">Brown silty CLAY with cobbles of siltstone and mudstone</td><td rowspan="2"></td><td>2.50</td></tr><tr><td>(1.00)</td><td>(1.00)</td></tr><tr><td>4</td><td>3.50</td><td>Excavation ended at 3.5 Meters</td><td></td><td>3.50</td></tr><tr><td>5</td><td></td><td></td><td></td><td></td></tr><tr><td>6</td><td></td><td></td><td></td><td></td></tr><tr><td>7</td><td></td><td></td><td></td><td></td></tr><tr><td>8</td><td></td><td></td><td></td><td></td></tr><tr><td>9</td><td></td><td></td><td></td><td></td></tr></tbody></table>													Depth (Thick- ness)	Description	Legend	Depth (Thick- ness)	Water	1	0.00 (0.30)	MADE GROUND: Loose light grey gravel to cobble of limestone aggregate surface cover over grey slightly silty very gravelly sand with angular to subangular pebbles and cobbles of limestone		0.00 (0.30)	PHOTOGRAPHS 	0.30	1	(1.70)	MADE GROUND: Black silty very sandy gravelly clay with cobbles, made ground and cobbles are of brick, concrete, siltstone and mudstone.		(1.70)	2	2.00 (0.50)	Firm brown silty CLAY		2.00 (0.50)	3	2.50	Brown silty CLAY with cobbles of siltstone and mudstone		2.50	(1.00)	(1.00)	4	3.50	Excavation ended at 3.5 Meters		3.50	5					6					7					8					9				
	Depth (Thick- ness)	Description	Legend	Depth (Thick- ness)	Water																																																																		
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8																																																																							
9																																																																							
Excavation Progress and Water Observations						Groundwater		General Remarks																																																															
Date/Time		Depth	Water	Struck	Sealed	Flow Rate Remarks																																																																	
						No groundwater encountered.		Slight smell at 2m																																																															
1 St Mary's Street Carmarthen Carmarthenshire SA31 1TN Tel: 01267 234231 Fax: 01267 234232 Website: www.excaluk.com E-mail: info@excaluk.com						Operator: R Holmes	Logged By: RH	Sheet No. 1 of 6	Scale: 1:58.64	All measurements in metres unless otherwise stated																																																													

Dates: 11/8/2010

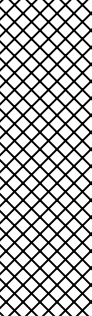
Location: Car Park B Trostre

Job Number: 45-05-01

Engineer: R Holmes

Ground Level:

Coordinates:

STRATA				Water	PHOTOGRAPHS
Depth (Thick- ness)	Description	Legend	Depth (Thick- ness)		
0.00 (0.50)	MADE GROUND: Loose light grey gravel to cobble of Ilmstone agregate surface cover over grey slightly silty very gravelly sand with angular to subangular pebbles and cobbles of Ilmstone		0.00		
0.50	MADE GROUND: Black silty very sandy gravelly clay with cobbles, made ground and cobbles are of brick, concrete, siltstone and mudstone.		0.50		
(2.50)			(2.50)		
3				↓	
3.00 (0.50)	Brown silty CLAY with cobbles of siltstone and mudstone		3.00 (0.50)		
3.50	Excavation ended at 3.5 Meters		3.50		
4					
5					
6					
7					
8					
9					

Excavation Progress and Water Observations			Groundwater			General Remarks
Date/Time	Depth	Water	Struck	Sealed	Flow Rate Remarks	
			3.50m			
1 St Mary's Street Carmarthen Carmarthenshire SA31 1TN Tel: 01267 234231 Fax: 01267 234232 Website: www.excaluk.com E-mail: info@excaluk.com						
Operator:		Logged By:		Sheet No.	Scale:	All measurements in metres unless otherwise stated
R Holmes		RH		1 of 6	1:58.64	

Contract: Trostre Landfill

Client: Carmarthenshire County Council

Trial Pit No.
TP3

Dates: 11/8/2010

Job Number: 45-05-01

Ground Level:

Location: Car Park B Trostre

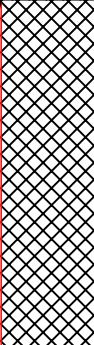
Engineer: R Holmes

Coordinates:

STRATA				Water
Depth (Thick- ness)	Description	Legend	Depth (Thick- ness)	
0.00 (0.30)	MADE GROUND: Loose light grey gravel to cobble of limestone aggregate surface cover over grey slightly silty very gravelly sand with angular to subangular pebbles and cobbles of limestone		0.00 (0.30)	
0.30			0.30	
1 (2.70)	MADE GROUND: Black silty very sandy gravelly clay with cobbles, made ground and cobbles are of brick, concrete, siltstone and mudstone.		(2.70)	
2				
3 3.00 (0.50)	Brown silty CLAY with cobbles of siltstone and mudstone		3.00 (0.50)	
3.50	Excavation ended at 3.5 Meters		3.50	
4				
5				
6				
7				
8				
9				

Excavation Progress and Water Observations					Groundwater		General Remarks			
Date/Time	Depth	Water	Struck	Sealed	Flow Rate	Remarks				

1 St Mary's Street Carmarthen Carmarthenshire SA31 1TN Tel: 01267 234231 Fax: 01267 234232 Website: www.excaluk.com E-mail: info@excaluk.com					Operator: R Holmes	Logged By: RH	Sheet No. 1 of 6	Scale: 1:58.64	All measurements in metres unless otherwise stated	
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Contract: Trostre Landfill						Trial Pit No.				
Client: Carmarthenshire County Council						TP4				
Dates: 11/8/2010			Job Number: 45-05-01			Ground Level:				
Location: Car Park B Trostre			Engineer: R Holmes			Coordinates:				
STRATA						PHOTOGRAPHS				
	Depth (Thick- ness)	Description	Legend	Depth (Thick- ness)	Water					
	0.00 (0.30)	MADE GROUND: Loose light grey gravel to cobble of limestone aggregate surface cover over grey slightly silty very gravelly sand with angular to subangular pebbles and cobbles of limestone		0.00 (0.30)						
1	0.30			0.30						
2	(2.70)	MADE GROUND: Black silty very sandy gravelly clay with cobbles, made ground and cobbles are of brick, concrete, siltstone and mudstone.		(2.70)						
3	3.00 (0.50)	Brown silty CLAY with cobbles of siltstone and mudstone		3.00 (0.50)						
4	3.50	Excavation ended at 3.5 Meters		3.50						
5										
6										
7										
8										
9										
Excavation Progress and Water Observations						Groundwater		General Remarks		
Date/Time		Depth	Water	Struck	Sealed	Flow Rate Remarks				
1 St Mary's Street Carmarthen Carmarthenshire SA31 1TN Tel: 01267 234231 Fax: 01267 234232 Website: www.excaluk.com E-mail: info@excaluk.com						Operator: R Holmes	Logged By: RH	Sheet No. 1 of 6	Scale: 1:58.64	All measurements in metres unless otherwise stated

Contract: Trostre Landfill

Client: Carmarthenshire County Council

Trial Pit No.
TP5

Dates: 11/8/2010

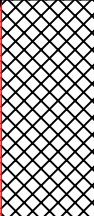
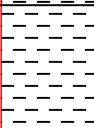
Job Number: 45-05-01

Ground Level:

Location: Car Park B Trostre

Engineer: R Holmes

Coordinates:

STRATA				PHOTOGRAPHS	
	Depth (Thick- ness)	Description	Legend	Depth (Thick- ness)	Water
	0.00 (0.30) 0.30	MADE GROUND: Loose light grey gravel to cobble of limestone aggregate surface cover over grey slightly silty very gravelly sand with angular to subangular pebbles and cobbles of limestone		0.00 (0.30) 0.30	
1	(1.70)	MADE GROUND: Black silty very sandy gravelly clay with cobbles, made ground and cobbles are of brick, concrete, siltstone and mudstone.		(1.70)	
2	2.00 (0.50)	Firm brown silty CLAY		2.00 (0.50)	
3	2.50 (1.00)	Brown silty CLAY with cobbles of siltstone and mudstone		2.50 (1.00)	
4	3.50	Excavation ended at 3.5 Meters		3.50	
5					
6					
7					
8					
9					

Excavation Progress and Water Observations			Groundwater			General Remarks				
Date/Time	Depth	Water	Struck	Sealed	Flow Rate	Remarks				

1 St Mary's Street

Carmarthen

Carmarthenshire

SA31 1TN

Tel: 01267 234231 Fax: 01267 234232

Website: www.excaluk.com E-mail: info@excaluk.com

Operator:

R Holmes

Logged By:

RH

Sheet No.

1 of 6

Scale:

1:58.64

All measurements in metres unless otherwise stated

[illegible]

Contract : Llanelli Landfill Site, Trostre										Borehole No.	
Client : Excal UK Limited										BH1	
Dates : 25/08/10 - 25/08/10					Job Number : X101448			Ground Level :			
Location :					Engineer : Excal UK Limited			Coordinates:			

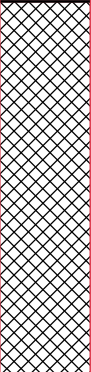
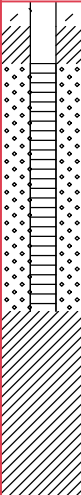
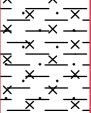
m B.G.L.	Samples		NO TESTS PERFORMED	Depth (Thickness)	STRATA DESCRIPTION	Legend	Depth (Thickness)	Water	Install/Backfill
	Depth	Type No. - UBlows							
0			X		MADE GROUND: Dark brown and black slightly silty sandy angular fine to coarse gravel size fragments of brick, ash, siltstone and clinker. Occasional fragment of leather.				
0.50 - 0.60	B1 D2								
1				(2.90)			(2.90)		
1.50 - 1.60	B3 D4								
2					...From 2.50m. Becoming silty/clayey.				
2.50 - 2.60	B5 D6								
3				2.90	Soft brown sandy slightly gravelly silty CLAY. Gravel is subangular fine to coarse of siltstone and sandstone.		2.90		
3.50 - 3.60	B7 D8		(1.10)				(1.10)		
4				4.00	End of borehole at 4.00m. Terminated on Engineers instruction.		4.00		

Water Observations			Casing		Groundwater			Chiselling		
Date / Time	Depth	Water	Depth	Cas. Dia.	Struck	Behaviour	Sealed	From	To	Hours
			3.00	200mm		No groundwater encountered.				

Remarks: Dando 150. Hand dug inspection pit from GL to 1.20m. Cable percussive drilling to base of borehole.									
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	Ty Berwig, Bynea Llanelli, Carmarthenshire SA14 9ST Tel: 01554 744880 Fax: 01554 776150 email: enquiries@quantum-gb.co.uk			Operator:	Logged By:	Sheet No.	Scale:	All measurements in metres unless otherwise stated	
	P.O.	DM	1 Of 1	1:60.98					

Contract : Llanelli Landfill Site, Trostre Client : Excal UK Limited										Borehole No. BH2	
Dates : 25/08/10 - 25/08/10 Location :				Job Number : X101448 Engineer : Excal UK Limited				Ground Level : Coordinates:			

m B.G.L.	Samples		NO TESTS PERFORMED	Depth (Thickness)	STRATA		Legend	Depth (Thickness)	Water	Install/Backfill
	Depth	Type No. - UBlows			DESCRIPTION					
0			X		MADE GROUND: Dark brown sandy slightly gravelly clay. Gravel is angular to subrounded fine to coarse of sandstone, siltstone, plastic and ash.					
0.50 - 0.60	B1 D2									
1.50 - 1.60	B3 D4			(3.00)				(3.00)		
2.50 - 2.60	B5 D6									
3.50 - 3.60	B7 D8									
3				3.00	Soft brown sandy slightly gravelly silty CLAY. Gravel is subangular fine to coarse of sandstone and siltstone.		3.00			
				(1.00)			(1.00)			
4				4.00	End of borehole at 4.00m. Terminated on Engineers instruction.		4.00			

Water Observations			Casing		Groundwater			Chiselling		
Date / Time	Depth	Water	Depth	Cas. Dia.	Struck	Behaviour	Sealed	From	To	Hours
			3.00	200mm		No groundwater encountered.				

Remarks: Dando 150. Hand dug inspection pit from GL to 1.20m. Cable percussive drilling to base of borehole.									
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	Ty Berwig, Bynea Llanelli, Carmarthenshire SA14 9ST Tel: 01554 744880 Fax: 01554 776150 email: enquiries@quantum-gb.co.uk				Operator: P.O.	Logged By: DM	Sheet No. 1 Of 1	Scale: 1:60.98	All measurements in metres unless otherwise stated	
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Contract : Llanelli Landfill Site, Trostre Client : Excal UK Limited										Borehole No. BH3	
Dates : 25/08/10 - 25/08/10 Location :				Job Number : X101448 Engineer : Excal UK Limited				Ground Level : Coordinates:			

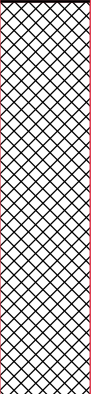
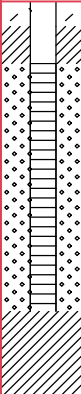
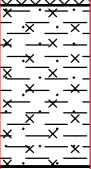
m B.G.L.	Samples		NO TESTS PERFORMED	Depth (Thickness)	STRATA		Legend	Depth (Thickness)	Water	Install/Backfill
	Depth	Type No. - UBlows			DESCRIPTION					
0					MADE GROUND: Dark brown and black clayey sandy angular to subangular fine to coarse gravel size fragments of ash, coal, brick, clinker, sandstone and ceramic.					
0.50 - 0.60	B1 D2									
1.50 - 1.60	B3 D4			(3.00)				(3.00)		
2.50 - 2.60	B5 D6				...From 2.50m. Becoming slightly clayey.					
3.50 - 3.60	B7 D8			(1.00)	Brown sandy slightly gravelly CLAY. Gravel is subangular fine to coarse of sandstone and siltstone.		3.00 (1.00)			
4.00				4.00	End of borehole at 4.00m. Terminated on Engineers instruction.		4.00			

Water Observations			Casing		Groundwater			Chiselling		
Date / Time	Depth	Water	Depth	Cas. Dia.	Struck	Behaviour	Sealed	From	To	Hours
			3.00	200mm		No groundwater encountered.				

Remarks: Dando 150. Hand dug inspection pit from GL to 1.20m. Cable percussive drilling to base of borehole.									
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	Ty Berwig, Bynea Llanelli, Carmarthenshire SA14 9ST Tel: 01554 744880 Fax: 01554 776150 email: enquiries@quantum-gb.co.uk			Operator: P.O.	Logged By: DM	Sheet No. 1 Of 1	Scale: 1:60.98	All measurements in metres unless otherwise stated	
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Contract : Llanelli Landfill Site, Trostre										Borehole No.	
Client : Excal UK Limited										BH4	
Dates : 26/08/10 - 26/08/10					Job Number : X101448			Ground Level :			
Location :					Engineer : Excal UK Limited			Coordinates:			

m B.G.L.	Samples		NO TESTS PERFORMED	Depth (Thickness)	STRATA		Legend	Depth (Thickness)	Water	Install/Backfill
	Depth	Type No. - UBlows			DESCRIPTION					
0			X		MADE GROUND: Black slightly silty sandy angular fine to coarse gravel size fragments of coal, ash, clinker and brick.					
0.50 - 0.60	B1 D2									
1.50 - 1.60	B3 D4			(3.20)				(3.20)		
2.50 - 2.60	B5 D6									
3.50 - 3.60	B7 D8									
3.20				3.20	Soft light brown sandy slightly gravelly silty CLAY. Gravel is angular to subangular fine to coarse of sandstone and siltstone.		3.20			
(1.30)				(1.30)			(1.30)			
4.50				4.50	End of borehole at 4.50m. Terminated on Engineers instruction.		4.50			

Water Observations			Casing		Groundwater			Chiselling		
Date / Time	Depth	Water	Depth	Cas. Dia.	Struck	Behaviour	Sealed	From	To	Hours
			3.00	200mm		No groundwater encountered.				

Remarks: Dando 150. Hand dug inspection pit from GL to 1.20m. Cable percussive drilling to base of borehole.										
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	Ty Berwig, Bynea Llanelli, Carmarthenshire SA14 9ST Tel: 01554 744880 Fax: 01554 776150 email: enquiries@quantum-gb.co.uk			Operator:	Logged By:	Sheet No.	Scale:	All measurements in metres unless otherwise stated	
	P.O.	DM	1 Of 1	1:60.98					

**MOTT MACDONALD
GROUND INVESTIGATION 2005
CLIENT SUPPLIED DATA**

Contract : PEMBERTON DEVELOPMENT SECOND GROUND INVESTIGATION

**Trial Pit No.
TP230A**

Client : CARMARTHENSHIRE COUNTY COUNCIL

Dates : 15/03/05 - 15/03/05

Job Number : 7932

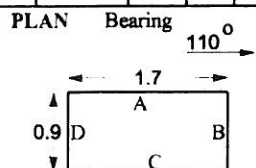
**Ground Level : 7.46 m A.O.D.
Level to Ordnance Datum**

Location : Llanelli

Engineer : MOTT MACDONALD

**Coordinates: 252674.08 E
199737.06 N
Co-ordinates to National Grid**

m B.G.L.	Samples			Tests		STRATA				Water
	Depth	Type No.	U100 Blows	Depth	Test Results	Depth (Thickness)	DESCRIPTION	Legend	Red. Level A.O.D.	
	0.10 -	D1					MADE GROUND: Firm to dark grey to black sandy gravelly CLAY with strong hydrocarbon odour and cobbles of brick, sandstone, timber and some slag. Gravel of angular to subrounded fine to coarse sandstone, brick, timber, ceramic and slag.			
1	1.00 -	D2				(3.00)				
2	2.00 -	D3								
3						3.00	Trial Pitt terminated at 3.0m depth - unable to progress.		4.46	



Groundwater : None encountered

Remarks :

Stability : Slight insability throughout

Shoring : None used

Equipment Used: JCB 3CX



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Logged By:
KH

Sheet No.
1 Of 2

Scale:
1:27.64

All measurements in metres unless otherwise stated



Contract : PEMBERTON DEVELOPMENT SECOND GROUND INVESTIGATION

Client : CARMARTHENSHIRE COUNTY COUNCIL

**Trial Pit No.
TP230**

Dates : 15/03/05 - 15/03/05

Location : Llanelli

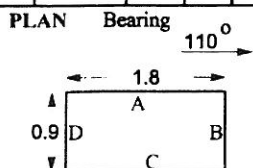
Job Number : 7932

Engineer : MOTT MACDONALD

**Ground Level : 7.17 m A.O.D.
Level to Ordnance Datum**

**Coordinates: 252695.47 E
199897.53 N
Co-ordinates to National Grid**

m B.G.L.	Samples			Tests		STRATA			Legend	Red. Level A.O.D.	Water
	Depth	Type No.	U100 Blows	Depth	Test Results	Depth (Thickness)	DESCRIPTION				
	0.10 -	D1				(0.10) 0.10	Soft dark grey to black sandy gravelly CLAY with rootlets (TOPSOIL). MADE GROUND: Soft to firm dark grey sandy gravelly CLAY with some brick, concrete and sandstone cobbles. Gravel of angular to subrounded fine to coarse sandstone, brick, concrete, ceramic and some coal tar and faint hydrocarbon odour.			7.07	
1	1.00 -	D2				(2.90)					
2	2.00 -	D3									
3						3.00	Trial Pit terminated at 3.0m depth.			4.17	



Groundwater : None encountered

Stability : Slight instability throughout

Shoring : None used

Remarks :

Equipment Used: JCB 3CX



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Logged By:
KH

Sheet No.
1 Of 2

Scale:
1:27.64

All measurements in
metres unless
otherwise stated



Contract : PEMBERTON DEVELOPMENT SECOND GROUND INVESTIGATION

**Trial Pit No.
TP229**

Client : CARMARTHENSHIRE COUNTY COUNCIL

Dates : 15/03/05 - 15/03/05

Job Number : 7932

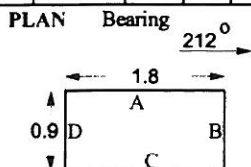
**Ground Level : 7.07 m A.O.D.
Level to Ordnance Datum**

Location : Llanelli

Engineer : MOTT MACDONALD

**Coordinates: 252911.95 E
199737.74 N
Co-ordinates to National Grid**

m B.G.L.	Samples			Tests		STRATA				Water
	Depth	Type No.	U100 Blows	Depth	Test Results	Depth (Thickness)	DESCRIPTION	Legend	Red. Level A.O.D.	
	0.00 -	D1					MADE GROUND: Firm dark grey to black sandy gravelly CLAY with faint hydrocarbon odour and many sandstone and brick cobbles. Gravel of angular to subrounded fine to coarse sandstone, brick, timber, glass, plastics, ceramics, metal and some slag and rare coal.			
1	1.00 -	D2				(2.00)				
2	2.00 -	B+D3		2	Vane - P=100	2.00 (1.00)	Firm to stiff grey brown to mottled orange brown sandy gravelly CLAY/SILT with pockets of very sandy silt and fine to medium sand. Gravel of angular to subangular fine to coarse sandstone.		5.07	
3						3.00	Trial Pit terminated at 3.0m depth.		4.07	



Groundwater : Seepage at 2.00m

Remarks :

Stability : Slight instability in Made Ground

Shoring : None used

Equipment Used: JCB 3CX



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Logged By:
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Sheet No.
1 Of 2

Scale:
1:27.64

All measurements in
metres unless
otherwise stated



Contract : PEMBERTON DEVELOPMENT SECOND GROUND INVESTIGATION		Trial Pit No. TP232
Client : CARMARTHENSHIRE COUNTY COUNCIL		
Dates : 15/03/05 - 15/03/05 Location : Llanelli	Job Number : 7932 Engineer : MOTT MACDONALD	Ground Level : 7.00 m A.O.D. <i>Level to Ordnance Datum</i> Coordinates: 252870.19 E 199681.28 N <i>Co-ordinates to National Grid</i>

m B.G.L.	Samples			Tests		STRATA			
	Depth	Type No.	U100 Blows	Depth	Test Results	Depth (Thickness)	DESCRIPTION	Legend	Red. Level A.O.D.
-1-	0.10 -	D1				(1.40)	MADE GROUND: Firm dark grey to black sandy gravelly CLAY with strong hydrocarbon odour and many brick and sandstone cobbles. Gravel of angular to subangular fine to coarse sandstone, brick, timber, glass, ceramic, plastic, metal and some slag and rare coal and coal tar.		
	1.40 -	B+D2				1.40	Stiff orange brown to mottled grey sandy slightly gravelly friable CLAY/SILT with some pockets of damp brown silt. Gravel of angular to subangular fine to coarse sandstone.		5.60
	2.00 -	D3		2	Vane - P=160	(1.10)			
						2.50	Trial Pit terminated at 2.50m depth.		4.50

PLAN Bearing 110° 	Groundwater : Seepage at 1.40m Stability : Stable Shoring : None used	Remarks :
---------------------------------------	--	------------------

Equipment Used: JCB 3CX

 Bynes House, Bynes Llanelli, Carmarthenshire, SA14 9SU Tel: 01554 744880 Fax: 01554 776130 email: enquiries@quantum-gb.co.uk	Operator: NT	Logged By: KH	Sheet No. 1 Of 2	Scale: 1:27.64	All measurements in metres unless otherwise stated	
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Contract : PEMBERTON DEVELOPMENT SECOND GROUND INVESTIGATION

Borehole No.

Client : CARMARTHENSHIRE COUNTY COUNCIL

BH213

Dates : 12/04/05 - 12/04/05

Job Number : 7932

**Ground Level : 7.72 m A.O.D.
Level to Ordnance Datum**

Location : Llanelli

Engineer : MOTT MACDONALD

**Coordinates: 252922.22 E
199717.74 N
Co-ordinates to National Grid**

m B.G.L.	Samples		Tests		STRATA				Water	WELL
	Depth	Type No. - UBlows	Depth	Test Results	Depth (Thick- ness)	DESCRIPTION	Legend	Red. Level A.O.D.		
1	0.70 -	B1			(1.80)	MADE GROUND: Medium dense dark grey to black very clayey gravelly fine to coarse ash SAND with some timber and brick cobbles. Gravel of angular to subangular fine to coarse brick, timber, sandstone, ceramic and rare slag and coal.				
	1.20 -	D2	1.2	SPT (S) 14 (10-10-7-3-2-2)						
	1.60 -	B3								
2	2.00 -	D4	2	SPT (S) 10 (1-2-1-2-3-4)	1.80 (0.40)	Soft brown grey to grey sandy slightly gravelly CLAY with rootlets. Gravel of angular to subangular fine to coarse sandstone.		5.92		
	2.50 -	B5			2.20	Firm to locally stiff orange brown to brown grey sandy gravelly CLAY with some sandstone cobbles and pockets of pale grey damp silt. Gravel of angular to subangular fine to coarse sandstone and some mudstone.		5.52		
3	3.00 -	U6 -								
	3.30 -	100/50%								
	3.50 -	D7			(2.10)					
		B8								
4	4.00 -	D9	4	SPT (S) 80/205mm (7-3-10-20-60/55mm-)						
	4.40 -	B10			4.30 (0.30)	Possible weathered mudstone: Recovered as firm to stiff grey to dark grey sandy gravelly CLAY. Gravel of angular to subangular fine to coarse mudstone.		3.42		
	4.60 -	NR11			4.60	Terminated at 4.60m		3.12		

Water Observations			Casing		Groundwater			Chiselling		
Date / Time	Depth	Water	Depth	Cas. Dia.	Struck	Behaviour	Sealed	From	To	Hours
12/04/2005	4.60		3.00	200mm		None encountered		4.40	4.60	0100

Remarks: Dando 2000 using 200mm tools. 50mm gas standpipe installed.

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	PC	KH	1 Of 1	1:60.98		

Contract : PEMBERTON DEVELOPMENT SECOND GROUND INVESTIGATION

**Borehole No.
DH213**

Client : CARMARTHENSHIRE COUNTY COUNCIL

Dates : 03/05/05 - 03/05/05

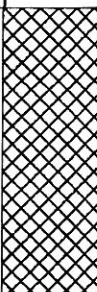
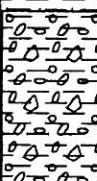
Job Number : 7932

**Ground Level : 7.37 m A.O.D.
Level to Ordnance Datum**

Location : Llanelli

Engineer : MOTT MACDONALD

**Coordinates: 252917.71 E
199730.36 N
Co-ordinates to National Grid**

Run Details					STRATA			Co-ordinates to National Grid		Water
Core Run				Depth (Thickness)	Description	Legend	Red. Level A.O.D.			
1				(2.50)	TIP FILL **					
2				2.50						
3				(0.80)	SANDY CLAY **		4.87			
4				3.30	SANDY CLAY & STONES **		4.07			
5				5.00	BOULDER CLAY **		2.37			
6				(1.50)						
7				6.50	SANDSTONE **		0.87			
8				(3.00)						
9				9.50	SANDY MUDSTONE **		-2.13			

Drilling Progress and Water Observations					Groundwater			Flush		
Date / Time	Depth	Casing	Core Dia.	Water	Struck	Sealed	Flow Rate Remarks	Depth	Type	Returns
					9.50		Medium inflow	0 - 50	AIR	100

Remarks: Tracked mounted rotary rig using 115mm ODEX. ** Drillers Description

 QUANTUM	Bynes House, Bynes Llanelli, Carmarthenshire, SA14 9SU Tel: 01554 744880 Fax: 01554 776150 email: enquiries@quantum-gh.co.uk	Operator:	Logged By:	Sheet No.	Scale:	All measurements in metres unless otherwise stated	
		DW	KH	1 Of 6	1:60.83		

Contract : PEMBERTON DEVELOPMENT SECOND GROUND INVESTIGATION

**Borehole No.
DH213**

Client : CARMARTHENSHIRE COUNTY COUNCIL

Dates : 03/05/05 - 03/05/05

Job Number : 7932

**Ground Level : 7.37 m A.O.D.
Level to Ordnance Datum**

Location : Llanelli

Engineer : MOTT MACDONALD

**Coordinates: 252917.71 E
199730.36 N
Co-ordinates to National Grid**

Run Details					STRATA			Co-ordinates to National Grid		Water
Core Run				Depth (Thick-ness)	Description	Legend	Red. Level A.O.D.			
				(1.50)	SANDY MUDSTONE **					
11				11.00	SANDSTONE **		-3.63			
12										
13										
14										
15										
16				(8.00)						
17										
18										
19										

Drilling Progress and Water Observations					Groundwater				Flush		
Date / Time	Depth	Casing	Core Dia.	Water	Struck	Sealed	Flow Rate	Remarks	Depth	Type	Returns

Remarks: Tracked mounted rotary rig using 115mm ODEX. ** Drillers Description

	Bynes House, Bynes Llanelli, Carmarthenshire, SA14 9SU Tel: 01554 744880 Fax: 01554 776150 email: enquiries@quantum-gh.co.uk				Operator: DW	Logged By: KH	Sheet No. 2 Of 6	Scale: 1:60.83	All measurements in metres unless otherwise stated	

Contract : PEMBERTON DEVELOPMENT SECOND GROUND INVESTIGATION

Client : CARMARTHENSHIRE COUNTY COUNCIL

**Borehole No.
DH213**

Dates : 03/05/05 - 03/05/05

Location : Llanelli

Job Number : 7932

Engineer : MOTT MACDONALD

**Ground Level : 7.37 m A.O.D.
Level to Ordnance Datum**

**Coordinates: 252917.71 E
199730.36 N
Co-ordinates to National Grid**

Run Details					STRATA				Water
Core Run					Depth (Thickness)	Description	Legend	Red. Level A.O.D.	
					30.00	SANDSTONE WITH QUARTZ **		-22.83	
31									
32									
33									
34									
35					(8.80)				
36									
37									
38									
39					38.80	COAL **		-31.43	
					(1.20)				

Drilling Progress and Water Observations					Groundwater			Flush			
Date / Time	Depth	Casing	Core Dia.	Water	Struck	Sealed	Flow Rate	Remarks	Depth	Type	Returns

Remarks: Tracked mounted rotary rig using 115mm ODEX. ** Drillers Description

 QUANTUM Byness House, Byness Llanelli, Carmarthenshire, SA14 9SU Tel: 01554 744820 Fax: 01554 776150 email: enquiries@quantum-gh.co.uk	Operator:	Logged By:	Sheet No.	Scale:	All measurements in metres unless otherwise stated	
	DW	KH	4 Of 6	1:60.83		

Contract : PEMBERTON DEVELOPMENT SECOND GROUND INVESTIGATION										Borehole No. DH213		
Client : CARMARTHENSHIRE COUNTY COUNCIL												
Dates : 03/05/05 - 03/05/05					Job Number : 7932			Ground Level : 7.37 m A.O.D. Level to Ordnance Datum				
Location : Llanelli					Engineer : MOTT MACDONALD			Coordinates: 252917.71 E 199730.36 N Co-ordinates to National Grid				
Run Details					STRATA							
Core Run					Depth (Thickness)	Description		Legend	Red. Level A.O.D.	Water		
					40.00	MUDSTONE **			-32.63			
					(1.00)							
41					41.00	SANDSTONE **			-33.63			
42												
43												
44												
45												
46					(9.00)							
47												
48												
49												
Drilling Progress and Water Observations					Groundwater				Flush			
Date / Time	Depth	Casing	Core Dia.	Water	Struck	Sealed	Flow Rate	Remarks	Depth	Type	Returns	
03/05/2005 00:00	50.00	7.00	115									
Remarks: Tracked mounted rotary rig using 115mm ODEX. ** Drillers Description												
QUANTUM		Bynes House, Bynes Llanelli, Carmarthenshire, SA14 9SU Tel: 01554 744880 Fax: 01554 776130 email: enquiries@quantum-gb.co.uk			Operator: DW		Logged By: KH		Sheet No. 5 Of 6		Scale: 1:60.83	All measurements in metres unless otherwise stated
AGS												

Contract : PEMBERTON DEVELOPMENT SECOND GROUND INVESTIGATION										Borehole No. DH213																																				
Client : CARMARTHENSHIRE COUNTY COUNCIL																																														
Dates : 03/05/05 - 03/05/05					Job Number : 7932			Ground Level : 7.37 m A.O.D. Level to Ordnance Datum																																						
Location : Llanelli					Engineer : MOTT MACDONALD			Coordinates: 252917.71 E 199730.36 N Co-ordinates to National Grid																																						
Run Details					STRATA																																									
Core Run					Depth (Thickness)	Description			Legend	Red. Level A.O.D.	Water																																			
					50.00	Terminated at 50.00m				-42.63																																				
<table border="1"> <thead> <tr> <th colspan="5">Drilling Progress and Water Observations</th> <th colspan="3">Groundwater</th> <th colspan="3">Flush</th> </tr> <tr> <th>Date / Time</th> <th>Depth</th> <th>Casing</th> <th>Core Dia.</th> <th>Water</th> <th>Struck</th> <th>Sealed</th> <th>Flow Rate</th> <th>Remarks</th> <th>Depth</th> <th>Type</th> <th>Returns</th> </tr> </thead> <tbody> <tr> <td colspan="12"> </td> </tr> </tbody> </table>												Drilling Progress and Water Observations					Groundwater			Flush			Date / Time	Depth	Casing	Core Dia.	Water	Struck	Sealed	Flow Rate	Remarks	Depth	Type	Returns												
Drilling Progress and Water Observations					Groundwater			Flush																																						
Date / Time	Depth	Casing	Core Dia.	Water	Struck	Sealed	Flow Rate	Remarks	Depth	Type	Returns																																			
Remarks: Tracked mounted rotary rig using 115mm ODEX. ** Drillers Description																																														
 QUANTUM Bynea House, Bynea Llanelli, Carmarthenshire, SA14 9SU Tel: 01554 744880 Fax: 01554 776150 email: enquiries@quantum-gh.co.uk					Operator: DW		Logged By: KH		Sheet No. 6 Of 6		Scale: 1:60.83		All measurements in metres unless otherwise stated		 AGS																															

Contract : PEMBERTON DEVELOPMENT SECOND GROUND INVESTIGATION

**Trial Pit No.
TP231**

Client : CARMARTHENSHIRE COUNTY COUNCIL

Dates : 15/03/05 - 15/03/05

Job Number : 7932

Ground Level : 6.60 m A.O.D.

Location : Llanelli

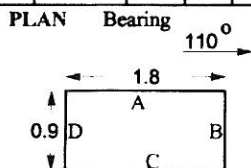
Engineer : MOTT MACDONALD

Coordinates: 252799.49 E

199690.35 N

Co-ordinates to National Grid

m B.G.L.	Samples			Tests		STRATA				Water
	Depth	Type No.	U100 Blows	Depth	Test Results	Depth (Thickness)	DESCRIPTION	Legend	Red. Level A.O.D.	
	0.00 -	D1					MADE GROUND: Firm dark grey to black sandy gravelly CLAY with faint hydrocarbon odour, many sandstone, brick, rare concrete, slag and coal. Gravel of angular to subrounded fine to coarse sandstone, mudstone, brick, glass, ceramics and some slag and rare cementitious asbestos.			
1	1.00 -	D2				(2.70)				
2	2.00 -	D3								
	2.70 -	B+D4		2.7	Vane - P=100	2.70	Firm to stiff pale grey to mottled orange brown very sandy gravelly CLAY/SILT with some pockets of dark brown damp silt and plant remains. Gravel of angular to subrounded fine to coarse sandstone.		3.90	
3						(0.30)				
						3.00	Trial Pit terminated at 3.0m depth.		3.60	



Groundwater : Seepage at 1.80m

Remarks :

Stability : Stable

Shoring : None used

Equipment Used: JCB 3CX



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Scale:
1:27.64

All measurements in metres unless otherwise stated

