

Dakota House Baglan Letter report on Ground Investigation

22 October 2024

It is proposed to construct a garage at the front of the existing property, Dakota House Baglan. It is understood that the garage is to be approximately 16 metres by 8 metres in area. A five metre high stone retaining wall separates the proposed garage and Baglan Road. It was anticipated, therefore, that the soil underlying the proposed garage would be made ground material used to infill behind the retaining wall. A borehole investigation was required to determine the nature and strength of the underlying soils and to provide depth to impenetrable strata should piled foundations be required.

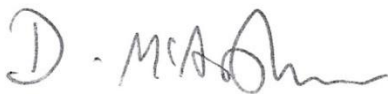
Eight boreholes were drilled with a mini tracked percussive rig. The boreholes were in two forms. Seven dynamic probe holes were drilled where a fixed steel cone is driven into the ground and the blow counts to drive the cone through successive 100mm increments recorded. The probe holes were drilled to give a continuous density profile and to provide a depth to impenetrable strata (usually bedrock). A graph showing blow counts versus depth is provided. Sample holes were drilled at one location, where hollow plastic lined steel tubes were driven into the ground and a core of the soil recovered for examination. The borehole locations are shown on the Borehole Location Plan.

Reference to the British Geological Map indicates that the solid geology is expected to be mudstone, siltstone or sandstone from the Llynfi member of Carboniferous age.

The first two to three metres of soil was found to be very soft clay fill. Dynamic probe blow counts were very low single figures through this material. The sample borehole recorded firm clay from two to four metres and medium dense gravel from four to five metres in depth. It is likely that all of these soils are imported fill. Although the blow counts generally increase below two metres these are some zones where the blow counts drop off indicating softer soils at depth. The probe holes reached impenetrable strata, likely to be the underlying bedrock, at between 8.15m (DP 2) and 11.27m (DP6).

It was noted that the retaining wall is showing some cracking due to lateral soil pressures. (See attached photograph). Any foundation above the base of the retaining wall will impart increased pressure on the retaining wall and should be avoided as this may cause further structural damage of the wall. It would be recommended that the structure be founded on piles. It is likely that the piles will have to extend to the depths of the dynamic probes to ensure that the end bearing is on the underlying bedrock.

For and on behalf of South Wales Ground Testing Limited

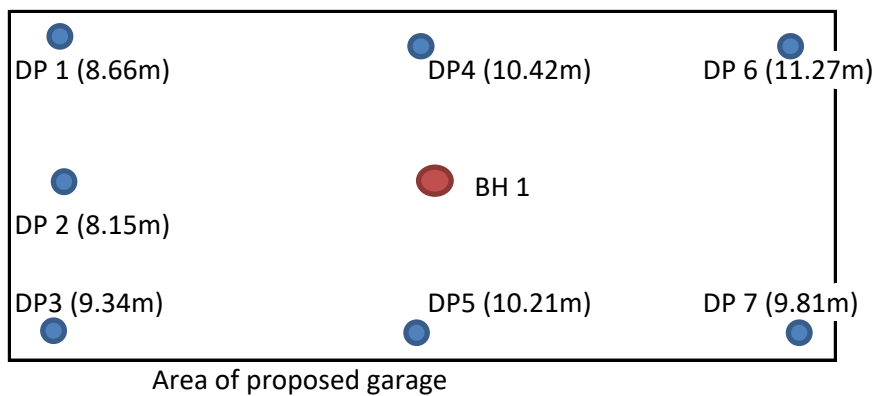


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Engineering Geologist

Dakota House Baglan

Borehole Location Plan 22.10.24

House Front - Dakota House



Retaining wall to Road (approx 5m)



**SOUTH WALES
GROUND TESTING**

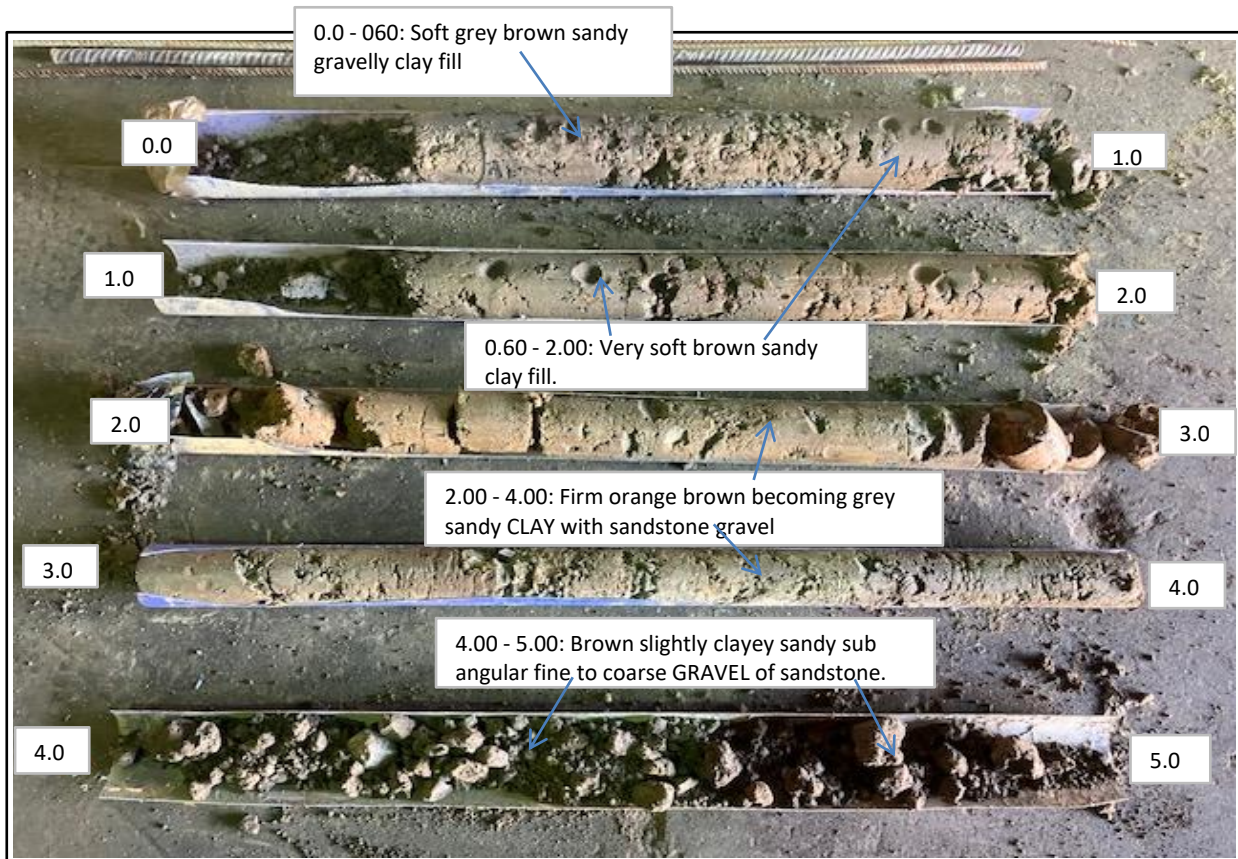
SOUTH WALES GROUND TESTING

WINDOW SAMPLE RECORD

STRATA		SAMPLE RUN		SAMPLES AND TESTS			
DEPTH (m)	DESCRIPTION	DIAMETER (mm)	RECOVERY	DEPTH (m)	TYPE		
0.60	MADE GROUND: Soft grey brown very sandy clay with some assorted fine to coarse gravel.	116	80%				
	MADE GROUND: Very soft brown sandy clay with occasional fine to coarse gravel.						
2.00		101	80%				
4.00	Firm orange brown becomoing grey sandy CLAY with occasional fine to coarse gravel of predominatly sandstone (Possible Made Ground)	87	100%				
5.00	Medium dense brown slighty clayey sandy sub angular fine to coarse GRAVEL of predominantly sandstone (Possible Made Ground)	77	100%				
		67	90%				
End of sample hole at 5.00m.							
REMARKS: Borehole drilled using tracked percussive rig. Groundwater not encountered.			 SOUTH WALES GROUND TESTING				
CONTRACT: Dakota House Baglan		HOLE REFERENCE : BH 1 DATE: 22.10.24 SHEET 1 of 1					

SOUTH WALES GROUND TESTING

BOREHOLE CORE PHOTOGRAPH



**SOUTH WALES
GROUND TESTING**

CONTRACT:
Dakota House Baglan

HOLE REFERENCE : BH 1
DATE: 22.10.24
SHEET 1 of 1

SOUTH WALES GROUND TESTING

DYNAMIC PROBE RECORD

Depth(m)	BLOWS (100mm)	DIAGRAM DPSH N100 VALUES
1.00	1	
	1	
	1	
	3	
	2	
	2	
	1	
	0	
	0	
	0	
2.00	0	
	1	
	0	
	0	
	0	
	0	
	0	
	0	
	0	
	0	
3.00	0	
	0	
	0	
	1	
	4	
	3	
	3	
	4	
	7	
	10	
4.00	9	
	10	
	14	
	14	
	17	
	14	
	15	
	12	
	11	
	10	
5.00	8	
	9	
	10	
	8	
	8	
	7	
	8	
	8	
	11	
	10	
6.00	8	
	6	
	4	
	5	
	6	
	6	
	5	
	7	
	11	
	9	
7.00	8	
	10	
	9	
	13	
	14	
	17	
	13	
	9	
	4	
	5	
8.00	6	
	5	
	6	
	4	
	6	
	5	
	7	
	19	
	20	
	20	
9.00	19	
	17	
	20	
	23	
	23	
	23	
	20	
	23	
	25	
10.00		
REMARKS: Probe hole terminated on impenetrable strata at 8.66m.		 SOUTH WALES GROUND TESTING
CONTRACT: Dakota House Baglan		
		PROBE NUMBER: DP 1 DATE: 22.10.24 PAGE 1 of 1

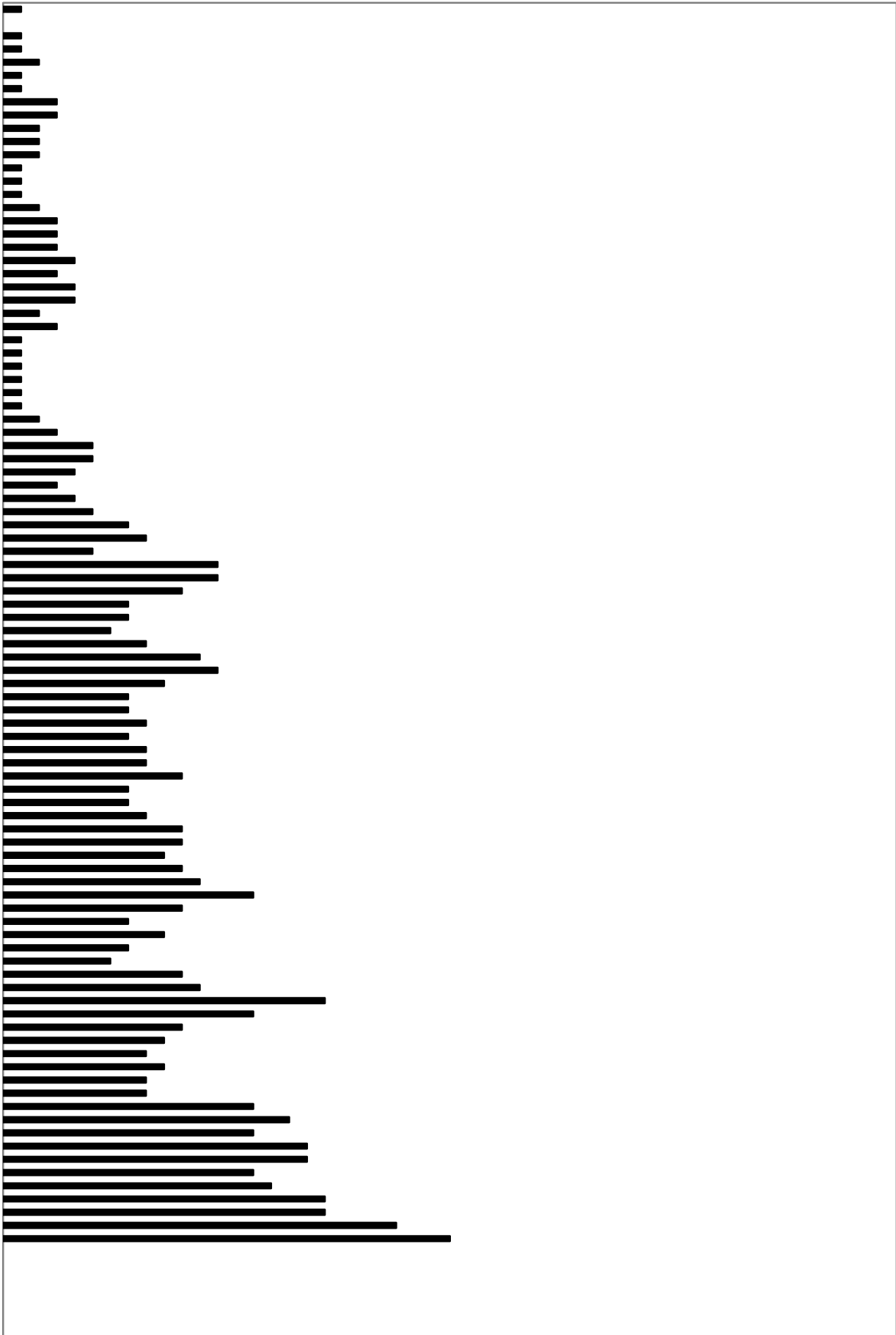
SOUTH WALES GROUND TESTING

DYNAMIC PROBE RECORD

Depth(m)	BLOWS (100mm)	DIAGRAM DPSH N100 VALUES
1.00	2 1 1 2 2 4 4 3 2 1 3 2	
2.00	3 2 2 2 1 0 1 0 1 0	
3.00	1 0 0 0 0 0 1 1 3	
4.00	6 4 6 5 7 9 10 11 10 11 13 12	
5.00	9 8 10 9 9 11 13 11	
6.00	8 6 5 4 7 9 10 7 9 9	
7.00	13 15 14 12 6 6 8 8 9 6 5	
8.00	8 11 8 6 6 8 12 16 23 25	
9.00		
10.00		
REMARKS: Probe hole terminated on impenetrable strata at 8.15m.		
CONTRACT: Dakota House Baglan		
		PROBE NUMBER: DP 2 DATE: 22.10.24 PAGE 1 of 1

SOUTH WALES GROUND TESTING

DYNAMIC PROBE RECORD

Depth(m)	BLOWS (100mm)	DIAGRAM DPSH N100 VALUES	
1.00	1		
	0		
	1		
	1		
	1		
	2		
	1		
	1		
	3		
	3		
2			
2.00	2		
	2		
	1		
	1		
	1		
	2		
	3		
	3		
	3		
	4		
3.00	3		
	4		
	4		
	4		
	2		
	3		
	1		
	1		
	1		
	1		
4.00	1		
	2		
	3		
	5		
	5		
	4		
	3		
	4		
	5		
	7		
5.00	8		
	5		
	12		
	12		
	10		
	7		
	7		
	6		
	8		
	11		
6.00	12		
	9		
	7		
	7		
	8		
	7		
	8		
	8		
	10		
	7		
7.00	7		
	8		
	10		
	10		
	9		
	10		
	11		
	14		
	10		
	7		
8.00	9		
	7		
	6		
	10		
	11		
	18		
	14		
	10		
	9		
	8		
9.00	9		
	8		
	8		
	14		
	16		
	14		
	17		
	17		
	14		
	15		
10.00	18		
	18		
	22		
	25		
REMARKS: Probe hole terminated on impenetrable strata at 9.34m.		 SOUTH WALES GROUND TESTING	PROBE NUMBER: DP 3
CONTRACT: Dakota House Baglan			DATE: 22.10.24 PAGE 1 of 1

SOUTH WALES
GROUND TESTING

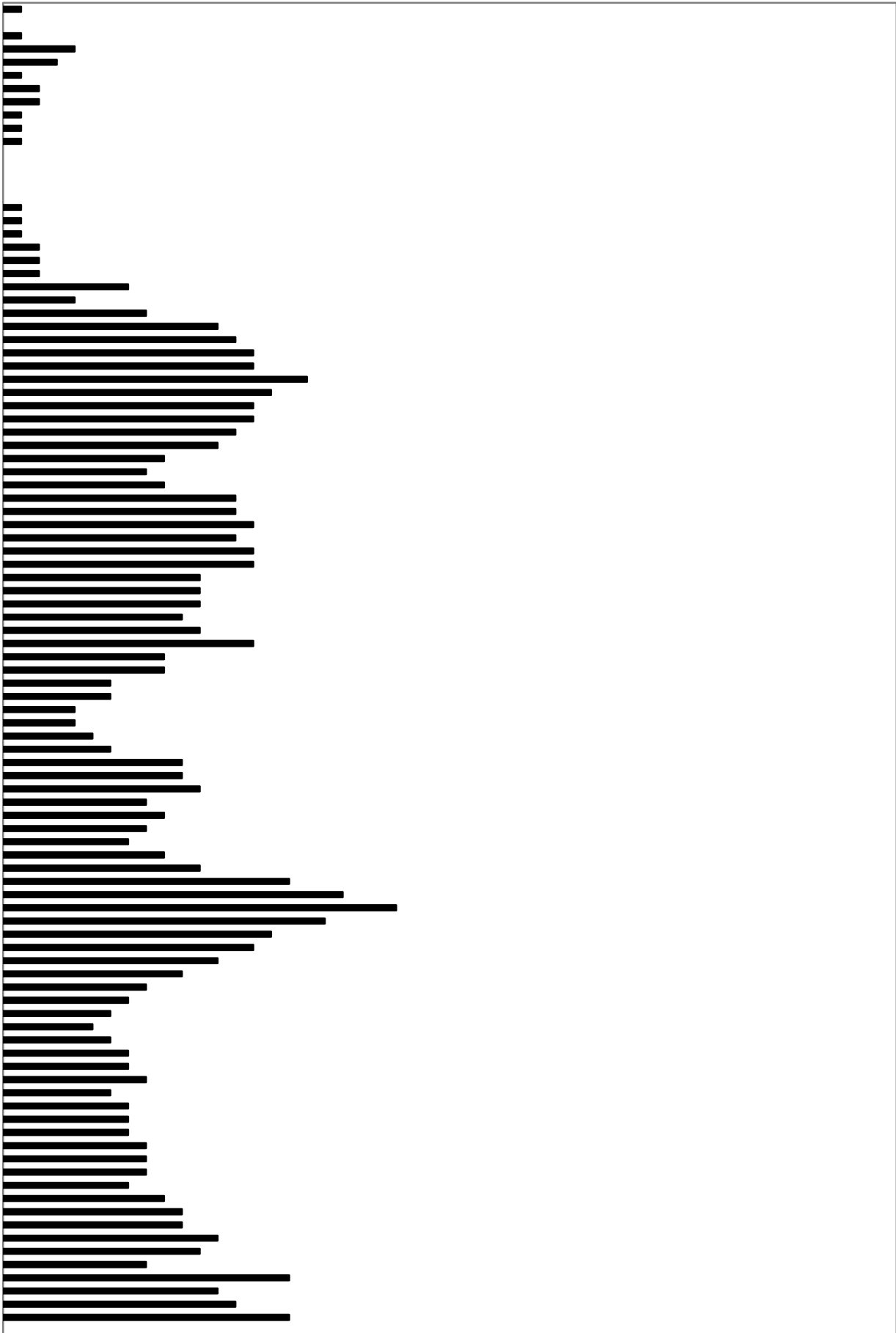
PROBE NUMBER: DP 3

DATE: 22.10.24

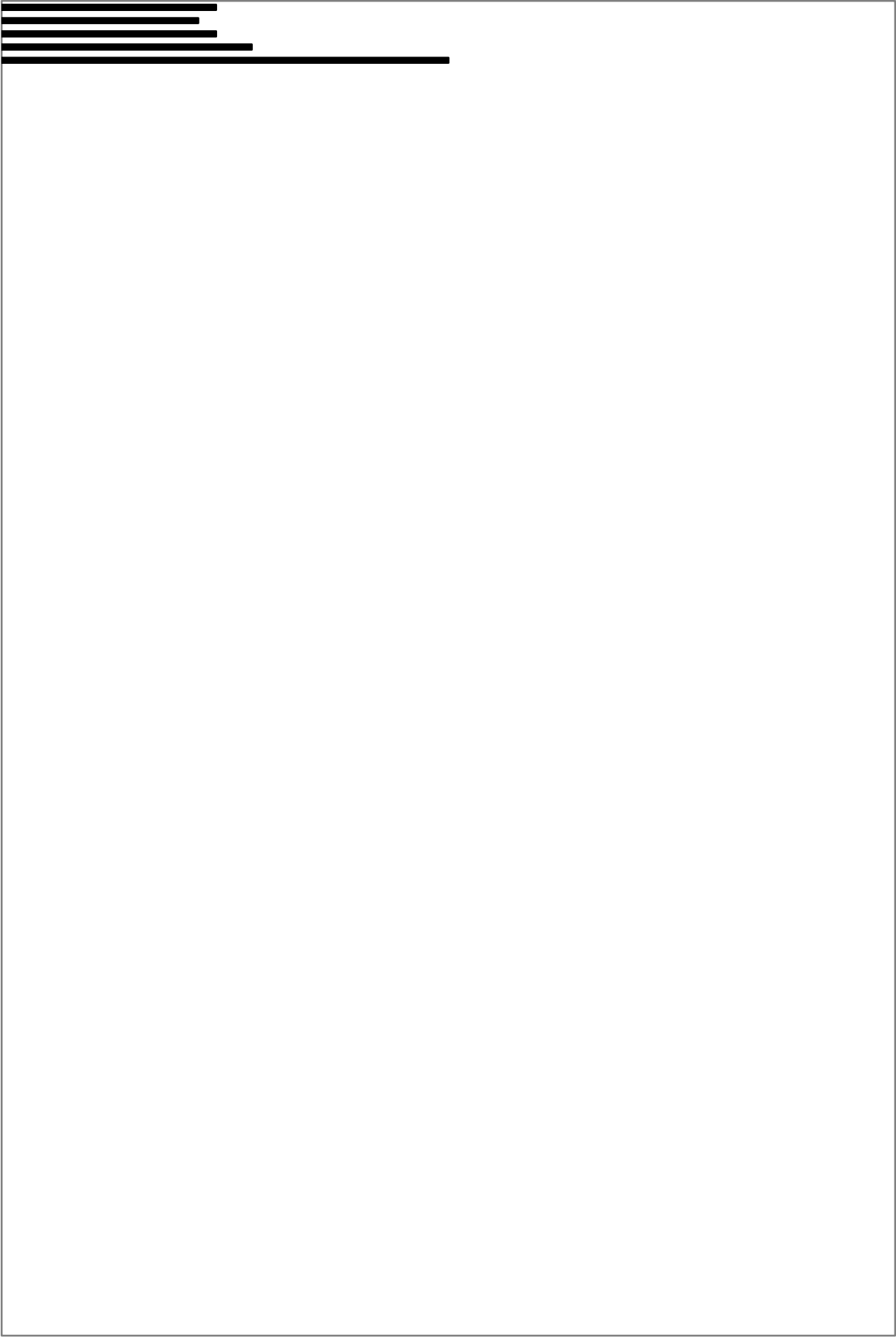
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SOUTH WALES GROUND TESTING

DYNAMIC PROBE RECORD

Depth(m)	BLOWS (100mm)	DIAGRAM DPSH N100 VALUES
1.00	1	
	0	
	1	
	4	
	3	
	1	
	2	
	2	
	1	
	1	
2.00	1	
	0	
	0	
	0	
	0	
	1	
	1	
	2	
	2	
	2	
3.00	2	
	7	
	4	
	8	
	12	
	13	
	14	
	14	
	17	
	15	
4.00	14	
	14	
	13	
	12	
	9	
	8	
	9	
	13	
	13	
	14	
5.00	13	
	14	
	14	
	11	
	11	
	11	
	10	
	11	
	14	
	9	
6.00	9	
	6	
	6	
	4	
	4	
	5	
	6	
	10	
	10	
	11	
7.00	8	
	9	
	8	
	7	
	9	
	11	
	16	
	19	
	22	
	18	
8.00	15	
	14	
	12	
	10	
	8	
	8	
	7	
	6	
	5	
	6	
9.00	7	
	7	
	8	
	6	
	7	
	7	
	7	
	8	
	8	
	8	
10.00	7	
	9	
	10	
	10	
	12	
	11	
	8	
	16	
	12	
	13	
11.00	16	
	16	
	16	
	16	
	16	
	16	
	16	
	16	
	16	
	16	

REMARKS: Probe hole terminated on impenetrable strata at 10.42m.		 SOUTH WALES GROUND TESTING	PROBE NUMBER: DP 4
CONTRACT: Dakota House Baglan			DATE: 22.10.24
			PAGE 1 of 2

SOUTH WALES GROUND TESTING		DYNAMIC PROBE RECORD	
Depth(m)	BLOWS (100mm)	DIAGRAM DPSH N100 VALUES	
	12		
	11		
	12		
	12		
	14		
	25		
11.00			
12.00			
13.00			
14.00			
15.00			
16.00			
17.00			
18.00			
19.00			
20.00			
REMARKS:		 SOUTH WALES GROUND TESTING	PROBE NUMBER: DP 4
CONTRACT: Dakota House Baglan			DATE: 22.10.24 PAGE 2 of 2

SOUTH WALES GROUND TESTING

DYNAMIC PROBE RECORD

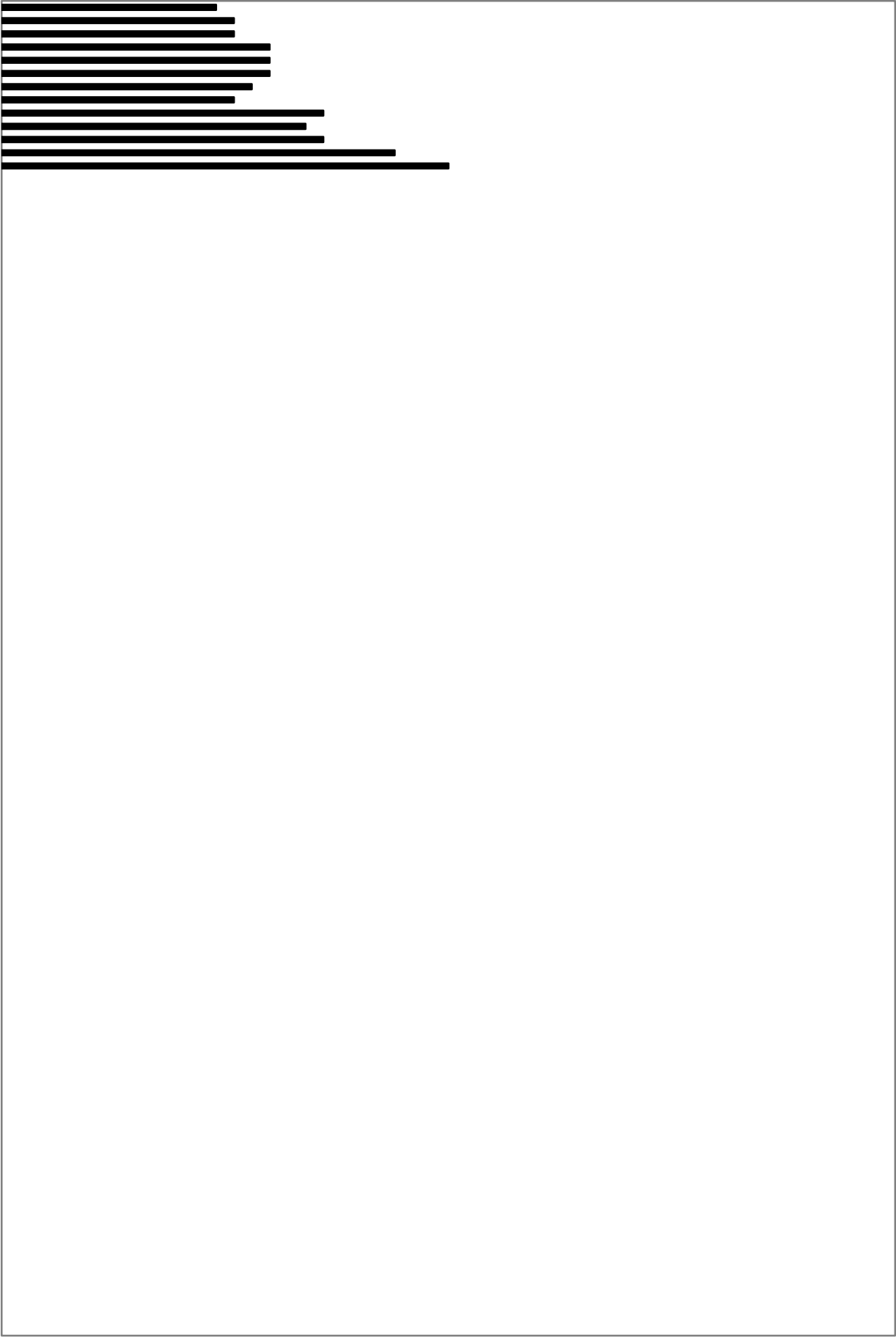
Depth(m)	BLOWS (100mm)	DIAGRAM DPSH N100 VALUES
1.00	2	
	0	
	1	
	2	
	6	
	7	
	6	
	4	
	4	
	2	
2.00	3	
	1	
	2	
	3	
	2	
	1	
	2	
	2	
	3	
	3	
3.00	2	
	2	
	3	
	3	
	3	
	2	
	2	
	1	
	0	
	1	
4.00	0	
	1	
	1	
	0	
	4	
	5	
	5	
	5	
	9	
	9	
5.00	12	
	13	
	9	
	9	
	9	
	10	
	9	
	9	
	9	
	10	
6.00	8	
	7	
	7	
	7	
	8	
	6	
	4	
	6	
	6	
	5	
7.00	7	
	6	
	7	
	7	
	8	
	9	
	8	
	9	
	8	
	6	
8.00	8	
	6	
	5	
	5	
	5	
	6	
	8	
	6	
	7	
	6	
9.00	10	
	10	
	11	
	8	
	9	
	9	
	9	
	8	
	10	
	13	
10.00	11	
	10	
	10	
	15	
	18	
	16	
	15	
	15	
	16	
	16	
REMARKS: Probe hole terminated on impenetrable strata at 10.21m.		
CONTRACT: Dakota House Baglan		
 SOUTH WALES GROUND TESTING		
PROBE NUMBER: DP 5 DATE: 22.10.24 PAGE 1 of 2		

SOUTH WALES GROUND TESTING		DYNAMIC PROBE RECORD	
Depth(m)	BLOWS (100mm)	DIAGRAM DPSH N100 VALUES	
	15		
	14		
	25		
11.00			
12.00			
13.00			
14.00			
15.00			
16.00			
17.00			
18.00			
19.00			
20.00			
REMARKS:		 SOUTH WALES GROUND TESTING	
CONTRACT: Dakota House Baglan			
		PROBE NUMBER: DP 5 DATE: 22.10.24 PAGE 2 of 2	

SOUTH WALES GROUND TESTING

DYNAMIC PROBE RECORD

Depth(m)	BLOWS (100mm)	DIAGRAM DPSH N100 VALUES
1.00	1	
	0	
	2	
	7	
	6	
	4	
	4	
	5	
	4	
	4	
2.00	4	
	3	
	3	
	1	
	14	
	16	
	15	
	20	
	21	
	17	
3.00	18	
	22	
	22	
	19	
	14	
	12	
	11	
	8	
	14	
	9	
4.00	7	
	4	
	7	
	7	
	8	
	7	
	9	
	12	
	13	
	10	
5.00	12	
	10	
	8	
	7	
	5	
	8	
	9	
	8	
	6	
	8	
6.00	4	
	3	
	2	
	4	
	5	
	10	
	16	
	11	
	12	
	12	
7.00	11	
	12	
	14	
	9	
	8	
	8	
	12	
	13	
	13	
	17	
8.00	22	
	21	
	18	
	14	
	9	
	10	
	12	
	9	
	7	
	6	
9.00	9	
	10	
	10	
	16	
	16	
	17	
	18	
	21	
	15	
	15	
10.00	18	
	13	
	18	
	14	
	14	
	13	
	11	
	9	
	11	
	12	
REMARKS: Probe hole terminated on impenetrable strata at 11.27m.		 SOUTH WALES GROUND TESTING
CONTRACT: Dakota House Baglan		
		PROBE NUMBER: DP 6 DATE: 22.10.24 PAGE 1 of 2

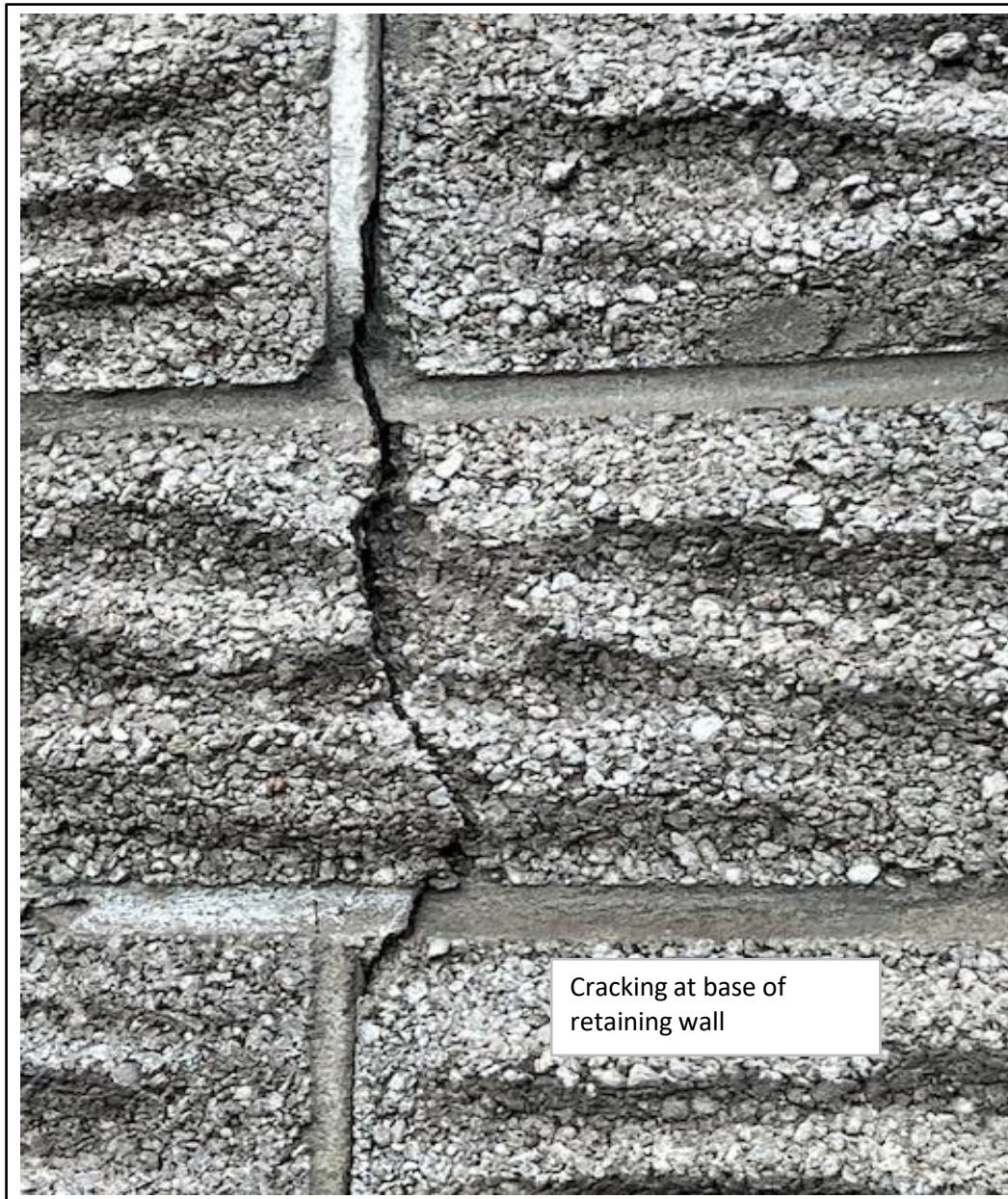
SOUTH WALES GROUND TESTING		DYNAMIC PROBE RECORD	
Depth(m)	BLOWS (100mm)	DIAGRAM DPSH N100 VALUES	
	12		
	13		
	13		
	15		
	15		
	15		
	14		
	13		
	18		
	11.00		
	18		
	22		
	25		
12.00			
13.00			
14.00			
15.00			
16.00			
17.00			
18.00			
19.00			
20.00			
REMARKS:		 SOUTH WALES GROUND TESTING	PROBE NUMBER: DP 6
CONTRACT: Dakota House Baglan			DATE: 22.10.24 PAGE 2 of 2

SOUTH WALES GROUND TESTING

DYNAMIC PROBE RECORD

Depth(m)	BLOWS (100mm)	DIAGRAM DPSH N100 VALUES
1.00	1	
	0	
	0	
	2	
	3	
	5	
	5	
	5	
	4	
	5	
2.00	4	
	5	
	4	
	2	
	2	
	1	
	1	
	1	
	1	
	2	
3.00	2	
	3	
	3	
	3	
	5	
	9	
	13	
	12	
	10	
	9	
4.00	10	
	10	
	7	
	5	
	7	
	7	
	8	
	10	
	8	
	10	
5.00	10	
	10	
	10	
	11	
	9	
	6	
	8	
	6	
	6	
	6	
6.00	7	
	7	
	8	
	8	
	9	
	11	
	9	
	6	
	9	
	8	
7.00	7	
	5	
	5	
	5	
	7	
	8	
	8	
	8	
	9	
	7	
8.00	5	
	8	
	7	
	6	
	5	
	6	
	6	
	6	
	7	
	4	
9.00	3	
	6	
	5	
	9	
	7	
	5	
	5	
	6	
	6	
	7	
10.00	8	
	9	
	7	
	9	
	9	
	15	
	11	
	10	
	9	
	25	
REMARKS: Probe hole terminated on impenetrable strata at 9.81m.		 SOUTH WALES GROUND TESTING
CONTRACT: Dakota House Baglan		
		PROBE NUMBER: DP 7 DATE: 22.10.24 PAGE 1 of 1

SOUTH WALES GROUND TESTING



**SOUTH WALES
GROUND TESTING**

CONTRACT:

Dakota House Baglan

DATE: 22.10.24

SHEET 1 of 1