

APPENDIX 9B

Trial pit logs

Cefn-y-Bedd Trial Pits

Logged by Paul Ellis, Hafren Water
Date: 15/06/2010

Weather: Fine

JCB excavator used for site investigation to determine the nature of historic fill material within partially infilled former sand and gravel working (Monks). Investigation also revealed the depth to underlying in-situ material and location of watertable. Piezometers were installed within four of the trial pits during backfilling. The spoil was potentially derived from collieries at Llay Main to the north and Llay Hall immediately to the south.

mbgl = m below ground level; magl = m above ground level; mbc = m below collar

Trial pit - TP1	Location: 53° 05.641'N, 3° 01.529'W,	Time 11:12
0-10 cm	Brown clay-rich soil and roots	
10-80 cm	Colliery spoil - dark grey/black, c60% fine material. Clay and coal dust plus coarser fragments of shale and coal, up to <10 cm. In some cases the shale is oxidised to red/brown colour, possibly indicating the occurrence of combustion within the original colliery spoil tip. Minor fragments of sandstone and siltstone, <1% brick fragments. Sulphides not in evidence	
80-130 cm	Orange-brown sand and gravel. Cobble-rich (<50 cm, <20%) sub-rounded fine-grained quartzite. Water seepage at 130 cm along contact with underlying clay	
130-300 cm	Grey-brown, sandy-silty clay with occasional (<10%) pebbles	
300-350 cm	Grey clay with <10% fragments of mudstone and siltstone	
<u>Piezometer CB1</u>		
▪ Geotextile sock and slotted 50 mm PVC pipe from 0.64 to 1.64 mbgl ▪ Plain casing from 0.64 mbgl to 0.36 magl		
Water level 2.075 mbc, 1.716 mbgl @ 17:50		

Trial pit - TP2	Location: 53° 05.710'N, 3° 01.533'W,	Time 12:00
0-5 cm	Thin grey soil, mainly weathered spoil	
5-80 cm	Colliery spoil - dark grey/black, c70% fine-grained material (clay and coal dust) plus fragments (<3 cm) grey shale and coal. Occasional clasts of soft, fine clay, occasional (<1%) fragments of orange/yellow iron oxide and black manganese oxide, coal and siltstone	
80-400 cm	Coarse well-sorted orange sand, <10% rounded clasts of fine-grained grey quartzite	
	Groundwater intercepted at 4 mbgl, trial pit kept collapsing	
<u>Piezometer CB2</u>		
▪ Geotextile sock and slotted 50 mm PVC pipe from 2.85-3.85 mbgl ▪ Plain casing from 2.85 mbgl to 15 cm above ground level		
Water level 3.37 mbc, 3.22mbgl @ 17:56		

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Trial pit - TP3	Location: 53° 05.66'N, 3° 01.503'W,	Time 13:00
0-5 cm	Topsoil	
5-410 cm	Colliery spoil - dark grey/black, c60% fine-grained material (clay and coal dust) plus fragments (<10 cm) coal, shale and sandstone. Some <30% shale oxidised to red/brown indicates possible combustion. Occasional clasts of red/brown clay	

Trial pit - TP4	Location: 53° 05.689'N, 3° 01.493'W,	Time 14:00
0-5 cm	Topsoil	
5-400 cm	Colliery spoil - dark grey/black, c60% fine-grained material (clay and coal dust) plus fragments (<10 cm) coal, shale and sandstone. Some <30% shale oxidised to red/brown indicates possible combustion. Occasional clasts of red/brown clay	
400-410 cm	Light orange-brown sand with <20% rounded cobbles <20 cm	
<u>Piezometer CB4</u>		
▪ Geotextile sock and slotted 50 mm PVC pipe from 3-4 mbgl ▪ Plain casing from 3 mbgl to 1 magl		
Water level dry @ 18:02		

Trial pit - TP5	Location: 53° 05.656'N, 3° 01.411'W,	Time 15:00
0-90 cm	Colliery spoil - dark grey/black, c60% fine-grained material with high clay content and coal dust, plus fragments of coal, shale and sandstone. Some 10% are coarse fragments <20 cm	
90-200 cm	Brown gravel (60%) and sand. The trial pit is possibly located on the old entrance ramp to the quarry which could explain the relatively shallow depth of the sand and gravel	

Trial pit - TP6	Location: 53° 05.676'N, 3° 01.413'W,	Time 16:00
0-30 cm	Soil and minor fragments of shale	
30-90 cm	Orange-brown coarse sand	

Trial pit - TP7	Location: 53° 05.667'N, 3° 01.413'W,	Time 16:30
0-10 cm	Topsoil	
10-450 cm	Colliery spoil, >30% coarse fragments and boulders (<50 cm dia), mudstone, siltstone, coal, red/brown oxidised shale. Becoming finer with depth	
	No groundwater	

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Trial pit - TP8	Location: 53° 05.715'N, 3° 01.46'W.	Time 17:00
0-20 cm	Sandy soil	
20-190 cm	Light brown sand and gravel	
190-360 cm	Grey sandy, silty clay with <20% cobbles of sub-rounded siltstone and limestone	
	No groundwater	
<u>Piezometer CB8</u>		
▪ Geotextile sock and slotted 50 mm PVC pipe from 0.6-1.6 mbgl ▪ Plain casing from 0.6 mbgl to 0.4 magl		
Water level dry at 18:00		

Samples taken (in storage with RML)

Sample number	Trial pit number	Depth interval (cm)
CB1000	TP1	0-10
CB1001	TP1	10-80
CB1002	TP1	80-130
CB1003	TP1	130-300
CB1004	TP1	300-350
CB1005	TP2	0-5
CB1006	TP2	5-80
CB1007	TP2	80-400
CB1008	TP3	5-410
CB1009	TP4	5-400
CB1010	TP5	0-90
CB1011	TP7	10-4.5
CB1012	TP8	190-360