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**Holocene sea-level changes and crustal  
movements in  
North Wales and Wirral**

**Volume Two**

**D.J.Bedlington**

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Thesis submitted for the degree of  
Doctor of Philosophy.  
University of Durham,  
Department of Geography.



**26 JUN 1995**

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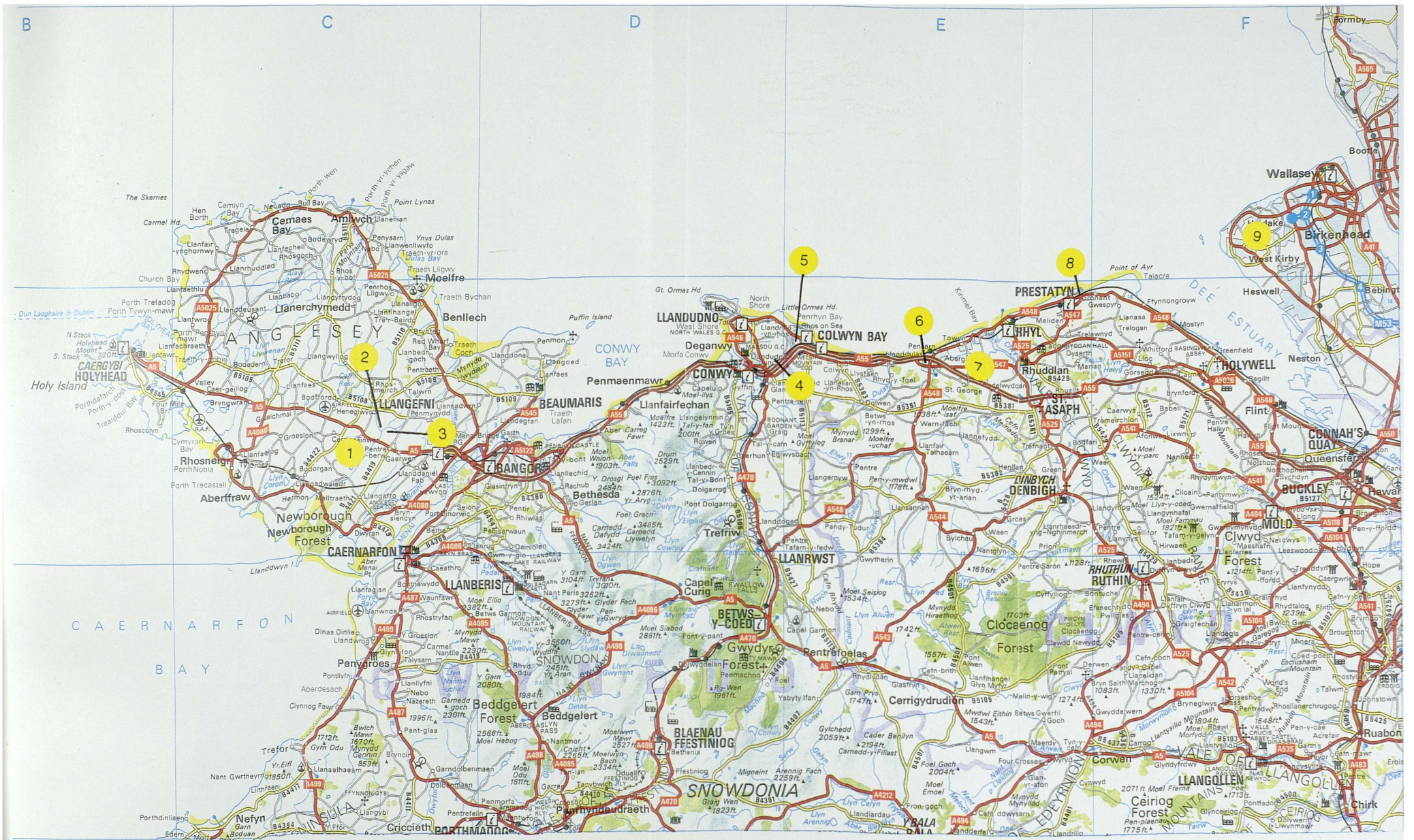
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**Fig.1.1 The study area: North Wales and Wirral.**

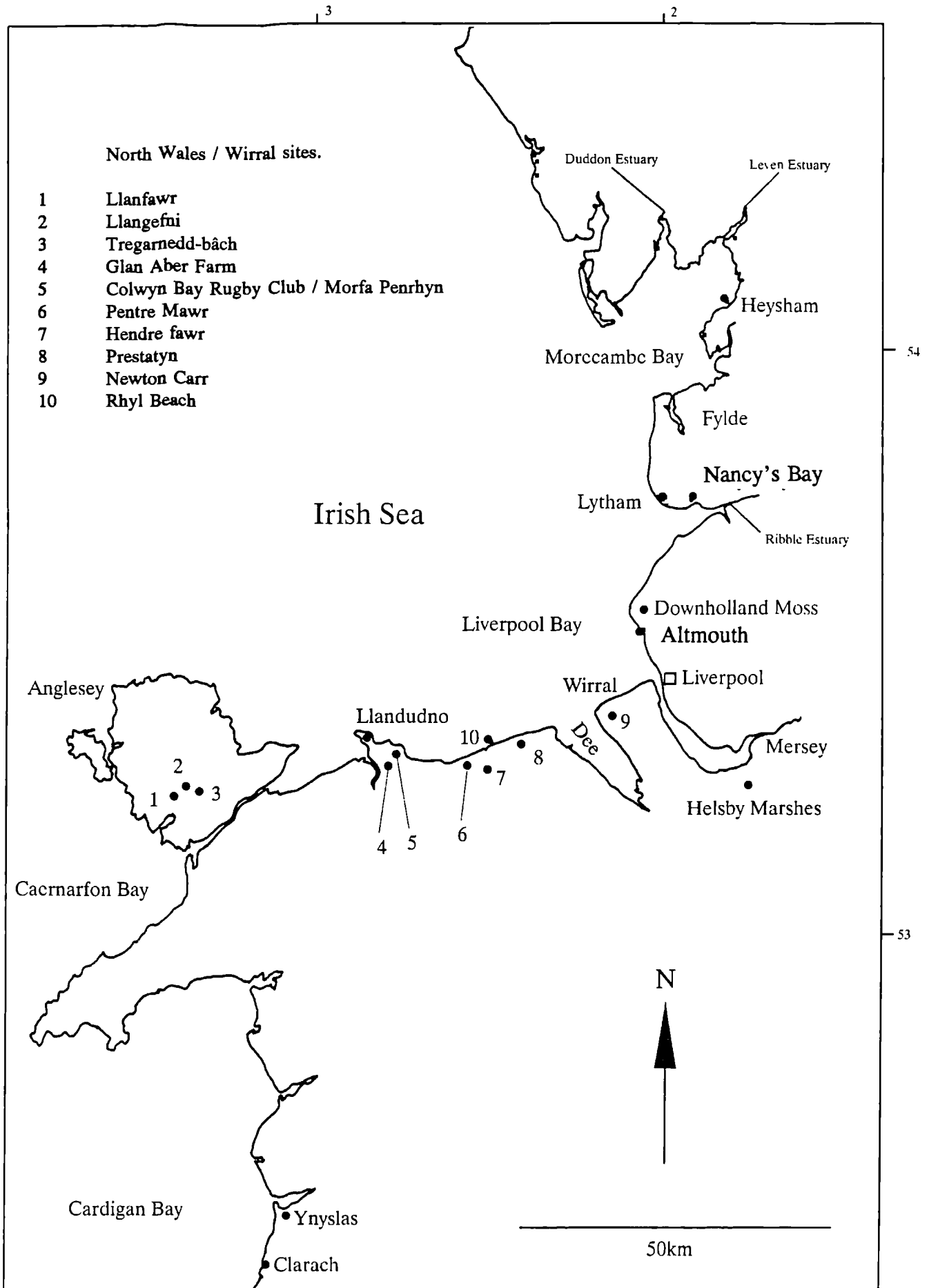




- 1 Llanfawr
- 2 Llangefni
- 3 Tregarnedd-bâch
- 4 Glan Aber Farm
- 5 Colwyn Bay Morfa Penrhyn
- 6 Pentre Mawr
- 7 Hendre fawr
- 8 Prestatyn
- 9 Newton Carr

**Fig.1.2 The study area: North Wales, Wirral and surrounding regions.**

# North Wales and surrounding regions

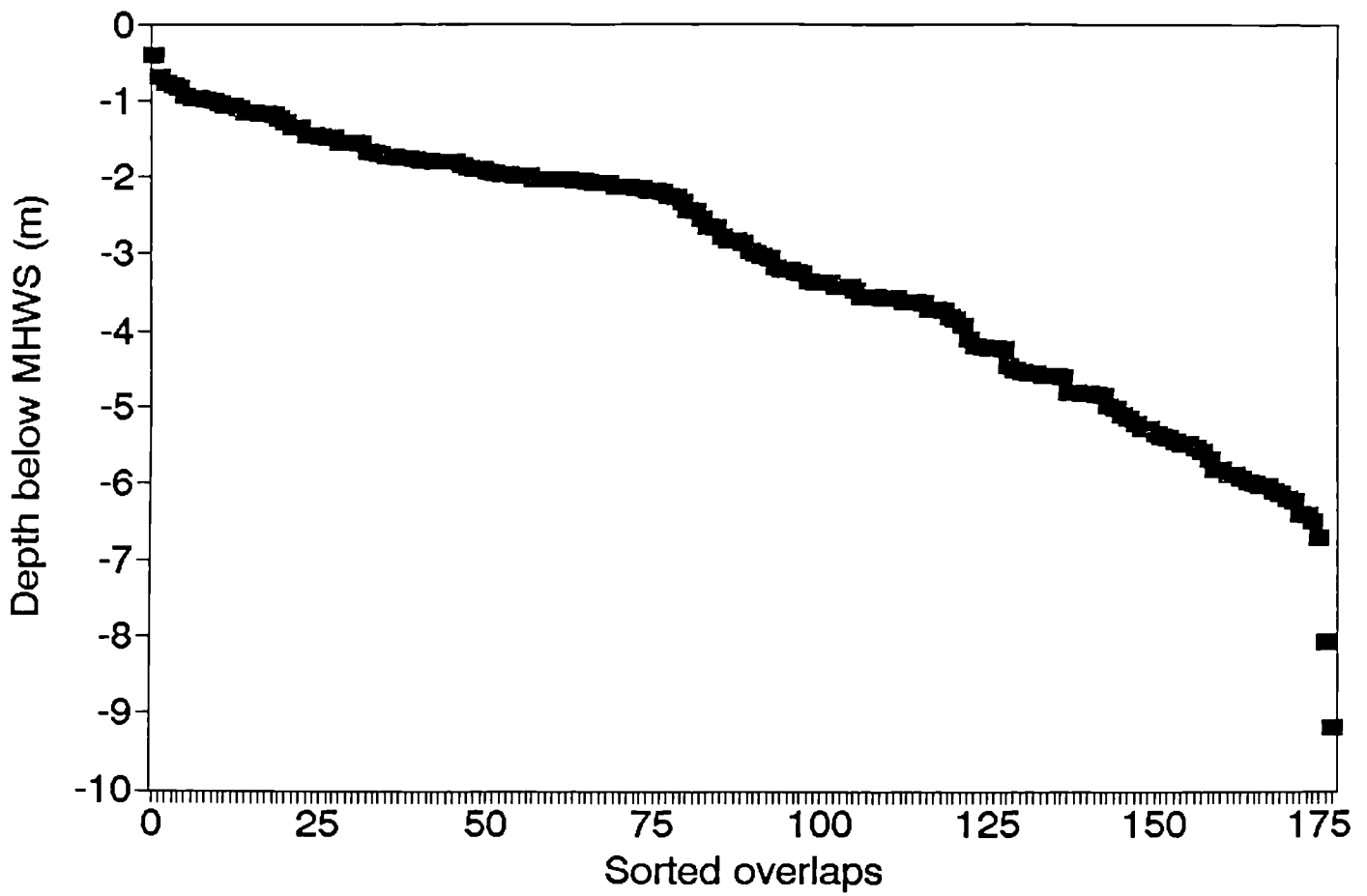


**Fig.2.1a** The altitude of transgressive overlaps recorded in North Wales and Wirral.

**Fig.2.1b** The altitude of regressive overlaps recorded in North Wales and Wirral.

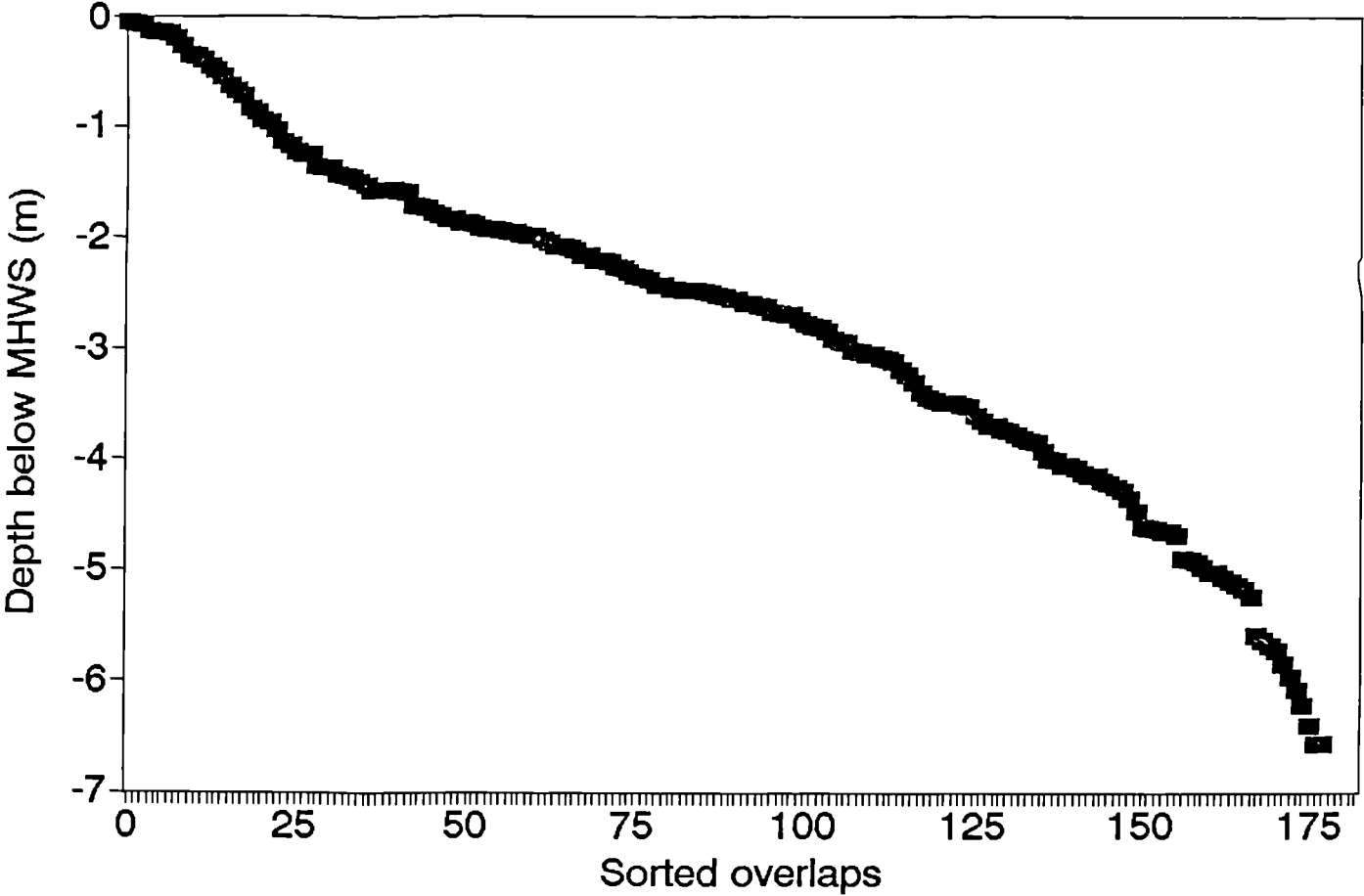
# Transgressive overlaps

## North Wales and Wirral



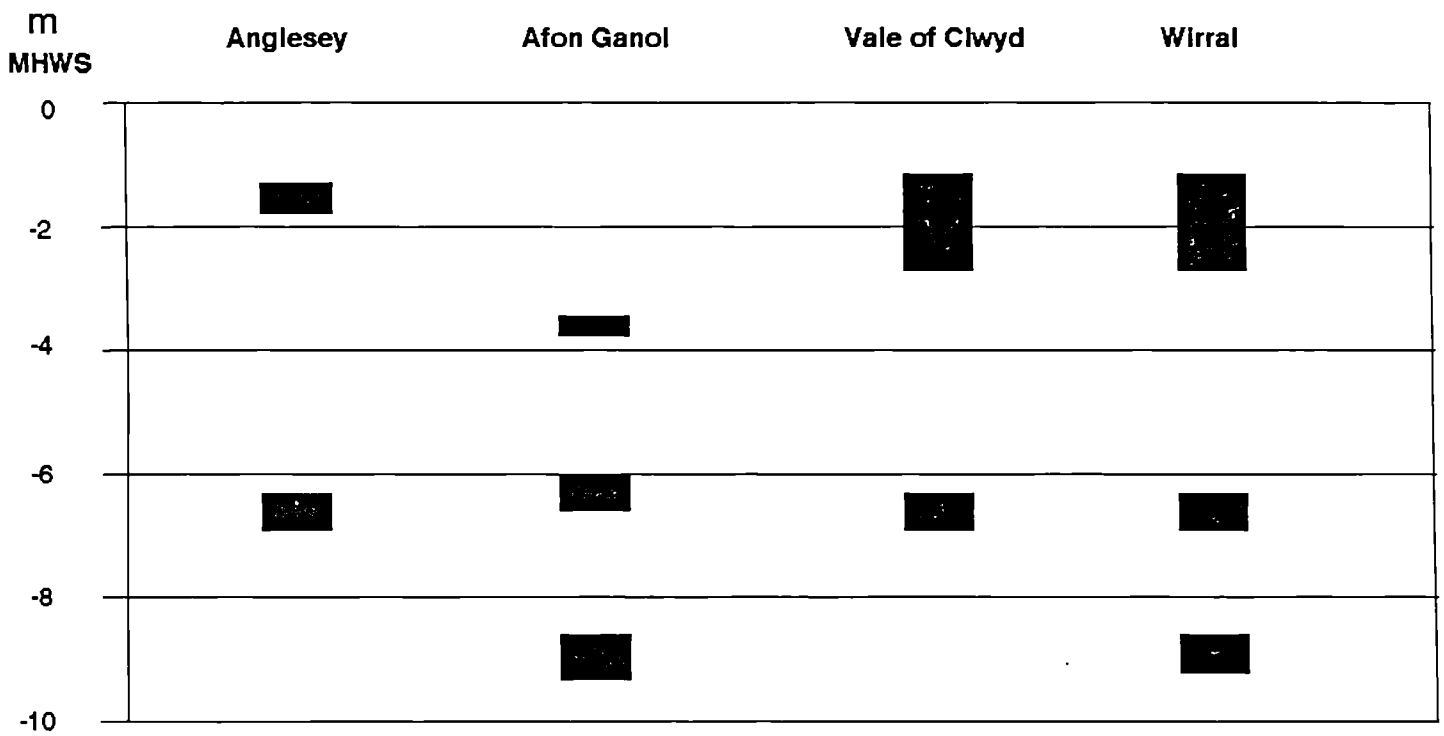
# Regressive overlaps

North Wales and Wirral

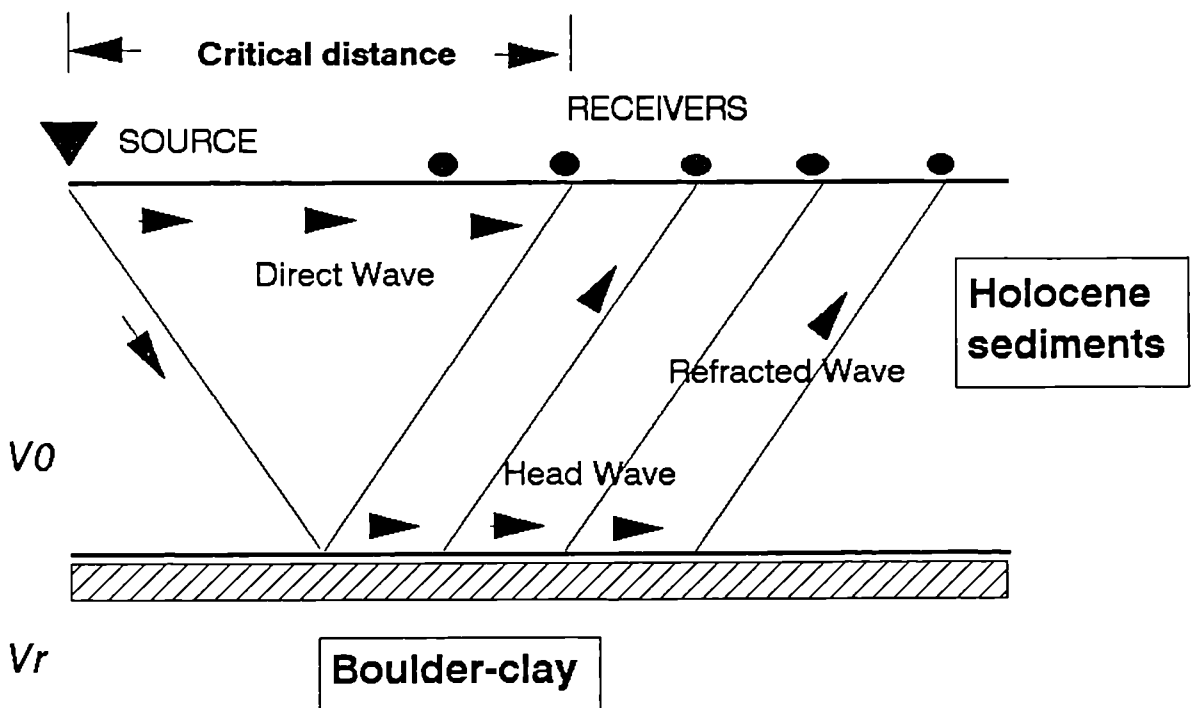


**Fig.2.2 The altitude of dated peats in North Wales and Wirral.**

**North Wales and Wirral**  
**The altitudes of dated peats**

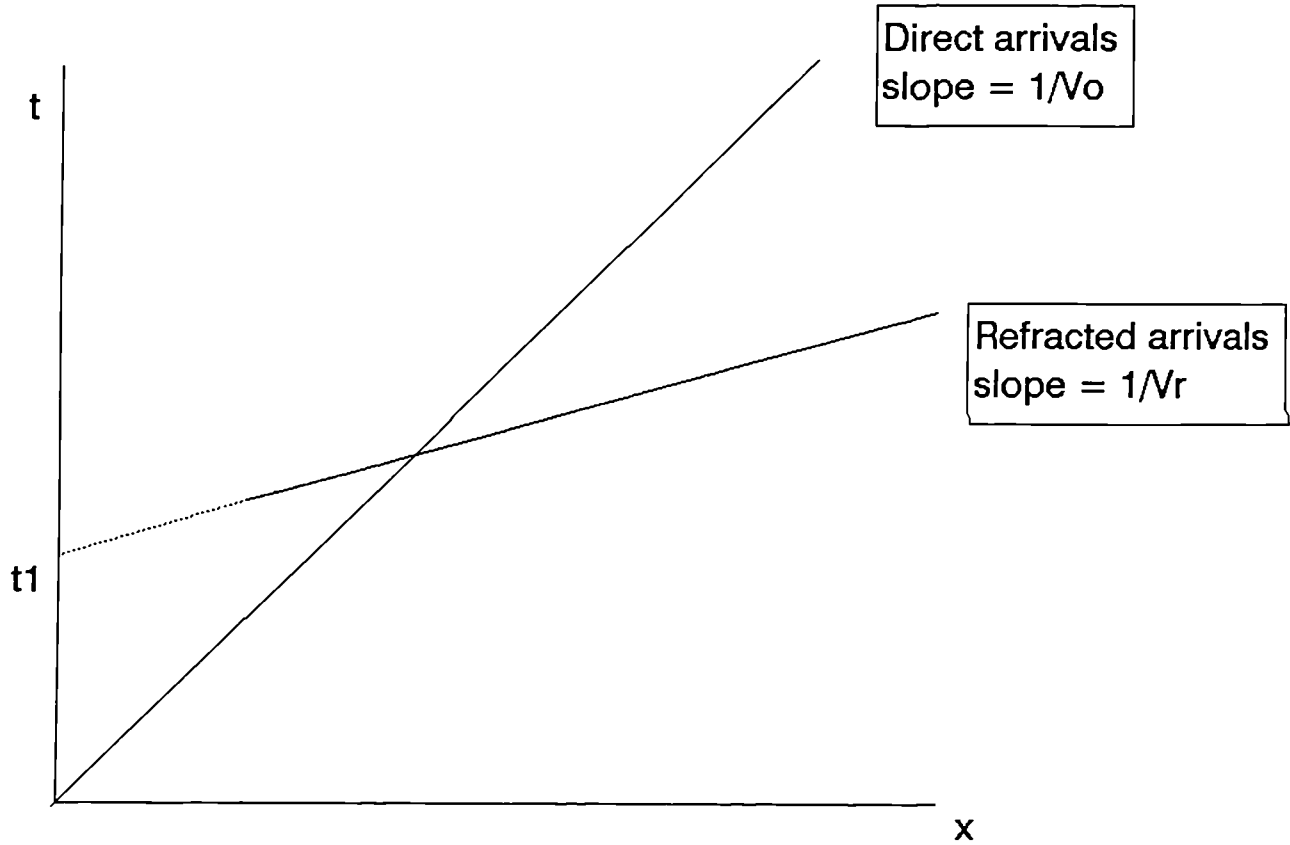


**Fig.3.1 The seismic refraction method.**



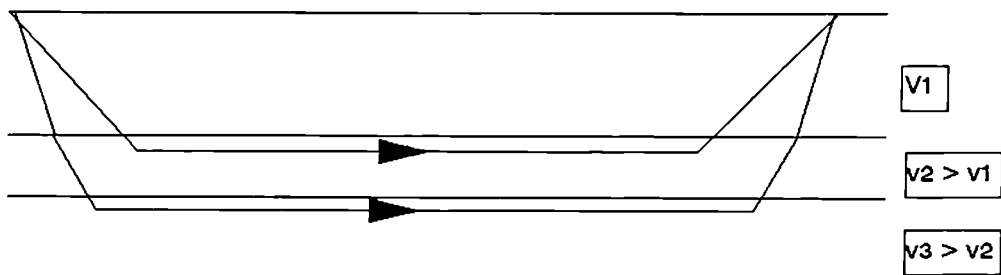
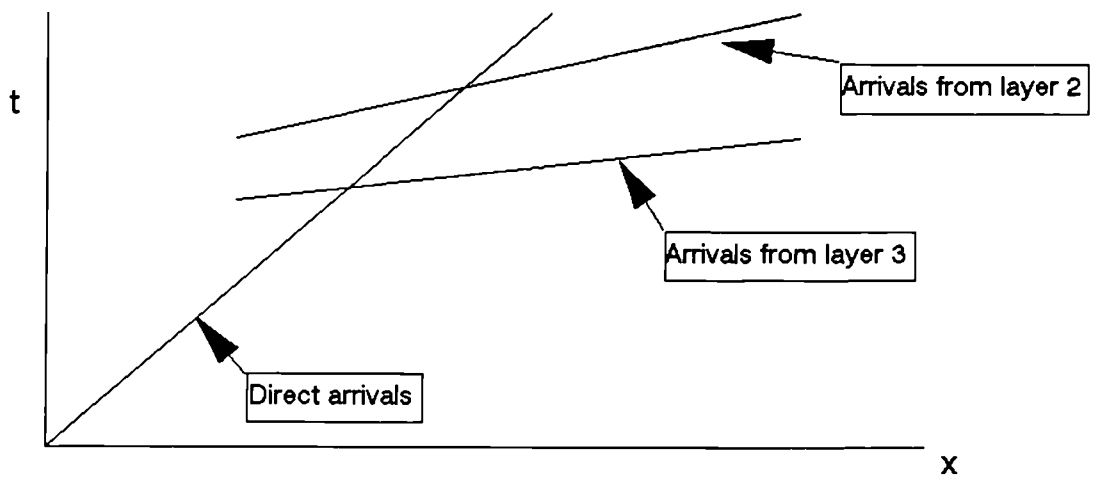
**The seismic refraction technique**

**Fig.3.2** The calculation of depth using the seismic refraction method.



Traveltime Graphs: Direct and Headwaves

**Fig.3.3** Travel path of seismic waves at Newton Carr: The three layer case.



Hidden Layers.

**Table 4.1**  
**<sup>14</sup>C-dates: North Wales.**

**Accepted Dates.**

Site name	Lab code	Age (BP)	Alt (m OD)	Alt (m MHWS)	Material	Rf	Grp
Rhyl Beach	Hv 4348	4725 ± 65	+2.43	-1.52	Peat	1	3
Llandudno Stn	SRR 61	7635 ± 52	-5.20	-9.15	Peat	2	4a
Woodlands	SRR 2510	8170 ± 70	-9.00	-12.95	Woody detritus	3	7
Woodlands	SRR 2511	8540 ± 70	-9.12	-13.07	Woody detritus	3	7

**Rejected dates.**

Site name	Lab code	Age(BP)	Alt (m OD)	Rf	Grp	Reason for rejection
Ty'n-y-pwll Farm	SRR 2506	7470 ± 50	-9.35	3	4b	Indicative meaning
Ty'n-y-pwll Farm	SRR 2507	7770 ± 120	-9.35	3	-	Not a peat date
Woodlands	SRR 2642	8480 ± 60	-2.68	3	4b	Not in stratigraphic sequence
Plas Llwyd	SRR 2509	9610 ± 50	-9.54	3	4b	Not in stratigraphic sequence
Plas Llwyd	SRR 2508	11420 ± 80	-6.19	3	4b	Not in stratigraphic sequence
Woodlands	SRR 2643	15070 ± 320	-6.87	3	4b	Not in stratigraphic sequence
Bont Farm	SRR 2644	19160 ± 160	-23.68	3	4b	Not in stratigraphic sequence
Bont Farm	SRR 2505	36140 ± 860	-11.34	3	4b	No marine context

Table 4.2  
<sup>14</sup>C-dates: Wirral and north Cheshire.

Accepted Dates.

Site name	Lab code	Age (BP)	Alt (m OD)	Alt (m MHWS)	Material	Rf	Grp
Reeds Lane	SRR 1574	2620±40	+3.02	-1.05	Peat	4	2
Wallasey	Gu 1270	2750±55	+3.18	-0.93	Peat	4	3
Wallasey	Gu 1271	3490±60	+3.08	-0.99	Peat	4	2
Moreton	Q 620	3695±110	+3.05	-1.02	Wood	4	4b
Wallasey	SRR 1495	3800±40	+2.45	-1.07	Pine wood	4	4a
Wallasey	SRR 1493	3910±100	+2.42	-1.65	Oak wood	4	4a
Park Road	Gu 1312	4315±70	+2.86	-1.21	Peat	4	2
Park Road	SRR 2693	4620±50	+2.78	-1.29	Peat	5	2
Park Road	SRR 2929	5120±50	+2.70	-1.37	Peat	5	4a
Park Road	SRR 2694	5250±50	+2.31	-1.76	Peat	5	3
Helsby Marsh	Hv 2686	5470±155	+0.73		Detrital peat	1	3
Wallasey	SRR 1494	6420±40	+0.41	-3.66	Peat	4	2
Mockbeggar Wharf	SRR 1496	6460±40	-0.18	-4.25	Oak wood	4	6
Dove Point	SRR	6510±50	-0.80	-4.87	Oak wood	6	6
Dove Point	SRR	7010±50	-0.90	-4.97	Peat	6	3

Rejected dates.

Site name	Lab code	Age(BP)	Alt (m OD)	Rf	Grp	Reason for rejection
Wallasey	SRR 1403	540±40	+2.98	4	4b	Reworked material
Wallasey	SRR 1402	550±50	+3.66	4	4b	Not a peat date (whale bone)
Leasowe	Gu 1311	925±50	+3.79	4	-	No context
Wallasey	SRR 1404	1090±120	+3.75	4	4b	Not a peat date
Mockbeggar Wharf	Birm 1013	3980±70	+1.82	4	4b	Not a peat date (bone)
Reeds Lane	SRR 1575	4700±70	+1.50	4	3	Pollen assemblage zone
Helsby Marsh	Hv 2685	5250±385	+1.29	1		Standard error too large

**Table 4.3**  
**<sup>14</sup>C-dates: South Lancashire.**

**Accepted Dates.**

Site name	Lab code	Age (BP)	Alt (m OD)	Alt (m MHWS)	Material	Rf	Grp
Downholland Moss	Hv 4705	4090 ± 170	+3.42	-0.65	Peat	1	4a
Altmouth	Hv 2679	4545 ± 90	+3.14	-0.93	Peat	1	3
Downholland Moss	Hv 2683	5565 ± 205	+1.27	-2.80	Peat	1	2
Downholland Moss	Hv 3847	5615 ± 45	+1.59	-2.48	Peat	1	5b
Downholland Moss	Hv 8651	5985 ± 195	+1.88	-2.19	Limus	8	2
Downholland Moss	Hv 3358	6050 ± 65	+1.06	-3.01	Peat	1	3
Downholland Moss	Hv 8649	6050 ± 80	+2.12	-1.95	Peat	8	3
Downholland Moss	Hv 2680a	6750 ± 175	+0.15	-3.92	Peat	1	3
Downholland Moss	Hv 3935	6760 ± 95	-0.20	-4.27	Peat	1	3
New Cut	Hv 12539	6840 ± 85	+0.99	-3.08	Peat	9	
New Cut	Hv 12540	6870 ± 235	+0.52	-3.55	Peat	9	
Downholland Moss	Hv 3936	6980 ± 55	-0.38	-4.45	Peat	1	3
New Cut	Hv 12537	7015 ± 90	-0.20	-4.27	Peat	9	

**Rejected dates.**

Site name	Lab code	Age(BP)	Alt (m OD)	Rf	Grp	Reason for rejection
Formby	Hv 4709	2335 ± 120	+5.08	1	-	No marine context
Downholland Moss	Hv 2684	4045 ± 395	+1.86	1	3	Large standard error
Downholland Moss	Hv 2681	4325 ± 345	+0.30	1	2	Out of stratigraphic order
Alt Mouth	Gu 666	4351 ± 46	-	1	-	No context
Downholland Moss	Hv 2682	4600 ± 430	+1.06	1	3	Large standard error
Downholland Moss	Hv 3357	4695 ± 110	+0.24	1	2	Out of stratigraphic sequence

**Table 4.4**  
**<sup>14</sup>C-dates: North Lancashire.**

**Accepted Dates.**

Site name	Lab code	Age (BP)	Alt (m OD)	Alt (m MHWS)	Material	Rf	Grp
Anadell	Hv 5215	1795 ± 240	+4.04	+0.04	Monocot peat	1	3
Lytham	Hv 2916	2270 ± 65	+4.22	+0.22	Gyttja	1	3
Nancy's Bay	Hv 9260	2330 ± 65	+3.27	-0.73			
Lytham	Hv 2917	3090 ± 135	+3.70	-0.30	Phragmites peat	1	2
Lytham	Hv 2918	3150 ± 150	+3.50	-0.50	Phragmites peat	1	3
Peel	Hv 3933	4800 ± 75	+2.24	-1.76	Woody detritus	1	3
Heyhouses Lane	Hv 4344	4895 ± 95	+2.87	-1.13	Gyttja	1	3
Lytham	Hv 2919	4960 ± 210	+3.39	-0.61	Phragmites peat	1	3
Lytham	Hv 3845	5005 ± 45	+3.09	-0.91	Phragmites peat	1	3
Nancy's Bay	Hv 4128	5775 ± 85	+1.93	-2.07	Phragmites peat	1	3
Nancy's Bay	Hv 4124	5945 ± 50	+0.88	-3.12	Monocot peat	1	3
Nancy's Bay	Hv 4129	5950 ± 85	+1.52	-2.48	Phragmites peat	1	2
Nancy's Bay	Hv 4127	6025 ± 85	+0.46	-3.54	Phragmites peat	1	3
Nancy's Bay	Hv 4130	6245 ± 115	+1.13	-2.87	Phragmites peat	1	2
Nancy's Bay	Hv 5294	6250 ± 55	+1.39	-2.61	Gyttja	1	3
Nancy's Bay	Hv 4131	6290 ± 85	+0.97	-3.03	Phragmites gyttja	1	3
Peel	Hv 3934	6535 ± 110	-0.83	-4.83	Woody detritus	1	2
Nancy's Bay	Hv 4126	6885 ± 80	-1.17	-5.17	Monocot peat	1	2
Nancy's Bay	Hv 4706	6950 ± 175	-2.46	-6.46	Monocot peat	1	3
Nancy's Bay	Hv 4125	7605 ± 85	-2.33	-6.33	Monocot peat	1	2
Heyhouses Lane	Hv 4345	7820 ± 60	-9.65	-13.65	Gyttja	1	2
Starr Hills	Hv 4343	8390 ± 105	-11.14	-15.14	Woody detritus	1	2
Heyhouses Lane	Hv 4346	8575 ± 105	-9.75	-13.75	Gyttja	1	3

**Rejected dates.**

Site name	Lab code	Age(BP)	Alt (m OD)	Rf	Grp	Reason for rejection
Lytham	Hv 4417	805 ± 70	+5.63	1		No marine context
Lytham	Hv 3846	830 ± 50	+6.52	1		No marine context

<b>Ansdell</b>	<b>Hv 4708</b>	<b>1370±85</b>	<b>+4.60</b>	<b>1</b>	<b>No marine context</b>
<b>Nancy's Bay</b>	<b>Hv 4707</b>	<b>5880±180</b>	<b>-1.22</b>	<b>1</b>	<b>Out of stratigraphic sequence</b>

Table 4.5  
<sup>14</sup>C-dates: Morecambe Bay.

Accepted Dates.

Site name	Lab code	Age (BP)	Alt (m OD)	Alt (m MHWS)	Material	Rf	Grp
Arnside Moss	Hv 3461	1545 ± 35	+5.65	+0.75	Peat	10	3
Lousanna 2B	Gak 2500	3370 ± 120	+6.23	+1.93	Peat	11	3
Lousanna 2B	Gak 2499	3600 ± 100	+6.19	+1.89	Peat	11	2
Skelwith Pool	Q 2789	3945 ± 75	+4.43	+0.17	Peat	11	
Heysham Moss	Hv 2920	4190 ± 150	+4.49	-0.01	Peat	10	3
High Foulshaw Moss	Q 88	4616 ± 112	+5.18	+0.28	Peat	12	3
Skelwith Pool	Q 2788	4710 ± 75	+4.57	-0.03	Peat	11	3
Skelwith Pool	Q 2787	4980 ± 55	+3.93	-0.68	Peat	11	2
Arnside Moss	Hv 3460	5015 ± 100	+4.98	+0.08	Peat	10	2
Skelwith Pool	Q 2786	5130 ± 65	+3.83	-0.77	Peat	11	
Helsington Moss	Q 85	5277 ± 110	+4.88	+0.28	Peat	13	3
Skelwith Pool	Q 2785	5430 ± 50	+3.77	-0.83	Peat	11	
Ellerside Moss	Hv 3844	5435 ± 105	+3.72	-0.88	Peat	10	3
Skelwith Pool	Q 2784	5660 ± 55	+3.63	-0.97	Peat	11	3
Roundsea Wood	Q 2098	6790 ± 100	+2.29	-2.33	Peat	14	3
Skelwith Pool	Q 2783	7150 ± 80	+1.79	-2.81	Peat	11	2
Morecambe Bay	Hv 3360	7725 ± 95	-15.84	-21.34	Peat	15	2
Rusland	Har 3709	7750 ± 100	-0.39	-4.99	Peat	16	2
Skelwith Pool	Q 2782	7875 ± 85	+0.57	-4.03	Peat	11	2
Morecambe Bay	Hv 3362	7995 ± 80	-11.16	-15.66	Peat	15	2
Morecambe Bay	Hv 3462	8330 ± 125	-16.03	-20.53	Peat	15	2
Morecambe Bay	Hv 3356	8685 ± 175	-15.48	-20.98	Peat	15	4a
Morecambe Bay	Hv 3361	8740 ± 65	-16.54	-21.04	Peat	15	2
Heysham	Bir 140	8925 ± 200	-16.04	-20.54	Peat	15	5a
Heysham	Bir 139	9195 ± 155	-16.37	-20.87	Peat	15	4a
Heysham	Bir 141	9270 ± 200	-17.60	-22.10	Peat	15	4a

## Rejected dates.

Site name	Lab code	Age(BP)	Alt (m OD)	Rf	Grp	Reason for rejection
Lousanna	Hv 3552	4900 ± 450	+4.42	1	3	Large standard error
Silverdale Moss	Q 256	5734 ± 129	+2.93	17	2	Out of stratigraphic sequence
Silverdale Moss	Q 261	5865 ± 115	+3.85	17	4b	Out of stratigraphic sequence
Silverdale Moss	Q 260	6590 ± 144	+3.55	17	2	Out of stratigraphic sequence

Table 4.6  
<sup>14</sup>C-dates: Cardigan Bay.

Accepted Dates.

Site name	Lab code	Age (BP)	Alt (m OD)	Alt (m MHWS)	Material	Rf	Grp
Clarach	Har 1572	1140±80	+1.95	-0.51	Sedge peat	18	2
Ynyslas	Har 1016	1510±70	+1.83	-0.63	Clayey peat	19	5a
Clarach	Har 1575	2560±70	+1.40	-1.06	Grass and sedge peat	18	5a
Ynyslas	Har 1017	3050±70	+1.03	-1.43	Peat	19	5a
Ynyslas	Har 1018	3740±70	+1.15	-1.31	Peat	19	5a
Clarach	Har 1579	3790±80	+0.60	-1.86	Grass and sedge peat	18	4a
Clarach	Har 1576	4410±80	-0.33	-2.79	Sedge peat with clay	18	2
Ynyslas	Har 1019	4700±70	+0.30	-2.16	Woody peat	19	5b
Clarach	Har 874	5120±180	-2.10	-4.56	Woody fragments in gravel	19	4b
Clarach	Har 299	5130±100	-1.00	-3.46	Peat	18	2
Ynyslas	Har 1020	5150±90	-0.23	-2.69	Phragmites peat	19	3
Clarach	Har 300	5170±90	-1.22	-3.68	Marsh peat	18	2
Clarach	Har 301	5740±80	-1.53	-3.99	Woody peat	18	4a
Clarach	Har 1128	5760±100	-2.10	-4.56	Beach peat	18	4a
Clarach	NPL 113	5970±90	-1.95	-4.41	Basal peat	2	4a
Trawling End	BIRM 400	8740±110	-20.50	-22.96	Peat	2	4a
Ynyslas Tachwedd	SRR 2503	9710±50	-24.21	-26.65	Organic clay	3	4a
Harlech	SRR 2640	9750±70	-46.51	-48.97	Organic clay	3	4b
Ynyslas Tachwedd	SRR 2504	9870±100	-28.30	-30.76	Organic clay	3	5a
Harlech	SRR 2641	9900±60	-46.90	-49.36	Organic clay	3	4b
Harlech	SRR 2502	10080±50	-47.49	-49.95	Organic clay	3	4b

Rejected dates.

Site name	Lab code	Age(BP)	Alt (m OD)	Rf	Grp	Reason for rejection
Harlech	SRR 2501	11200±110	-45.55	3	4b	Not in stratigraphic order
Llanbedr	SRR 2512	12210±130	-6.19	3	4b	No marine context

**Table 4.7**  
**<sup>14</sup>C-date References for Tables 4.1 to 4.6.**

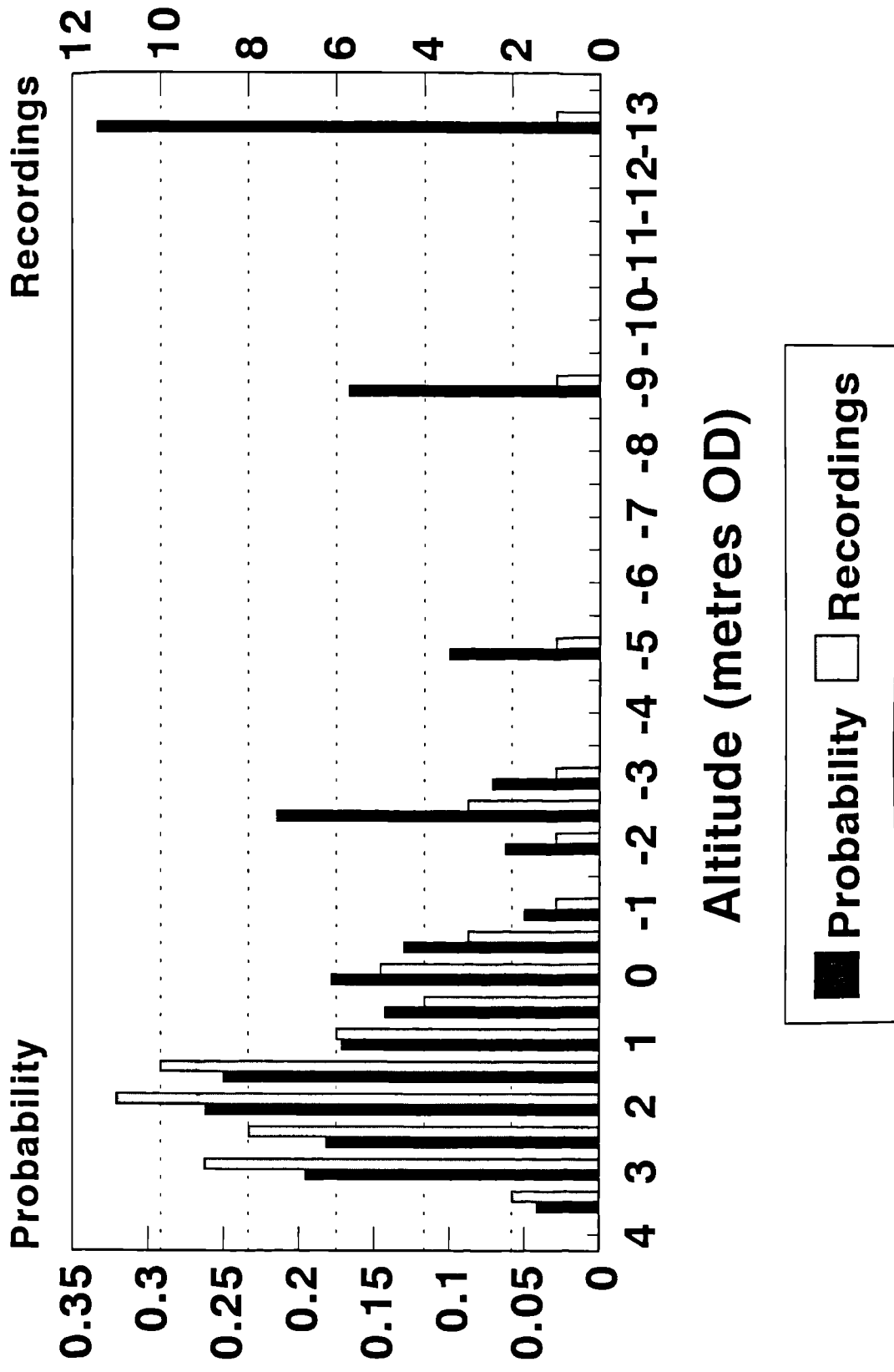
1. Tooley (1978)
2. Heyworth and Kidson (1982)
3. Prince (1988)
4. Kenna (1986)
5. Innes and Bedlington (in prep.)
6. Innes (pers. comm.)
7. Tooley (1969)
8. Tooley (1985b)
9. Tooley (pers. comm.)
10. Huddart *et al.* (1977)
11. Zong (1992)
12. Godwin and Willis (1961)
13. Smith (1985)
14. Birks (1982)
15. Tooley (1974)
16. Tooley (1982)
17. Oldfield (1960)
18. Heyworth *et al.* (1985)
19. Wilks (1979)
20. Huddart (1992)

**Key**

Rf	Reference
Grp	Classification Group

**Fig.4.1 The Vale of Clwyd: The altitude of organic sedimentation.**

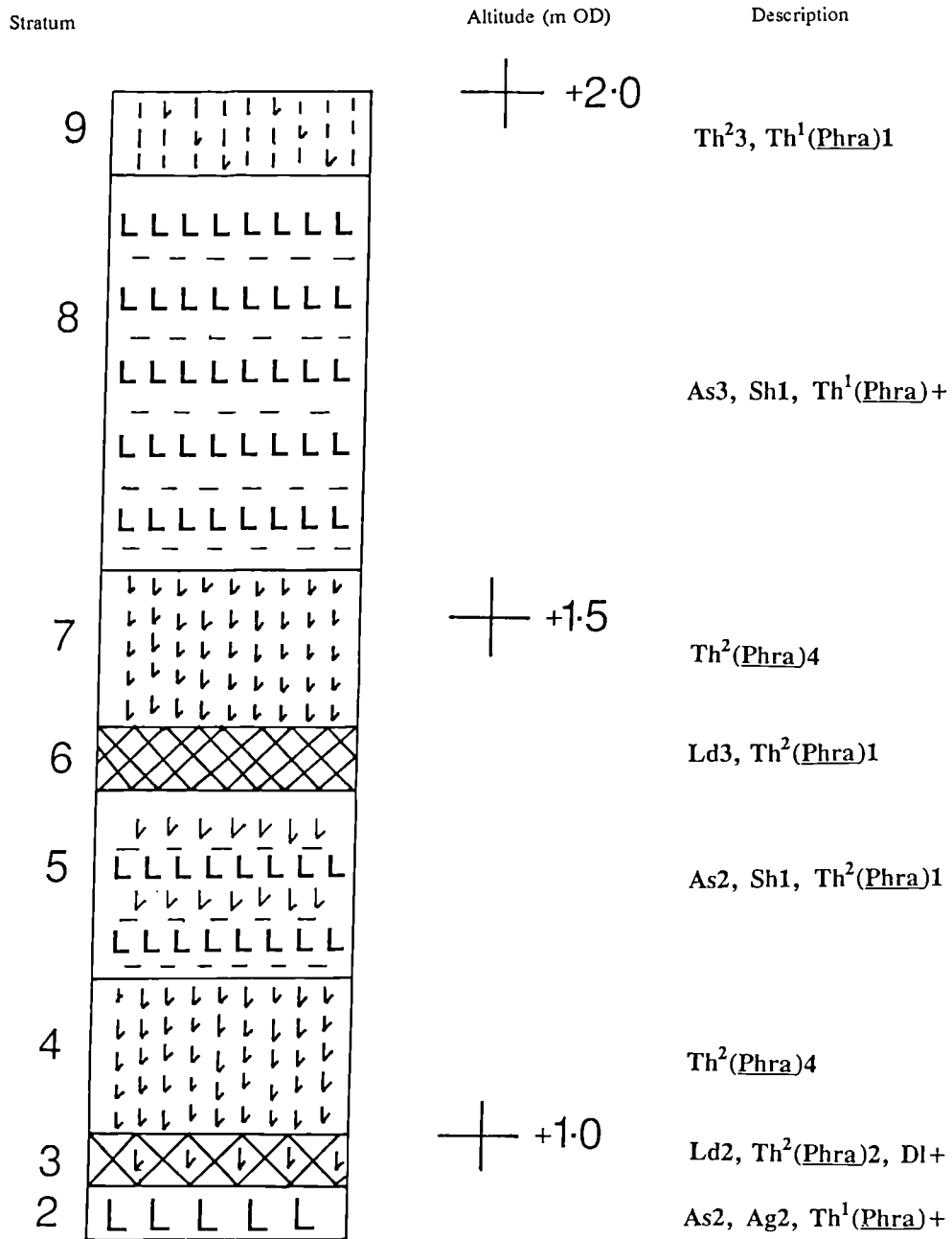
# Organic sedimentation Vale of Clwyd



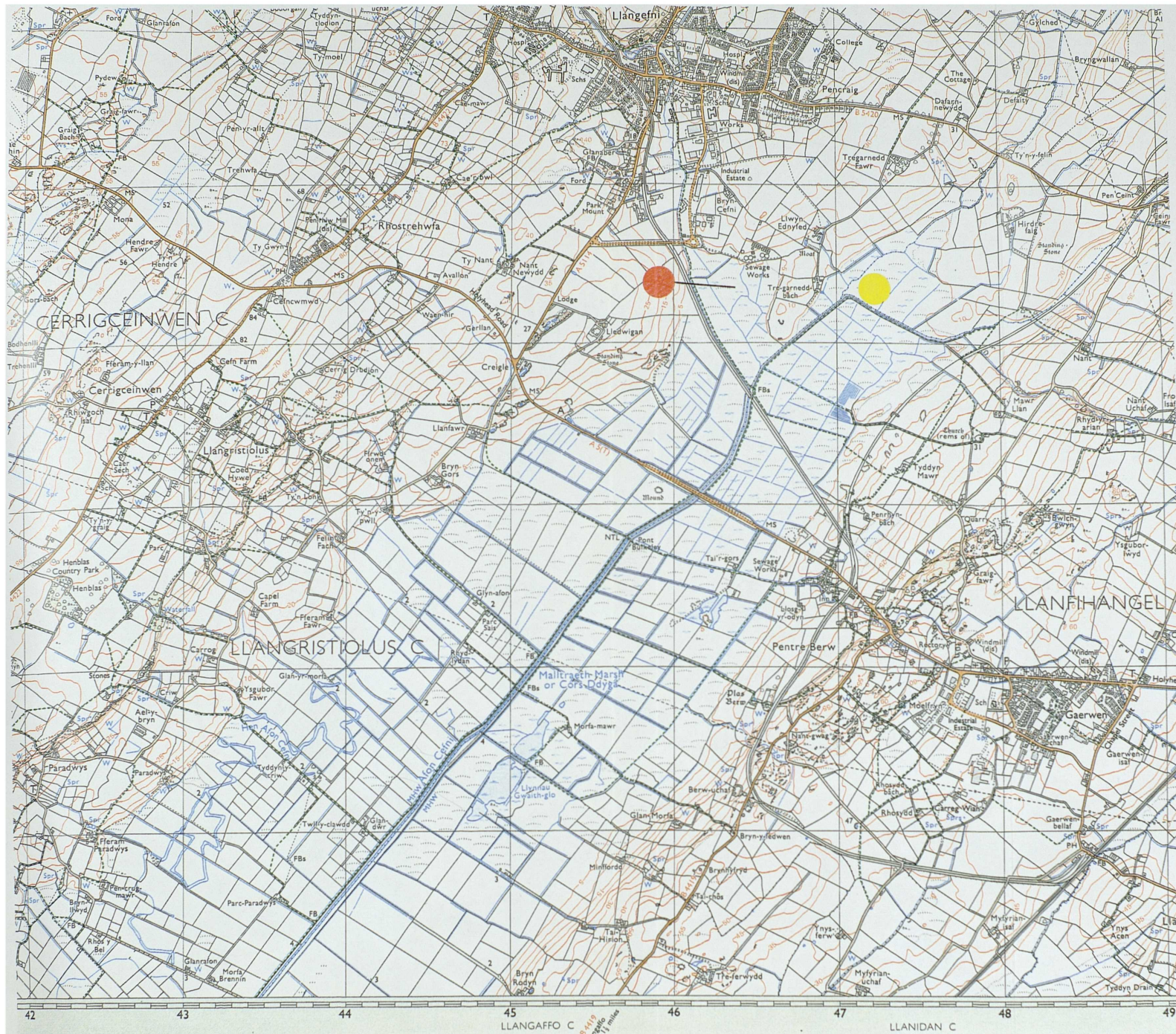
**Fig.4.2 Nancy's Bay - 6: lithostratigraphy (from Tooley, 1978).**

Nancy's Bay - 6

Lithostratigraphy



**Fig.5.1. The Malltraeth Marshes, Anglesey.**



Llangefni



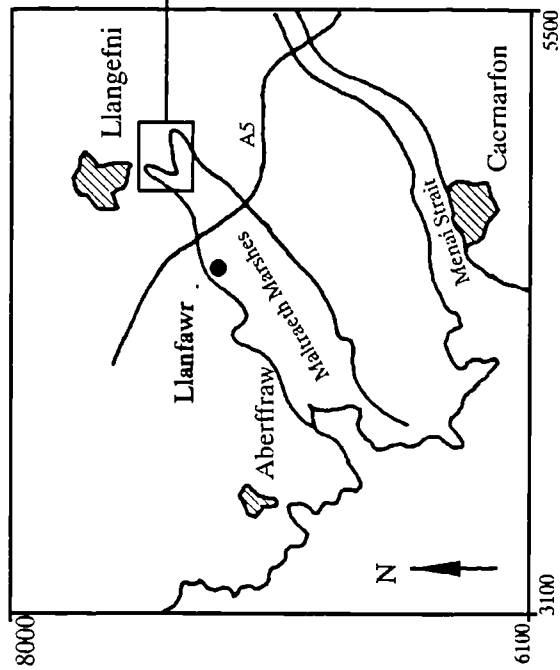
Tregarnedd-bâch



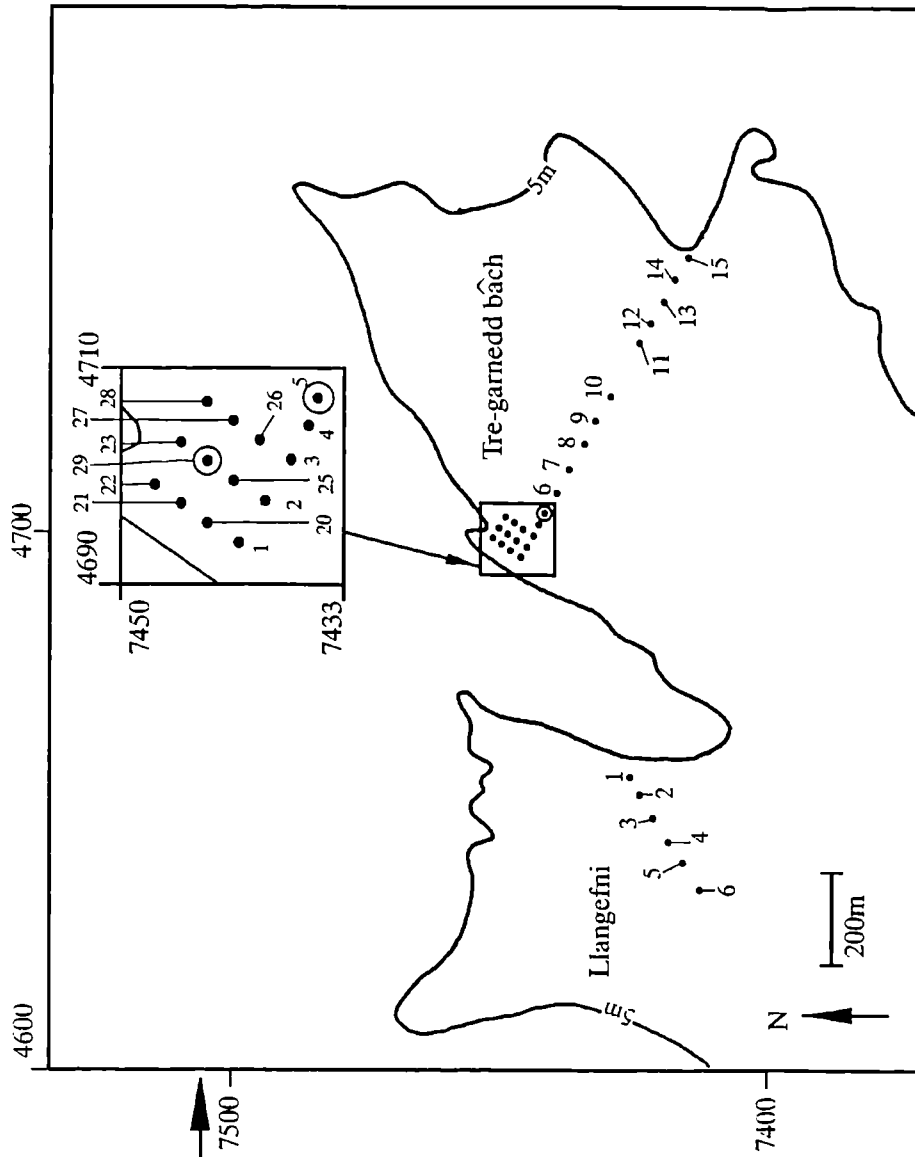
**Fig.5.2 Malltraeth Marshes, Anglesey: Location of cores.**

# Malltraeth Marshes, Anglesey

location of cores



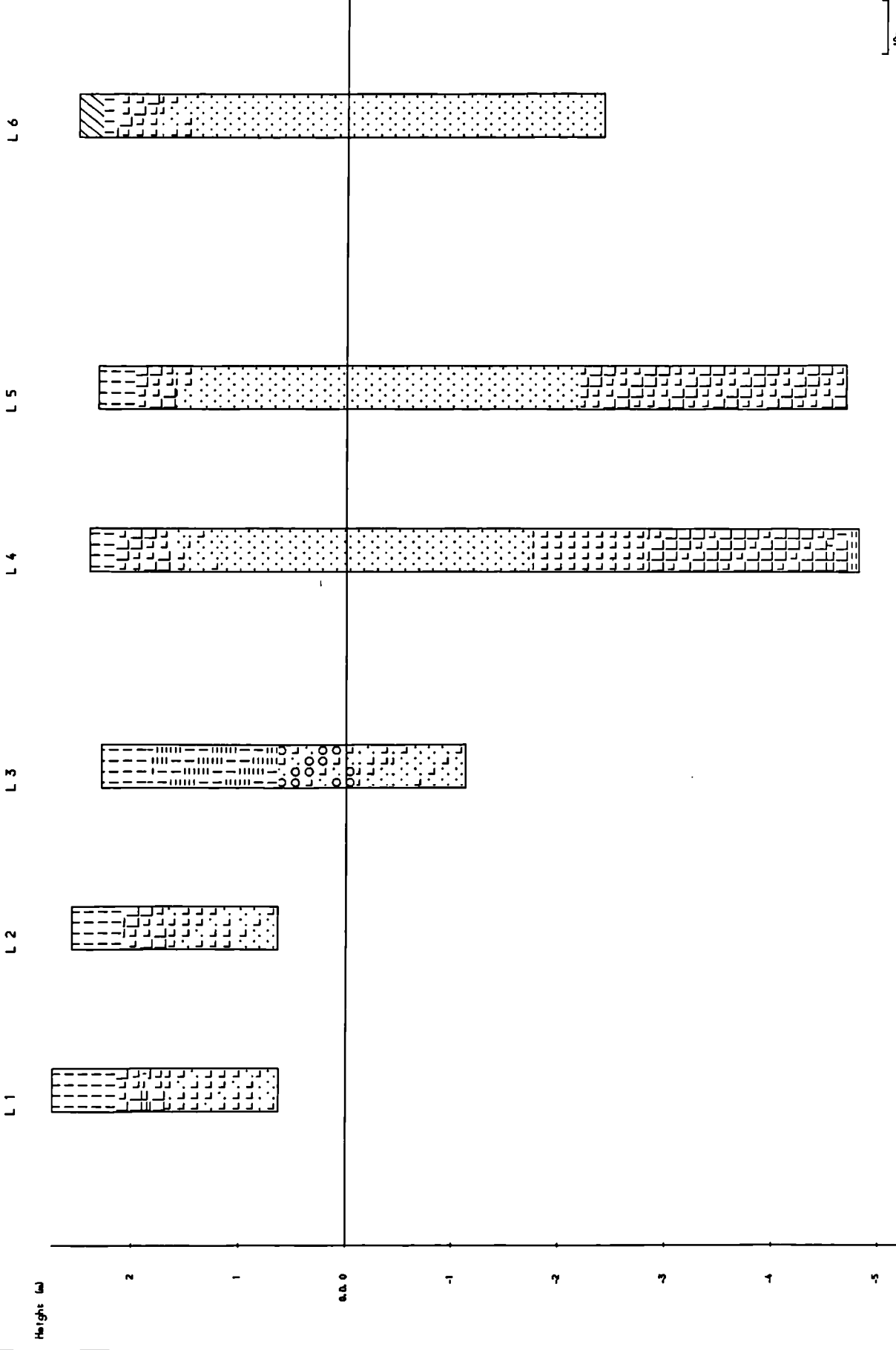
(a) The Malltraeth Marshes



(b) Tregarnedd-bâch and Llangefni

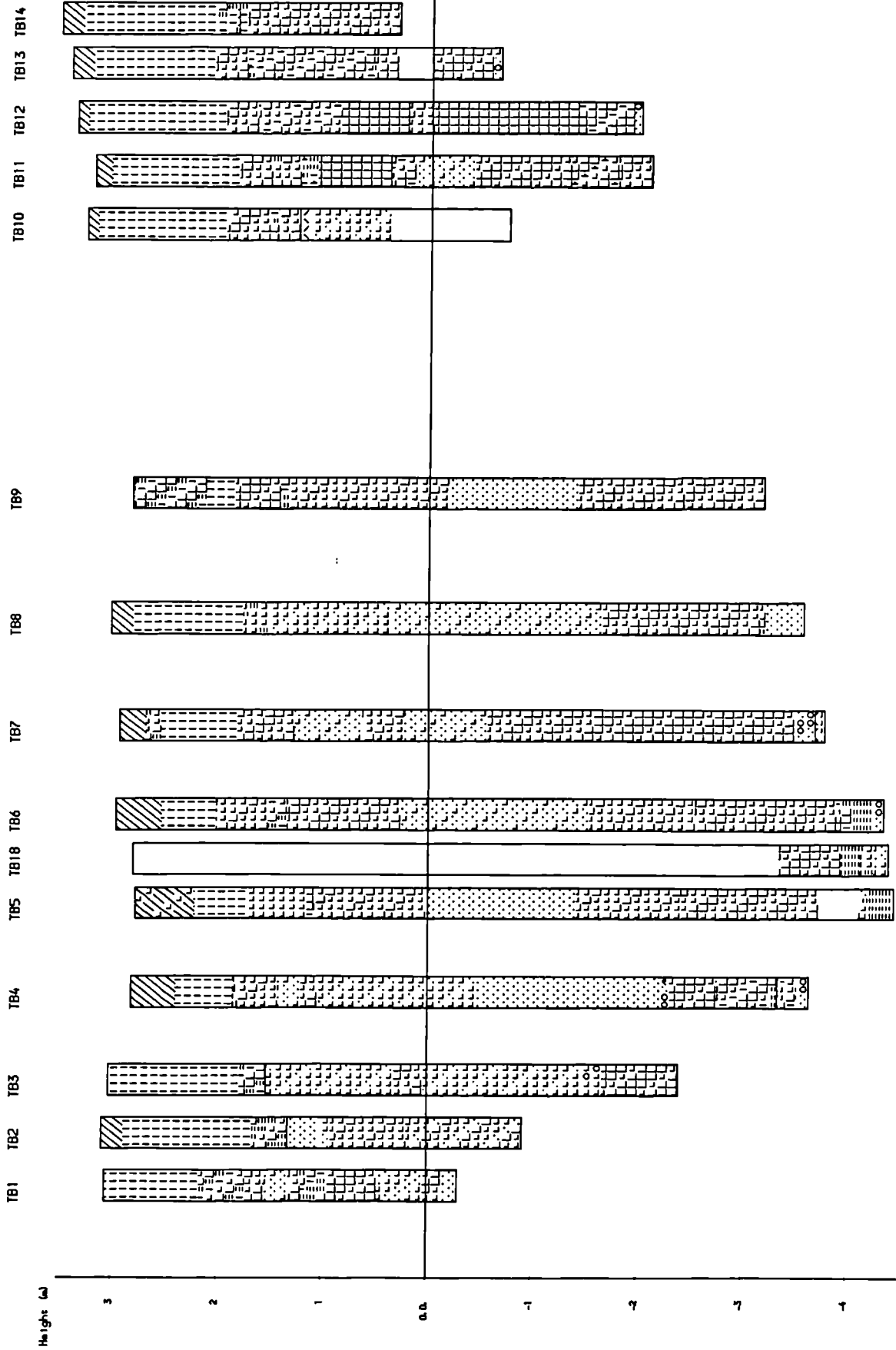
**Fig.5.3 Llangefni: Lithostratigraphy.**

# LLANGEFNI, MALLTRAETH MARSHES



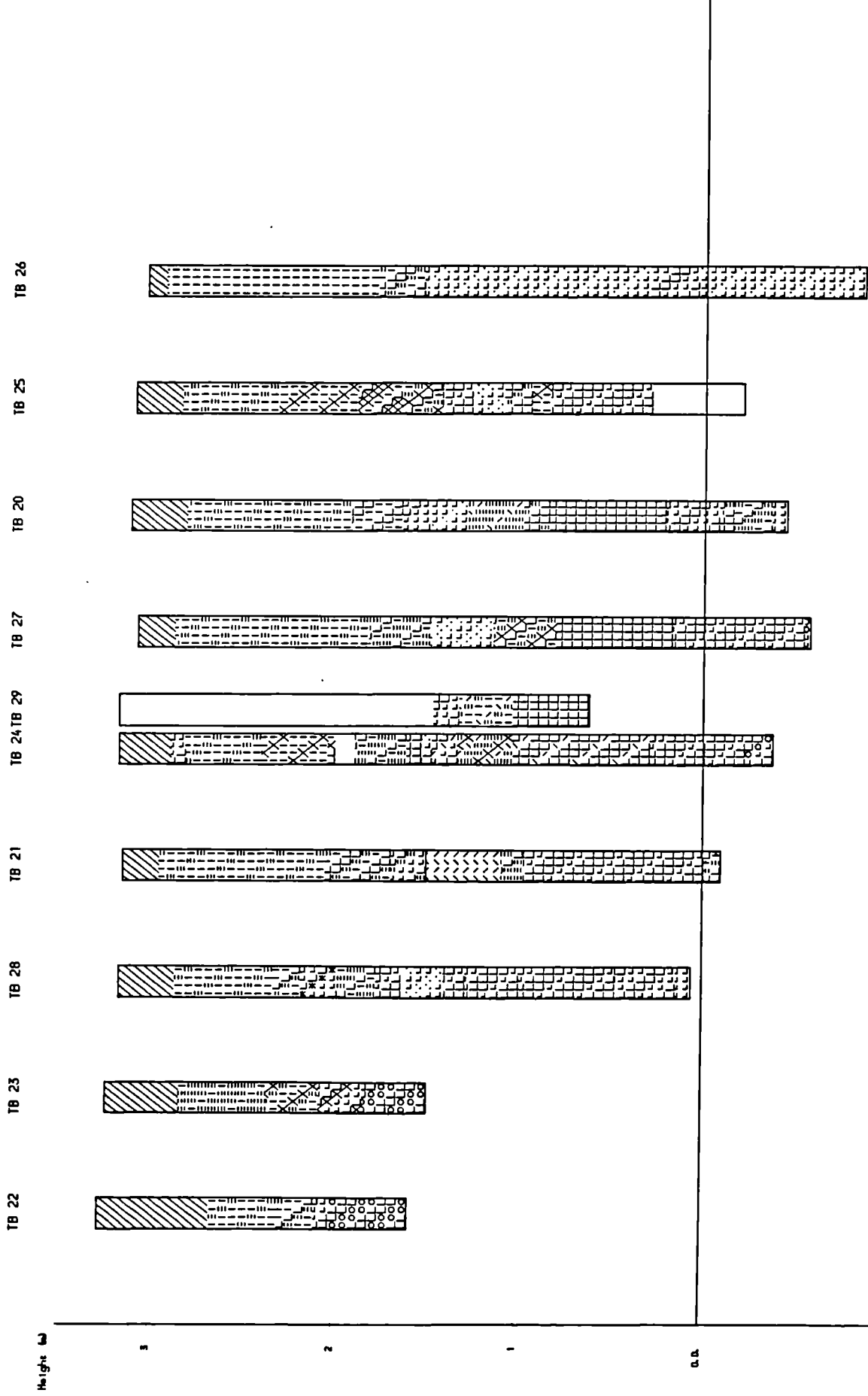
**Fig.5.4 Tregarnedd-bâch, Transect-1: Lithostratigraphy.**

# TREGARNEDD-BACH. TRANSECT.

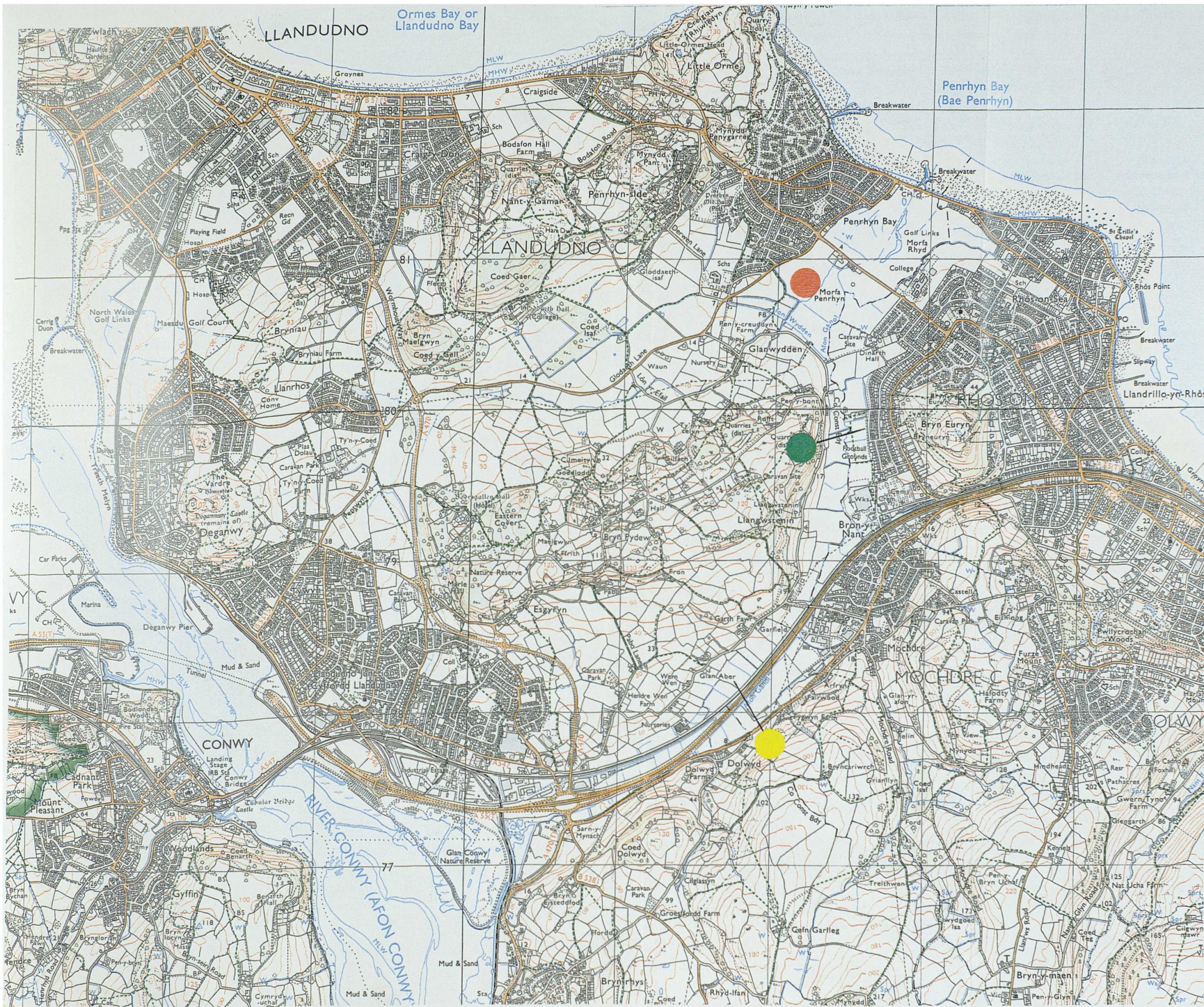


**Fig.5.5 Tregarnedd-bâch, grid: Lithostratigraphy.**

# TRE-GARNEDD BACH GRID



**Fig.5.6 The Afon Ganol Valley.**

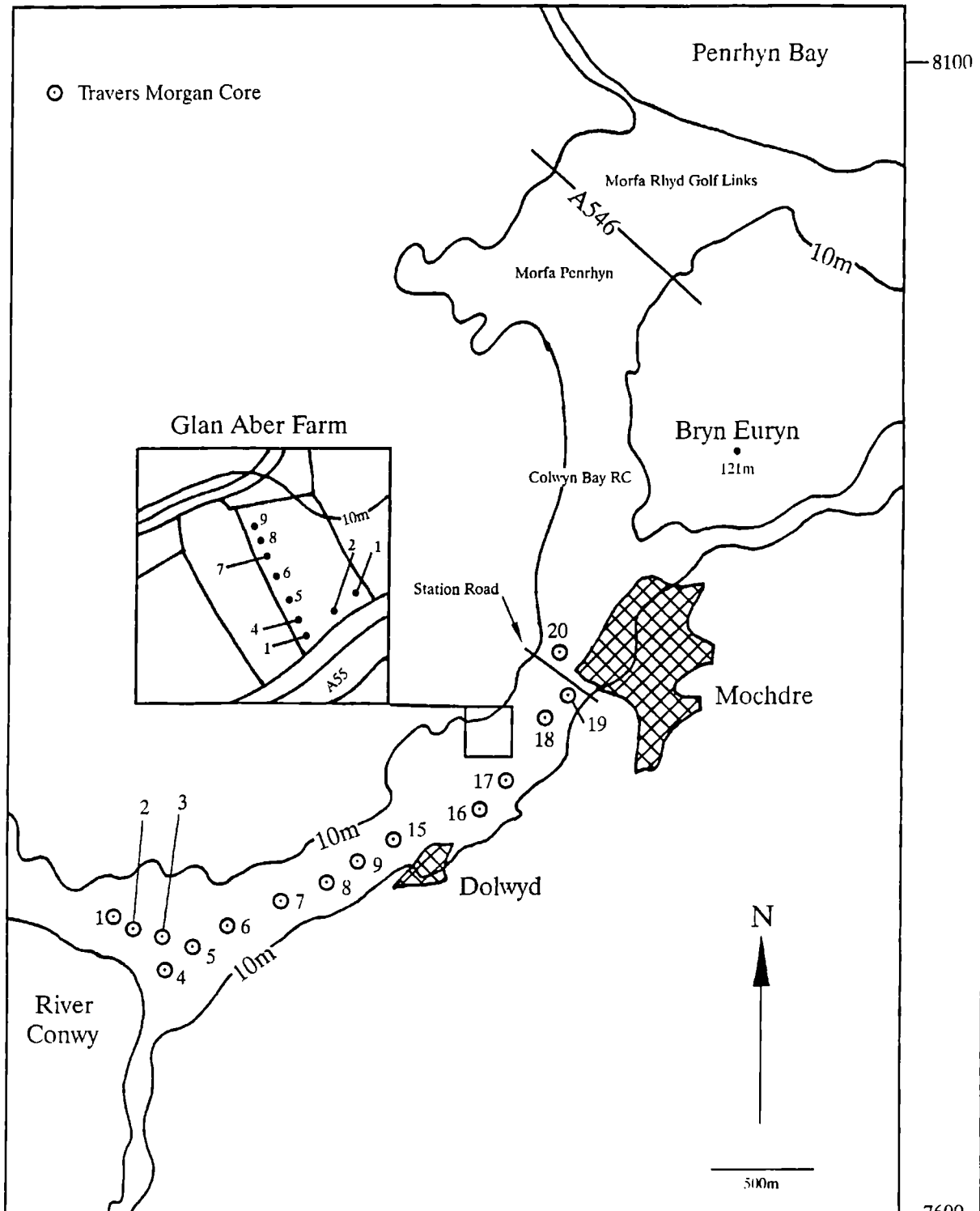


-  Glan Aber Farm
-  Colwyn Bay RC
-  Morfa Penrhyn

**Fig.5.7 The Afon Ganol Valley: location of cores.**

# The Afon Ganol Valley

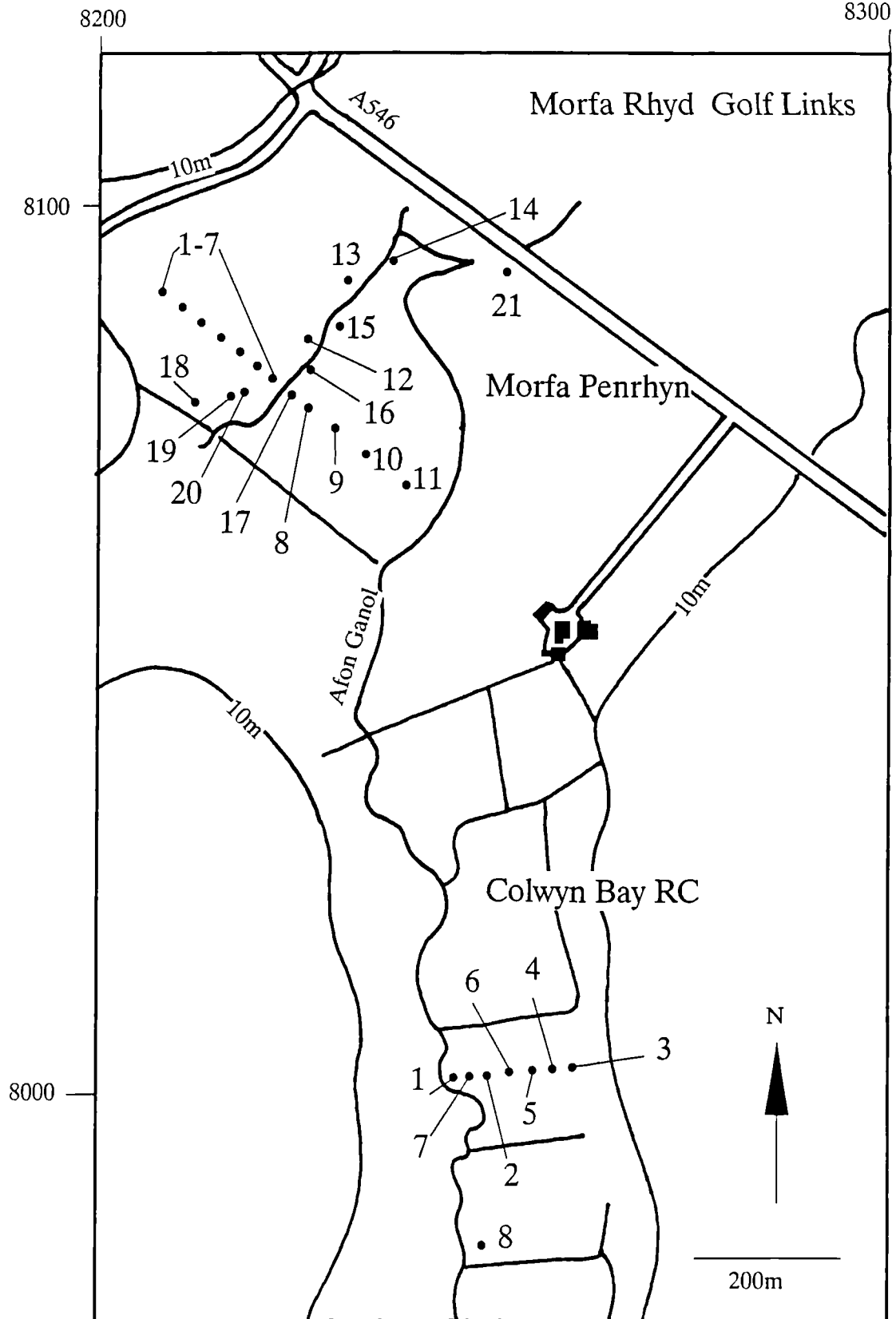
## Location of sites



**Fig.5.8 Morfa Penrhyn and Colwyn Bay RC: location of cores.**

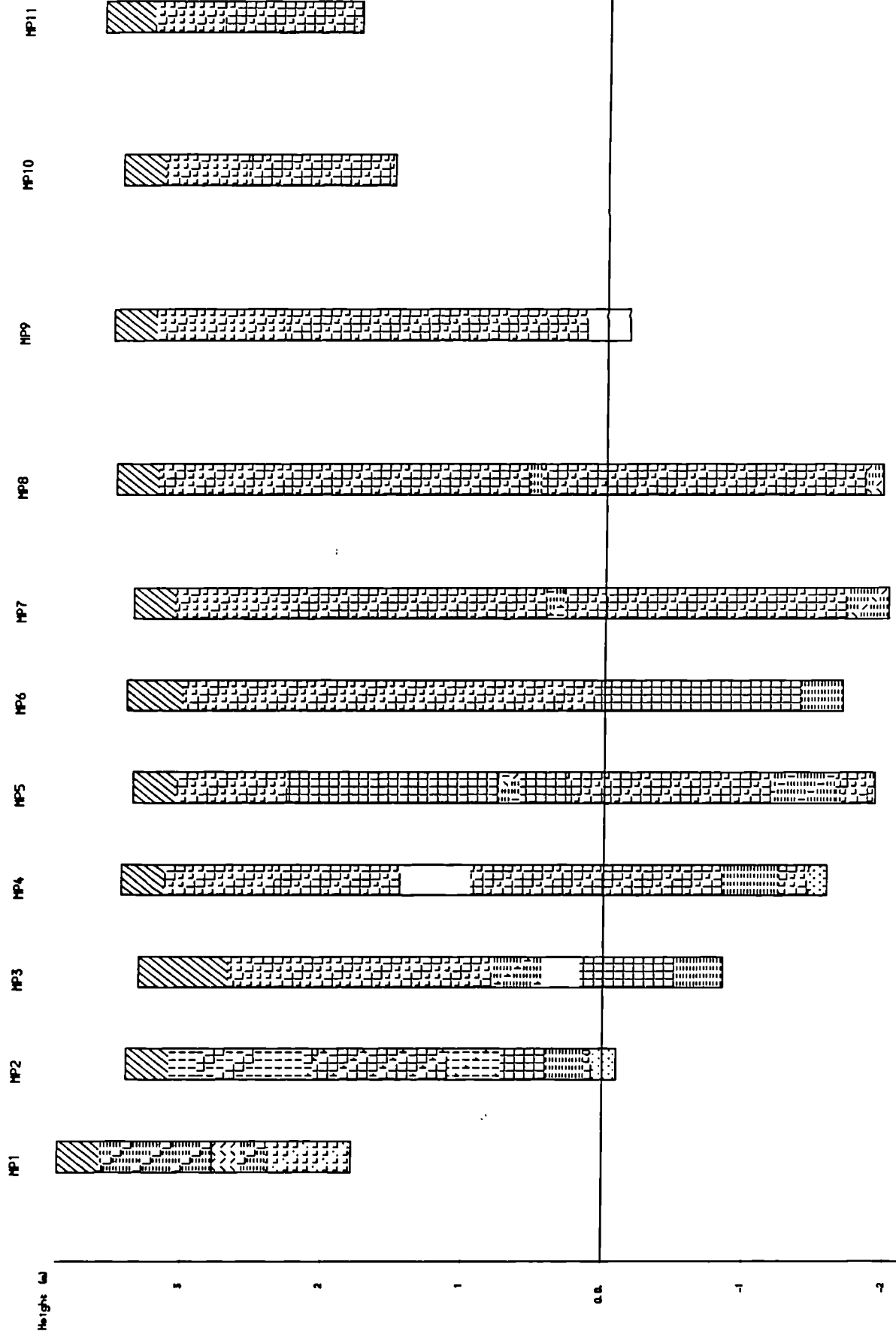
# Morfa Penrhyn & Colwyn Bay RC

## Location of cores



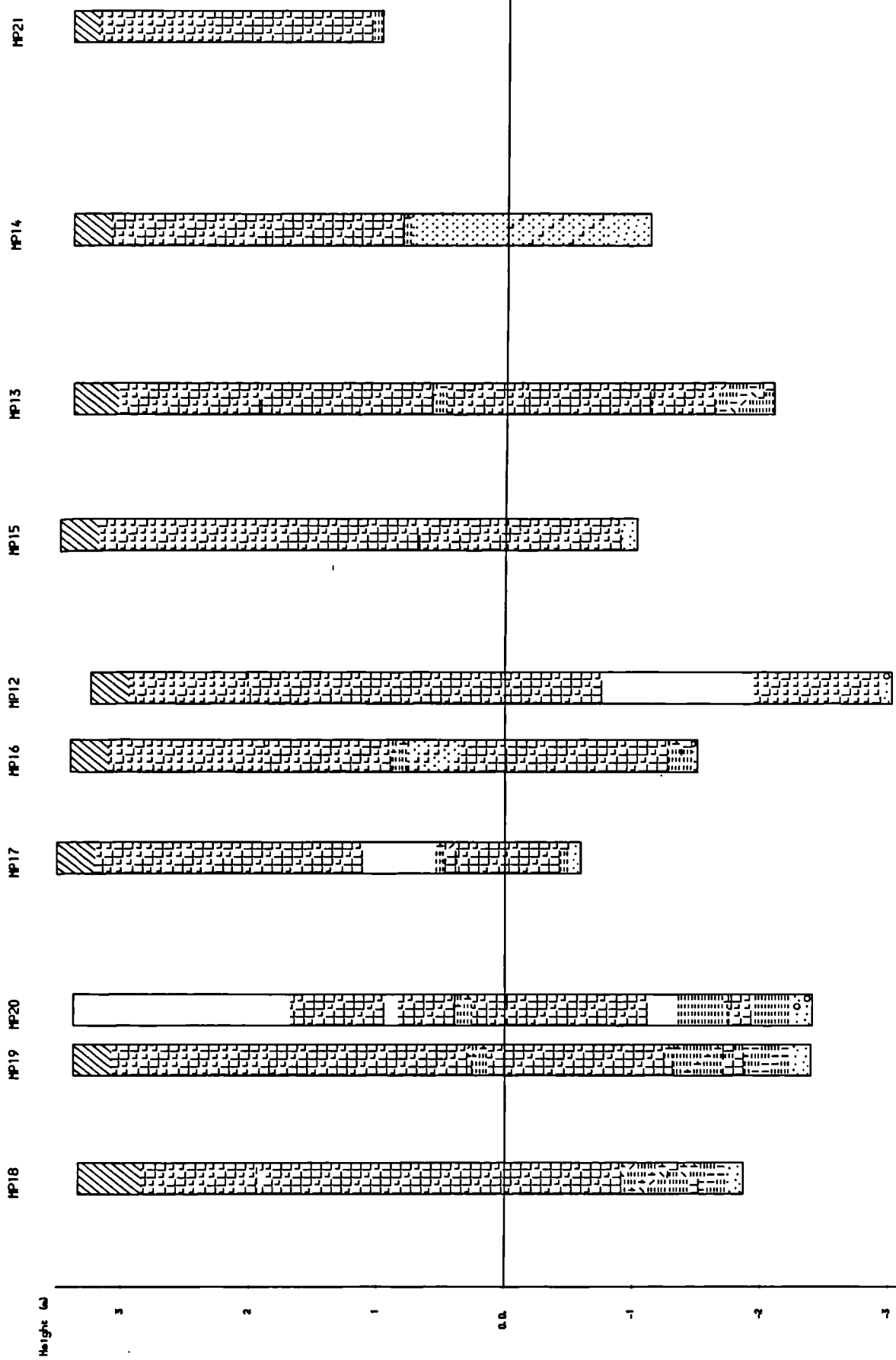
**Fig.5.9 Morfa Penrhyn, Transect-1: lithostratigraphy.**

MORFA PENRHYN, RHOS-ON-SEA. TRANSECT 1 (NW-SE)



**Fig.5.10 Morfa Penrhyn, Transect-2: lithostratigraphy.**

MORFA PENRHYN, RHOS-ON-SEA. TRANSECT 2 (SW-NE)



]

**Fig.5.11 Morfa Penrhyn-20: Diatom Analysis**



**Fig.5.12 Morfa Penrhyn-20: Pollen Analysis**

# Morfa Penrhyn - 20. Pollen. (+3.38m OD)

## 1. Hv 17815: 6335+/-115

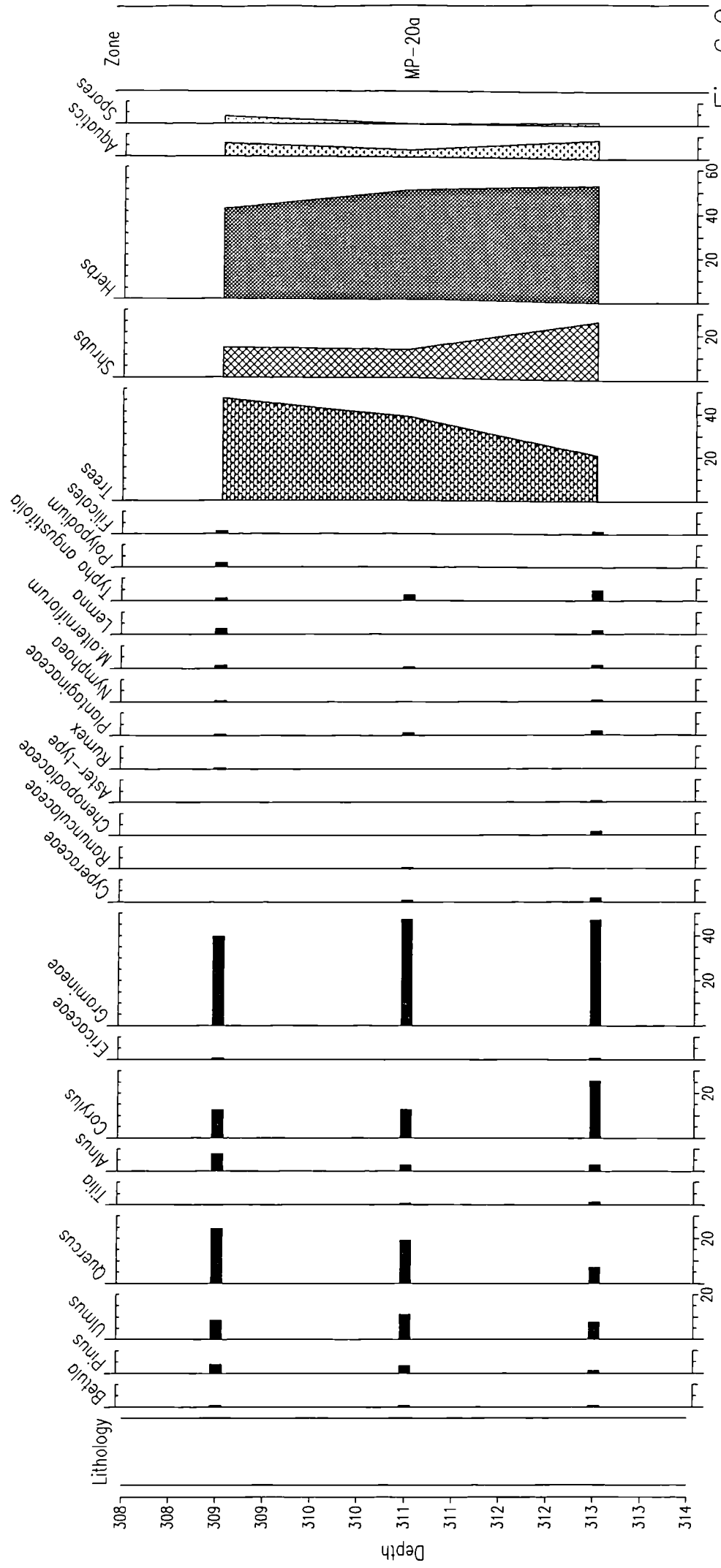
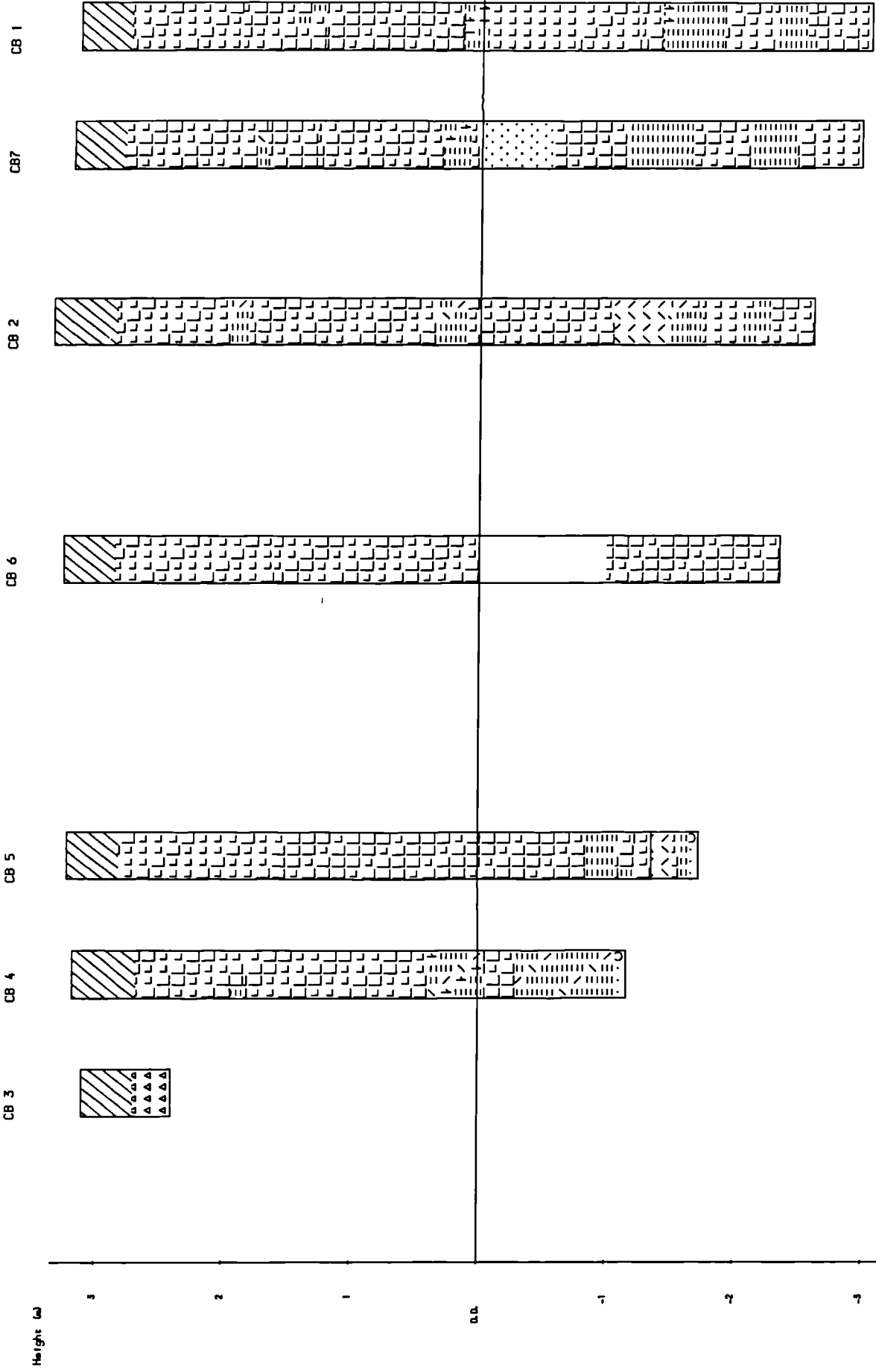


Fig.6.2

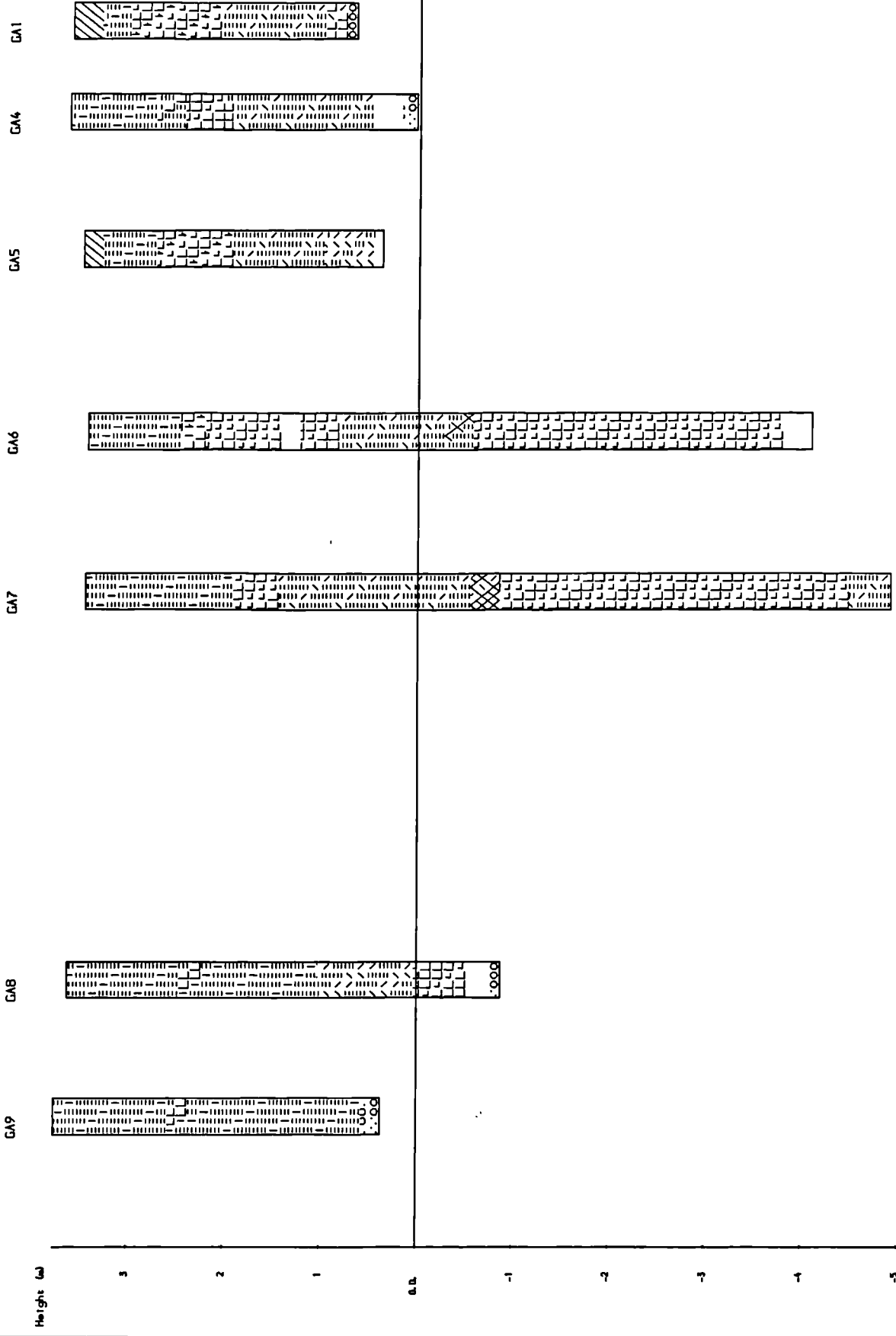
**Fig.5.13 Colwyn Bay RC: lithostratigraphy.**

# COLWYN BAY RUGBY CLUB



**Fig.5.14 Glan Aber Farm, Transect-1: lithostratigraphy.**

# GLAN ABER FARM, AFON GANOL VALLEY.



**Fig.5.15 Glan Aber Farm, Transect-2: lithostratigraphy.**

# GLAN ABER FARM, TRANSECT 2.



Height (m)

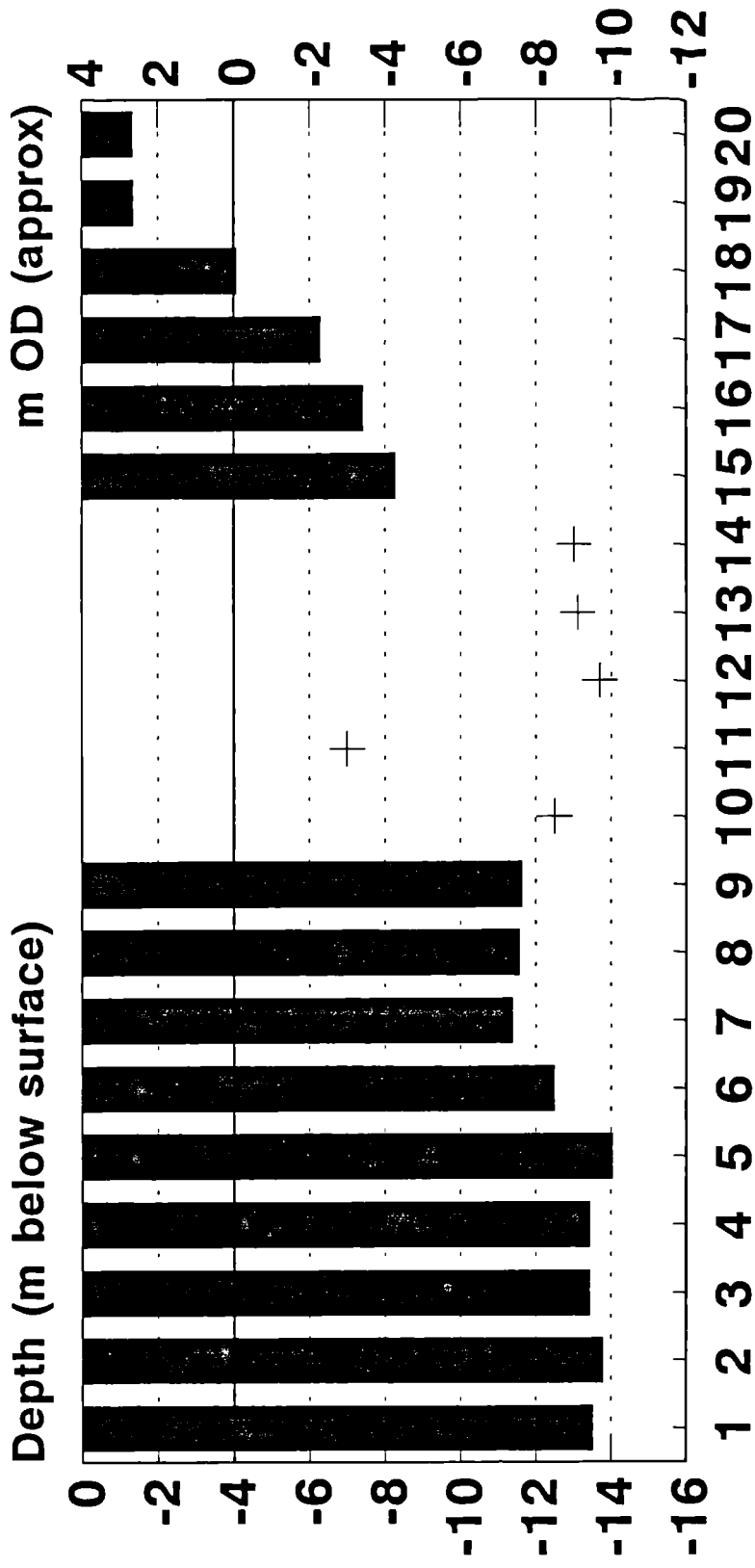


10m

**Fig.5.16 Afon Ganol Valley: Thickness of Holocene sediments.**

# Afon Ganol Valley

## Depth of Holocene sediments



Bore number

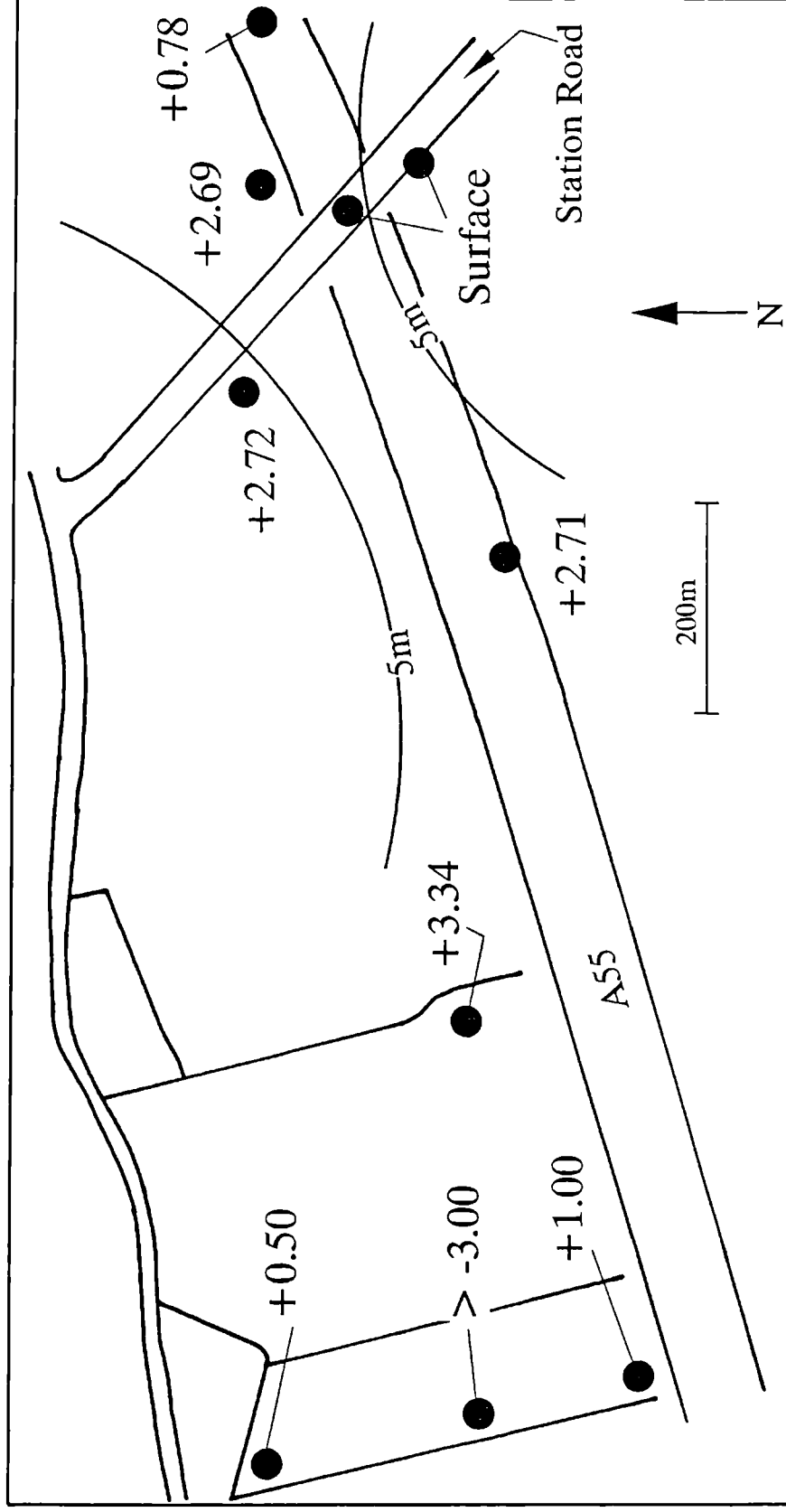
■ Central valley cores + Edge of valley cores

Source: A55 borehole records

**Fig.5.17 Central Afon Ganol Valley: Thickness of Holocene sediments.**

# The Central Afon Ganol Valley

Altitude of pre-Holocene surface



**Fig.5.18 Afon Ganol Valley: lithostratigraphy.**

# AFON GANOL VALLEY. SUMMARY BOREHOLES.



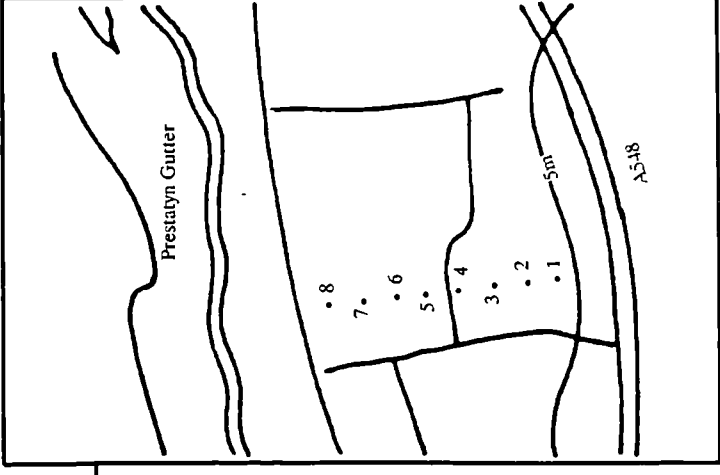
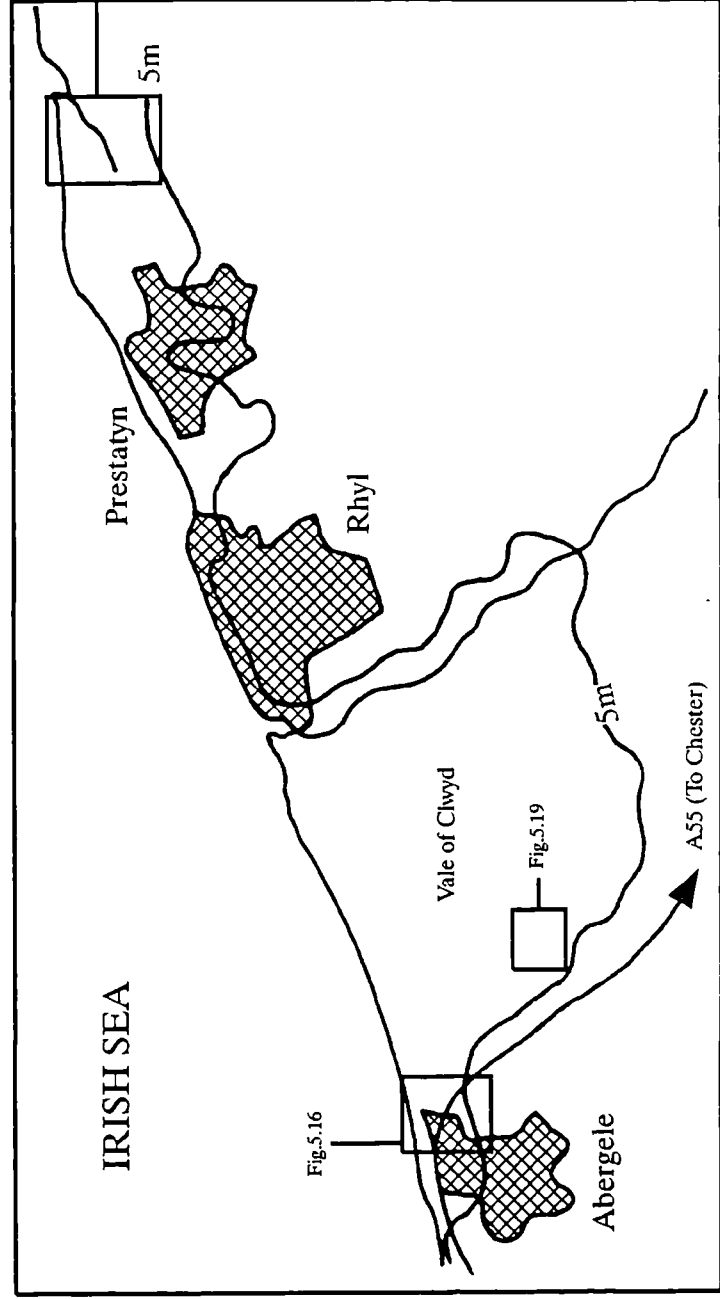
]

**Fig.5.19 The Clwyd coastal lowlands.**



- Pentre Mawr
- Hendre fawr

**Fig.5.20 The Clwyd coastal lowlands: location of sites.**



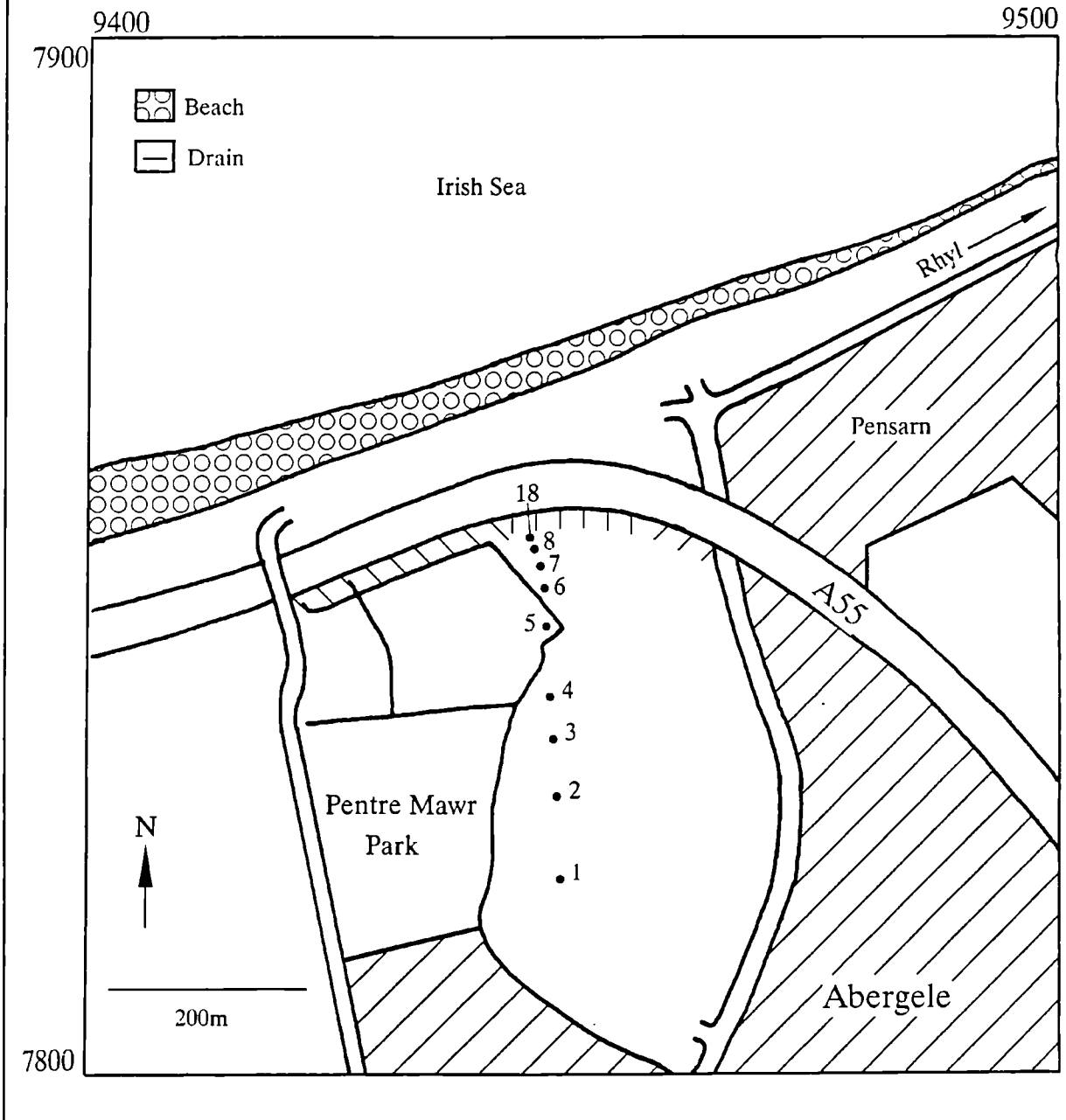
The Clwyd coastal lowlands: location of sites

Prestatyn

**Fig.5.21 Pentre Mawr, Abergele: location of cores.**

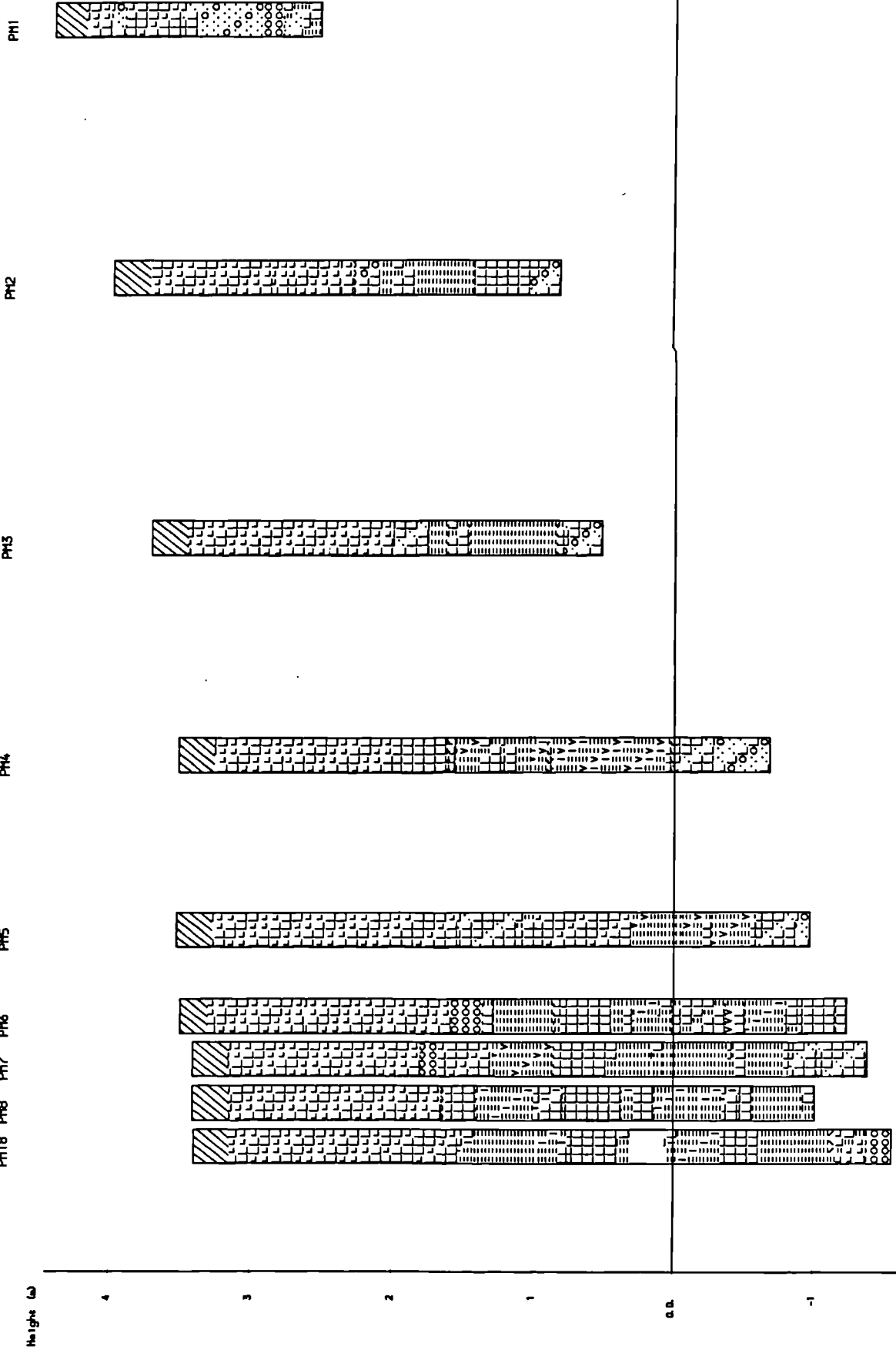
# Pentre - Mawr, Abergele

location of cores



**Fig.5.22 Pentre Mawr, Abergele: lithostratigraphy.**

# PENTRE MAWR, ABERGELE. TRANSECT 1.



10

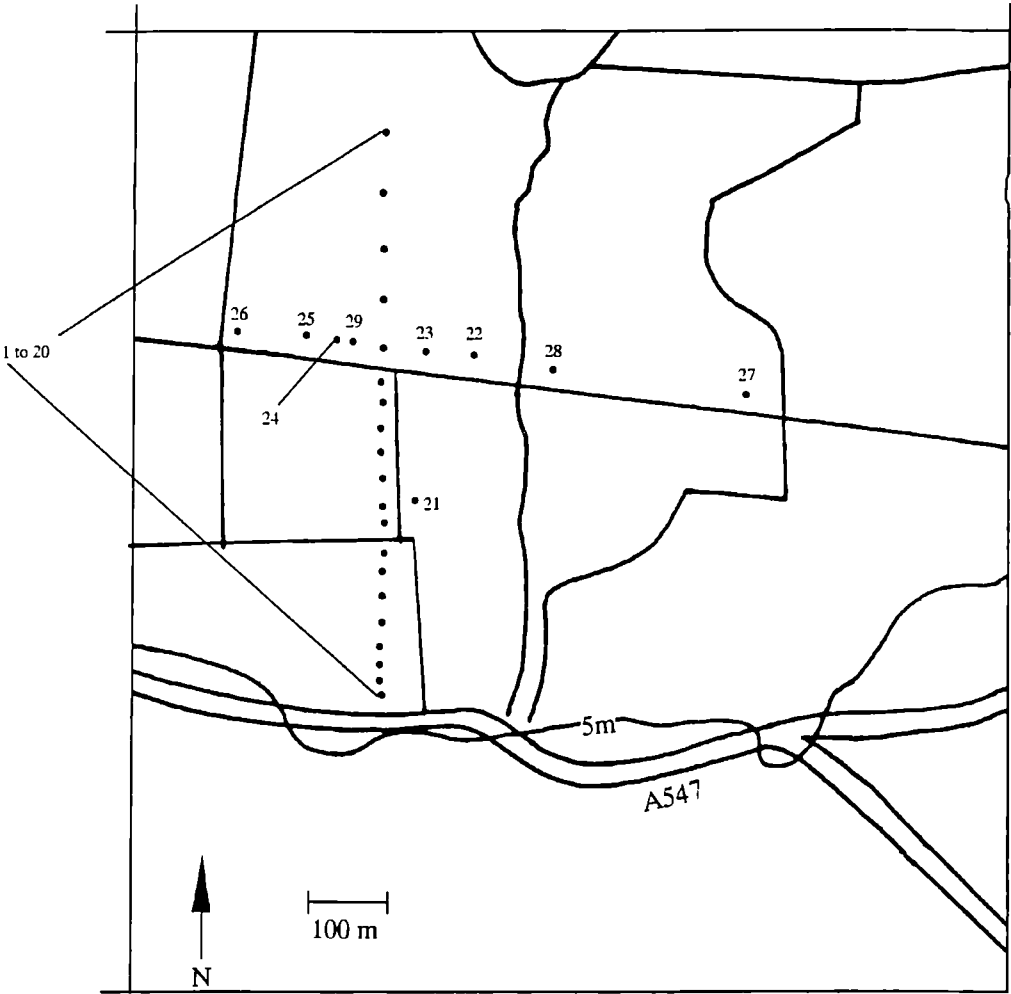
**Fig.5.23 Pentre Mawr-18, Abergele, Pollen Analysis.**



**Fig.5.24 Hendre fawr, location of cores.**

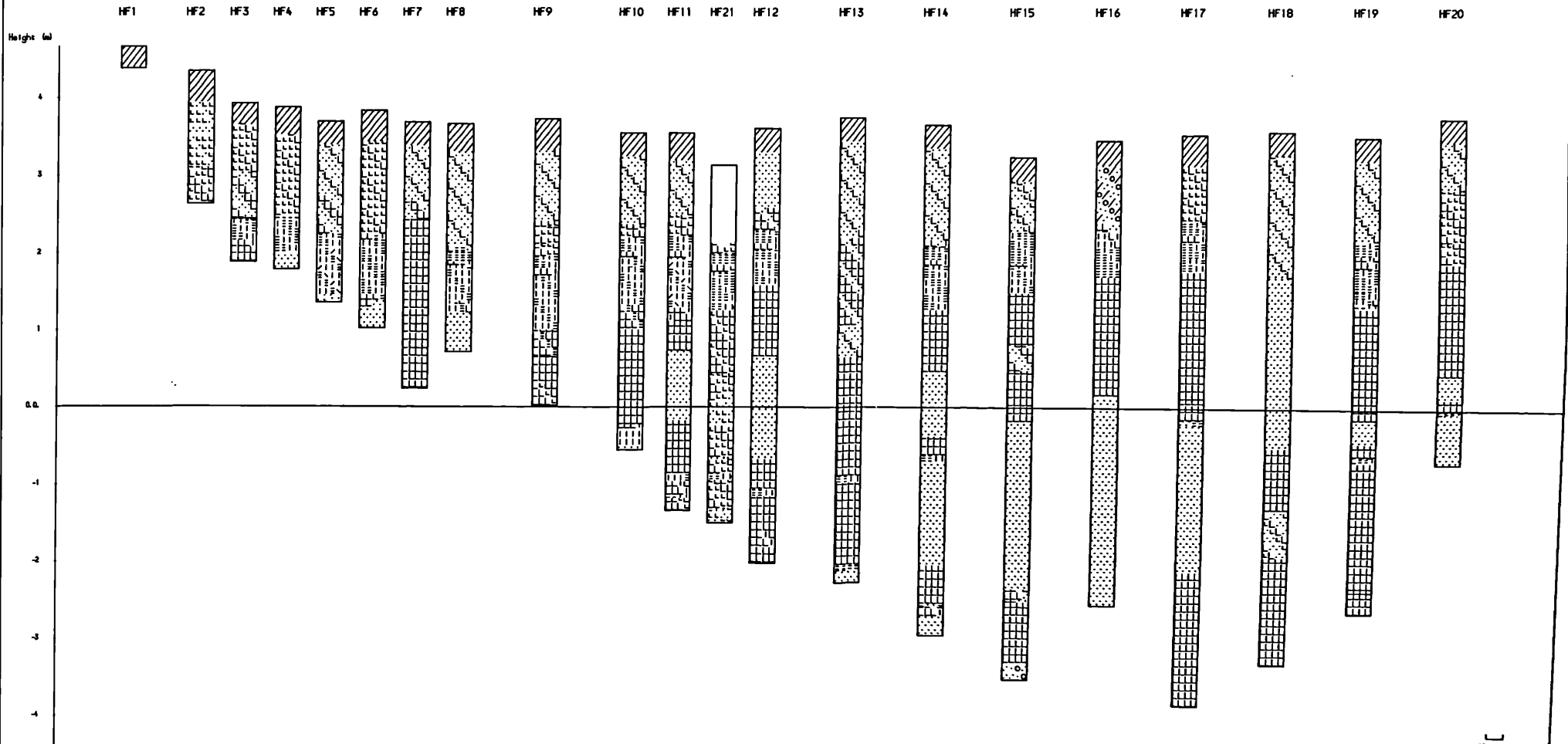
# Hendre fawr

## Location of cores



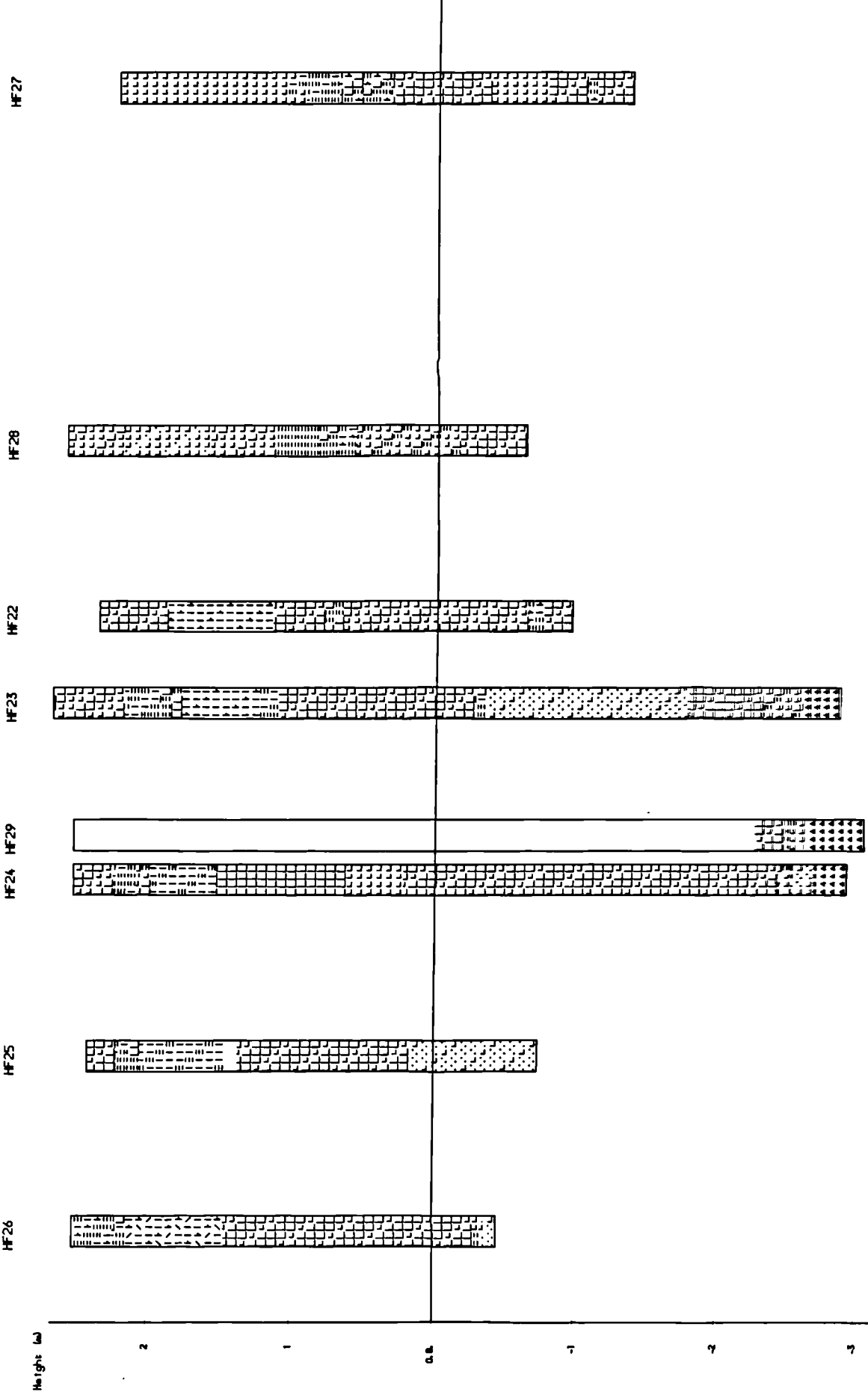
**Fig.5.25 Hendre fawr, Transect-1: lithostratigraphy.**

# HENDRE FAWR, ABERGELE. TRANSECT 1.



**Fig.5.26 Hendre fawr, Transect-2: lithostratigraphy.**

# ABERGELE: HENDRE FAWR. W - E TRANSECT.



**Fig.5.27 Hendre fawr-21: Diatom Analysis (lower)**

# Hendre fawr - 21. Lower diatoms. +3.13m OD.

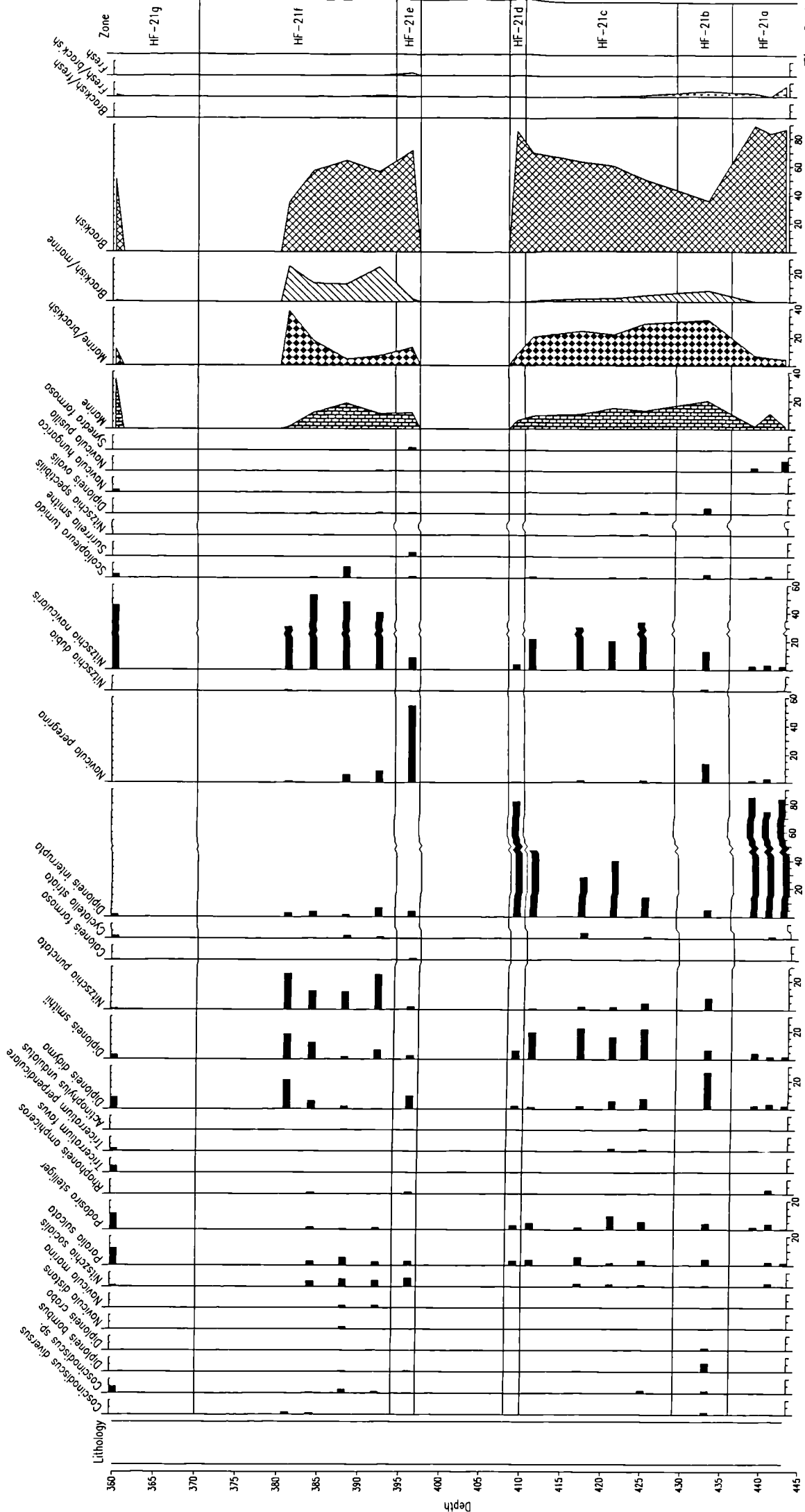


Fig.6.4

**Fig.5.28 Hendre fawr-21: Diatom Analysis (upper)**

# Hendre fawr - 21: Upper Diatoms. (+3.13m OD)

1. Hv 17810 4345+/-145. 2. Hv 17811 4685+/-175.
3. Hv 17812 5935+/-190.

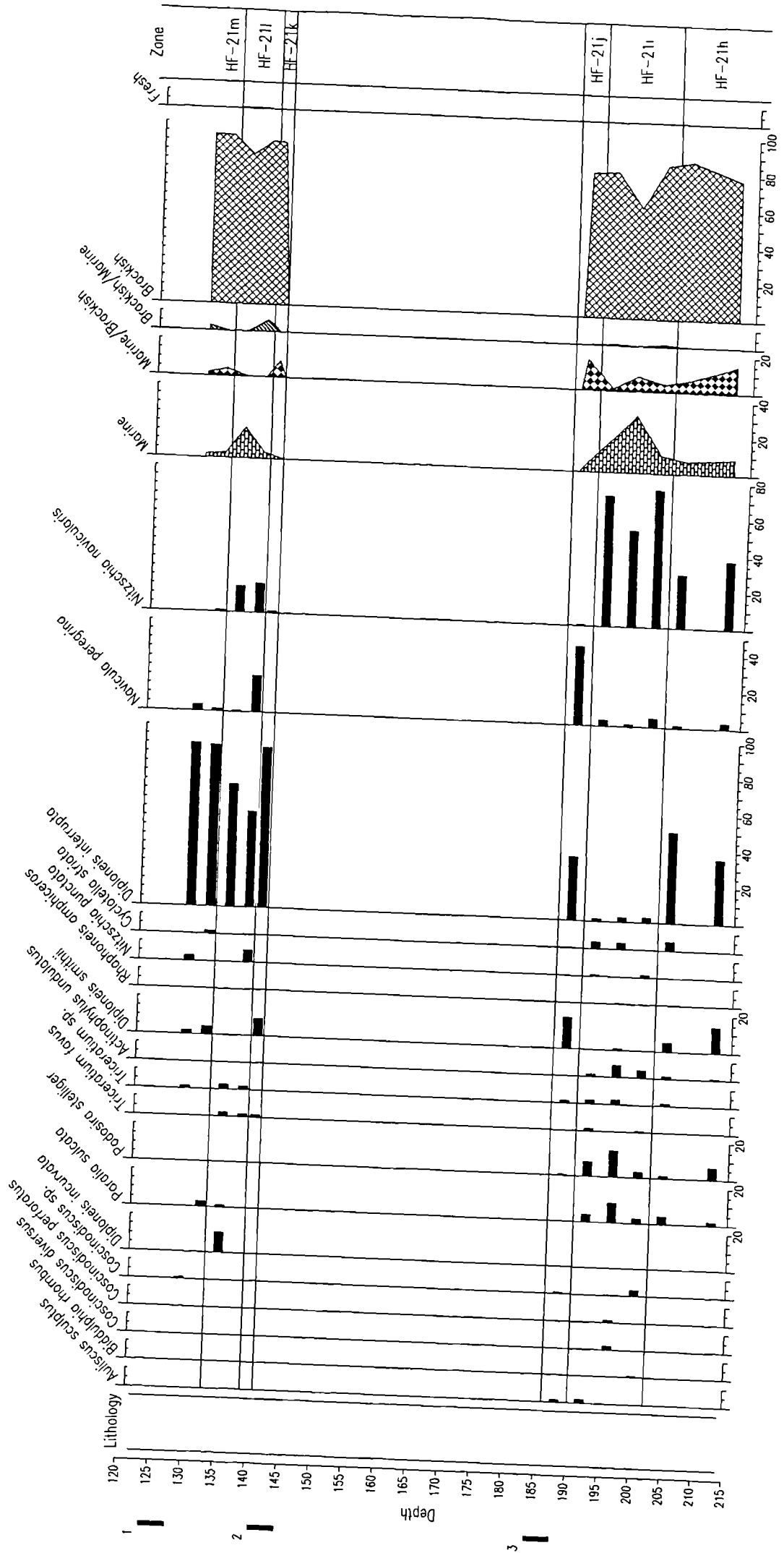


Fig 65

**Fig.5.29 Hendre fawr-21: Pollen Analysis (lower)**

# Hendre fawr - 21. Lower pollen. (+3.13m OD)

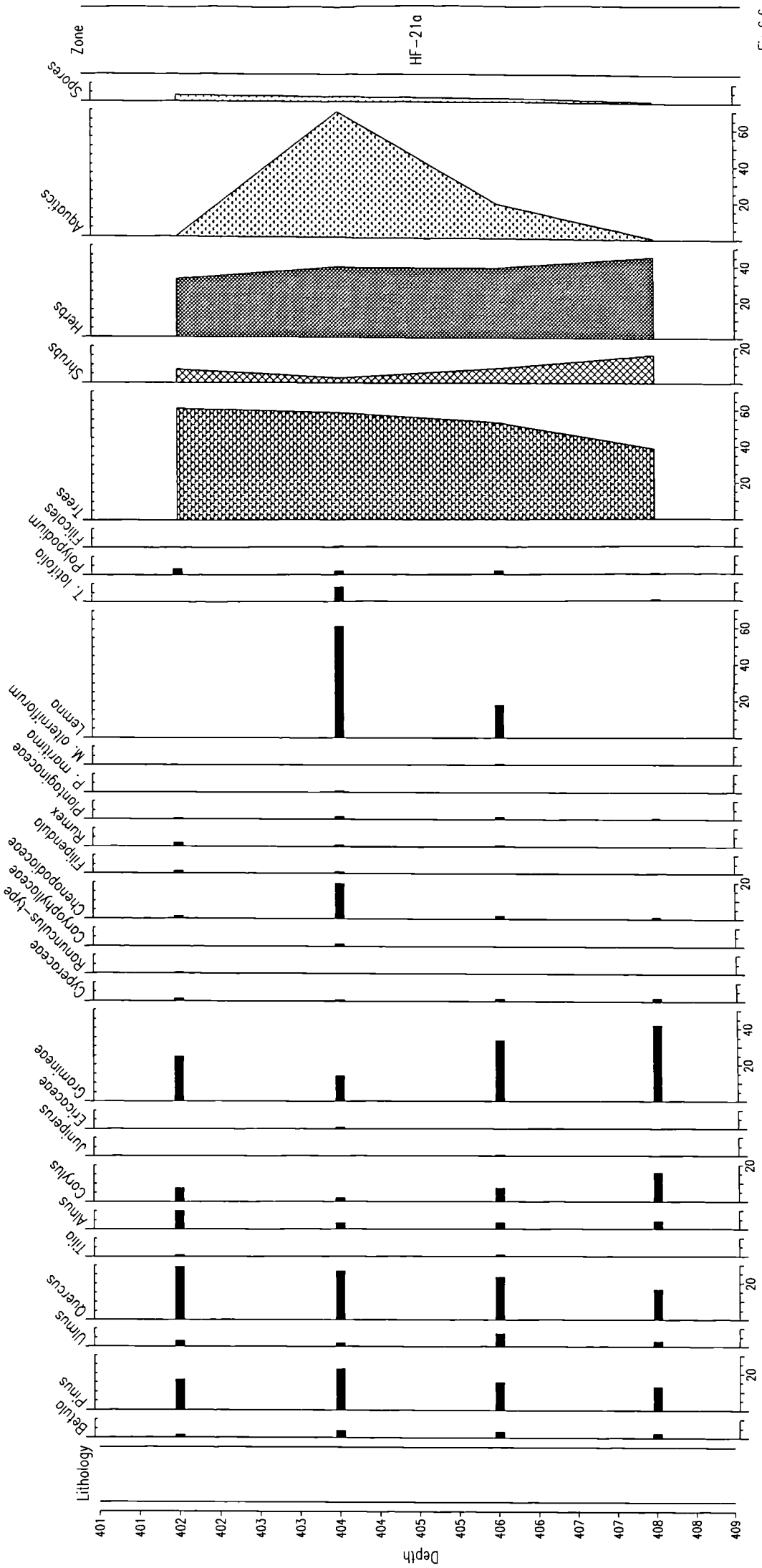
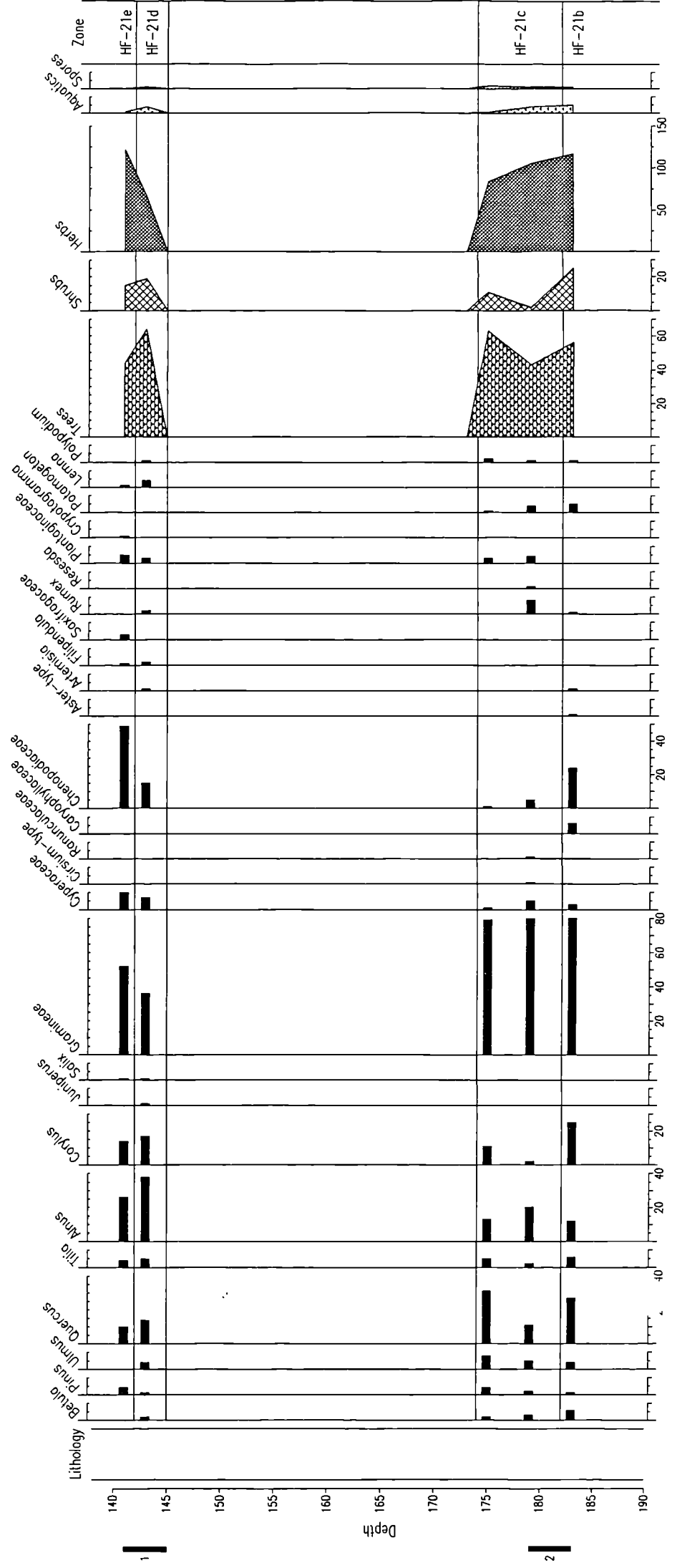


Fig. 6.6

**Fig.5.30 Hendre fawr-21: Pollen Analysis (upper)**

# Hendre fawr - 21 (Upper pollen) (+3.13m OD)

1. Hv 17811 4685+/-175. 2. Hv 17812 5935+/-190.



**Fig.5.31 Hendre fawr-29: Diatom Analysis**

# Hendre fawr - 29. Diatoms. (+2.54m OD).

1. Hv 17814: 7080+/-145

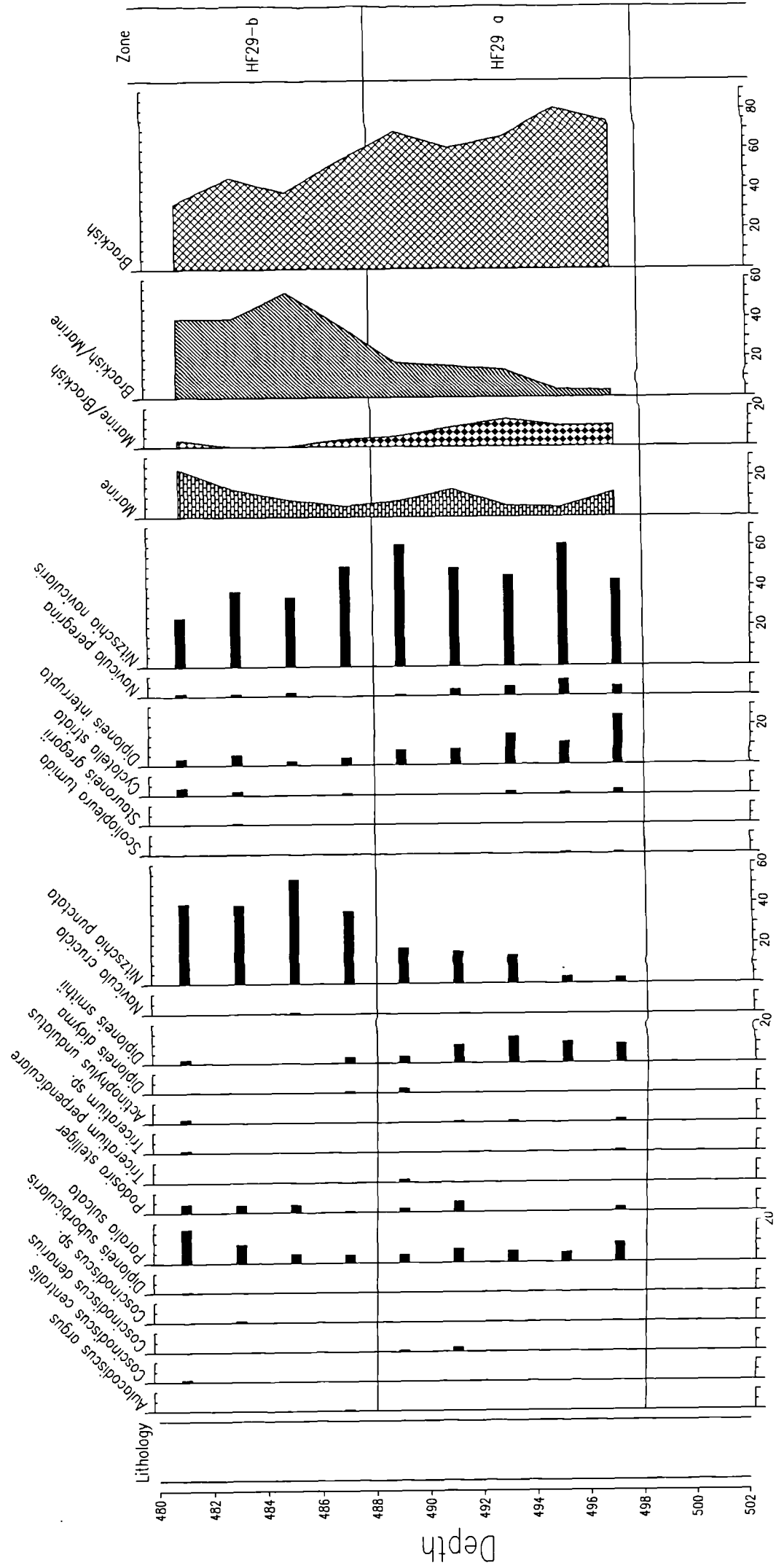
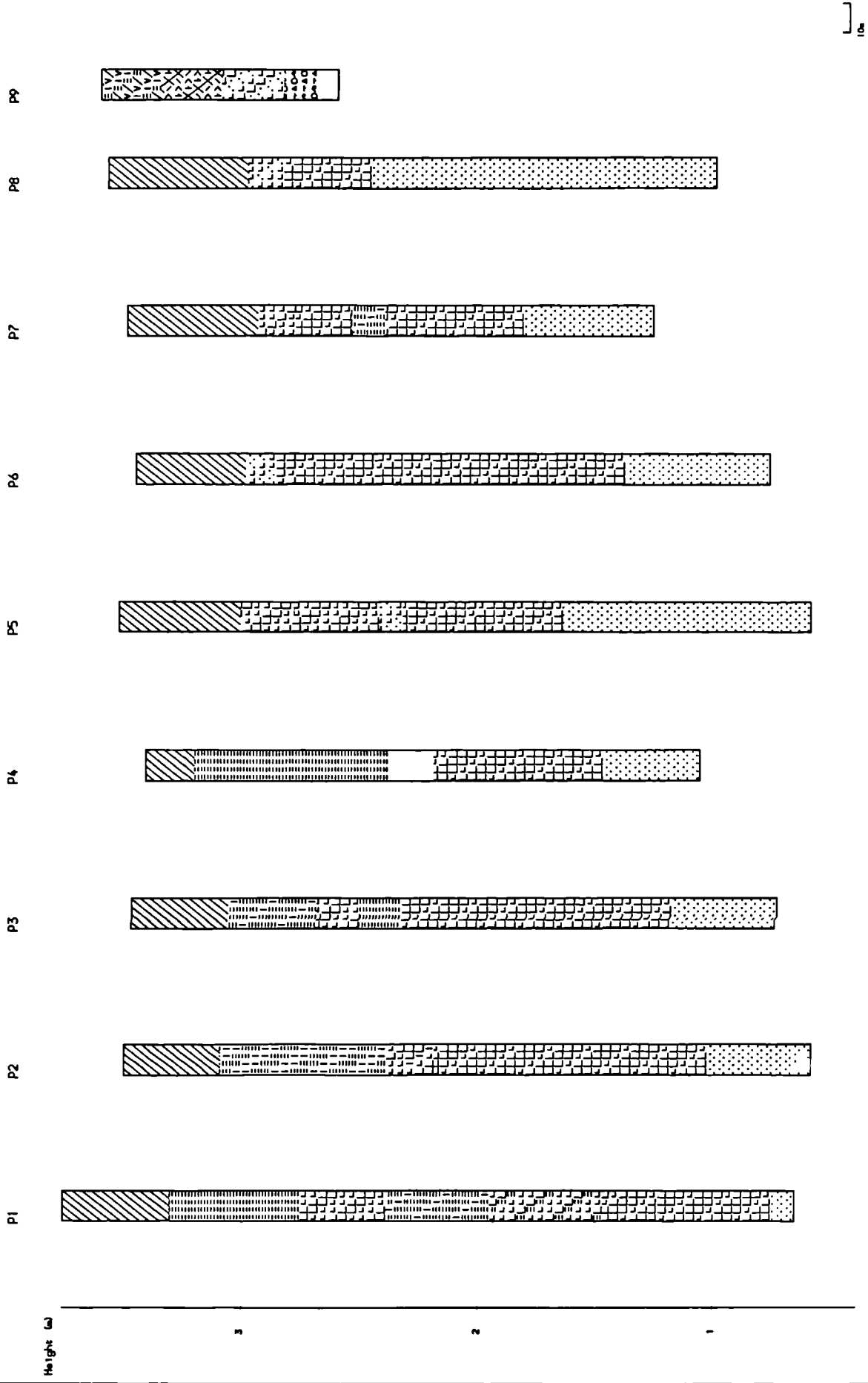


Fig 6.8

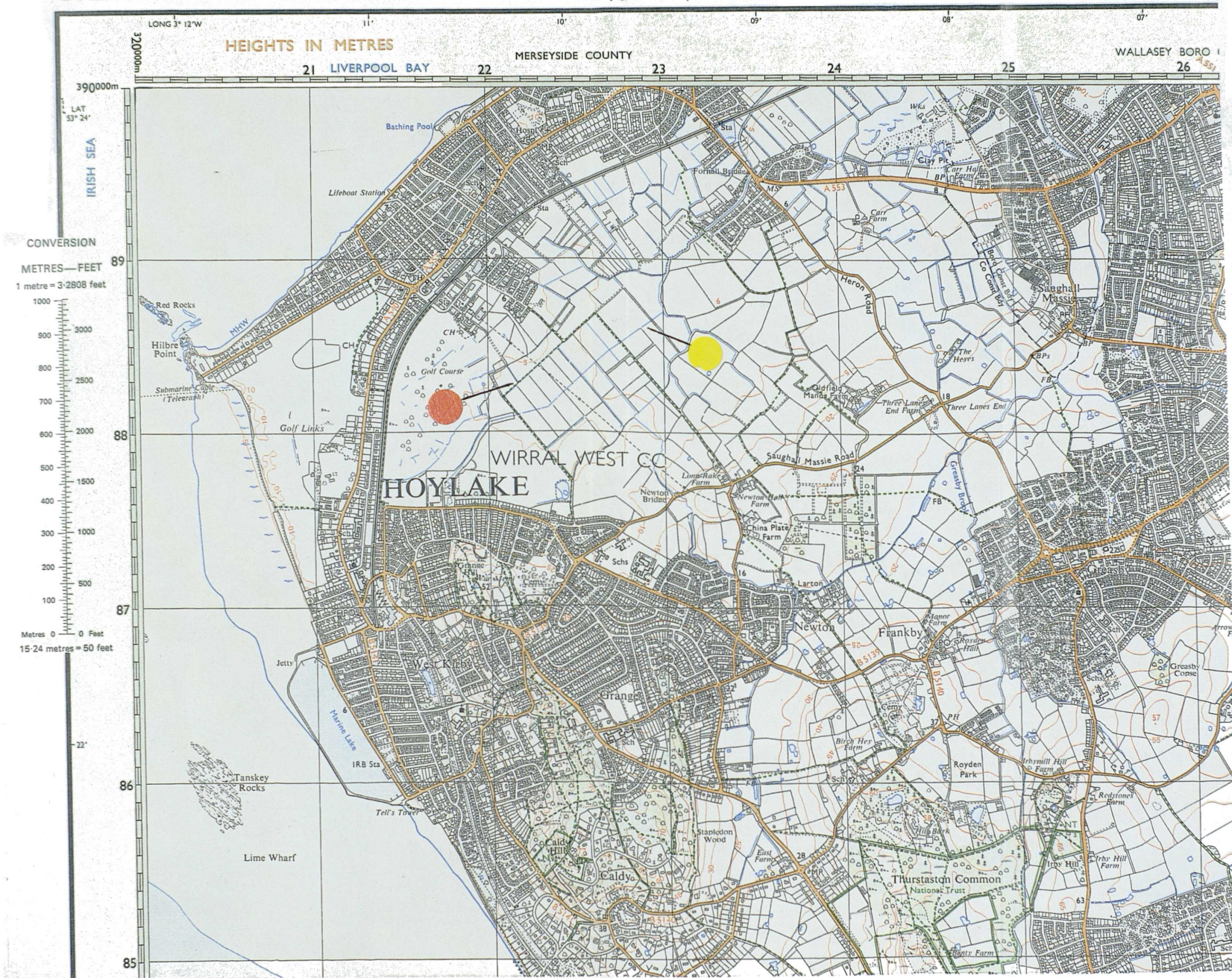
**Fig.5.32 Prestatyn: lithostratigraphy.**

# PRESTATYN



**Fig.5.33 The North Wirral.**

ORDNANCE SURVEY PATHFINDER 738 (SJ 28/38)

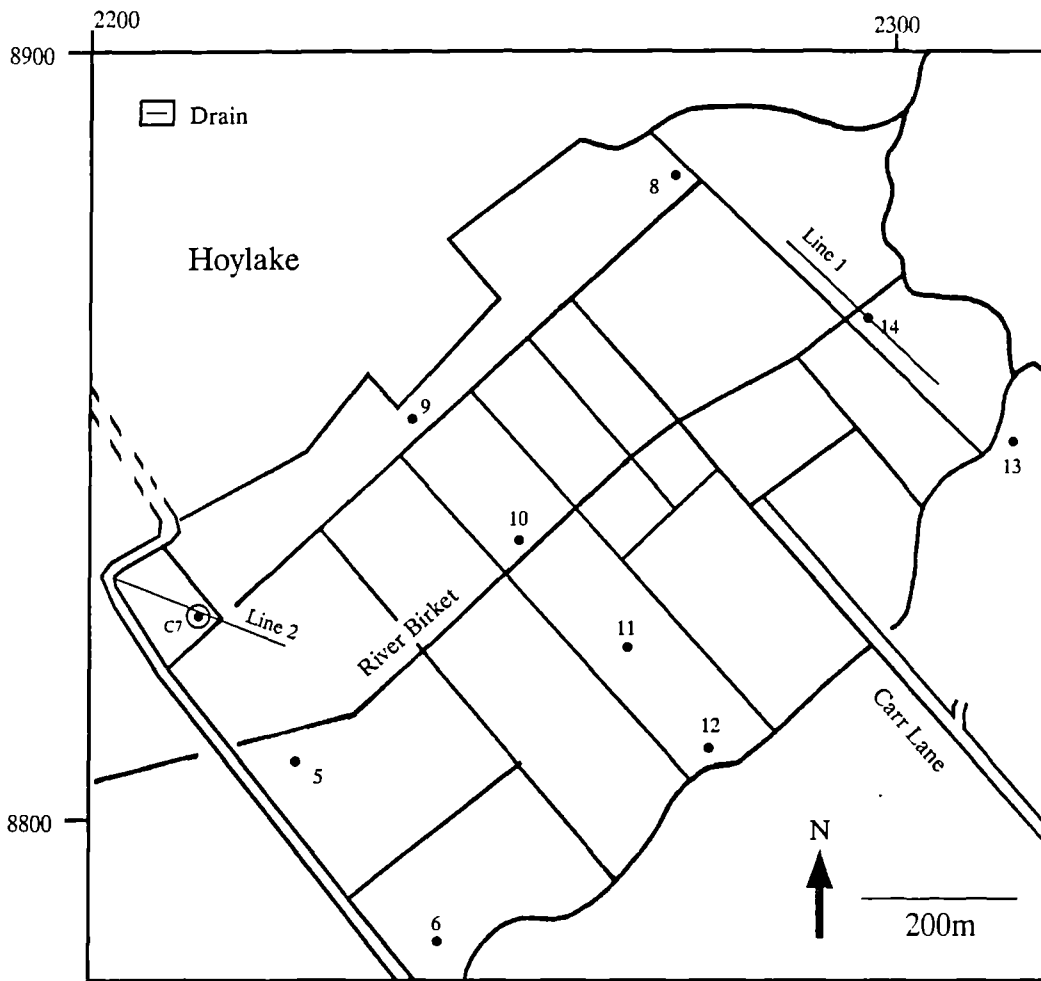


- NC-C7
- NC-17

**Fig.5.34 Newton Carr: location of commercial boreholes.**

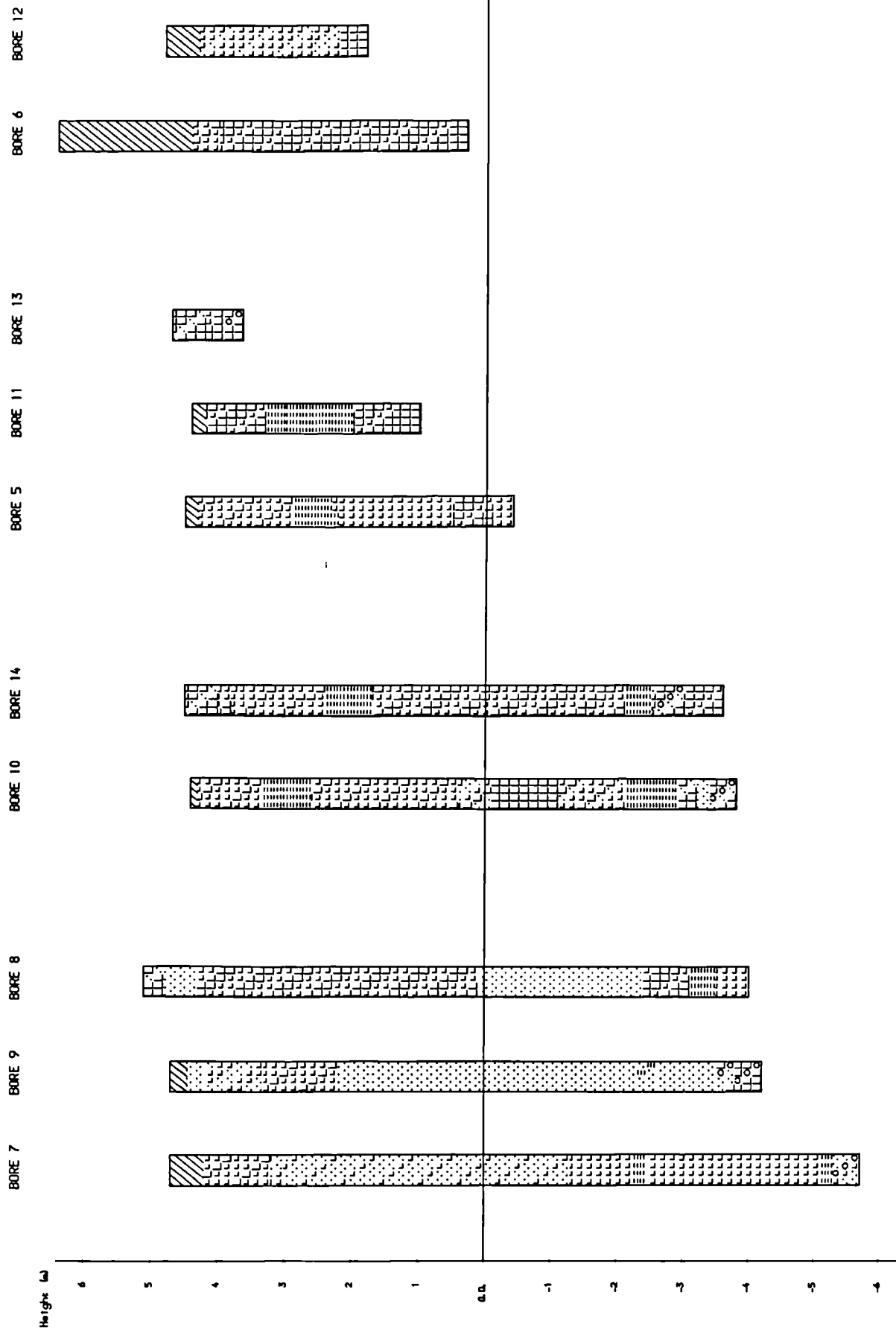
# Newton Carr, Hoylake

## location of commercial cores



**Fig.5.35 Newton Carr: lithostratigraphy of commercial boreholes.**

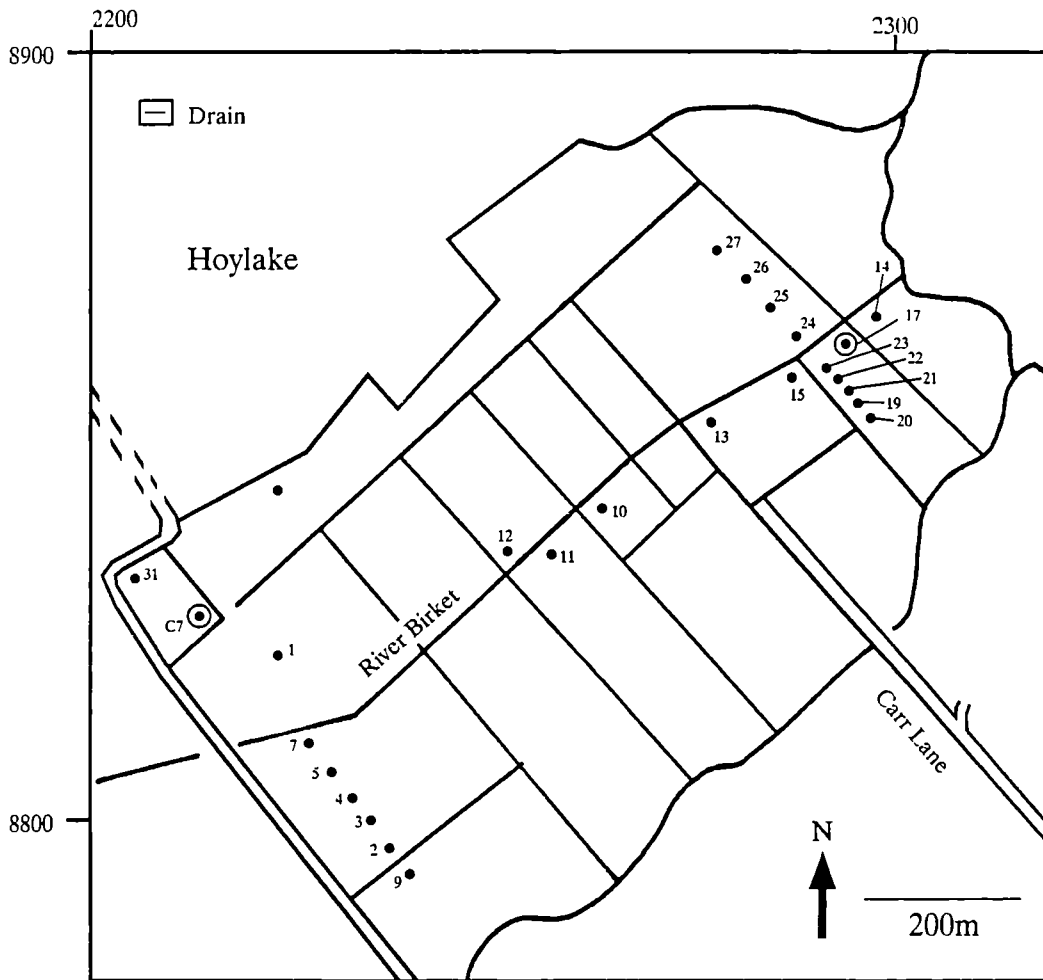
# NEWTON CARR, HOYLAKE. COMMERCIAL BORINGS.



**Fig.5.36 Newton Carr: location of cores.**

# Newton Carr, Hoylake

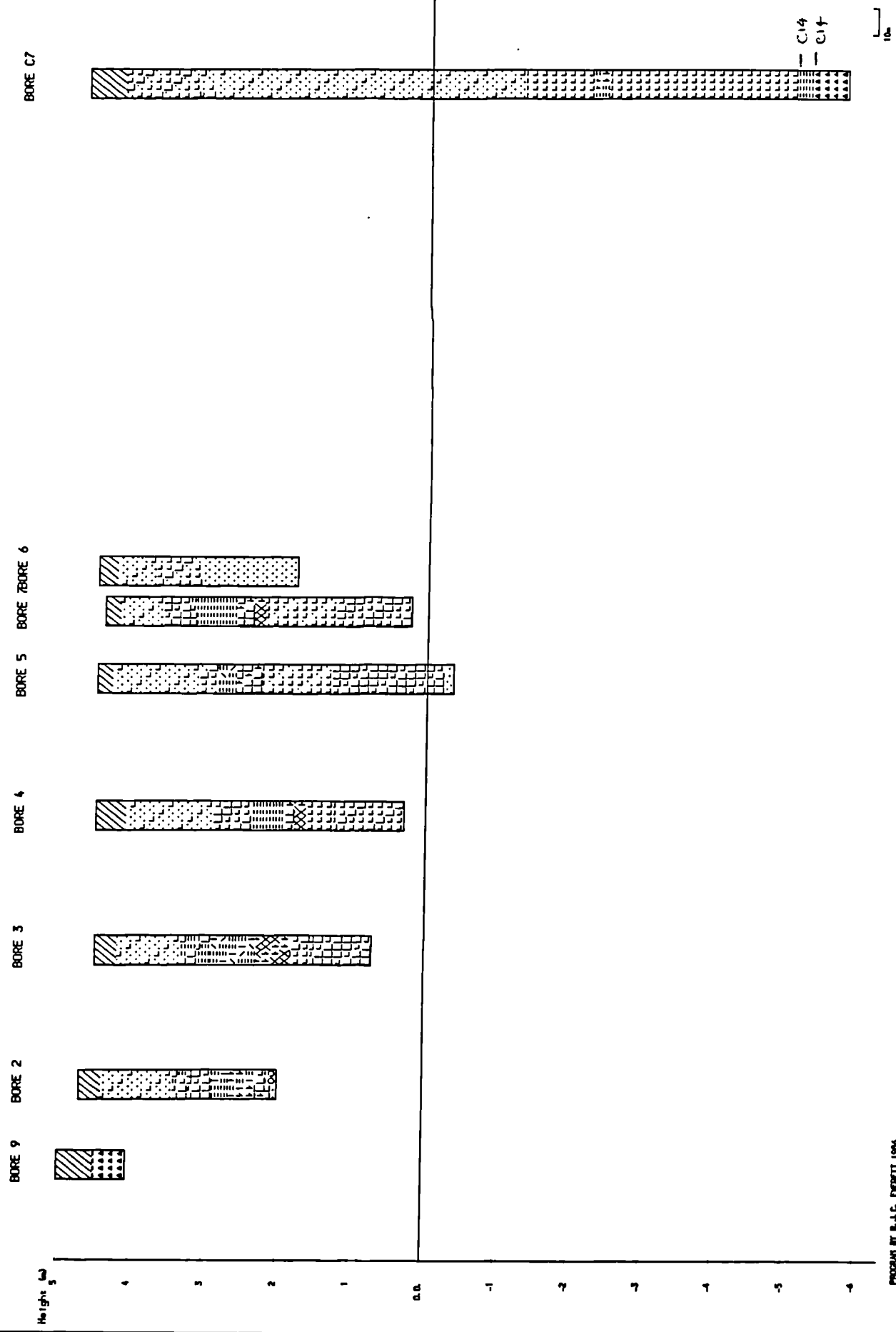
location of cores



**Fig.5.37 Newton Carr, Transect-1: lithostratigraphy.**

In transect 1, 'Bore' eg. 'Bore 3' refers to NC-3 in the text of Chapter 5.

# NEWTON CARR, TRANSECT 1



**Fig.5.38 Newton Carr, Transect-2: lithostratigraphy.**

In transect 2, 'Bore' eg. 'Bore 14' refers to NC-14 in the text of Chapter 5. The core taken for further investigation (NC17) equates to Bore 14 in Fig.5.26.

# NEWTON CARR, TRANSECT 2

BORE C7



BORE C1



BORE 11



BORE 10



BORE 13



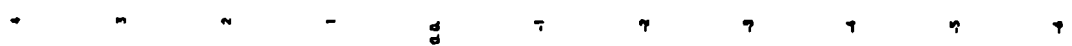
BORE 15



BORE 14



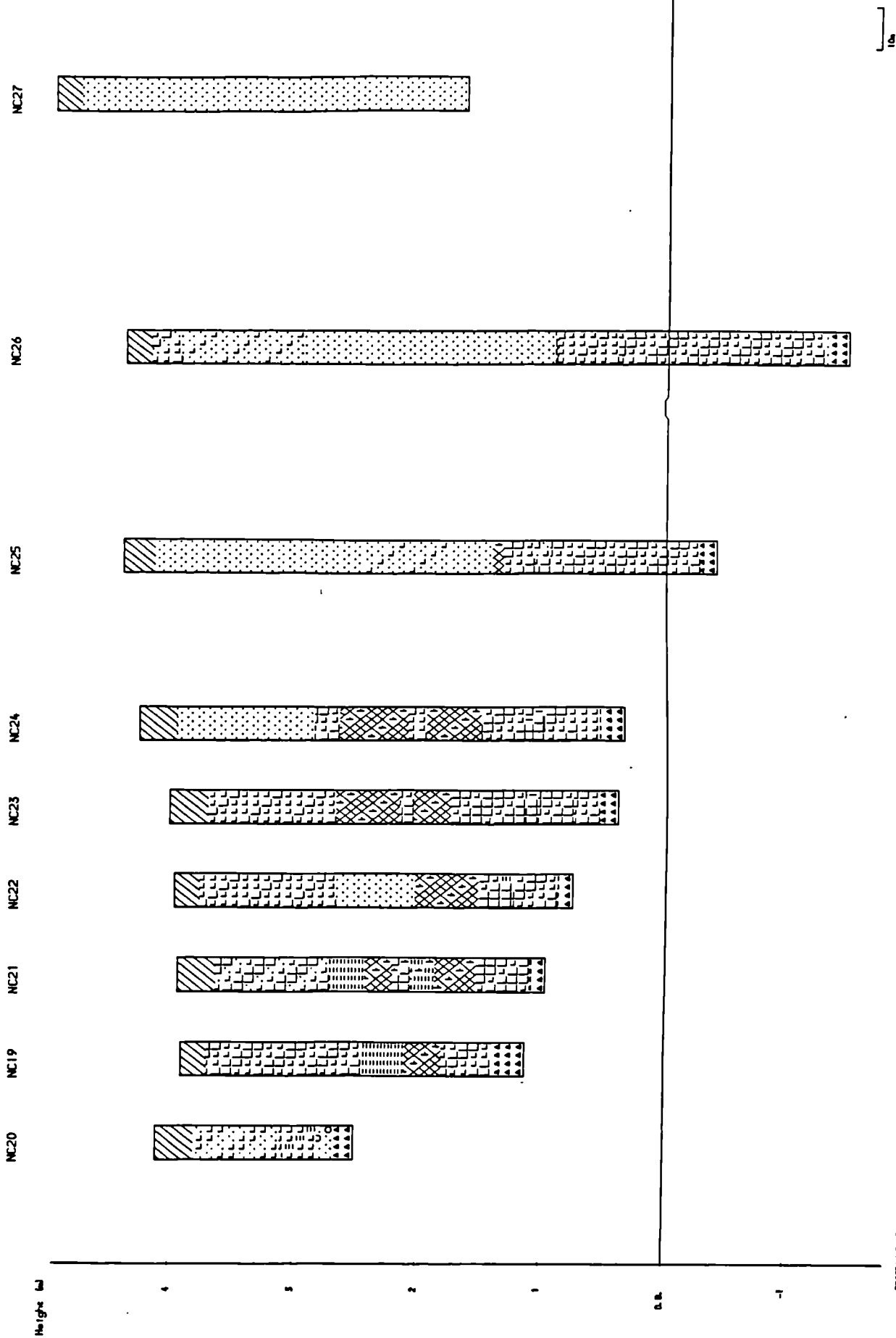
Height (m)



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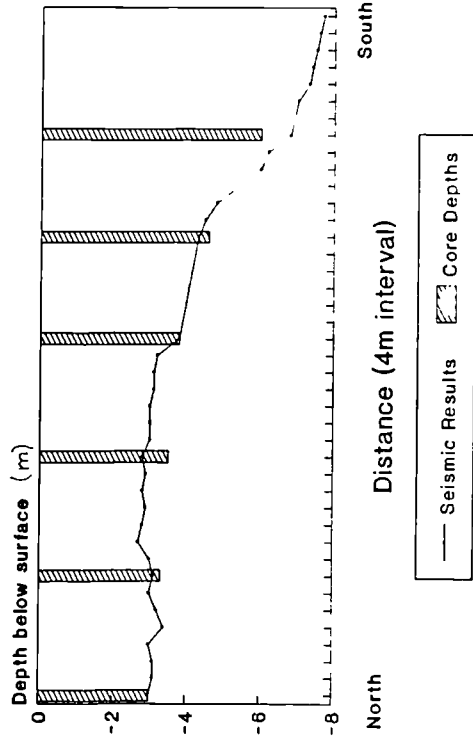
**Fig.5.39 Newton Carr, Transect-3: lithostratigraphy.**

# NEWTON CARR, HOYLAKE. TRANSECT 3.

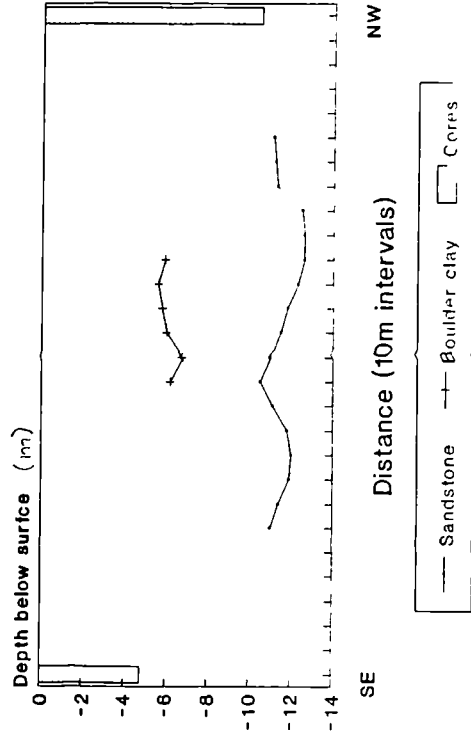


**Fig.5.40 Newton Carr: Results of the seismic refraction survey.**

## Newton Carr: Seismic Results Line 1



## Newton Carr: Seismic Results Line 2



**Fig.5.41 Newton Carr - 17: Diatom Analysis (Lower inorganic sediments).**



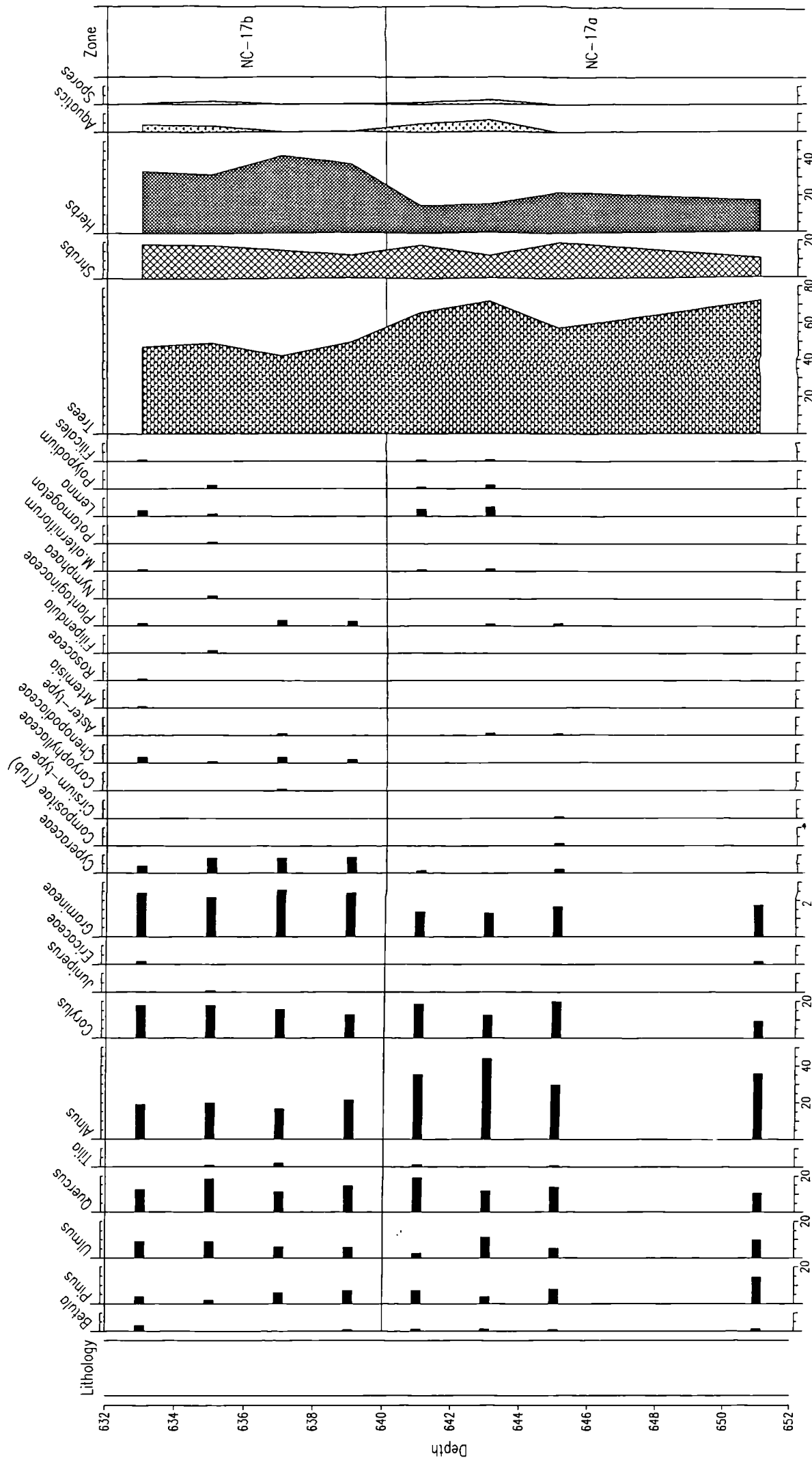
**Fig.5.42 Newton Carr - 17: Diatom Analysis (Upper sediments).**



**Fig.5.43 Newton Carr - 17: Pollen Analysis (Basal peat).**

# Newton Carr - 17. Lower pollen. (+4.42m OD)

1. SRR-4514: 6680+/-75



**Fig.5.44 Newton Carr - 17: Pollen Analysis (Upper sediments).**



Table 6.1  
New <sup>14</sup>C-dates: North Wales and Wirral.

## Accepted Dates.

Site name	Lab code	Age (BP)	Alt (m OD)	Alt (m MHWS)	Calibrated Age (BC)	Grp
Newton Carr	SRR4510	2825 ± 40	+2.87	-1.20	1111-1105, 1057-893 880-849	2
Tregarnedd-bâch	Hv17820	4035 ± 100	+1.00	-1.21	2880-2282	3
Hendre fawr	Hv17810	4345 ± 145	+1.87	-2.08	3369-2574	3
Newton Carr	SRR4511	4525 ± 65	+2.39	-1.68	3492-3468, 3374-3023 2982-2928	3
Hendre fawr	Hv17811	4685 ± 175	+1.70	-2.25	3894-3887, 3798-2916	2
Newton Carr	SRR4512	4965 ± 40	+2.10	-1.97	3903-3881, 3803-3656	2
Newton Carr	SRR4513	5465 ± 90	+1.59	-2.36	4465-4212, 4206-4132 4128-4079, 4057-4047	3
Hendre fawr	Hv17812	5935 ± 190	+1.27	-2.68	5261-4362	3
Morfa Penrhyn	Hv17815	6335 ± 115	+0.28	-3.67	5445-5031, 5028-4997	3
Newton Carr	SRR4514	6680 ± 75	-1.92	-5.99	5674-5439	2
Hendre fawr	Hv17814	7080 ± 155	-2.48	-6.43	6185-5610	2
Tregarnedd-bâch	Hv17819	7255 ± 130	-4.11	-6.32	6371-5825	3
Newton Carr	SRR4641	7805 ± 55	-5.10	-9.17	6756-6743, 6711-6465	2

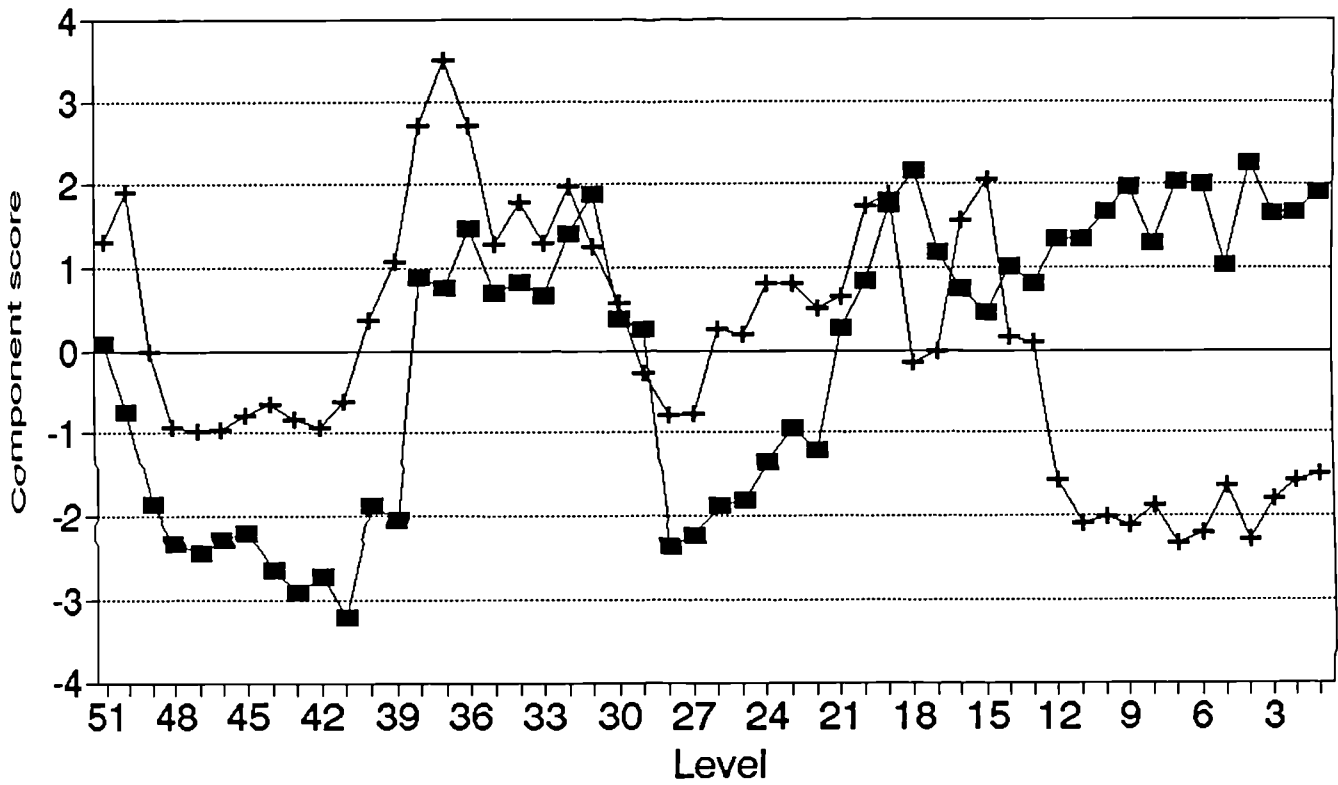
## Rejected dates.

Site name	Lab code	Age(BP)	Alt (m OD)	Reason for rejection
Hendre fawr	Hv17813	5530 ± 385	-0.93	Out of stratigraphic sequence.
Newton Carr	SRR4640	7810 ± 55	-3.50	Out of stratigraphic sequence.
Morfa Penrhyn	Hv17816	8265 ± 200	-1.94	Too old
Morfa Penrhyn	Hv17817	9900 ± 190	-2.21	Too old

**Fig.6.1 PCA: Newton Carr, correlation method.**

# Newton Carr - 17

## PCA: Correlation Method



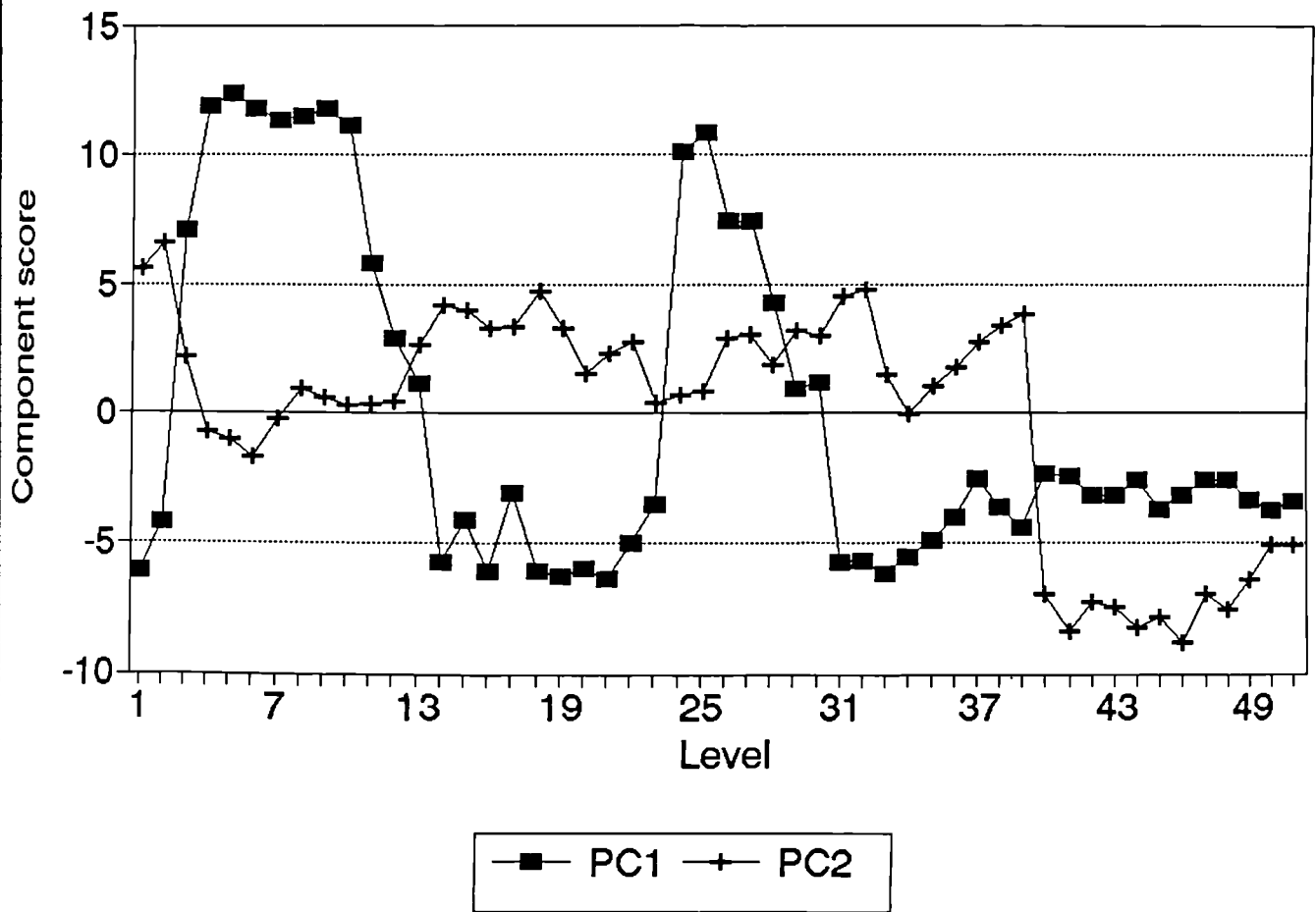
■ PC1 + PC2



**Fig.6.2 PCA: Newton Carr, covariance method.**

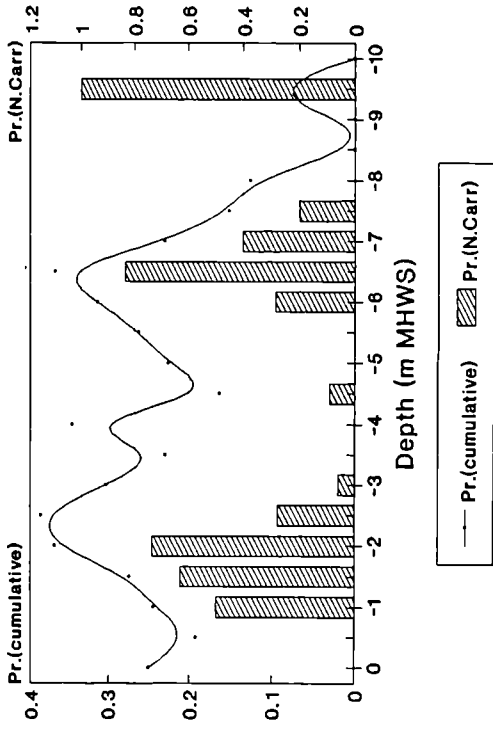
# Newton Carr - 17.

## PCA (Covariance method)

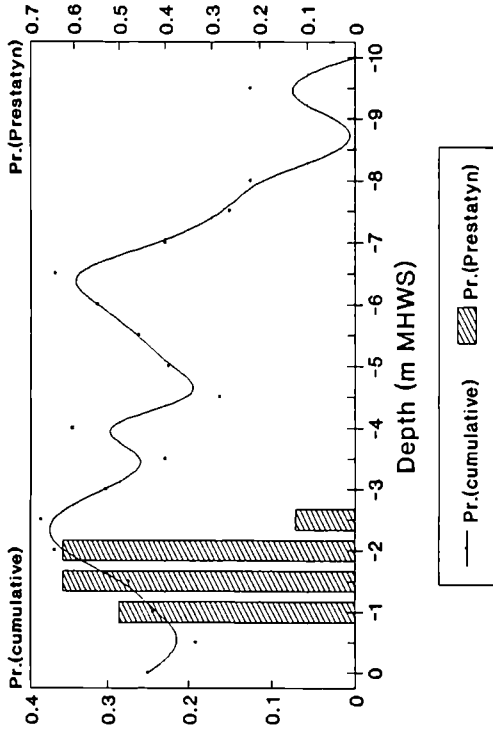


**Fig.6.3a and b      Probability of organic sedimentation:  
North Wales and Wirral.**

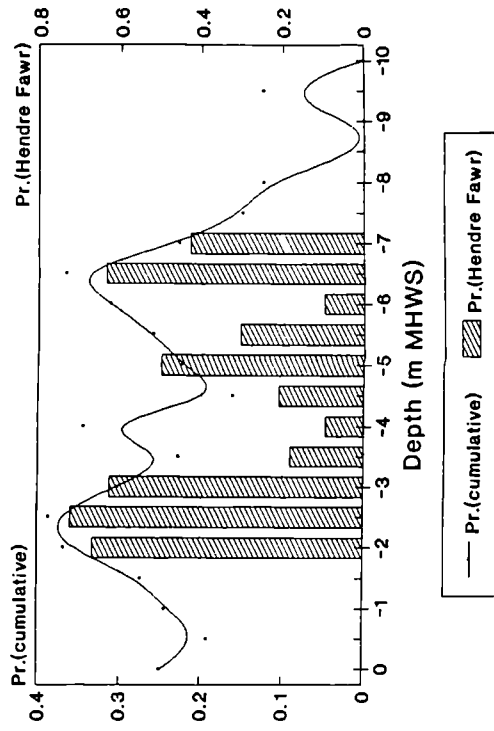
### Newton Carr, Wirral



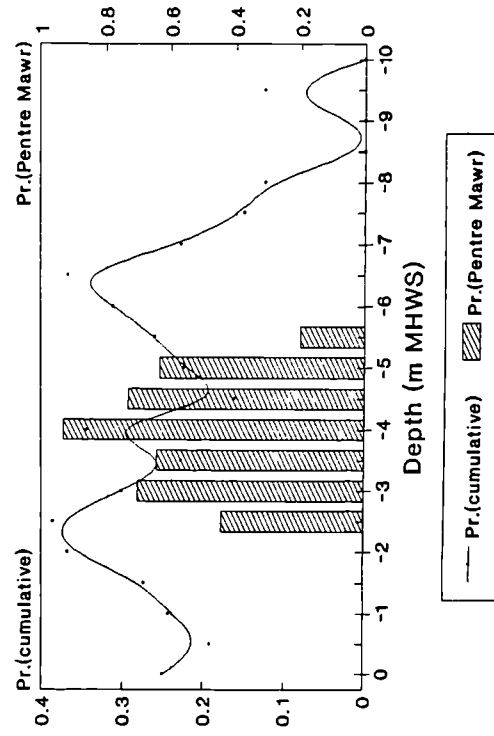
### Prestatyn, Vale of Clwyd



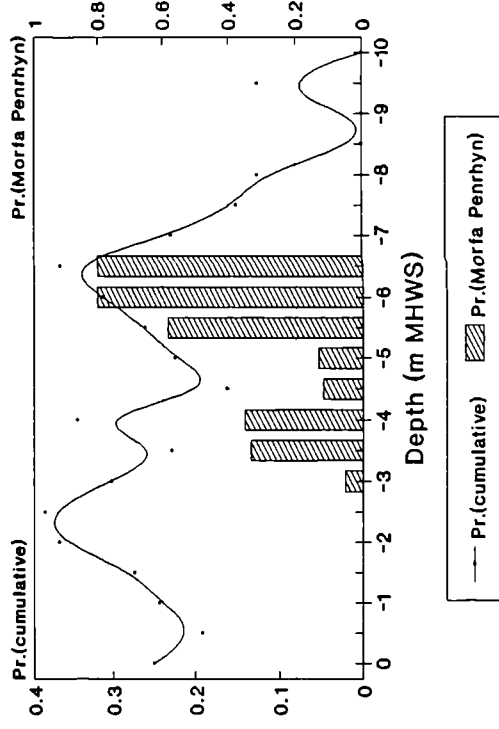
### Hendre fawr, Vale of Clwyd



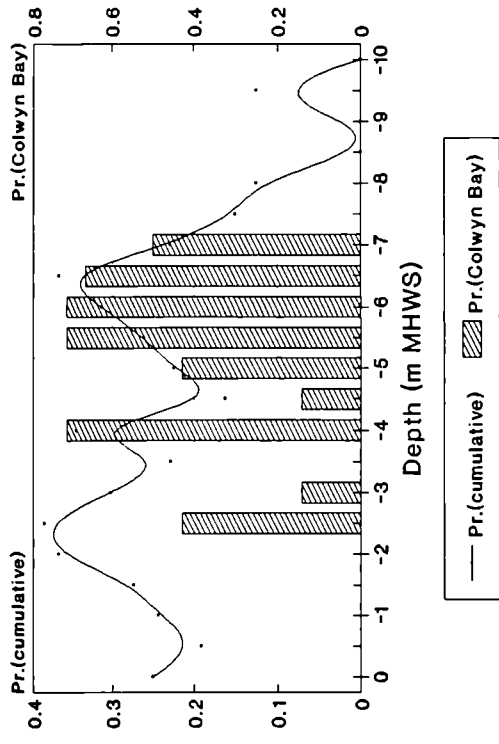
### Pentre Mawr, Vale of Clwyd



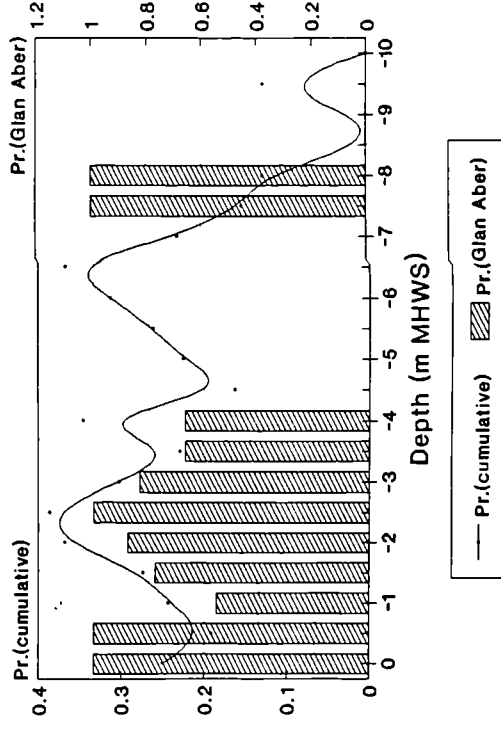
### Morfa Penrhyn, Afon Ganol valley



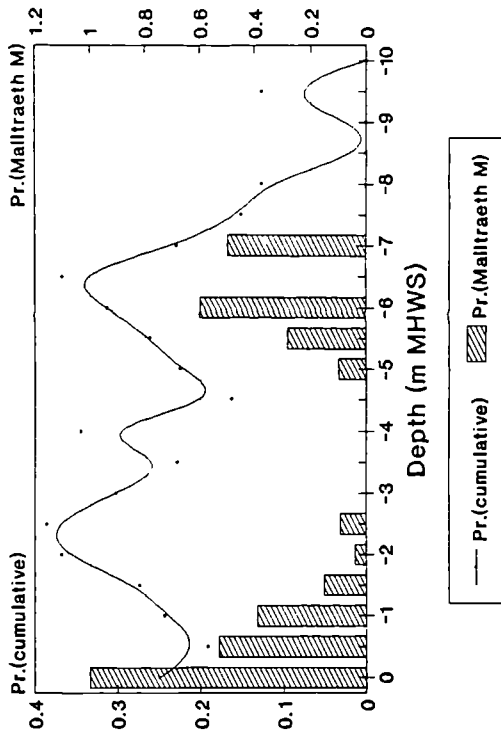
### Colwyn Bay RC, Afon Ganol valley



### Glan Aber, Afon Ganol valley



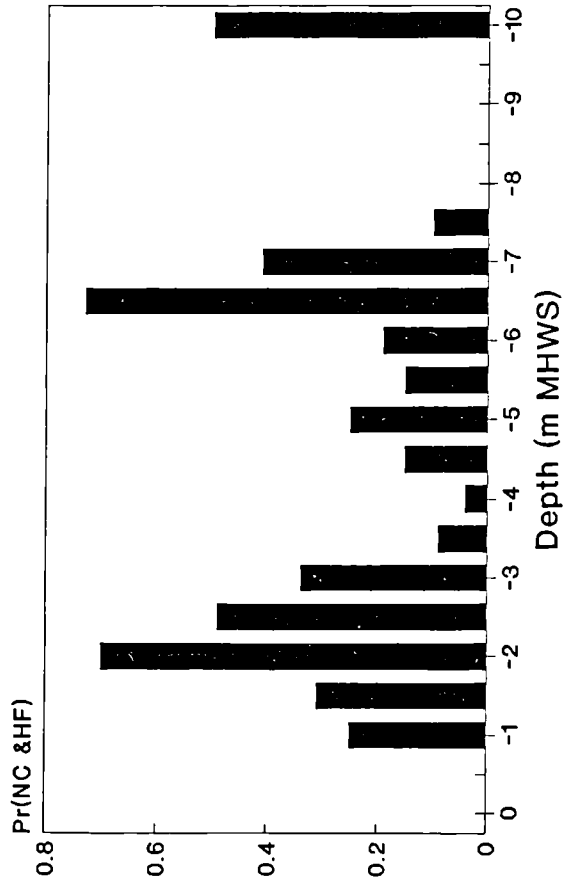
### Malltraeth Marshes, Anglesey



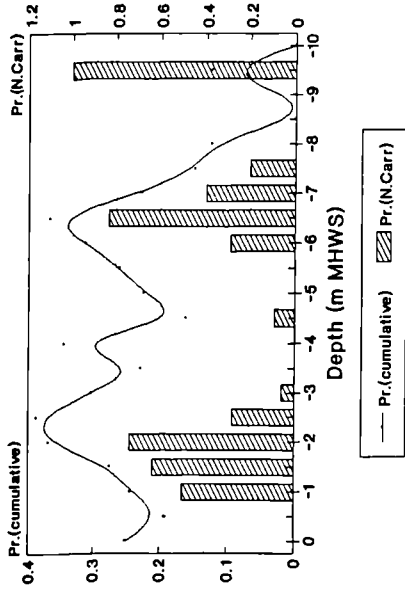
**Fig.6.4 Probability of organic sedimentation: Newton Carr and Hendre fawr.**

# Newton Carr and Hendre fawr

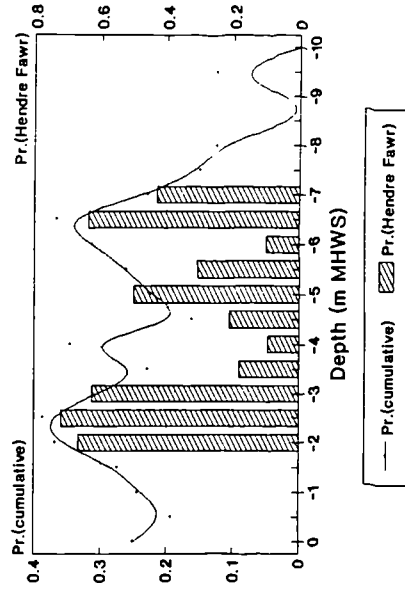
## Probability of organic sedimentation



### Newton Carr, Wirral



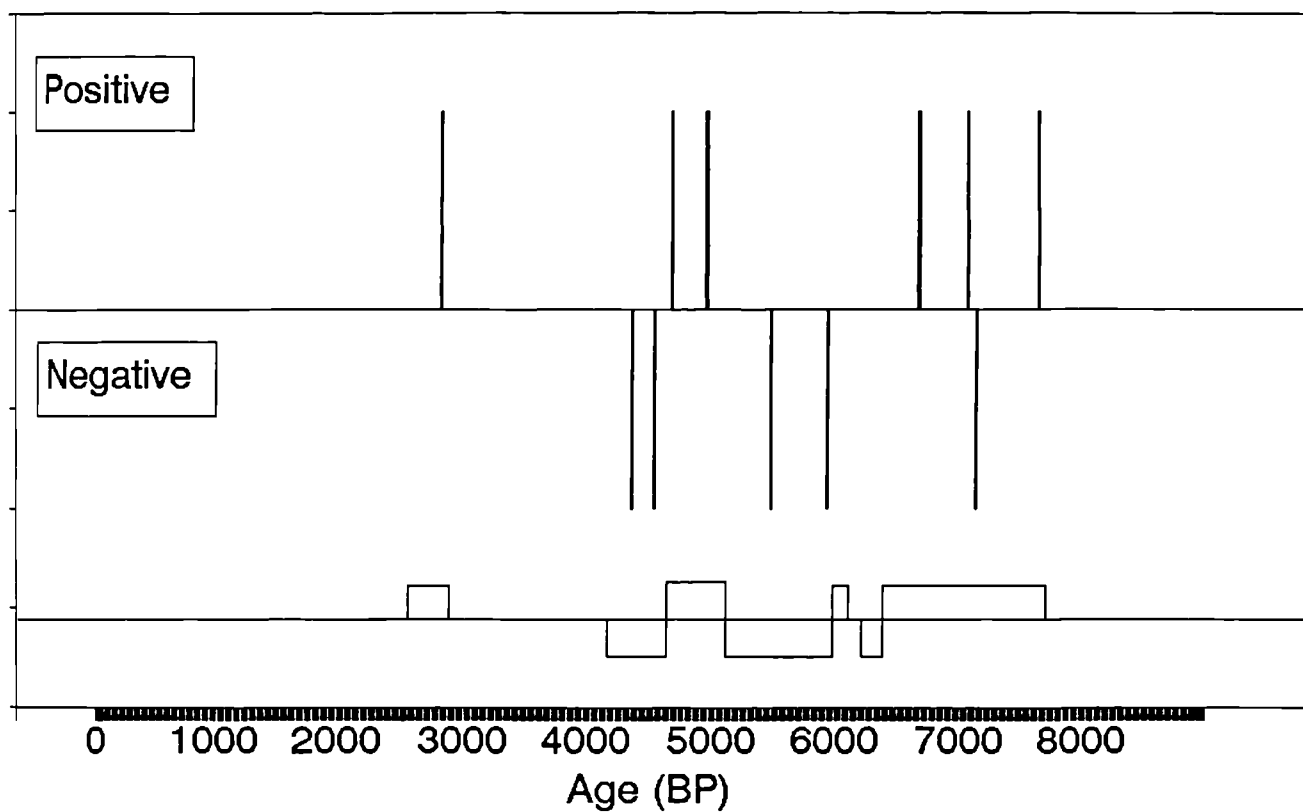
### Hendre fawr, Vale of Clwyd



**Fig.6.5 Tendencies of sea-level: Newton Carr and Hendre fawr.**

# Tendencies of sea-level

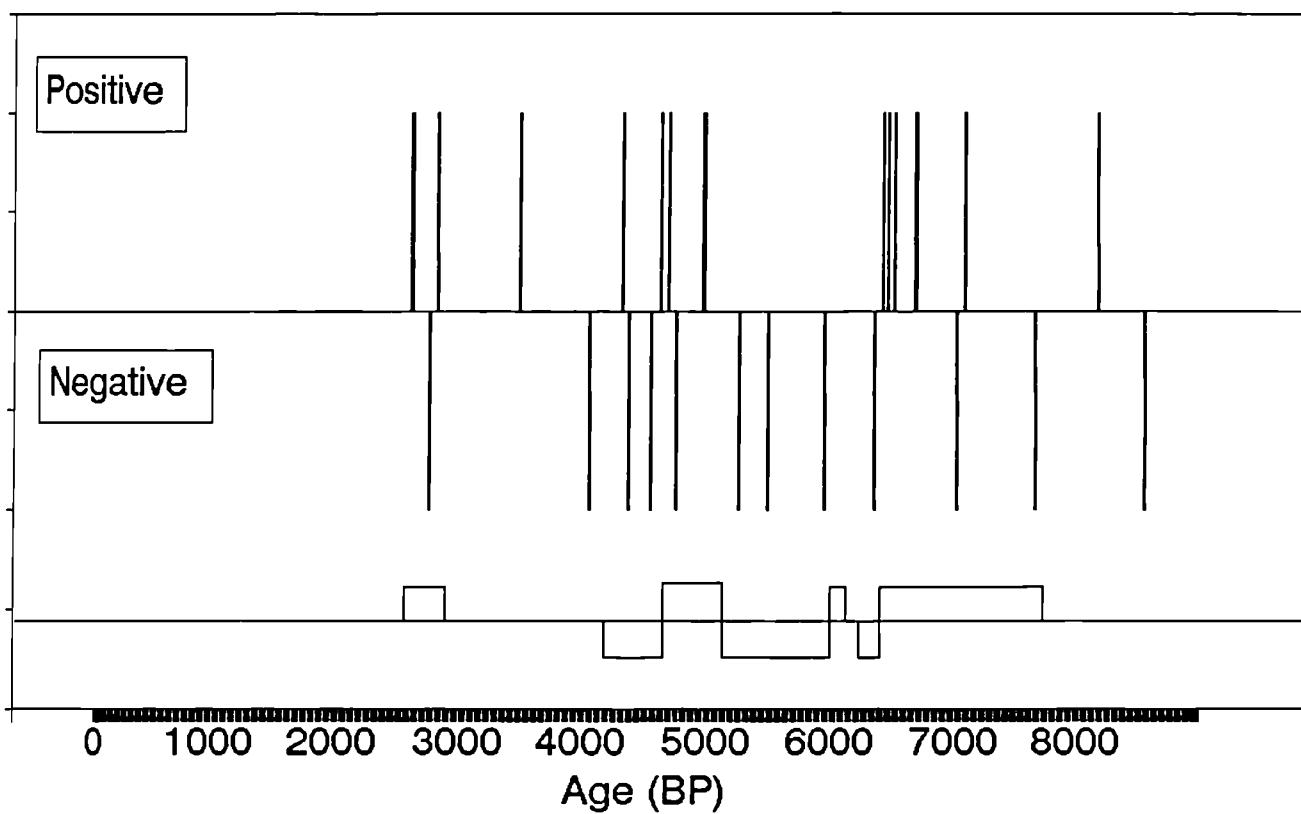
## Newton Carr and Hendre fawr



**Fig.6.6 Tendencies of sea-level: North Wales and Wirral.**

# Tendencies of sea-level

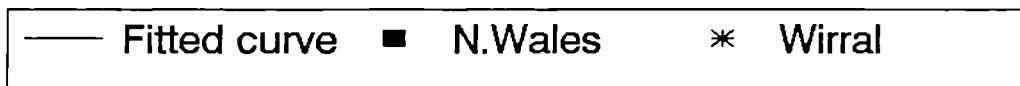
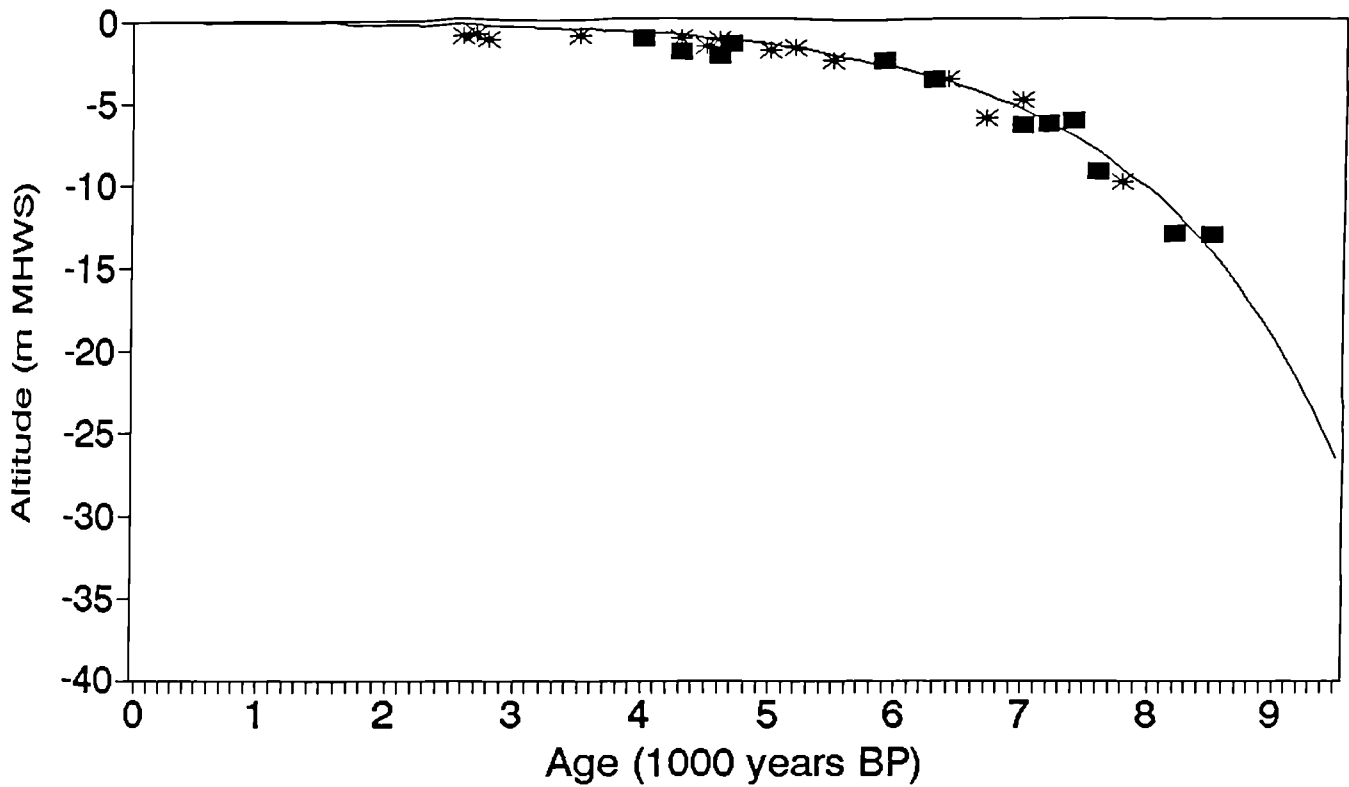
## North Wales and Wirral



**Fig.6.7 Sea-level index points: North Wales and Wirral.**

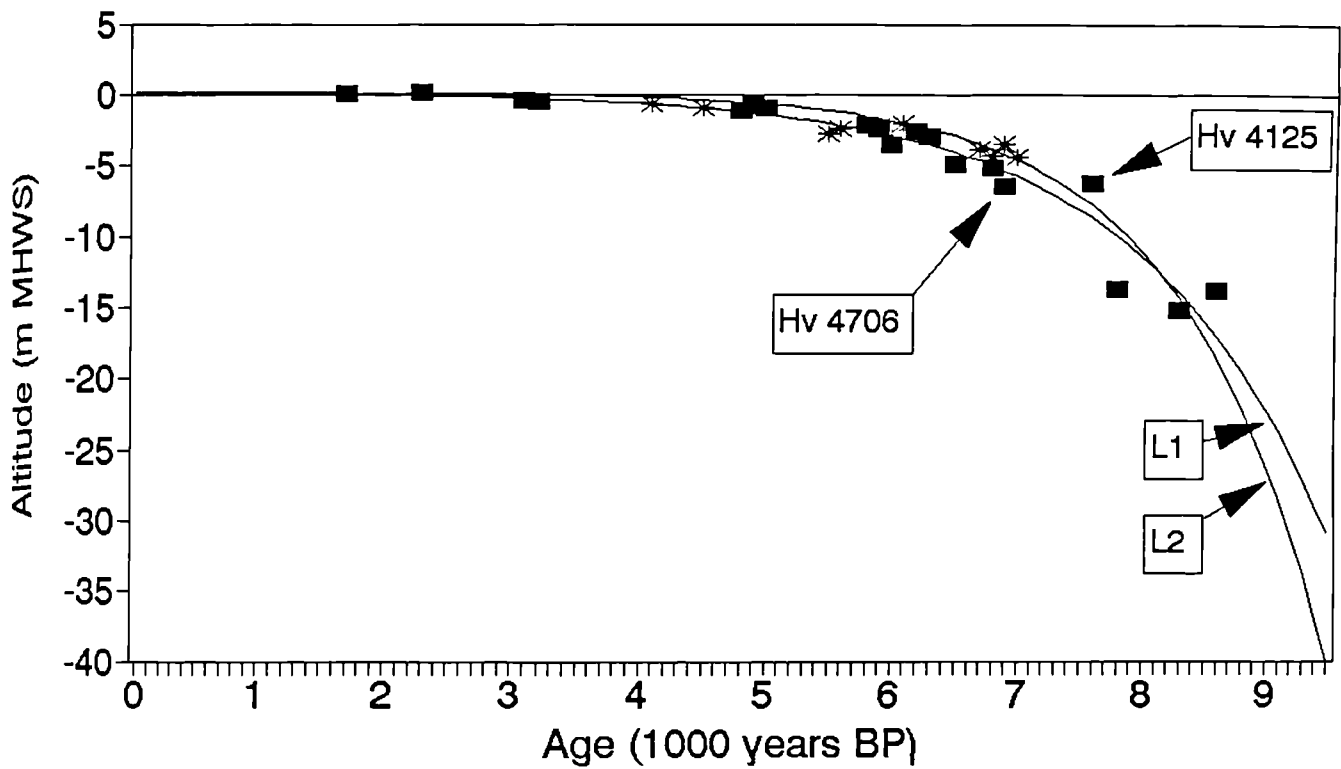
# Sea-level Index Points

## North Wales and Wirral



**Fig.6.8 Sea-level index points: Lancashire.**

# Sea-level Index Points Lancashire

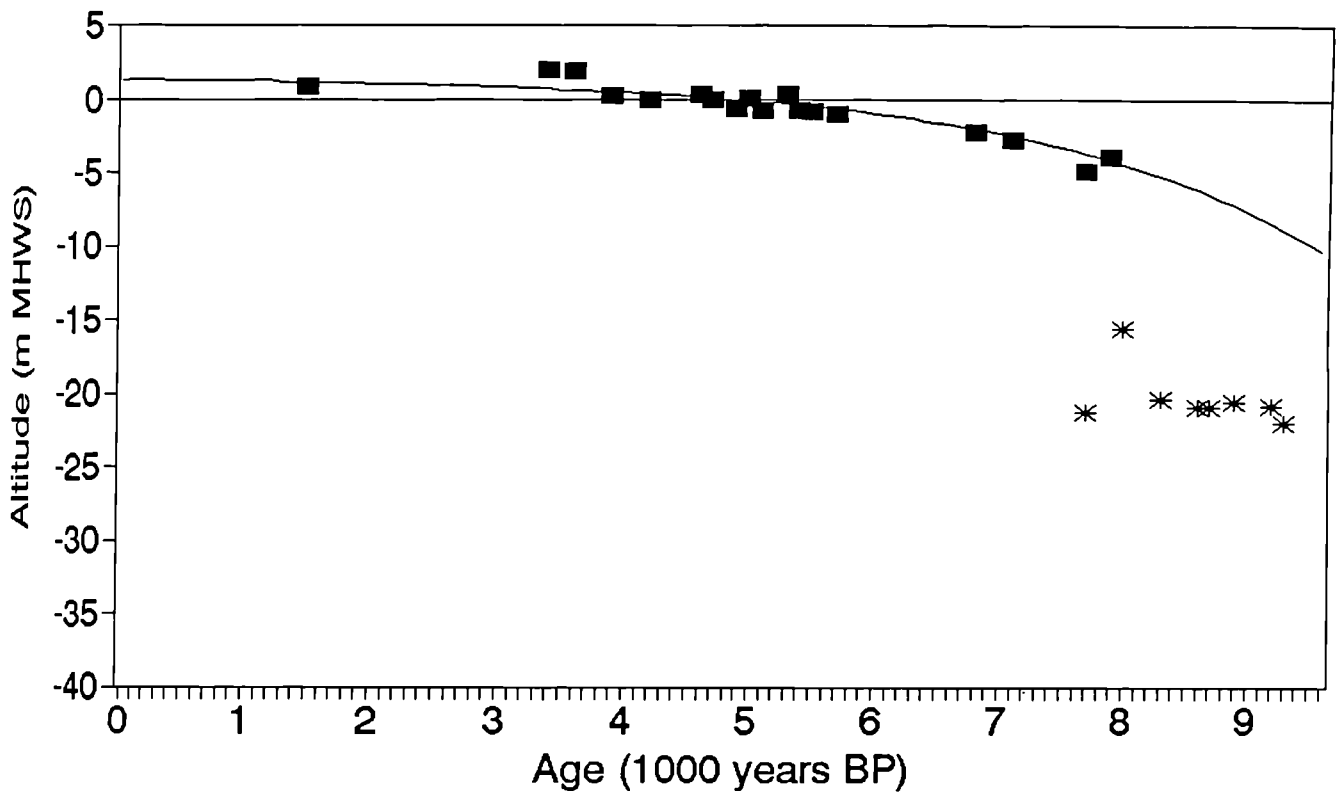


■ N.Lancashire \* S.Lancashire

**Fig.6.9 Sea-level index points: Morecambe Bay.**

# Sea-level Index Points

## Morecambe Bay

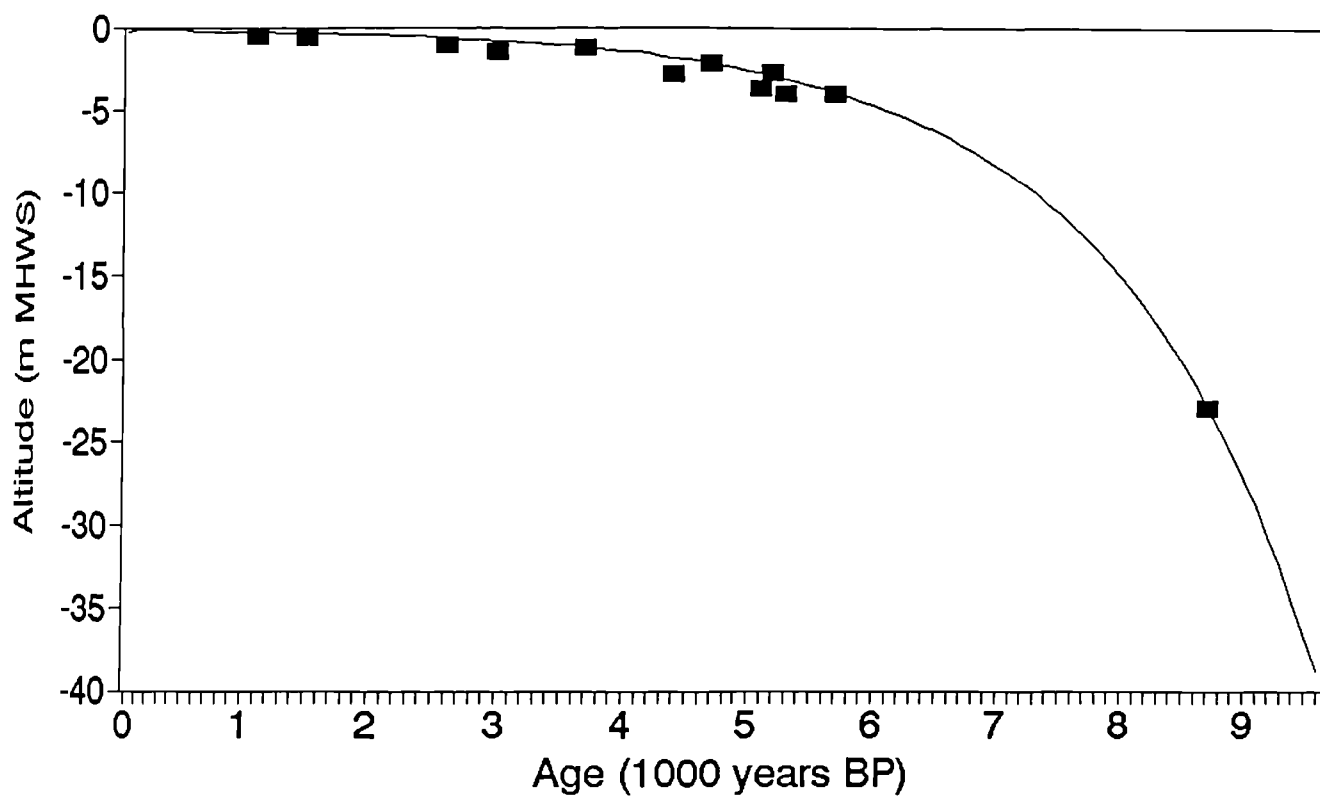


— Fitted curve    ■ Onshore dates    \* Offshore dates

**Fig.6.10 Sea-level index points: Cardigan Bay.**

# Sea-level Index Points

## Cardigan Bay



— Fitted curve    ■ Cardigan Bay

**Fig.6.11 Fitted sea-level curves: Cardigan Bay to Morecambe Bay.**

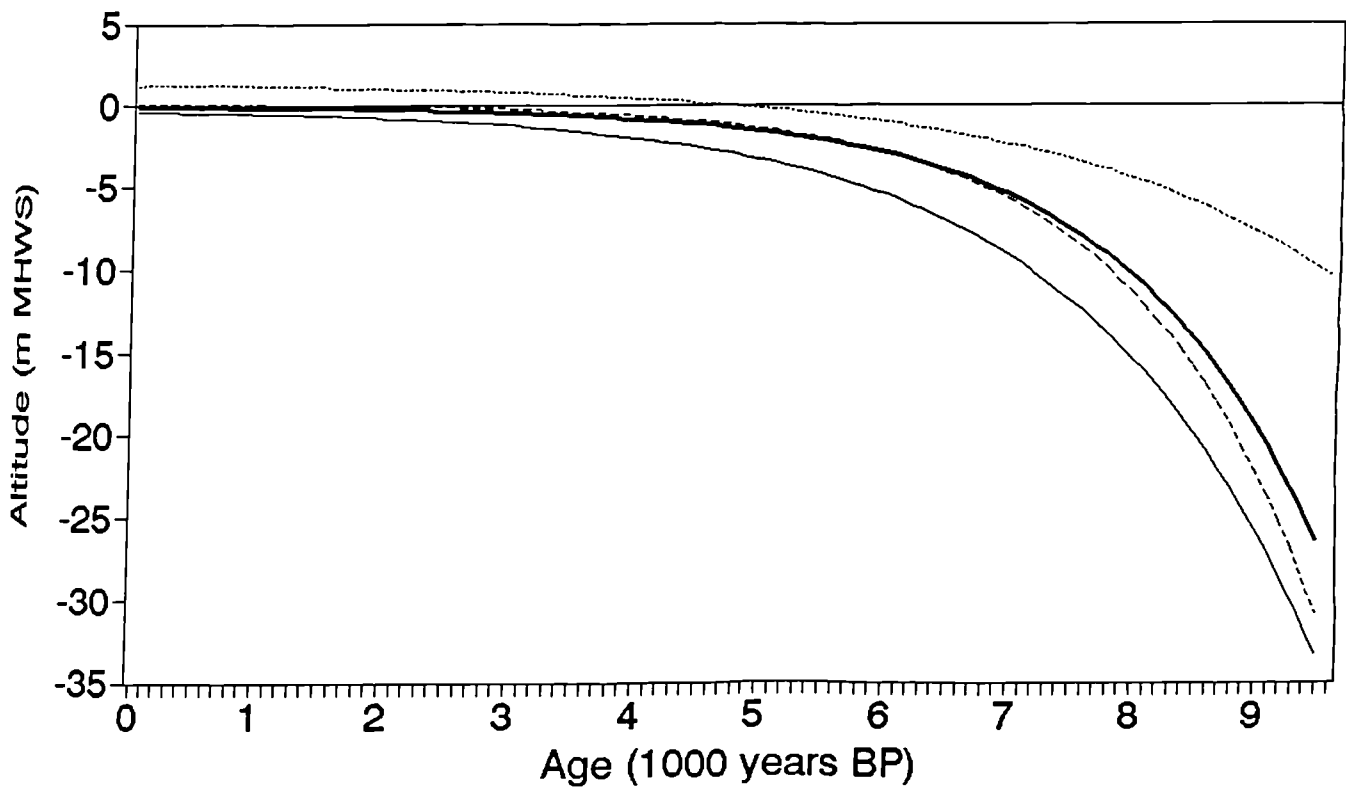
**NW: North Wales.**

**MB: Morecambe Bay.**

**CB: Cardigan Bay.**

**L1 and L2: Lancashire.**

# Fitted sea-level curves. Cardigan Bay to Morecambe Bay

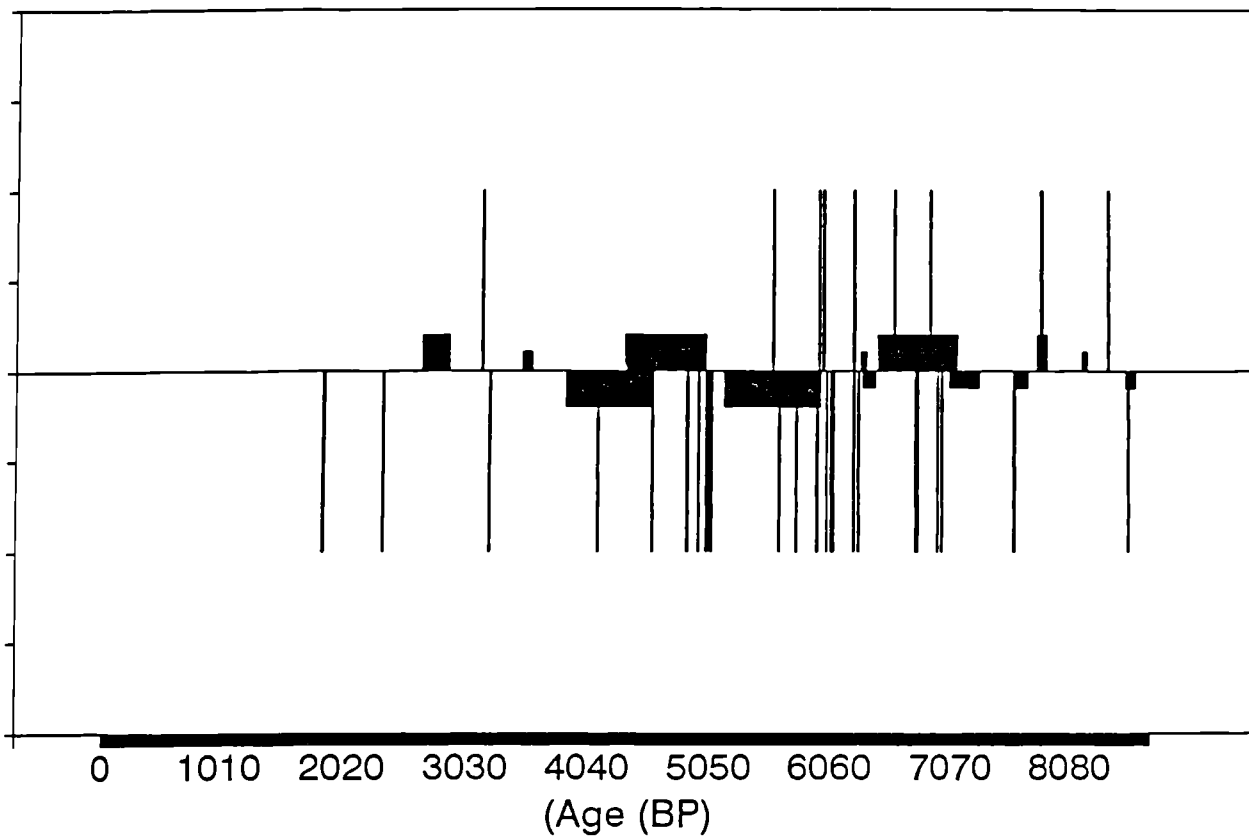


— NW    ..... MB    — CB    - - - - L1

**Fig.6.12 Tendencies of sea-level: Lancashire, North Wales and Wirral.**

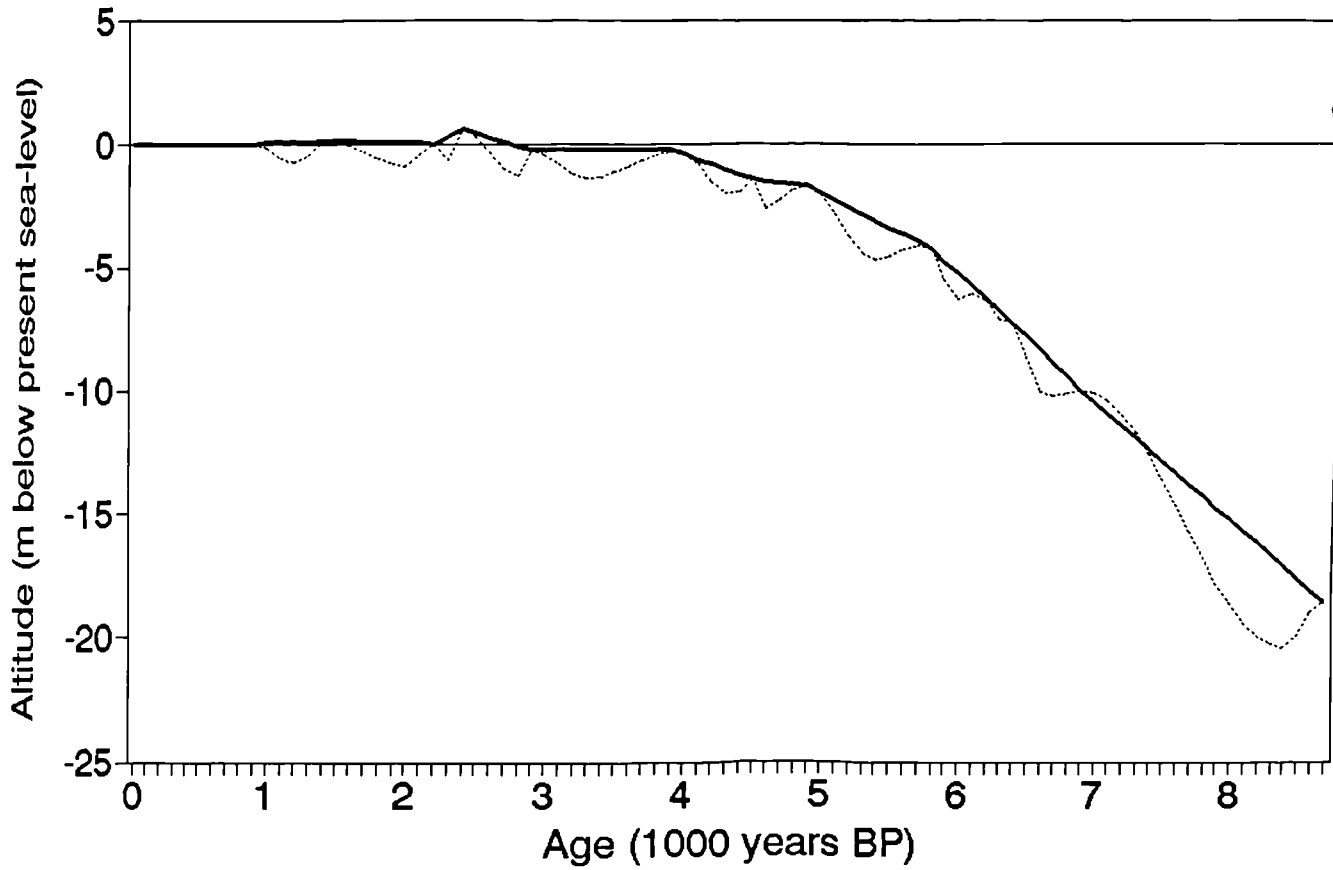
# Tendencies of sea-level

Lancashire and N.Wales/Wirral



**Fig.7.1 Mörner's eustatic curve (from Shennan, 1989).**

# Morner's 'eustatic' sea-level model.

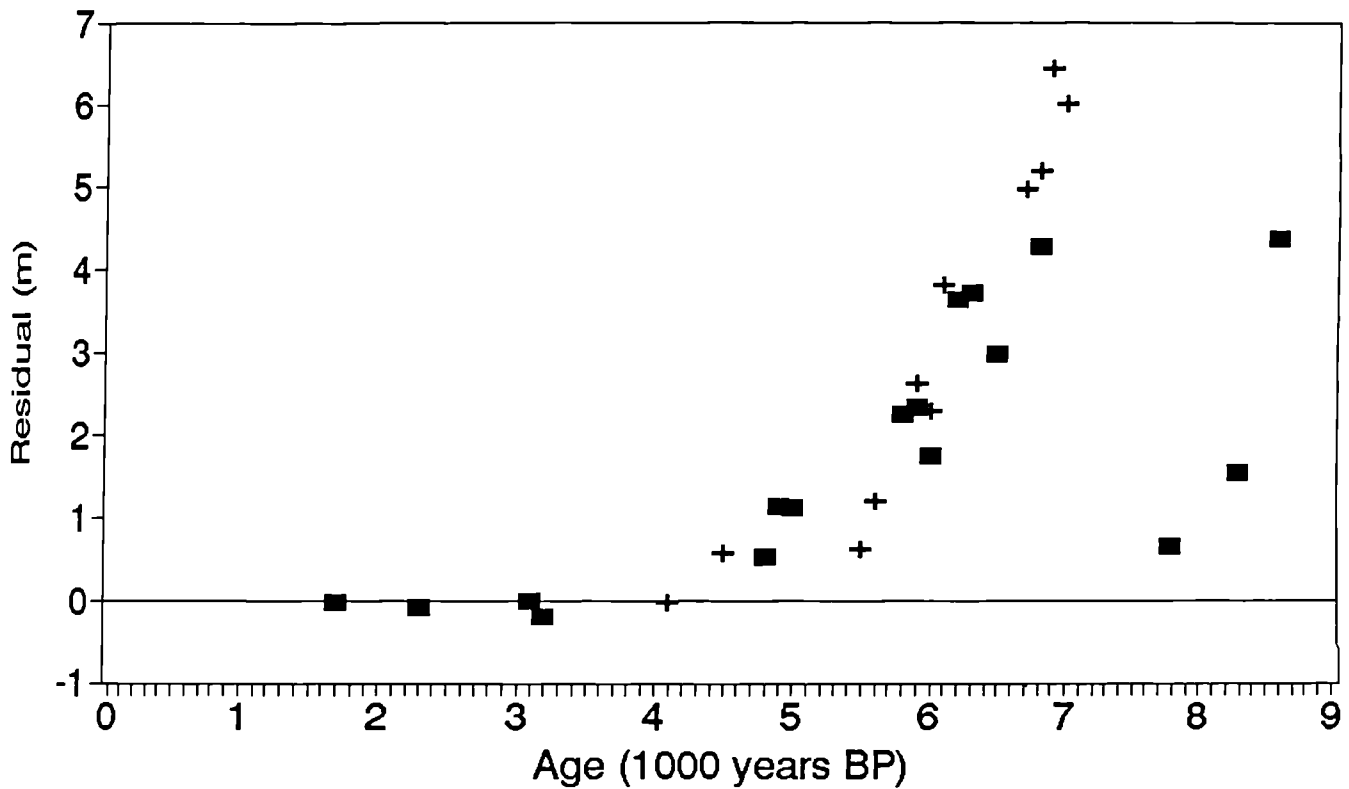


— Smooth      ..... Oscillating

**Fig.7.2 Crustal residuals: Northwest England.**

# Crustal residuals

## Northwest England

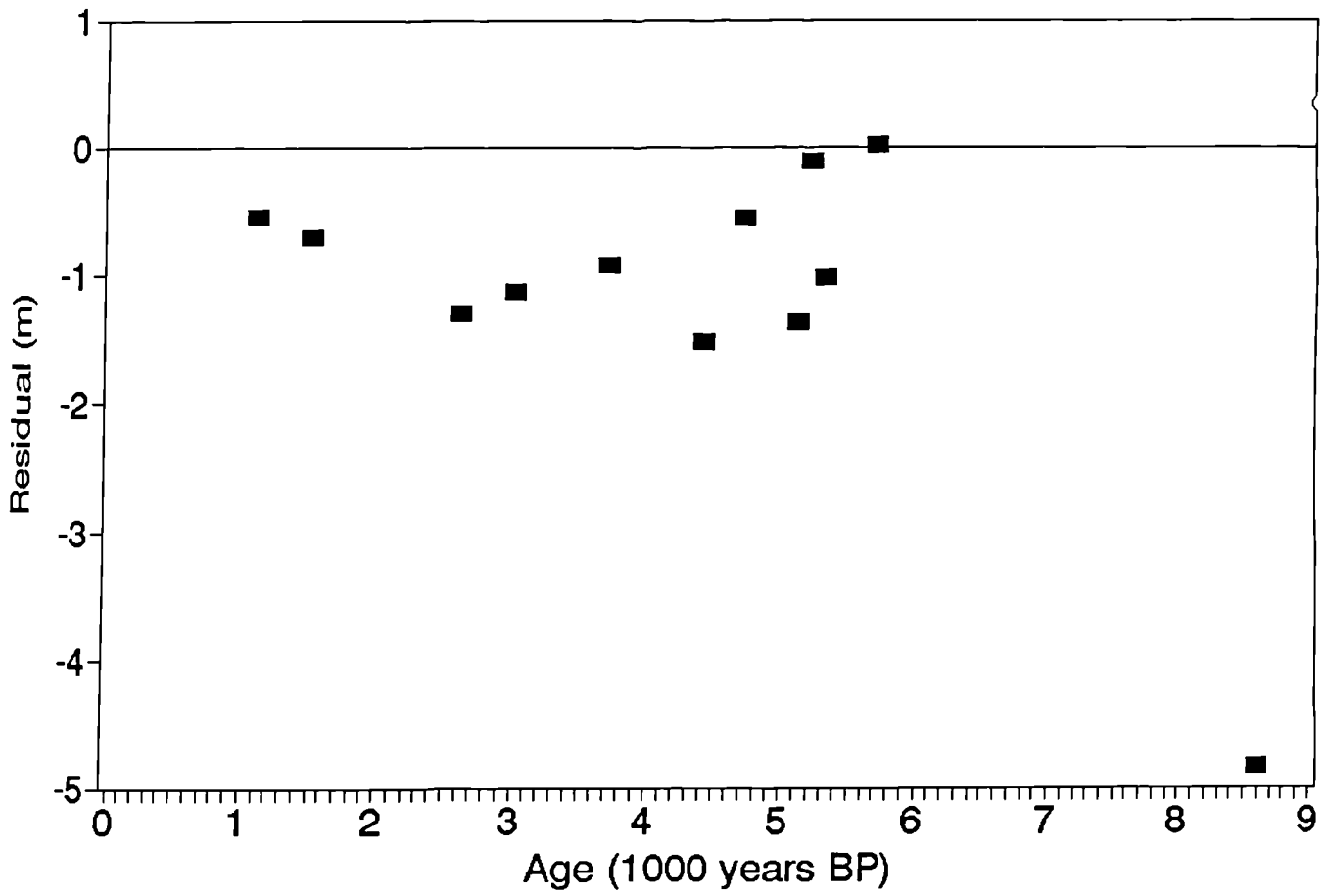


■ N.Lancs + S.Lancs

**Fig.7.3 Crustal residuals: Cardigan Bay.**

# Crustal residuals

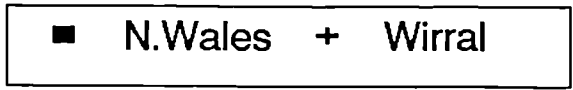
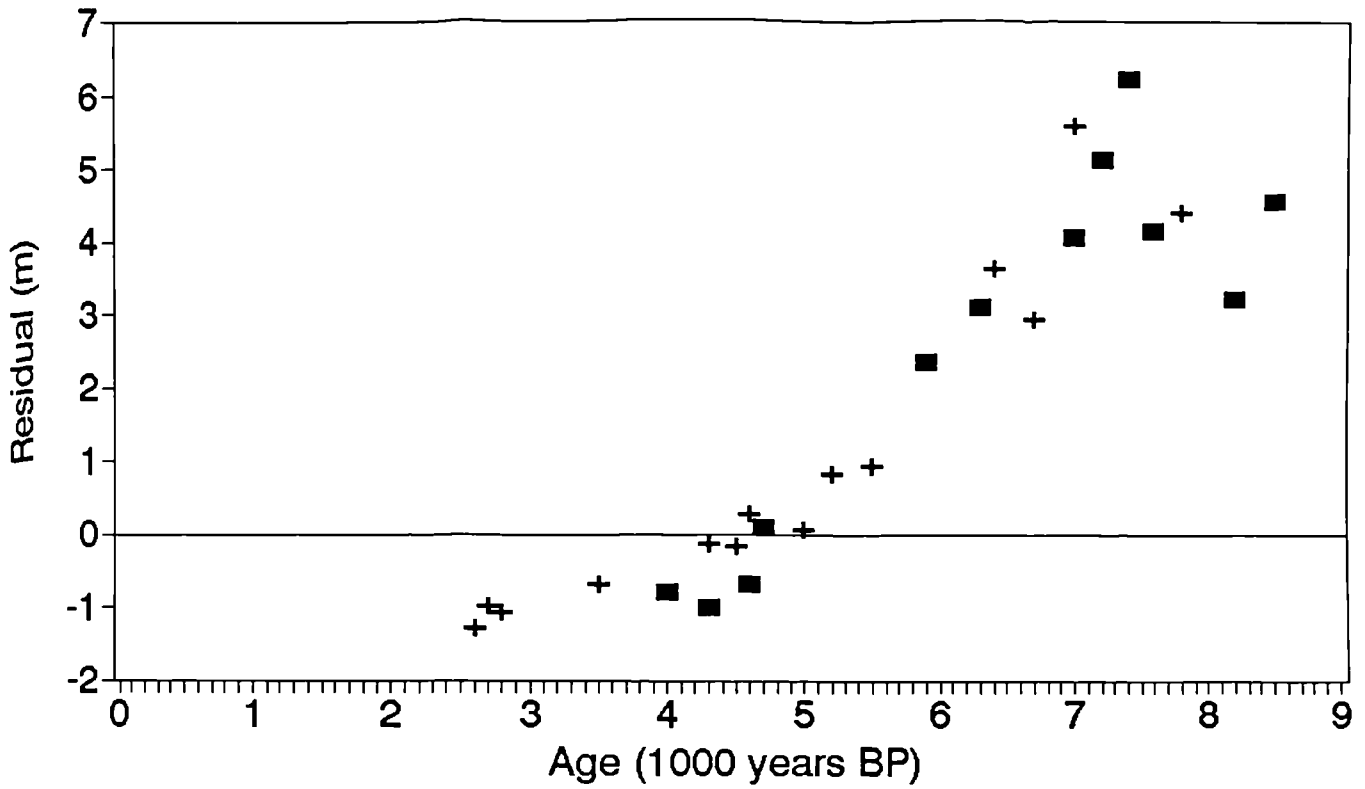
## Cardigan Bay



**Fig.7.4 Crustal residuals: North Wales and Wirral.**

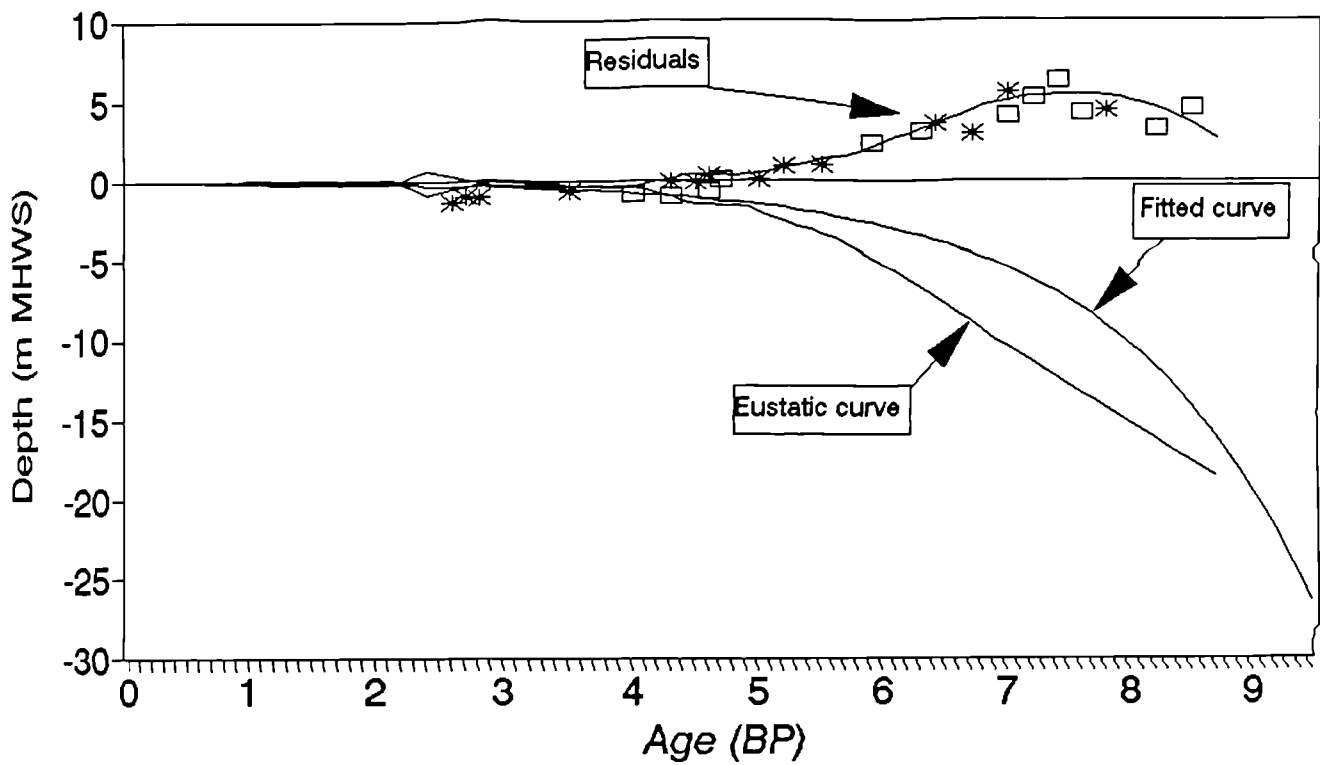
# Crustal residuals

## North Wales and Wirral



**Fig.7.5 Eustatic and crustal residual curves.**

# Fitted, Eustatic & Residual curves North Wales and Wirral



□ N.Wales residuals \* Wirral residuals

**Fig.7.6 Holocene rates of change of relative sea-level.**

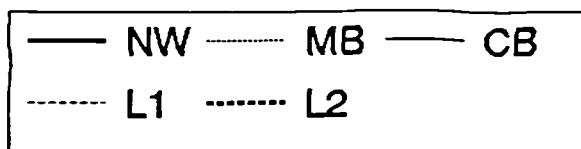
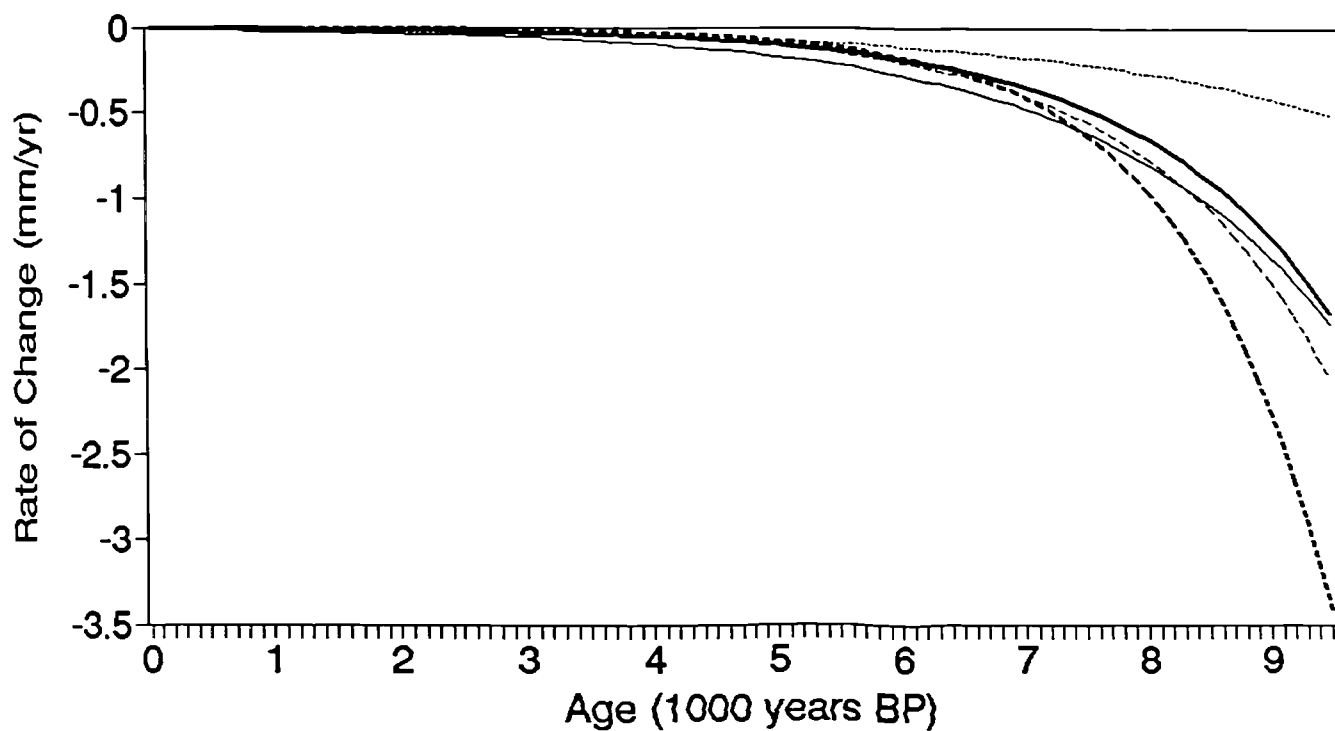
**NW: North Wales.**

**MB: Morecambe Bay.**

**CB: Cardigan Bay.**

**L1 and L2: Lancashire.**

# Estimated Rates of Change. Cardigan Bay to Morecambe Bay



## Appendix 1.

### Definition of terms.

**Altitude:** The altitude of a given point may be defined as the vertical distance of this point above, or below, a reference datum level. For mainland England, Scotland and Wales, and therefore for all data collected in this thesis, the reference datum level, OD (Ordnance datum), coincides with mean sea-level at Newlyn, Cornwall between 1915 and 1921 (Jardine, 1986). Reference is also made to the Dutch Datum, NAP (Normaal Amsterdams Peil) which is 0.203m above OD.

**Radiocarbon date:** Abbreviated to  $^{14}\text{C}$ -date, are quoted as uncorrected ages before present (BP), where present is 1950.  $^{14}\text{C}$ -dates are quoted with one standard deviation based on a half-life of  $5570 \pm 30$  years.

**Calibrated date:** These are  $^{14}\text{C}$ -dates converted into calendar years and quoted as AD or BC.

**Sea-level:** In theory mean sea-level (MSL) is the surface which the oceans and the seas would adopt if tidal forces ceased to operate. Mean tide level (MTL) is the average of high and low water at a point over time, and therefore varying from place to place. Unless the tidal curve at a point is perfectly symmetrical MSL will not be equal to MTL, but the differences are usually well within resolution attained in the construction of past sea-levels.

**Transgressive and Regressive overlaps:** Transgressive overlap is defined as a change in lithology from semi-terrestrial sediments (often peat) to brackish or marine sediments, and a regressive overlap as a change in lithology from marine or brackish sediments (often clays and silts) to semi-terrestrial sediments. Their usage does not imply a process (Shennan, 1980).

**Relative sea-level change:** Relative sea-level (RSL) changes are changes in the vertical position of the ocean-land interface. On a Holocene timescale three main variables produce changes in RSL.

**Eustasy, Eustatic changes:** Are changes in sea-level as a consequence of a change in the volume of ocean water.

**Isostasy, Isostatic changes:** Isostasy refers to the condition of equilibrium established by the earth's lithosphere (Fairbridge, 1983). Isostatic changes, therefore, refer to radial displacements of the solid earth.

**Geoidal- changes, shifts:** The geoid is the equipotential surface of the Earth, a function of the Earth's gravity field. The geographical variability in the Earth's gravity field therefore causes an uneven ocean surface so that horizontal shifts in the geoid will produce relative sea-level change independently of eustatic and isostatic changes.

Appendix 2.  
Laboratory Preparation for diatom and pollen analysis.

**1. Diatom Analysis.**

Extract 1cc sediment and transfer to beaker. Add 30% H<sub>2</sub>O<sub>2</sub>.

Heat gently for c. 6 hours. Add distilled water as necessary.

Mount by pipetting the diatom+water mixture onto cover slip placed on a hotplate. Evaporate slowly. Add NAPHRAX solution to microscope slide and invert the diatom coverslip onto the slide. Heat gently to liquefy NAPHRAX, cool and allow to set.

**2. Pollen Analysis.**

Evacuation of Alkali-soluble organic components.

Add Potassium hydroxide (KOH) to sample. Stir.

Heat in boiling water for 30 minutes, stirring occasionally.

Decant through a sieve (mesh 180 microns).

Wash residue with distilled water. Centrifuge. Decant.

Acetylation. Evacuation of unaltered lignin and cellulose.

Add glacial acetic acid.

Stir. Centrifuge. Decant.

Add acetylation mixture (1:9 conc. HSO-Acetic Anhydride). Stir.

Heat in boiling water for 1 min.

Add glacial acetic acid. Centrifuge. Decant x2.

Add distilled water. Stir. Centrifuge. Decant x2.

Add Tert. Butyl Alcohol. Stir. Centrifuge. Decant.

Staining.

Add 1ml. of Tert. Butyl Alcohol and two drops of safranin solution into small vials.

Centrifuge. Decant.

Add Silicone fluid. Stir.

Plug with cotton wool and leave for alcohol to evaporate.

### Appendix 3.

#### **The classification of radiocarbon dates.**

Source: Long (1991,p.16).

- Group 1:** Dates obtained from organic sediments which have accumulated directly overlying the pre-Holocene surface, forming under a rising groundwater table.
- Group 2:** Dates obtained from transgressive overlaps, normally requiring additional data to confirm the sedimentary change from terrestrial or freshwater to a brackish/marine environment.
- Group 3:** Dates obtained from regressive overlaps, normally requiring additional data to confirm the sedimentary change from a brackish/marine to a terrestrial or freshwater environment.
- Group 4a:** Dates obtained from within organic deposits which have no direct biostratigraphic relevance to the direction of watertable movements, and no defined altitudinal relationship to a former sea-level. These dates only indicate the time organic sedimentation was occurring.
- Group 4b:** Dates obtained from within inorganic deposits which have no direct biostratigraphic relevance to the direction of watertable movements, and no defined altitudinal relationship to a former sea-level. These dates are often based on allochthonous material included within inorganic brackish/marine sediments, and provide a maximum age for the deposition of that deposit.
- Group 5a:** Dates obtained from within organic deposits which are indicative of a rise in the relative altitude of the watertable. Require supporting biostratigraphic data.
- Group 5b:** Dates obtained from within organic deposits which are indicative of a fall in the relative altitude of the watertable. Require supporting biostratigraphic data.
- Group 6:** Dates upon tree stumps, which died because of a rise in sea-level.
- Group 7:** An entire peat horizon.

## Appendix 4

## Lithostratigraphy from the Piston Cores

## Tregarnedd-bâch - 18 (SH 4707 7435)

Stratum	Depth	Altitude m. OD.	Description
6	614-624	-3.35 to -3.45	As3, Part test moll. 1, Ag+ nig. 2+, strf. 0, sicc. 2, elas. 0, lim.sup. 0 Grey/black clay with shells, mainly <i>Scrobicularia</i> . Very buttery.
5	624-656	-3.45 to -3.77	As3, Ag1, Part test moll. +, Th <sup>3</sup> + nig. 2+, strf. 0, sicc. 2, elas. 0, lim.sup. 0 Dark grey silty-clay with small shell fragments and semi- humified <i>turfa</i> . Quite buttery.
4	656-675	-3.77 to -4.00	As3, Ag1, Th <sup>3</sup> +, Th <sup>3</sup> ( <i>Phra</i> )+ nig. 2, strf. 0, sicc. 2, elas. 0, lim.sup. 0 Grey silty-clay with some semi-humified <i>turfa</i> and <i>Phragmites</i> .
3	675-677	-3.96 to -3.98	Sh2, As2, D1+, Th <sup>3</sup> ( <i>Phra</i> )+ nig. 2+, strf. 0+, sicc. 2, elas. 0, lim.sup. 0 A transitional organic clay with very slight stratification. Some <i>Phragmites</i> and unidentified wood present.
2	679-692	-3.98 to -4.15	Sh4, Th <sup>3</sup> +, Th <sup>3</sup> ( <i>Phra</i> )+ nig. 3+, strf. 0, sicc. 2, elas. 0, lim.sup. 0 A very amorphous red/brown humified peat. Small quantities of semi-humified <i>turfa</i> and <i>Phragmites</i> present.
1	692-719	-4.15 to -4.42	Ag4, As+, Sh+, Ga+ nig. 2+, strf. 0, sicc. 2+, elas. 0, lim.sup. 0 Dark grey stiff silt. Some sand grains visible.

## Tregarnedd-bâch - 29 (SH 4699 7401)

Stratum	Depth	Altitude m. OD.	Description
5	156-164	+1.56 to +1.48	As4, D1+, Th <sup>2</sup> (Phra)+ nig. 2, strf. 0, sicc. 2, elas. 0, lim.sup. 0 Fine grey clay with wood, including birch and alder, and <i>Phragmites</i> .
4	164-170	+1.48 to +1.42	As2, Ag1, Ga1, D1+, Th <sup>2</sup> (Phra)+ nig. 2, strf. 2, sicc. 0, elas. 0, lim.sup. 0 Stratified clay with sand and silt.
3	170-184	+1.42 to +1.28	As2, Ag1, D11, Th <sup>2</sup> (Phra)+ nig. 2, strf. 0, sicc. 2, elas. 0, lim.sup. 0 Blue/grey silty-clay with <i>Phragmites</i> .
2	184-214	+1.28 to +0.98	Sh2, Ld1, D11, Th <sup>2</sup> + nig. 0, strf. 0, sicc. 1, elas. 0, lim.sup. 0 Brown peat with wood and <i>turfa</i> . Very wet.
1	214-268	+0.98 to +0.46	As3, D11 nig. 2, strf. 0, sicc. 2, elas. 0, lim.sup. 0 Light grey, buttery clay with large chunks of alder.

## Morfa Penrhyn - 20. (SM 8061 8241)

Stratum	Depth	Altitude m. OD.	Description
16	170-244	+1.68 to +0.94	As3, Ag1, Sh+, D1+ nig. 2+, strf. 0, sicc. 0, elas. 2, lim. sup. 0. Medium dark grey-brown silty-clay with some organic material and an eroded peat ball with wood at 230-231cm.
15	244-255	+0.94 to +0.83	Missing.
14	255-298	+0.83 to +0.40	As3, Ag1, Sh+, Th <sup>3</sup> + nig. 2+, strf. 0, sicc. 0, elas. 0, lim. sup. 0. Battleship-grey silty-clay with some humified <i>turfa</i> and organic material.
13	298-299	+0.40 to +0.39	As3, Sh1, Ag+ nig. 2+, strf. 0, sicc. 2, elas. 0, lim. sup. 0. Organically enriched clay. Grey with brown peat veins.
12	299-308	+0.39 to +0.30	Sh3, Th <sup>2</sup> 1, Th <sup>2</sup> ( <i>Phra</i> ) nig. 4, strf. 0, sicc. 2, elas. 0, lim. sup. 4. Very dark amorphous semi-humified peat with <i>turfa</i> and <i>Phragmites</i> , and sharp upper contact.
11	308-313	+0.30 to +0.25	Sh2, Th <sup>2</sup> ( <i>Phra</i> )2 nig. 3+, strf. 2, sicc. 2, elas. 0, lim. sup. 0. Brown, stratified <i>Phragmites</i> rich peat.
10	313-355	+0.25 to -0.17	As3, Ag1, Sh+ nig. 2, strf. 0, sicc. 2, elas. 0, lim. sup. 0. Battleship-grey silty-clay, with a slight increase in the organic content towards the top of the stratum.
9	355-450	-0.17 to -1.12	As3, Ag1, Sh+ nig. 2, strf. 0, sicc. 2, elas. 0, lim. sup. 0. Plastic blue-grey silty-clay.
8	450-472	-1.12 to -1.34	Missing.
7	472-509	-1.34 to -1.71	Sh4, Th <sup>3</sup> +, D1+ nig. 3+, strf. 0, sicc. 2, elas. 0, lim. sup. 0. Dark brown/black amorphous peat with some woody remains at 489, 592 and 598cm. Slight minerogenic component in the bottom of the stratum.
6	509-513	-1.71 to -1.75	Sh3, As1 nig. 3, strf. 0, sicc. 2, elas. 0, lim. sup. 0. Dark grey/brown organically enriched clay.

5	513-527	-1.75 to -1.89	As2, Ag2, Sh+ nig. 2+, strf. 0, sicc. 2, elas. 0, lim. sup. 0. Light grey silty-clay with an eroded peat ball at 517cm.
4	527-531	-1.89 to -1.93	Sh2, As1, Ag1, Dl+ nig. 3, strf. 0, sicc. 2, elas. 0, lim. sup. 0. Dark grey clay, with some humified peat veins, and some wood.
3	531-561	-1.93 to -2.23	Sh4, Th <sup>3</sup> +, Dl+ nig. 3+, strf. 0, sicc. 2, elas. 0, lim. sup. 0. Dark brown, amorphous and humified peat with wood at 536 and 549cm.
2	561-566	-2.23 to -2.29	As2, Ag2, Th <sup>3</sup> + nig. 1, strf. 0, sicc. 0, elas. 0, lim. sup. 0. Very white, light grey silty-clay with small amounts of humified <i>turfa</i> .
1	566-578	-2.29 to -2.41	Gs2, Ga1, Gg(min)1, Ag+ nig. 2, strf. 0, sicc. 2, elas. 0, lim.sup. 0. Coarse grey sandy-gravel with some silt.

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## Pentre Mawr - 8 (SH 9445 7841)

Stratum	Depth	Altitude m. OD.	Description
17	26-52	+3.26 to +3.00	As3Ag2 Lf+ nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Very tough brown silty-clay with slight iron staining
16	52-176	+3.00 to +1.76	As2,Ag2 nig.2, strf.0, sicc.2, elas.0, lim.sup.0 As above, without iron-staining.
15	176-179	+1.76 to +1.73	Ga4 nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Grey sand.
14	179-200	+1.73 to +1.52	As4, Sh+ nig.2+, strf.0, sicc.2, elas.0, lim.sup.0. Dark grey clay with a trace of organic material.
13	200-242	+1.52 to +1.10	Sh3,Th <sup>3</sup> 1 nig.3, strf.0, sicc.2, elas.0, lim.sup.0. Partially humified brown peat.
12	242-262	+1.10 to +0.90	As3,Th( <i>Phra</i> 3)1 nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Light brown clay with <i>Phragmites</i> remains.
11	262-281	+0.90 to +0.71	As4 nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Blue/grey clay.
10	281-304	+0.71 to +0.48	As4, Th <sup>3</sup> + nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Light brown clay with some <i>turfa</i> .
9	304-313	+0.48 to +0.39	Sh3,Th <sup>3</sup> 1 nig.3, strf.0, sicc.2, elas.0, lim.sup.0. Brown peat with some well humified <i>turfa</i> remains.
8	313-327	+0.39 to +0.25	As4, Th <sup>3</sup> + nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Light brown clay with some <i>turfa</i> .
7	327-350	+0.25 to +0.02	Sh3,Th <sup>3</sup> 1 nig.3, strf.0, sicc.2, elas.0, lim.sup.1. Partially humified peat with some <i>turfa</i> remains.
6	350-359	+0.02 to -0.07	Sh4 nig.4, strf.0, sicc.2, elas.0, lim.sup.0. Very dark, completely humified peat.

5	359-376	-0.07 to -0.24	Sh3,Dl1 As+ nig.3, strf.0, sicc.2, elas.0, lim.sup.0. Lighter peat, with a minerogenic trace and some wood.
4	376-387	-0.24 to -0.33	As3,Th <sup>3</sup> 1 nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Light grey organic clay.
3	387-397	-0.33 to -0.43	As4 nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Blue/grey clay.
2	397-433	-0.43 to -0.81	Sh4, Th <sup>3</sup> + nig.3, strf.0, sicc.2, elas.0, lim.sup.0. Humified peat with a trace of <i>turfa</i> .
1	433-435	-0.81 to -0.83	As2,Sh2 nig.2+, strf.0, sicc.2, elas.0, lim.sup.0. Grey/brown organic clay.

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## Hendre fawr - 21 (SH 9637 7751)

Stratum	Depth	Altitude m. OD.	Description
23	100-114	+2.13 to +1.99	As2, Ag2, Lf+ nig. 2, strf. 0, sicc. 2, elas. 0, lim. sup. 0. Grey silty-clay with orange-brown iron staining.
22	114-128	+1.99 to +1.85	Sh4, As+, Th <sup>3</sup> + nig. 3+, strf. 0, sicc. 2, elas. 0, lim. sup. 1. Dark brown/black, humified peat. Lighter remains of <i>turfa</i> near the upper contact which is moderately sharp.
21	128-131	+1.85 to +1.82	Sh3, As1, Th <sup>3</sup> + nig. 3, strf. 0, sicc. 2, elas. 0, lim. sup. 0. Dark brown, humified peat with some <i>turfa</i> , and clay fraction.
20	131-138	+1.82 to +1.75	As3, Ag1, Th <sup>3</sup> + nig. 2, strf. 0, sicc. 2, elas. 0, lim. sup. 0. Grey silty-clay with black <i>turfa</i> remains running horizontally across the stratum.
19	138-139	+1.75 to +1.74	Sh3, As1, Th <sup>3</sup> + nig. 3, strf. 0, sicc. 2, elas. 0, lim. sup. 0. Brown-grey humified peat with clay and some <i>turfa</i> .
18	139-176	+1.74 to +1.37	Sh3, Th <sup>3</sup> 1, Th <sup>3</sup> ( <i>Phra</i> ) nig. 3+, strf. 0, sicc. 2, elas. 0, lim. sup. 0. Crumbly dark brown/black peat with <i>turfa</i> and some <i>Phragmites</i> .
17	176-188	+1.37 to +1.25	Sh2, Th <sup>3</sup> 1, Th <sup>2</sup> ( <i>Phra</i> )1 nig. 3, strf. 0, sicc. 2, elas. 0, lim. sup. 0. Lighter brown peat with abundant <i>turfa</i> and <i>Phragmites</i> remains.
16	188-196	+1.25 to +1.17	As3, Ag1, Th <sup>3</sup> + nig. 2, strf. 0, sicc. 2, elas. 0, lim. sup. 0. Grey silty-clay with some <i>turfa</i> remains.
15	196-248	+1.17 to +0.65	As3, Ag1, Th <sup>3</sup> + nig. 2, strf. 0, sicc. 2, elas. 0, lim. sup. 0. Grey silty-clay.
14	248-269	+0.65 to +0.44	As3, Ag1, Th <sup>3</sup> + nig. 2, strf. 0, sicc. 2, elas. 0, lim. sup. 0. Grey silty-clay with some <i>turfa</i> remains.
13	269-295	+0.44 to +0.18	As2, Ag2 nig. 2, strf. 0, sicc. 2, elas. 0, lim. sup. 0. Battleship grey silty-clay.

12	295-305	+ .18 to +0.08	Ag2, As1, Ga1 nig. 2, strf. 0, sicc. 2, elas. 0, lim. sup. 0. Grey clayey-silt with some sand.
11	305-336	+0.08 to -0.23	Ag2, Ga2 nig. 2+, strf. 1, sicc. 2, elas. 0, lim. sup. 0. Grey silty-sand. Slightly laminated. Black streaks and flecks throughout the sample but no identifiable organic material.
10	336-365	-0.23 to -0.52	As2, Ag2 nig. 2, strf. 0, sicc. 2, elas. 0, lim. sup. 0. Battleship grey silty-clay.
9	365-378	-0.52 to -0.65	As2, Ag2, Th <sup>2+</sup> nig. 2, strf. 0, sicc. 2, elas. 0, lim. sup. 0. Battleship grey silty-clay with black <i>turfa</i> remains.
8	378-382	-0.65 to -0.69	Th <sup>3</sup> 2, Th <sup>2</sup> ( <i>Phra</i> )1, As1 nig. 3, strf. 1, sicc. 2, elas. 1, lim. sup. 0. Slightly stratified <i>turfa</i> peat with <i>Phragmites</i> and clay.
7	382-399	-0.69 to -0.86	As2, Ag2, Th <sup>3+</sup> , Th <sup>2</sup> ( <i>Phra</i> ) nig. 2, strf. 0, sicc. 2, elas. 0, lim. sup. 0. Grey silty-clay with <i>turfa</i> and <i>Phragmites</i> remains.
6	399-408	-0.86 to -0.95	Sh2, Th <sup>3+1</sup> , Th <sup>2</sup> ( <i>Phra</i> )1 nig. 3, strf. 0, sicc. 2, elas. 0, lim. sup. 0. Dark brown peat with <i>Phragmites</i> and humified <i>turfa</i> .
5	408-438	-0.95 to -1.25	As3, Ag1, Th <sup>2</sup> ( <i>Phra</i> ) nig. 2, strf. 0, sicc. 2, elas. 0, lim. sup. 0. Blue-grey silty-clay with some light brown <i>Phragmites</i> remains.
4	438-444	-1.25 to -1.31	As2, Ag2, Th <sup>3</sup> ( <i>Phra</i> ) <sup>+</sup> , Ga <sup>+</sup> nig. 2, strf. 0, sicc. 2, elas. 0, lim. sup. 0. Grey clay-silt with some sand and <i>Phragmites</i> .
3	444-449	-1.31 to -1.36	Sh1, Ag1, Th <sup>3+1</sup> , Th <sup>3</sup> ( <i>Phra</i> )1 nig. 2+, strf. 0, sicc. 2, elas. 0, lim. sup. 0. Grey-brown organically enriched silt with humified <i>turfa</i> and <i>Phragmites</i> .
2	449-459	-1.36 to -1.46	Ag2, Ga2, Th <sup>3</sup> ( <i>Phra</i> ) nig. 2, strf. 0, sicc. 2, elas. 0, lim. sup. 0. Grey sand-silt with some humified <i>Phragmites</i> .
1	459-463	-1.46 to -1.50	Ga2, Ag1, Gg(maj)1 nig. 2, strf. 0, sicc. 2, elas. 0, lim. sup. 0. Grey sand with gravel.

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## Hendre fawr - 29 (SH 9660 7712)

Stratum	Depth	Altitude m. OD.	Description
4	466-498	-2.14 to -2.46	As3, Ag1 Th <sup>3</sup> (Phra)+ nig. 2, strf. 1, sicc. 2, elas. 0, lim. sup. 0 Blocky battleship-grey silty-clay with some <i>Phragmites</i> .
3	498-503	-2.46 to -2.51	Sh3, As1 Th <sup>2</sup> (Phra)+ nig. 3+, strf. 0+, sicc. 2, elas. 0, lim.sup. 0 Dark brown/black humified and slightly stratified peat with some <i>Phragmites</i> and a transitional upper contact.
2	503-530	-2.51 to -2.78	Ag3As1 Sh+, Ga+, Th <sup>2</sup> (Phra)+ nig. 2+, strf. 0, sicc. 2, elas. 0, lim.sup. 0. Coarse clayey-silt with some <i>Phragmites</i> and other organic enrichment.
1	530-555	-2.78 to -3.03	Boulder clay.

## Newton Carr - 17 (SJ 2290 8858)

Stratum	Depth	Altitude m. OD.	Description
20	146-152	+2.96 to +2.90	As <sub>2</sub> , Ag <sub>2</sub> , Lf+ Th <sup>3</sup> + nig. 2, strf. 0, sicc. 2, elas. 0, lim.sup. 0 Battleship-grey silty-clay with some iron-staining and eroded <i>turfa</i> .
19	152-173	+2.90 to +2.69	Sh <sub>4</sub> , Dh+, Th <sup>2</sup> (Phra)+ nig. 3+, strf. 0, sicc. 2, elas. 0, lim.sup. 0 Very dark brown/black humified amorphous peat with some <i>Phragmites</i> .
18	173-205	+2.69 to +2.37	Ld <sub>3</sub> , Th <sup>2</sup> (Phra) <sub>1</sub> , D <sub>1</sub> + nig. 3, strf. 0, sicc. 2, elas. 0, lim.sup. 0 Quite fresh light brown <i>limus</i> , with <i>Phragmites</i> and some wood.
17	205-210	+2.37 to +2.32	As <sub>3</sub> , Sh <sub>1</sub> , Th <sup>3</sup> +, Th <sup>2</sup> (Phra)+ nig. 2+, strf. 0, sicc. 2, elas. 0, lim.sup. 0 Grey clay with organic enrichment. Some <i>Phragmites</i> and eroded balls of <i>turfa</i> .
16	210-230	+2.32 to +2.12	As <sub>3</sub> , Ag <sub>1</sub> Sh+ Th <sup>3</sup> +, Th <sup>2</sup> (Phra)+ nig. 2, strf. 0, sicc. 2, elas. 0, lim.sup. 0 Grey clay with some organic remains towards the base of the stratum.
15	230-238	+2.12 to +2.04	Sh <sub>4</sub> , Th <sup>3</sup> + nig. 3+, strf. 1, sicc. 2, elas. 0, lim.sup. 0 Dark brown, slightly laminated peat.
14	238-285	+2.04 to +1.57	Ld <sub>3</sub> , Sh <sub>1</sub> , As+, Th <sup>3</sup> (Phra)+, Th <sup>3</sup> + nig. 2, strf. 2, sicc. 2, elas. 0, lim.sup. 0 Laminated <i>limus</i> , with intercalated clay veins, and <i>Phragmites</i> .
13	285-290	+1.57 to +1.52	As <sub>3</sub> , Ld <sub>1</sub> , Th <sup>3</sup> (Phra)+, Th <sup>3</sup> + nig. 2+, strf. 1, sicc. 2, elas. 0, lim.sup. 0 Grey clay with <i>limus</i> . Slightly laminated with <i>turfa</i> and <i>Phragmites</i> present throughout the whole stratum.
12	290-316	+1.52 to +1.26	As <sub>3</sub> , Ag <sub>1</sub> , Th <sup>3</sup> + nig. 2, strf. 0, sicc. 2, elas. 0, lim.sup. 0 Grey/blue silty-clay with some <i>turfa</i> .
11	316-323	+1.16 to +1.19	As <sub>2</sub> , Sh <sub>1</sub> , Th <sup>2</sup> (Phra) <sub>1</sub> , Th <sup>2</sup> + nig. 2+, strf. 0, sicc. 2, elas. 0, lim.sup. 0 Very organic clay with <i>Phragmites</i> and <i>turfa</i> . Some stratification.
10	323-329	+1.19 to	As <sub>2</sub> , Ag <sub>2</sub> , Sh+

		+1.13	nig. 2, strf. 0, sicc. 2, elas. 0, lim.sup. 0 Battleship-grey silty-clay.
9	329-388	+1.13 to +0.54	Ag4, Ga+ nig. 2+, strf. 0, sicc. 2, elas. 0, lim.sup. 0 Dark grey, amorphous silt.
8	388-469	+0.54 to - 0.27	As3, Ag1 nig. 2, strf. 0, sicc. 2, elas. 0, lim.sup. 0 Battleship-grey silty-clay with some black flecks.
7	469-569	-0.27 to -1.27	As2, Ag2 nig. 2, strf. 0, sicc. 2, elas. 0, lim.sup. 0 Pinky-grey silty-clay.
6	569-581	-1.27 to -1.39	As2, Ag2, Dh+ nig. 2+, strf. 0, sicc. 2, elas. 0, lim.sup. 0 Dark grey silty-clay with <i>detritus</i> .
5	581-620	-1.39 to -1.78	Ag3, Ga1, Th <sup>2</sup> ( <i>Phra</i> ) nig. 2+, strf. 0, sicc. 2, elas. 0, lim.sup. 0 Dark grey silt with some sand. Odd remains of fresh <i>Phragmites</i> .
4	620-632	-1.78 to -1.90	As3, Ag1 nig. 2, strf. 0, sicc. 2, elas. 0, lim.sup. 0 Battleship-grey silty-clay.
3	632-645	-1.90 to -2.03	Sh4, D1+, Th <sup>2</sup> ( <i>Phra</i> ) nig. 3+, strf. 0, sicc. 2, elas. 0, lim.sup. 0 Compact, humified peat with some wood and <i>Phragmites</i> .
2	645-652	-2.03 to -2.10	D14, Sh+ nig. 3, strf. 0, sicc. 2, elas. 4, lim.sup. 4 Large peice of wood.
1	652-670	-2.10 to -2.28	Boulder clay.

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Appendix 5.  
Results from the lithostratigraphic survey.

LLANFAWR, MALLTRAETH MARSHES.

Fieldwork: 31/5/90 DJB AJL

<p><u>LA1</u></p> <p>0-40 Sc4</p> <p>40 Solid.</p>	<p>45-120 As1Ag2Lf1 nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Iron stained clayey silt. Orange/grey.</p>
<p><u>LA2</u></p> <p>0-40 Sc4</p> <p>40-93 As3Ag1 Lf+ nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Iron stained silty clay.</p> <p>93-180 As1Ag3 nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Grey silty clay.</p> <p>180-230 nig.2, strf.2, sicc.2, elas.0, lim.sup.0. Laminated grey silt.</p> <p>230-245 Ga4 nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Orange sand. No structure. Impenetrable.</p>	<p>120-285 Ag4 Ga+ nig.2, strf.2, sicc.2, elas.0, lim.sup.0. Laminated grey sandy silt.</p> <p>285-300 Ga4 nig.2, strf.0, sicc.1, elas.0, lim.sup.0. Grey wet sand.</p> <p><u>LA4</u></p> <p>0-40 Sc4</p> <p>40-92 Ag3As1 Lf+ nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Iron stained clayey silt.</p> <p>92-180 Ga3Ag1 nig.2, strf.2, sicc.2, elas.0, lim.sup.0. Grey laminated sand.</p>
<p><u>LA3</u></p> <p>0-30 Sc4</p> <p>30-45 As3Ag1 Lf+ nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Iron stained silty clay.</p>	

LLANGEFNI, MALLTRAETH MARSHES.

Fieldwork: 31/5/90 DJB AJL

L1 (+2.74 m.)

0-61  
Th<sup>2</sup>4 Th<sup>2</sup>(Phra)+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Brown fresh *turfa* with some *Phragmites*.

61-85  
As2Ag2  
nig.1, strf.0, sicc.2, elas.0, lim.sup.0.  
White/grey sticky silty clay.

85-90  
As2Ag1Th<sup>2</sup>1  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Light grey clay with some *turfa*.

90-106  
As2Ag2  
nig.1, strf.0, sicc.2, elas.0, lim.sup.0.  
White/grey sticky silty clay.

106-191  
Ag3Ga1  
nig.2, strf.1, sicc.2, elas.0, lim.sup.0.  
Light grey laminated sandy silt.

191-211  
Ga3Ag1 Gg(min)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey coarse impenetrable silty sand.

L2 (+2.57 m.)

0-48  
Th<sup>2</sup>4 Th<sup>2</sup>(Phra)+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Fresh brown *turfa*.

48-89  
As2Ag2  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay.

89-151  
Ag3Ga1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Grey sandy silt.

151-185  
Ga3Ag1  
nig.2, strf.2, sicc.2, elas.0, lim.sup.0.  
Grey laminated silty sand.

L3 (+2.280 m.)

0-43  
Th<sup>2</sup>4 Th<sup>2</sup>(Phra)+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Fresh brown *turfa* peat with some *Phragmites*.

43-165  
Th<sup>2</sup>2Sh2 As+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Slightly humified *turfa* with some clay.

165-238  
Ag1Ga1Gg(min)2  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Gravel (lag) with some silt and sand.

238-270  
Ag2Ga2  
nig.2, strf.0, sicc.2, elas.0, lim.sup.4.  
Grey silty sand.

270-340  
Ga3Ag1  
nig.2, strf.1, sicc.2, elas.0, lim.sup.0.  
Grey silty sand. Impenetrable.

L4 (+2.395 m.)

0-24  
Th<sup>2</sup>4 Sh+As+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Brown, crumbly *turfa* with some clay.

24-31  
As2Ag2 Sh+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty clay with some organic remains.

- 31-75  
As2Ag2 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron stained silty clay.
- 75-91  
Ag2Ga2  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey sandy silt.
- 91-122  
Ga3Ag1  
nig.2, strf.1, sicc.2, elas.0, lim.sup.0.  
Grey silty sand.
- 122-413  
Ga4 Ag+  
nig.2, strf.2, sicc.2, elas.0, lim.sup.0.  
Grey laminated sand with some silt.
- 413-520  
Ag4 As+PTM+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silt with *Scrobicularia* at 430 and 455
- 520-690  
As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey clay with some silt.
- 690-710  
As3Th<sup>3</sup>1 Th<sup>3</sup>(Phra)+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey clay with *turfa* and some *Phragmites*.
- 710-720  
Sh4  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.0  
Humified dark brown peat.
- 720  
Solid.
- L5 (+2.310 m.)
- 0-35  
Th<sup>2</sup>4 As+Sh+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Brown crumbly *turfa* with some clay.
- 35-72  
As2Ag2 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron stained silty clay.
- 72-89
- Ag2Ga2  
nig.2, strf.1, sicc.2, elas.0, lim.sup.0.  
Grey, slightly laminated silty sand.
- 89-450  
Ga4  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Coarse grey sand.
- 450-550  
As2Ag2 PTM+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Silty clay with some *Scrobicularia*.
- 550-688  
As2Ag2 PTM+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark grey clay. Blocky with some Scrob.
- 688-701  
As2Ag2 Th<sup>3</sup>+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty clay with some humified *turfa*.
- 701  
Solid.
- L6 (+2.500 m.)
- 0-22  
Sc4  
Top soil.
- 22-34  
Th<sup>3</sup>4 As+Sc+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Light brown crumbly peat.
- 34-75  
Ag3As1 Ga+Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron stained silty clay.
- 75-107  
Ag2Ga2  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey silty sand.
- 107-490  
Ga4  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey sand.

TREGARNEDD BACH, MALLTRAETH MARSHES

Fieldwork: 26/6/90 - 28/6/90 DJB AMG, 21/6/91 - 22/6/91 DJB AMG

TB1 (+3.060 m.)

0-90

Th<sup>4</sup> Th<sup>1</sup>(Phra)+

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Very fresh uncompactd, light brown *turfa*.

90-134

Th<sup>2</sup>1Sh1As1Ag1

nig.3, strf.0, sicc.2, elas.0, lim.sup.1.

Brown/grey organic silt.

134-151

As2Ag2 Th<sup>2</sup>(Phra)+D1+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey silty clay with some *Phragmites* and alder.

151-187

Ga3Ag1 Th<sup>3</sup>(Phra)+

nig.2, strf.2, sicc.2, elas.0, lim.sup.0.

Grey laminated silty sand.

187-211

Sh2Th<sup>3</sup>1As1

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Brown/grey humified organic clay.

211-259

As3Ag1 Th<sup>3</sup>(Phra)+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey/blue silty clay.

259-303

Ag2Ga2 Th<sup>2</sup>(Phra)+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Grey sandy silt with some *Phragmites*.

303-320

As2Ag2 Th<sup>3</sup>(Phra)+PTM+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey silty clay with *Scrobicularia* and other shells.

320-335

Ga4 Gg(min)+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Coarse sand with some gravel.

TB2 (+3.090 m.)

0-20

Sc4

20-143

Th<sup>4</sup> Th(Phra<sup>1</sup>)+

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Very fresh uncompactd light brown *turfa*.

143-177

Sh2As1Ag1 Th<sup>3</sup>+

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.

Light brown organic silty clay.

177-206

Ga4 Ag+D1+

nig.2, strf.0, sicc.2, elas.0, lim.sup.4.

Light grey sand with very sharp upper contact.

206-218

Ga2Ag2 Th<sup>3</sup>(Phra)+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Grey silt with some sand and *Phragmites*.

218-290

As1Ag3 Th<sup>3</sup>+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey/blue silt with some *turfa*.

290-400

Ag2As1Ga1 Th<sup>2</sup>(Phra)+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Grey silty sand with some clay and *Phragmites*.

TB3 (+3.030 m.)

0-125

Th<sup>4</sup> Th<sup>1</sup>(Phra)+

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Light brown, very fresh *turfa*.

125-150

As2Sh1Th<sup>2</sup>1 Th<sup>2</sup>(Phra)+

- nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey/brown organically enriched clay.
- 150-272  
Ag<sub>3</sub>Ga<sub>1</sub> Th<sup>2</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.4.  
Grey sandy silt with very sharp upper contact as in previous borehole.
- 272-299  
As<sub>2</sub>Ag<sub>2</sub> Th<sup>2</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay with lots of fresh *Phragmites*.
- 299-450  
Ag<sub>3</sub>Ga<sub>1</sub> Th<sup>3</sup>(Phra)+PTM+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey sandy silt with some *Phragmites* and black flecks. Some *Scrobicularia*.
- 450-470  
Ag<sub>3</sub>Gg(maj)<sub>1</sub> Gg(min)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silt with gravel.
- 470-495  
As<sub>3</sub>Ag<sub>1</sub> Th<sup>3</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey/blue silty clay with *Phragmites* and black flecks.
- 495-542  
As<sub>3</sub>Ag<sub>1</sub> Th<sup>3</sup>+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Light brown/grey buttery silty clay with some humified *turfa*.
- TB4 (+2.825 m.)
- 0-42  
Sc<sub>4</sub>
- 42-97  
Th<sup>3</sup><sub>4</sub> Th<sup>2</sup>(Phra)+D<sub>1</sub>+  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark brown/black *turfa* with some birch remains.
- 97-100  
Sh<sub>1</sub>As<sub>1</sub>Ag<sub>2</sub> Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.1.  
Organically enriched grey/brown silty clay. Some iron staining.
- 100-140  
Ag<sub>3</sub>As<sub>1</sub> Th<sup>2</sup>+Th<sup>2</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay.
- 140-164  
Ga<sub>3</sub>Ag<sub>1</sub> D<sub>1</sub>+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey sand with some silt and wood.
- 164-177  
As<sub>2</sub>Ag<sub>2</sub> Th<sup>3</sup>+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay.
- 177-229  
Ag<sub>3</sub>Ga<sub>1</sub> Th<sup>3</sup>+  
nig.2, strf.1, sicc.2, elas.0, lim.sup.0.  
Grey sandy silt.
- 229-329  
Ag<sub>3</sub>Ga<sub>1</sub> Th<sup>3</sup>+Th<sup>3</sup>(Phra)+PTM+  
nig.2, strf.1, sicc.2, elas.0, lim.sup.0.  
As above, but with shells and *Phragmites*.
- 329-505  
Ga<sub>4</sub> Ag+  
nig.2, strf.1, sicc.2, elas.0, lim.sup.0.  
Grey slightly laminated sand.
- 505-513  
Gg(min)<sub>2</sub>PTM<sub>1</sub>Ga<sub>1</sub>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
A gravel deposit with *Scrobicularia* and other shells.  
Grey. Lag?.
- 513-557  
As<sub>3</sub>Ag<sub>1</sub>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey buttery clay.
- 557-607  
As<sub>2</sub>Ag<sub>1</sub>Th<sup>2</sup>(Phra)<sub>1</sub> PTM+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay with abundant *Phragmites*.
- 607-615  
Sh<sub>3</sub>As<sub>1</sub> D<sub>1</sub>+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Humified compact brown peat.
- 615-619  
D<sub>14</sub>  
411+44  
Black piece of wood. Oak?.

- 619-633  
As<sub>2</sub>Ag<sub>1</sub>Th<sup>3</sup>1 D<sub>1</sub>+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Organically enriched grey silty clay.
- 633-645  
Ga<sub>2</sub>Gg(min)<sub>2</sub>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Coarse impenetrable sandy gravel.
- TB5 (+2.785 m.)
- 0-56  
Sc<sub>3</sub>Ag<sub>1</sub>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Light brown clayey soil.
- 56-106  
Th<sup>2</sup><sub>4</sub> Sh+  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark fibrous *turfa*. Very fresh, getting lighter further down.
- 106-163  
Ag<sub>4</sub> Th<sup>3</sup>+Th<sup>2</sup>(*Phra*)<sub>+</sub>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Clayey silt. Light grey with some *Phragmites* and *turfa*.
- 163-170  
Th<sup>3</sup><sub>1</sub>As<sub>3</sub>  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Organically enriched grey fine clay with black flecks.
- 170-276  
As<sub>1</sub>Ag<sub>3</sub> Th<sup>3</sup>(*Phra*)<sub>+</sub>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay with some *Phragmites*.
- 276-420  
Ga<sub>4</sub> Ag+PTM+  
nig.2, strf.2, sicc.2, elas.0, lim.sup.0.  
Fairly coarse grey sand, with *Scrobicularia* increasing further down.
- 420-520  
Ag<sub>3</sub>As<sub>1</sub> PTM+Ga+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark grey silt with some clay and *Scrobicularia*.
- 520-650
- As<sub>2</sub>Ag<sub>2</sub> PTM+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark grey silty clay with some *Scrobicularia*.  
Buttery.
- 650-674  
Sh<sub>4</sub> Th<sup>2</sup>(*Phra*)<sub>+</sub>Th<sup>3</sup>+D<sub>1</sub>+  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark brown humified compact peat with some *Phragmites*. Very good upper contact.
- 674-675  
Ga<sub>2</sub>Ag<sub>2</sub>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.4.  
Light grey sandy silt.
- 675-680  
Same as peat above with Lim<sub>4</sub>.
- 680-685  
Sh<sub>1</sub>As<sub>1</sub>Ag<sub>2</sub>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark grey silty clay with organic enrichment.
- 685-688  
Missing.
- 688-703  
Ag<sub>3</sub>As<sub>1</sub> Ga+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey clayey silt.
- 703-708  
Sh<sub>1</sub>Ga<sub>1</sub>Ag<sub>2</sub>  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Organically enriched light brown silty sand.
- 708-720  
Sh<sub>4</sub> Ag+  
nig.3, strf.0, sicc.2, elas.1, lim.sup.0.  
Brown humified peat with some clay.
- 720-721  
Ag<sub>4</sub> Ga+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Light grey silt.
- TB6 (+2.960 m.)
- 0-43  
Sc<sub>4</sub>  
Evidence of iron staining and clay.



- 43-95  
Th<sup>2</sup>4 Th<sup>2</sup>(Phra)+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Fresh *turfa*.
- 95-144  
Ag<sup>3</sup>As<sup>1</sup> Lf+Th<sup>3</sup>+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.1.  
Grey/light brown clayey silt.
- 144-162  
Th<sup>2</sup>1Sh<sup>1</sup>As<sup>1</sup>Ag<sup>1</sup> D1+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Organically enriched silty clay with some wood  
(oak?).
- 162-270  
As<sup>2</sup>Ag<sup>2</sup> Ga+Th<sup>3</sup>+Th<sup>3</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay. Black flecks with some  
*turfa* and *Phragmites*.
- 270-450  
Ga<sup>3</sup>Ag<sup>1</sup> PTM+  
nig.2, strf.2, sicc.2, elas.0, lim.sup.0.  
Grey laminated silty sand.
- 450-550  
Ag<sup>3</sup>As<sup>1</sup> Ga+PTM+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey clayey silt with some *Scrobicularia*.  
Buttery.
- 550-685  
As<sup>2</sup>Ag<sup>2</sup> PTM+Th<sup>3</sup>(Phra)+  
Battleship-grey buttery silty clay with some  
*Phragmites* and *Scrobicularia*.
- 685-699  
Th<sup>3</sup>1Sh<sup>1</sup>As<sup>2</sup> Th<sup>2</sup>(Phra)+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Organically enriched clay.
- 699-719  
Sh<sup>4</sup> D1+Th<sup>3</sup>+Th<sup>2</sup>(Phra)+  
nig.3, strf.0, sicc.2, elas.1, lim.sup.1.  
Brown/red very compact and humified peat. Basal.
- 719-730  
Ga<sup>2</sup>Gg(min)1Gg(maj)1  
nig.2, strf.0, sicc.1, elas.0, lim.sup.0.  
Grey brown, very coarse gravel.
- TB7 (+2.930 m.)
- 0-25  
Sc<sup>4</sup>
- 25-40  
Sh<sup>1</sup>As<sup>1</sup>Ag<sup>2</sup> Th<sup>1</sup>+Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron stained silty clay with some *turfa*.
- 40-112  
Th<sup>2</sup>4 Th<sup>2</sup>(Phra)+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Fresh *turfa*.
- 112-166  
As<sup>2</sup>Ag<sup>2</sup> Th<sup>2</sup>+Th<sup>2</sup>(Phra)+Ga+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey/blue silty clay with some *turfa* and  
*Phragmites*.
- 166-230  
Ga<sup>3</sup>Ag<sup>1</sup>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty sand.
- 230-270  
Ag<sup>3</sup>As<sup>1</sup> Ga+Th<sup>3</sup>+Th(Phra3)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay.
- 270-350  
Ga<sup>3</sup>Ag<sup>1</sup>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Silty sand with black flecks.
- 350-450  
As<sup>2</sup>Ag<sup>2</sup> PTM+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark battleship-grey silty clay with some  
*Scrobicularia*.
- 450-641  
As<sup>3</sup>Ag<sup>1</sup> PTM+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Fine dark grey clay with some *Scrobicularia*.  
Buttery.
- 641-661  
Gg(maj)2Ga<sup>2</sup> Gg(min)+PTM+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey gravel with sand.
- 661-666  
D14

nig.2+, strf.0, sicc.2, elas.4, lim.sup.4.  
Oak.

666-670

Ag3Ga1

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Grey sandy silt.

TB8 (+3.015 m.)

0-20

Sc4

20-125

Th<sup>2</sup>4 Th<sup>2</sup>(Phra)+

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Fresh *turfa*.

125-149

Ag3Sh1 Th<sup>3</sup>+

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.

Organically enriched silt.

149-265

Ag3Ga1

nig.2, strf.1, sicc.2, elas.0, lim.sup.0.

Grey slightly laminated sandy silt.

265-467

Ga3Ag1 PTM+

nig.2, strf.2, sicc.2, elas.0, lim.sup.0.

Grey laminated silty sand. *Scrobicularia* increasing further down.

467-616

As2Ag2 PTM+Th<sup>3</sup>(Phra)+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey buttery silty clay.

616-621

As2Ag1Sh1 Th<sup>3</sup>+Th<sup>3</sup>(Phra)+

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.

Organically enriched dark grey silt clay.

621-658

Ga4 Ag+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Orange brown sand.

TB9 (+2.185 m.)

0-70

Th<sup>1</sup>1Sh1As2

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Organic mud.

70-97

Th<sup>2</sup>4 Th<sup>2</sup>(Phra)+As+

nig.3, strf.0, sicc.2, elas.1, lim.sup.0.

Fresh brown *turfa*.

97-140

As3Ag1 Th<sup>2</sup>+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey silty clay with some *turfa*.

140-148

Sh2As1Th<sup>3</sup>1 Th<sup>2</sup>(Phra)+

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Moderately humified *turfa* with some clay.

148-300

As2Ag2

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey silty clay.

300-424

Ga4

nig.2, strf.2, sicc.2, elas.0, lim.sup.0.

Laminated grey sand.

424-600

As2Ag2

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Light grey buttery silty clay.

TB10 (+3.255 m.)

0-10

Sc4

10-131

Th<sup>2</sup>4 Th<sup>2</sup>(Phra)+

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Fresh brown *turfa*.

131-172

As2Ag2 Th<sup>2</sup>(Phra)+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey silty clay with some *Phra*<sub>8</sub>mites.

172-180

As2Sh1Th<sup>3</sup>1 Th<sup>3</sup>(Phra)+

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Organically enriched clay.

180-200  
As<sub>2</sub>Ag<sub>2</sub> Th<sup>2</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay with some *Phragmites*.

200-210  
Dl4  
nig.2, strf.0, sicc.1, elas.4, lim.sup.4.  
Wood, possibly alder.

210-228  
Ag<sub>3</sub>Ga<sub>1</sub> Th<sup>3</sup>+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey sandy silt.

TB11 (+3.180 m.)

0-15  
Sc4

15-136  
Th<sup>4</sup> Th<sup>2</sup>(Phra)+Dl+  
nig.3, strf.0, sicc.2, elas.2, lim.sup.0.  
Fresh brown fibrous *turfa*.

136-167  
As<sub>2</sub>Ag<sub>2</sub> Th<sup>3</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay with some *Phragmites*.

167-176  
As<sub>1</sub>Ag<sub>2</sub>Sh<sub>1</sub> Th<sup>3</sup>+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Organically enriched silty clay.

176-194  
As<sub>2</sub>Ag<sub>2</sub>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay.

194-210  
Sh<sub>2</sub>Th<sup>2</sup>(Phra)1Th<sup>2</sup>1  
nig.3, strf.0, sicc.2, elas.1, lim.sup.0.  
Brown *turfa* *Phragmites* peat.

210-280  
As<sub>4</sub> Th<sup>2</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Fine grey/blue clay with some *Phragmites*.

280-303  
As<sub>2</sub>Ag<sub>1</sub>Th<sup>3</sup>1 Sh+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Organically enriched silty clay.

303-360  
Ag<sub>3</sub>Ga<sub>1</sub>  
nig.2, strf.1, sicc.2, elas.0, lim.sup.0.  
Slightly laminated sandy silt.

360-451  
As<sub>3</sub>Ag<sub>1</sub> Th<sup>3</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay with some *Phragmites*.

451-496  
As<sub>2</sub>Ag<sub>1</sub>Th<sup>2</sup>(Phra)1 Th<sup>3</sup>+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Organically enriched silty clay with some *Phragmites*.

496-528  
As<sub>2</sub>Ag<sub>2</sub>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey/brown khaki silty clay.

529  
Hit gravel. Impenetrable.

TB12 (+3.350 m.)

0-10  
Sc4

10-140  
Th<sup>4</sup> Th<sup>2</sup>(Phra)+Dl+  
nig.3, strf.0, sicc.2, elas.2, lim.sup.0.  
Lightish brown fresh *turfa*. Some wood.

140-170  
As<sub>2</sub>Ag<sub>2</sub> Th<sup>2</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay with some *Phragmites*.

170-249  
As<sub>2</sub>Ag<sub>1</sub>Th<sup>3</sup>1 Dl+Sh+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0  
Organically enriched, dark grey clayey silt.

249-313  
As<sub>4</sub> Ag+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Very fine clay with some silt. Grey with black

flecks.

313-337

As<sub>1</sub>Ag<sub>3</sub>

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.

Dark grey silt.

337-475

As<sub>4</sub> Ag+

nig.2, strf.0, sicc.2, elas.0, lim.sup.2.

Very fine dark grey clay with some black flecks.

475-520

As<sub>3</sub>Th<sup>3</sup>1 Ag+Th<sup>2</sup>(Phra)+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Organically enriched fine clay with *turfa* and *Phragmites*.

520-528

As<sub>4</sub> Ag+

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.

Dark grey fine clay.

528-535

Ga<sub>3</sub>Gg(maj)1

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Grey sandy gravel.

TB13 (+3.415 m.)

0-20

Sc<sub>4</sub>

20-135

Th<sup>2</sup>4 Th<sup>2</sup>(Phra)+

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Fresh *turfa*.

135-166

As<sub>2</sub>Ag<sub>2</sub> Th<sup>3</sup>(Phra)+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Dark grey silty clay.

166-172

Sh<sub>1</sub>Th<sup>2</sup>(Phra)1Th<sup>3</sup>2

nig.3, strf.0, sicc.2, elas.1, lim.sup.0.

Brown partially humified *turfa*/*Phragmites* peat.

172-286

As<sub>2</sub>Ag<sub>1</sub>Th<sup>3</sup>1 Dl+

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.

Dark grey silty clay with *turfa*, alder and birch.

286-308

As<sub>3</sub>Ag<sub>1</sub> Th<sup>3</sup>(Phra)+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Blue/grey silty clay. Quite buttery. Some *Phragmites*.

308-340

Missing.

340-399

Same as above, with black flecks.

399-407

Ga<sub>2</sub>Ag<sub>1</sub>Gg(maj)1

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Grey sandy gravel.

TB14 (+3.515 m.)

0-20

Sc<sub>4</sub>

20-145

Th<sup>2</sup>4 Th<sup>2</sup>(Phra)+

nig.2, strf.0, sicc.2, elas.2, lim.sup.0.

Brown fresh *turfa* getting lighter further down.

145-159

As<sub>2</sub>Th<sup>2</sup>1Th<sup>2</sup>(Phra)1

nig.2, strf.0, sicc.2, elas.1, lim.sup.0.

Dark grey organic clay.

159-165

Th<sup>3</sup>2Sh<sub>1</sub>As<sub>1</sub> Th<sup>2</sup>(Phra)+

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Brown peaty clay.

165-168

As<sub>4</sub> Th<sup>3</sup>+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey clay with some *turfa*.

168-175

Th<sup>3</sup>3Sh<sub>1</sub> Th<sup>2</sup>(Phra)+

nig.3, strf.0, sicc.2, elas.1, lim.sup.0.

Brown/red *turfa*.

175-225

As<sub>2</sub>Ag<sub>2</sub> Th<sup>2</sup>(Phra)+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Dark grey silty clay with some *Phragmites*.

225-320

Same as above with Gg(min)+

TB15 (+3.510 m.)

0-15

Sc4

15-60

Th<sup>3</sup>4 Sh + Th<sup>2</sup>(Phra) + Ga +

nig.3+, strf.0, sicc.2, elas.2, lim.sup.0.

Fairly fresh dark brown/black *turfa*.

60-95

Ga2Gg(min)1Gg(Maj)1 Ag + Sh +

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Coarse gravel with sand. Grey with orange sand nodules.

95

Solid.

TB18 (+2.79m OD)

614-624

As3Ptm1 Ag +

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.

Grey/black clay with a lot of shells (mainly *Scrobicularia*). Black material in flecks. Extremely buttery.

624-656

As3Ag1 Th<sup>3</sup> + Ptm +

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.

Dark grey silty-clay with some small shell fragments and eroded *turfa*. Quite buttery.

656-675

As3Ag1 Th<sup>3</sup> + Th(Phra3) +

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Grey silty-clay with some *turfa* and *Phragmites*. *turfa* and phrag quite eroded and humified.

675-677

As2Sh2 D1 + Th(Phra3) +

nig.2+, strf.0, sicc.2+, elas.0, lim.sup.0

A transitional organic clay horizon. Very slight stratification, especially where the organic concentration is high. Piece of wood near top of stratum.

677-692

Sh4 Th<sup>3</sup> + Th<sup>3</sup>(Phra) +

nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.

A very amorphous red/brown humified peat. The

odd piece of *Phragmites* leaves and small partially humified *turfa* rootlets.

692-719

Ag4 As + Sh + Ga +

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.

Dark grey stiff silt. Some clay, and sand grains visible. Slight organic enrichment.

TB20 (+3.10m OD)

0-30

Missing.

30-93

Th<sup>1</sup>3Sh1 Th<sup>1</sup>(Phra) +

nig.3+, strf.0, sicc.1+, elas.0, lim.sup.0

Black, very fresh *turfa* with some *Phragmites*.

93-119

Th<sup>1</sup>3Sh1 Th<sup>1</sup>(Phra) +

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Brown, fresh *turfa* with some *Phragmites*.

119-147

Th<sup>2</sup>2As2

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

*turfa* with clay.

147-162

Ag3As1

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey silty-clay.

162-183

Ag3Ga1 D1 +

nig.2, strf.2, sicc.2, elas.0, lim.sup.0.

Grey laminated silty sand.

183-189

As2Sh1Th<sup>1</sup>

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.

Grey/brown organic clay with *Phragmites*.

189-213

Sh3D11

nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.

Humified peat with wood, probably alder.

213-227

As3Sh1

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.

Very buttery clay with organic inundation.

227-290

As4 Th<sup>2</sup>(Phra) +

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Light grey, very fine buttery clay.

290-319

As2Ag2 Th<sup>2</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty clay with some *Phragmites*.

319-327

As3Sh1 D1+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty-clay with organic enrichment.

327-348

Sh2As1Th<sup>2</sup>1  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Partially humified *turfa* with some clay.

348-356

Ag4 D1+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Stiff grey silt with some wood.

357

Solid.

TB21 (+3.14m OD)

0-20

Missing.

20-88

Th<sup>1</sup>3Sh1 Th<sup>1</sup>(Phra)+  
nig.3+, strf.0, sicc.1+, elas.0, lim.sup.0  
Black, very fresh *turfa* with some *Phragmites*.

88-110

Th<sup>1</sup>3Sh1 Th<sup>1</sup>(Phra)+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Brown, fresh *turfa* with some *Phragmites*.

110-146

As2Th<sup>2</sup>1Sh1 Th<sup>2</sup>(Phra)+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Clay with a *turfa/Phragmites* peat.

146-165

As1Ag2Sh1 Th<sup>2</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty-clay with organic enrichment.

165-206

D14  
nig.2+, strf.0, sicc.1+, elas.2, lim.sup.4  
Orange/brown piece of wood (probably alder),  
elsewhere a grey/brown clay.

206-218

Sh3As1 Th<sup>2</sup>(Phra)+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Humified peat with some clay.

218-226

As3Ag1 Sh+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Light grey silty-clay with some *Phragmites*.

226-234

Missing.

234-316

As3Ag1 Th<sup>2</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Light grey fine silty clay with some black streaks.

316-325

As2Sh1Th<sup>2</sup>1  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Wet, sludgy organic clay.

325-340

Missing.

340

Solid. Felt like gravel.

TB22 (+3.27m OD)

0-60

Missing.

60-98

Th<sup>1</sup>3Sh1 Th<sup>1</sup>(Phra)+  
nig.3+, strf.0, sicc.1+, elas.0, lim.sup.0  
Black, very fresh *turfa* with some *Phragmites*.

98-118

As1Sh1Th<sup>2</sup>2  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark *turfa* with some clay.

118-126

As2Ag2 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Stiff grey clay with some iron staining.

126-169

As2Gg(min)1Gg(max)1  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Light brown grey clay with large and small pebbles.

169  
Solid.

TB23 (+3.23m OD)

0-40  
Missing.

40-88  
Sh<sup>3</sup>Th<sup>1</sup>  
nig.4, strf.0, sicc.2, elas.0, lim.sup.0.  
Black, partially humified *turfa*.

88-116  
Th<sup>2</sup>Sh<sup>1</sup>Ld<sup>1</sup>  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Light brown *limus/turfa*.

116-140  
As<sup>1</sup>Ag<sup>2</sup>Ld<sup>1</sup> Gg(max)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Silty-clay with some organic material. Pebbles may be quartz.

140-175  
As<sup>2</sup>Gg(max)<sup>2</sup>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey clay with pebbles.

TB24 (+3.12m OD)

0-28  
Missing.

28-36  
As<sup>2</sup>Ag<sup>2</sup> Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron-stained silty-clay.

36-77  
Th<sup>1</sup>3Sh<sup>1</sup> Th<sup>1</sup>(Phra)+  
nig.3+, strf.0, sicc.1+, elas.0, lim.sup.0  
Black, very fresh *turfa* with some *Phragmites*.

77-113  
Th<sup>1</sup>1Ld<sup>1</sup>As<sup>2</sup> Th<sup>1</sup>(Phra)+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Light brown *turfa* with *limus*.

113-117  
As<sup>2</sup>Ld<sup>1</sup>Th<sup>2</sup>1 Th<sup>1</sup>(Phra)+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Very organic clay.

117-128  
Missing.

128-156  
Sh<sup>2</sup>As<sup>1</sup>Th<sup>2</sup>1 D1+Th<sup>2</sup>(Phra)+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Partially humified *turfa* with *Phragmites*.

156-164  
As<sup>4</sup> D1+Th<sup>2</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Fine grey clay with wood including birch and alder, plus *Phragmites*.

164-170  
As<sup>2</sup>Ag<sup>1</sup>Ga<sup>1</sup> D1+Th<sup>2</sup>(Phra)+  
nig.2, strf.2, sicc.2, elas.0, lim.sup.0.  
Stratified sandy-silt clay.

170-184  
As<sup>2</sup>Ag<sup>1</sup>D11 Th<sup>2</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey silty-sand with *Phragmites*.

184-214  
Sh<sup>2</sup>Ld<sup>1</sup>D11 Th<sup>2</sup>+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Brown peat with wood including alder.

214-288  
As<sup>3</sup>D11  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Light brown buttery clay with large chunks of alder.

288-340  
As<sup>3</sup>Ag<sup>1</sup> D1+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty-clay with some wood including alder.

340-355  
As<sup>2</sup>Ag<sup>1</sup>Gg(max)<sup>1</sup>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Khaki brown silty-clay with pebbles.

355  
Solid.

TB 25 (+3.08m OD)

0-25  
Missing.

25-77

- Sh1Th<sup>1</sup>3 As+  
nig.3+, strf.0, sicc.2, elas.1, lim.sup.0.  
Dark brown *turfa*.
- 77-120  
Th<sup>1</sup>3Ld1 Th(*Phra*<sup>1</sup>) +  
nig.3, strf.0, sicc.2, elas.1, lim.sup.0.  
Light brown, fresh, *turfa* with *limus* and *Phragmites*  
and small black seeds.
- 120-144  
Ld2Th<sup>2</sup>1As1  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Light brown *limus*, with clay, *turfa* and red seeds.
- 120-166  
Ld1Sh1Th<sup>2</sup>1As1  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Light brown *limus*, with clay, *turfa* and red seeds.
- 166-183  
As3Ag1 D1+ Th(*Phra*<sup>1</sup>) +  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Light grey silty-clay with some wood.
- 183-200  
Ga2Ag2  
nig.2, strf.2, sicc.2, elas.0, lim.sup.0.  
Stratified silty-sand.
- 200-215  
As3Sh1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Light grey fine clay with some organic enrichment.
- 215-225  
Th<sup>1</sup>3Ld1 As+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Fresh *turfa* with some *limus*.
- 225-280  
As3Ag1 Th(*Phra*<sup>1</sup>) +  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty-clay with some *Phragmites*.
- TB 27 (+3.06m OD)
- 0-20  
Missing.
- 20-125  
Th<sup>1</sup>3Sh1 Th(*Phra*<sup>1</sup>) +  
nig.3+, strf.0, sicc.1+, elas.0, lim.sup.0.  
Black, fresh *turfa*.
- 125-165  
Th<sup>3</sup>1Sh2As1  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.  
Soft, brown, partially humified *turfa*.
- 165-193  
Ag2Ga2  
nig.2, strf.2, sicc.2, elas.0, lim.sup.0.  
Partially stratified silty-sand.
- 193-227  
As1Sh1Ld1Th<sup>3</sup>1  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Brown mixed organic horizon. *turfa*, *limus* and  
*Phragmites*.
- 227-290  
As4 Th(*Phra*<sup>2</sup>) +  
nig.2, strf.0, sicc.2, elas.0, lim.sup.1.  
Blue/grey, very fine buttery clay with some  
*Phragmites*.
- 290-320  
As3Ag1 Th(*Phra*<sup>2</sup>) +  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty-clay.
- 320-362  
As3Ag1 Th(*Phra*<sup>2</sup>) + Ptm+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty-clay with some shells and  
*Phragmites*.
- 362-356  
Pebbles.
- TB 28 (+3.12)
- 0-30  
Missing.
- 30-84  
Th<sup>1</sup>3Sh1 Th(*Phra*<sup>1</sup>) +  
nig.3+, strf.0, sicc.1+, elas.0, lim.sup.0.  
Black, fresh *turfa*.
- 84-99  
As1Sh1Th<sup>2</sup>  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Brown, dry *turfa*.
- 99-119  
Ag2As1Lf1 Sh+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.1.  
Dry, crumbly silt with iron-staining and some

organic enrichment.

119-140

Sh<sub>2</sub>Th<sup>2</sup>As<sub>1</sub> Th(*Phra*<sup>2</sup>) +

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Organic clay.

140-154

As<sub>3</sub>Ag<sub>1</sub> Th(*Phra*<sup>2</sup>) +

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Grey clay with *Phragmites*.

154-177

Ag<sub>2</sub>Ga<sub>2</sub> D<sub>1</sub> +

nig.2, strf.1, sicc.2, elas.0, lim.sup.0.

Grey, slightly stratified sandy-silt.

177-189

As<sub>3</sub>Ag<sub>1</sub> Th(*Phra*<sup>2</sup>) +

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship grey clay with increasing *Phragmites* towards the base of the stratum.

189-218

Sh<sub>2</sub>Ld<sub>1</sub>As<sub>1</sub> Th(*Phra*<sup>2</sup>) +

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Brown organic horizon with clay and *limus*.

218-270

As<sub>3</sub>Ag<sub>1</sub>

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey silty-clay.

270-303

As<sub>2</sub>Ag<sub>2</sub> Th(*Phra*<sup>2</sup>) +

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey silty-clay with some *Phragmites*.

303-311

Silt with pebbles.

312

Solid.

GLAN ABER FARM

Fieldwork: 25-8-91 to 27-8-91 DJB &amp; PN

<u>GA1</u> (+3.54m OD)	170 Solid.
0-30 Missing.	<u>GA3</u> (+3.80m OD)
30-60 Sh3Th <sup>2</sup> 1 nig.3, strf.0, sicc.2, elas.3, lim.sup.0. Brown, crumbly peat.	0-70 Peaty top soil.
60-153 As2Ag1Th <sup>1</sup> (Phra)1 nig.2+, strf.0, sicc.2, elas.0, lim.sup.0. Battleship-grey silty-clay with abundant fresh rhizomes of <i>Phragmites</i> .	70-100 Ag4 Ga+ nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Coarse silt.
153-262 Sh3D11 As+ Th <sup>2</sup> (Phra)+ nig.3, strf.0, sicc.2, elas.1, lim.sup.0. Fresh and wet woody peat, becoming more amorphous with depth.	100 Solid.
262-284 As3D11 Ga+ nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Sludgy, grey clay with some wood and sand grains.	<u>GA4</u> (+3.57m OD)
284 Solid.	0-89 Sh3Th <sup>2</sup> 1 nig.3+, strf.0, sicc.2, elas.0, lim.sup.0. Black, crumbly surface peat with some <i>turfa</i> .
<u>GA2</u> (+3.64m OD)	89-120 Sh3As1 nig.3, strf.0, sicc.2, elas.0, lim.sup.0. Grey/brown organic clay.
0-50 Peaty topsoil.	120-161 As3Ag1 Th <sup>2</sup> (Phra)+ nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Blue-grey silty clay.
50-91 As2Ag1Th <sup>1</sup> (Phra)1 D1+ nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Battleship-grey silty-clay with fresh <i>Phragmites</i> and some small pieces of wood.	161-169 As3Sh1 nig.2+, strf.0, sicc.2, elas.0, lim.sup.0. Grey organic clay.
91-140 Sh3Th <sup>2</sup> (Phra)1 D1+ nig.3+, strf.0, sicc.2, elas.0, lim.sup.0. Amorphous red/brown peat with <i>Phragmites</i> and some birch twigs.	169-315 Sh3D11 Th <sup>2</sup> (Phra) nig.3, strf.0, sicc.2, elas.0, lim.sup.0. Very smelly red/brown peat with chunks of alder.
140-170 As3Th <sup>2</sup> (Phra)1 nig.2+, strf.0, sicc.2, elas.0, lim.sup.0. Grey clay with <i>Phragmites</i> .	315-345 Did not sample (too wet).
	345 Solid.
	<u>GA5</u> (+3.46m OD)
	0-22 Top soil.

22-76  
Sh3Th<sup>2</sup>1 Th<sup>2</sup>(Phra)+  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark brown, crumbly surface peat.

76-155  
As2Ag1Th<sup>2</sup>(Phra)1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey clay with *Phragmites* and a transitional upper contact.

155-250  
Sh3D11 Th<sup>2</sup>(Phra)+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Brown, slightly red amorphous peat with wood and *Phragmites*.

250-303  
D13Sh1  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Very woody peat with fresh alder, birch and other types. Peat matrix red/brown in colour.

303-310  
Missing.

310  
Solid.

GA6 (+3.40m OD)

0-96  
Sh3Th<sup>2</sup>1 Th<sup>2</sup>(Phra)+  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark brown, crumbly surface peat.

96-122  
As3Th<sup>2</sup>(Phra)1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey, slightly blue clay with *Phragmites*.

122-200  
As2Ag2 Th<sup>3</sup>(Phra)+ Ptm+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey blocky silty-clay. Some small shells and *Phragmites*.

200-220  
Did not sample. Very soft.

220-260  
As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Soft battleship-grey silty-clay.

260-372

Sh3D11 Th<sup>2</sup>(Phra)+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Red/brown peat with wood, including alder.

372-400  
Sh3Ld1 Th<sup>2</sup>(Phra)+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Red/brown peat with *limus* and *Phragmites*.

420-720  
As2Ag2 Th<sup>2</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty-clay with black streaks and some *Phragmites*.

GA7 (+3.42m OD)

0-100  
Sh3Th<sup>2</sup>1 Th<sup>2</sup>(Phra)+  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark brown, crumbly surface peat.

100-153  
Sh3Th<sup>2</sup>1 Th<sup>2</sup>(Phra)+  
nig.3+, strf.0, sicc.1, elas.0, lim.sup.0.  
Brown peat with some *Phragmites*.

153-200  
As2Ag2 Th<sup>2</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay.

200-395  
Sh3D11  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Red/brown peat with wood.

395-429  
Ld3D11 Th<sup>1</sup>(Phra)+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Light brown *limus* with *Phragmites* and some light wood.

429-791  
As2Ag2 Th<sup>2</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey silty-clay. *Phragmites* content increasing further down the stratum.

791-834  
Sh3D11  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark brown/black very humified peat with wood (unidentified). Good transitional contact with the peat being slightly red towards the top of the stratum.

GA8 (+3.51m OD)

0-120

Sh3Th<sup>2</sup>1 Th<sup>2</sup>(Phra)+

nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.

Dark brown, crumbly surface peat.

120-140

As3Sh1

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Grey organic clay.

140-260

Sh3D11

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Red/brown peat with wood.

360-415

As3Ag1 Th<sup>1</sup>(Phra)+

nig.,2 strf.0, sicc.2, elas.0, lim.sup.0.

Blue/grey, fine buttery clay with some *Phragmites*.

415-440

Did not sample.

440

Solid.

GA9 (+3.69m OD)

0-120

Sh3Th<sup>2</sup>1 Th<sup>2</sup>(Phra)+

nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.

Dark brown, crumbly surface peat.

120-139

As3Sh1

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Grey organic clay.

139-320

Sh3D11

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Red/brown peat with wood.

320-340

Mixed gravel.

340 Solid.

COLWYN BAY RUGBY CLUB

Fieldwork: 25/5/91 - 26/5/91 DJB PN, 27/7/91 DJB PN

CB1 (+3.15m OD)

0-40

Missing.

40-127

Ag3As1 Lf+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Iron-stained silty clay.

127-169

As2Ag2

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey silt-clay.

169-192

Ag1As2Sh1

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.

Organically enriched clay.

192-300

As3Ag1 Sh+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Blue/grey silty-clay.

300-321

Sh2Th<sup>2</sup>1Th<sup>2</sup>(Phra)1

nig.3, strf.1, sicc.2, elas.0, lim.sup.2.

Brown, partially humified *Phragmites* rich peat.

Slightly laminated.

321-326

Ag4 As+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Grey silt.

326-390

Ag4 As+

nig.2, strf.2, sicc.2, elas.0, lim.sup.0.

Grey silt, with laminations.

390-440

Ag3As1

nig.2, strf.1, sicc.2, elas.0, lim.sup.0.

Slightly laminated clay-silt. Variable in components between clay and silt. Where the silt content is high, laminations increase.

440-457

As2Ag2 Th<sup>3</sup>+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty-clay.

457-466

Sh2Th<sup>2</sup>(Phra)2 D1+As+

nig.3, strf.1, sicc.2, elas.0, lim.sup.1.

Stratified *Phragmites* rich peat.

466-505

Sh4 Th<sup>2</sup>+D1+

nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.

Amorphous reddy brown peat with birch twigs.

505-544

As1Ag3

nig.2, strf.1, sicc.2, elas.0, lim.sup.0.

Stiff, grey silt with some clay.

544-550

Sh3Ag1

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Silt enriched peat.

550-578

nig.3, strf.0+, sicc.2, elas.0, lim.sup.0.

Amorphous red/brown peat.

570-578

Sh1Ag1As2 Th(Phra3)+PTM+

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.

Brown/grey clay with shells and some organic enrichment.

578-586

As3Ag1 PTM+

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.

Grey clay with black streaks.

586-610

As2Ag2

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Khaki brown silty-clay.

610-620

Ag4

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Very solid khaki silt.

CB2 (+3.34m OD)

0-50  
Missing.

50-138  
Ag3As1 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron-stained silt with some clay.

138-153  
Sh3D11  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark brown peat with lots of wood (oak?)

153-299  
As2Ag2 Th<sup>2</sup>(Phra)+Th<sup>2</sup>+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey silty clay with lots of *Phragmites* and  
*turfa*.

299-324  
Sh3D11  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Amorphous red/brown peat with wood including  
alder and birch.

324-439  
As2Ag2  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay.

439-481  
D14 Sh+  
nig.2+, strf.0, sicc.2, elas.4, lim.sup.0.  
Tree, possibly birch.

481-498  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Fairly amorphous red/brown peat with some birch.

498-508  
Sh3Ag1 D1+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Organically enriched silt.

508-537  
Ag4  
nig.2, strf.1, sicc.2, elas.0, lim.sup.0.  
Stiff grey slightly laminated silty clay.

537-562  
Sh3Ag1  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Brown amorphous peat with some silt.

562-595

As2Ag2 Th<sup>3</sup>+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty clay with black streaks.

CB3 (+3.10m OD)

0-40  
Top soil.

40-50  
Rocks.

CB4 (+3.19m OD)

0-50  
Missing.

50-125  
As2Ag2 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron-stained silty clay. Very fine.

125-135  
As2Ag1Sh1 D1+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Organically enriched clay.

135-279  
As2Ag2 Th<sup>3</sup>+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty-clay with some *turfa*.

279-323  
Sh2D11Th<sup>1</sup>(Phra)1  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Brown/red amorphous peat with very fresh  
*Phragmites* and some wood including birch. Very  
smelly.

323-378  
As3Ag1  
Battleship-grey silty clay. Very buttery.

378-426  
Sh3D11 Th<sup>2</sup>+Th<sup>2</sup>(Phra)+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Red/brown amorphous peat with mixed wood and  
fresh *Phragmites*.

426-434  
Gs3Gg(min)1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Grey gravel-sand.

CB5 (3.23m OD)

0-40  
Missing.

40-160  
As1Ag3 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron-stained silt with some clay.

160-407  
As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Very buttery Battleship-grey silty-clay.

407-430  
Sh4 D1+Th<sup>2</sup>(Phra)+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Red/brown amorphous peat. Humified, but with  
some wood and *Phragmites*.

430-445  
As2Ag1Sh1  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Organically enriched clay.

445-458  
Ag3As1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Stiff grey silt.

458-475  
D14  
nig.2, strf.0, sicc.2, elas.4, lim.sup.4.  
Piece of wood. Probably alder.

475-480  
As2Ag2  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty-clay.

480-488  
Sh4 D1+  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.  
Brown humified peat.

488-495  
Gs3Gg(min)1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Gravel.

CB6 (+3.26m OD)

0-40  
Missing.

40-165  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron-stained silty clay.

165-325  
As2Ag2 PTM+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty-clay with shells: mussels and  
*Scrobicularia*.

325-424  
Missing. Probably sab.

424-560  
As2Ag2 PTM+  
Same as silty clay above, but slightly darker, and  
fewer shells.

560  
Solid.

CB7 (+3.09m OD)

0-40  
Missing.

40-143  
As2Ag2 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron-stained silty-clay.

143-151  
As1Sh2D11  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark brown/black organic horizon with some  
detrital wood.

151-190  
As3Ag1 Th(Phra2)+ Th<sup>3</sup>+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey silty-clay with *Phragmites*.

190-289  
As2Ag2 Th(Phra2)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Fine grey/blue silty-clay and less *Phragmites*.

289-292  
As2Sh1Th(Pgrag1)1  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Grey-brown organic clay.

292-311

Sh3Th(*Phra2*)1 D1+

nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.

Brown/red humified peat with some wood.

311-317

As2Ag2 Th(*Phra2*)+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey silty-clay.

317-377

Ga4 D1+ Ag+

nig.2, strf.2, sicc.2, elas.0, lim.sup.0.

Very laminated sand.

377-433

As3Ag1 Th(*Phra3*)+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey silty-clay.

433-486

Sh4 D1+

nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.

Dark brown, slightly red and humified peat with some wood.

486-530

As2Ag2

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Stiff, light silty-clay.

530-566

Sh4 D1+

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Humified brown peat.

566-568

Sh2As2

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.

Grey/brown organic clay.

568-580

As3Ag1 Ptm+

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.

Grey-blue silty-clay with black streaks and some shells.

580-617

Ag4 As+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Khaki brown silt.

CB8 (+3.27m OD)

0-40

Missing.

40-150

As2Ag2 Lf+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Iron-stained silty-clay.

150-187

As2Ag2 Th<sup>3</sup>+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey silty-clay.

187-270

As3Ag1 Th(*Phra2*)+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Blue-grey silty-clay with black streaks and some *Phragmites*.

270-287

Sh3D11 Th(*Phra1*)+

nig.3, strf.0, sicc.3, elas.0, lim.sup.0.

Very dry crumbly, partially humified wooded peat.

287-299

As2Ag2 Th(*Phra2*)+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey silty-clay.

299-348

As2Ag2 Th(*phrag2*)+

nig.2, strf.2, sicc.2, elas.0, lim.sup.0.

Laminated grey sand.

348-419

As2Ag2 Th(*Phra2*)+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey silty-clay with some *Phragmites*.

419-422

As2Sh2

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.

Grey-brown organic-clay.

422-482

Sh3D11 Th(*Phra2*)+

nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.

Red/brown peat with some wood and *Phragmites*.

482-500

Sh2D11As1

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Dark grey-brown organic clay with abundant wood.

500-532

Ag3As1 D1+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Stiff silty-clay.

532-537

Sh4

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Brown peat.

### MORFA PENRYHN, RHOS-ON-SEA

Fieldwork: 30/5/90 DJB AJL, 29/9/90 - 1/10/90 DJB, 1/11/90 DJB AJL

MP1 ( +3.89m. OD )

0-50

Missing

51-111

As1Sh3 D1+

nig.3+, strf.0, sicc.2+, elas.0, lim.sup.0

Dark humified peat with some woody remains, mainly oak. Clay fraction increases towards top and bottom of layer.

112-130

D14

nig.3, strf.0, sicc.2, elas.1, lim.sup.4.

Oak.

131-140

As1Sh3 D1+

nig.3+, strf.0, sicc.2+, elas.0, lim.sup.0

Dark, humified peat with some woody remains and clay.

141-178

Ag3Gal D1+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Light brown silty sand. Sand content increases towards the base.

179-210

Same as above without D1+

210

Impenetrable.

MP2 ( +3.40m. OD )

0-30

Missing.

31-51

Th<sup>3</sup>4 Th<sup>2</sup>(Phra)+

nig.3, strf.0, sicc.2+, elas.0, lim.sup.0.

Dark brown *turfa* with some *Phragmites*.

52-92

As2Th<sup>2</sup>2 Th<sup>2</sup>(Phra)+

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.

Grey/brown *turfa* with some clay.

93-127

Th<sup>2</sup>4 D1+Th<sup>2</sup>(Phra)+

nig.3+, strf.0, sicc.3, elas.0, lim.sup.0.

Dark, very consolidated *turfa* with some wood and *Phragmites*.

128-134

As2Th<sup>2</sup>1Th<sup>2</sup>(Phra)1 D1+

nig.3, strf.0, sicc.3, elas.0, lim.sup.0.

Brown *turfa/Phragmites* peat with clay.

135-230

As3Th<sup>2</sup>(Phra)1

nig.2, strf.0, sicc.2+, elas.0, lim.sup.0.

Soft blue/grey fine clay with some *Phragmites*.

231-268

Th<sup>3</sup>3Th<sup>2</sup>(Phra)1

nig.3+, strf.0, sicc.2+, elas.0, lim s p.0

Dark brown/black *turfa/Phragmites* peat.

269-300

As4 Th<sup>2</sup>+

nig.2, strf.0, sicc.2+, elas.0, lim.sup.0.

Fine blue/grey clay with some *Phragmites*.

- 301-328  
Sh4 Th<sup>3</sup>(Phra)+ As +  
nig.3, strf.0, sicc.2+, elas.0, lim.sup.0.  
Dark, well humified peat with some clay and *Phragmites*.
- 329-333  
As2Ag1Gg(min)1  
nig.2, strf.0, sicc.3, elas.0, lim.sup.0.  
Silty-clay with gravel.
- 334-350  
Ga4 Ag +  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Brown compact silty sand.
- MP3 ( +3.32m. OD )
- 0-64  
Missing
- 65-90  
Ag3As1 Lf +  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron stained silty clay.
- 91-253  
Ag2As2 Th<sup>3</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay with some *Phragmites*.  
Becoming finer with depth.
- 254-289  
Sh3Th<sup>3</sup>(Phra)1  
nig.3, strf.0, sicc.2+, elas.0, lim.sup.0.  
Brown *Phragmites* rich, otherwise humified peat.
- 290-316  
Missing.
- 317-383  
As4 Ag + Th<sup>3</sup>(Phra) +  
nig.2, strf.0, sicc.2+, elas.0, lim.sup.0.  
Fine grey clay with some *Phragmites*.
- 384-417  
Sh4 Th<sup>3</sup>(Phra) + D1 +  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Brown/red humified peat with some *Phragmites*.
- 417  
Impenetrable.
- MP4 ( +3.45m. OD )
- 0-30  
Missing.
- 31-110  
As2Ag2 Lf +  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron stained silty clay.
- 111-200  
As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey clayey silt.
- 201-250  
Missing.
- 251-430  
As3Ag1 Sh +  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay, with a humified organic fraction.
- 431-470  
Sh4 D1 + Th<sup>3</sup>(Phra) +  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Dk. brown humified peat with some *Phragmites* and wood.
- 471-490  
As2Ag2 Th<sup>3</sup>(Phra) + D1 +  
nig.2, strf.0, sicc.2, elas.0, lim.sup.1.  
Grey silty clay with some wood and *Phragmites*.
- 491-492  
Ag2As1Sh1 Th<sup>3</sup>(Phra) +  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey/brown organically enriched silty clay.
- 493-504  
Ga4  
nig.2, strf.0, sicc.1, elas.0, lim.sup.0.  
Wet grey sand.
- 504  
Impenetrable.
- MP5 ( +3.37m. OD )
- 0-30  
Missing.
- 31-110  
As2Ag2 Lf +

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron stained silty clay.

111-261

As4 Ag + Th<sup>3</sup> +  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey clay with some turfa.

262-277

Sh2Th<sup>3</sup>1D11 Th<sup>3</sup>(Phra) +  
nig.3, strf.0, sicc.2+, elas.0, lim.sup.2.  
Brown humified *turfa* with some oak and other  
detrital material.

278-310

As4 Th<sup>3</sup>(Phra) + D1 +  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Soft grey clay with some *Phragmites*.

311-456

As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Soft grey clay with some silt.

457-502

Sh3Th<sup>3</sup>1 D1 +  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Very compact and humified peat, with squashed  
birch and oak.

503-506

Sh2As1Ag1 Th<sup>3</sup> +  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey, compact organic clay.

507-525

As2Ag2 Th<sup>3</sup> +  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey clay, with some *turfa*.

526-530

Ag2As1Sh1  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey/brown organic silty clay. Very sticky.

530

Impenetrable.

MP6 ( +3.425m. OD )

0-40

Missing.

41-335

Ag2As2 Lf +  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Compact, iron stained silty clay.

336-420

As2Ag2 Th<sup>3</sup> +  
nig.2, strf.2, sicc.2, elas.0, lim.sup.0.  
Laminated, grey silty clay.

421-482

As4  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Soft Battleship-grey clay.

483-512

Sh4 Th<sup>3</sup>(Phra) + D1 +  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark brown, compact and humified peat with some  
*Phragmites* and wood.

512

Impenetrable.

MP7 ( +3.38m. OD )

0-30

Missing.

31-104

Ag3As1 Lf +  
nig.2, strf.0, sicc.3, elas.0, lim.sup.0.  
Iron stained silty clay.

105-296

As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey clay.

297-309

Sh2Th<sup>3</sup>1Th<sup>3</sup>(Phra)1 As +  
nig.3, strf.0, sicc.2, elas.0, lim.sup.1.  
Brown, fairly well humified *turfa*/*Phragmites* peat.

310-510

As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay.

511-540

Sh3D11 Th<sup>3</sup>(Phra) +  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Red/brown woody peat with oak and birch. Some  
*Phragmites*.

540  
Impenetrable.

MP8 ( +3.51m. OD )

0-30  
Missing.

31-120  
Ag3As1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron stained silty clay.

121-296  
As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey clay with some silt.

297-305  
Sh4 D1+Th<sup>3</sup>(Phra)+  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.  
Dk.brown/black humified peat.

306-536  
As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay.

537-549  
D12Sh2 Th<sup>3</sup>+  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.2.  
Dark brown woody peat with oak and birch and  
sharp upper contact. Impenetrable at base.

MP9 ( +3.54m OD )

0-30  
Missing.

31-123  
As1Ag3 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron stained silty clay.

124-340  
As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Brown/grey soft sticky clay. Melted chocolate.

341-370  
Coarse material, failed to sample.

MP10 ( +3.49m. OD )

0-30  
Missing.

31-90  
As1Ag3 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron stained silty clay.

91-189  
As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark grey clay with some silt.

190-192  
Same as above with Th<sup>3</sup>+

193-196  
Ag2Ga2  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty sand.

196  
Impenetrable.

MP11 ( +3.64m. OD )

0-35  
Missing.

35-86  
Ag3As1 Lf+  
nig.2, strf.0, sicc.2+, elas.0, lim.sup.0.  
Dry silty clay with some iron staining.

87-179  
As3Ag1 Th<sup>3</sup>+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Plastic grey/brown clay.

180-185  
Ga2Ag2  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty sand.

MP12

0-30  
Sc4

30-122 Ag3As1 Ga+Lf+ nig.2, strf.0, sicc.3, elas.0, lim.sup.0. Dry iron stained silty clay.	Fine blue/grey silty clay.
122-188 As2Ag2 Lf+ nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Khaki brown/grey silty clay.	450-500 As2Ag2 Th <sup>3</sup> + nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Blue/grey silty clay with some <i>turfa</i> .
188-400 As3Ag1 nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Grey silty clay.	500-533 D11Sh2Th <sup>3</sup> 1 Th <sup>3</sup> ( <i>Phra</i> ) + nig.3+, strf.0, sicc.2, elas.0, lim.sup.0. Compact, dark, humified woody peat. Goodish contact. Below 510 becomes lighter and slightly less humified.
400-518 Missing.	533-546 Sh3As1 nig.3+, strf.0, sicc.2, elas.0, lim.sup.0. Dark, very compact peaty clay.
518-617 As1Ag3 nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Grey clayey silt, getting coarser towards the base of stratum.	<u>MP14</u> (+3.39 m.)
617 Solid.	0-30 Missing.
<u>MP13</u> (+3.38 m.)	30-150 As2Ag2 Lf+ nig.2, strf.0, sicc.2+, elas.0, lim.sup.0. Iron stained silty clay.
0-35 Sc4	150-257 As3Ag1 nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Khaki brown silty clay.
35-145 As2Ag2 Lf+ nig.2, strf.0, sicc.2+, elas.0, lim.sup.0. Iron stained silty clay.	257-264 Sh3Th <sup>3</sup> ( <i>Phra</i> )1 Th <sup>3</sup> + nig.3+, strf.0, sicc.2, elas.0, lim.sup.4. Dark brown, compact peat with some <i>Phragmites</i> .
145-280 As3Ag1 nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Fine grey silty clay.	264-267 Ga3D11 Sh+ nig.2+, strf.0, sicc.2, elas.0, lim.sup.0. Peaty sand with some wood.
280-292 Sh3Th <sup>3</sup> 1 Th <sup>3</sup> ( <i>Phra</i> ) + nig.3+, strf.0, sicc.2, elas.0, lim.sup.3. Dark, well humified peat with some <i>Phragmites</i> . Very compact, and eroded upper contact.	267-340 Ga4 Ag+ nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Grey/brown sand.
292-352 As2Ag2 Th <sup>3</sup> ( <i>Phra</i> ) + nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Grey silty clay with some <i>Phragmites</i> .	340-415 Ga3Ag1 nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Grey/brown silty sand.
352-450 As3Ag1 nig.2, strf.0, sicc.2, elas.0, lim.sup.0.	415-450

Ga3Gs1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Coarse grey sand. Impenetrable below.

MP15 (+3.48 m.)

0-30  
Missing.

30-170  
As1Ag3 Ga + Lf+  
nig.2, strf.0, sicc.2+, elas.0, lim.sup.0.  
Dry iron stained clayey silt with some fine sand.

170-280  
As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Fine blue/grey silty clay.

280-438  
As2Ag2  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark grey silty clay.

438-450  
Ga3Gs1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Compact impenetrable grey sand.

MP16 (+3.40 m.)

0-30  
Missing.

30-152  
Ag3As1 Lf+  
nig.2, strf.0, sicc.2+, elas.0, lim.sup.0.  
Dry iron stained khaki brown silty clay.

152-251  
As2Ag2  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey/brown silty clay.

251-264  
Sh3Th<sup>2</sup>(Phra)1 Th<sup>3</sup>+  
Brown/black humified peat with *Phragmites*.

264-306  
Ga2Ag2 Th<sup>2</sup>+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey sandy silt with some turfa.

306-467  
As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Fine grey silty clay.

467-477  
Sh3Th<sup>3</sup>(Phra)1 Th<sup>3</sup>+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.1.  
Dark brown humified peat.

477-486  
Sh3As1  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark brown clayey peat. Humified and very compact.

486-490  
Ga2Gs1Gg(min)1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Coarse gravel.

MP17 (+3.51 m.)

0-30  
Missing.

30-131  
As2Ag2 Lf+  
nig.2, strf.0, sicc.2+, elas.0, lim.sup.0.  
Dry grey/brown iron stained silty clay.

131-240  
As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Khaki brown/grey silty clay.

240-296  
Missing.

296-304  
Sh3Th<sup>3</sup>(Phra)1  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Humified brown peat with some *Phragmites*.

304-313  
As3D11  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey clay with wood.

313-394  
As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark grey silty clay.

394-401  
Sh3As1  
Dark brown humified clayey peat.

401-410  
Impenetrable sand.

MP18 (+3.34 m.)

0-50  
Missing.

50-140  
As2Ag2 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron stained silty clay.

140-143  
Gs4  
nig.2, strf.0, sicc.2, elas.0, lim.sup.2.  
Grey coarse sand.

140-153  
As2Ag2 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron stained silty clay.

153-217  
As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Darkish grey silty clay.

217-350  
Did not sample. But coring was easy.

350-426  
As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey and fine buttery silty clay.

426-461  
Sh2D11Th<sup>2</sup>(Phra)1  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Reddy/brown compact peat with *Phragmites* and wood.

461-470  
Sh3As1  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark brown peat with some clay.

470-478  
Sh2D11Th<sup>2</sup>(Phra)1

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Reddy/brown compact peat with some *Phragmites* and wood.

478-486  
As2Sh1Th<sup>2</sup>(Phra)1  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey clay with some *Phragmites* in a humified peat matrix.

486-507  
Sh2Th<sup>2</sup>  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Brown, slightly reddy amorphous peat.

507-520  
Coarse weathered sand.

MP19 (+3.38 m.)

0-30  
Missing.

30-154  
As2Ag2 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron stained silty clay.

154-309  
As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey silty clay.

309-313  
As2D11Th<sup>2</sup>(Phra)1  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey/blue clay with wood and *Phragmites*.

313-325  
Sh3Th<sup>2</sup>(Phra)1 Th<sup>2</sup>+  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark humified brown peat. Quite compact.

325-463  
As3Ag1 Th<sup>3</sup>+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey silty clay with very small amounts of *turfa* in the top of the sratum.

463-470  
As2Sh1Th<sup>2</sup>(Phra)1  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey brown organic clay with some *Phragmites*.

- 470-508  
Sh3Th<sup>2</sup>(Phra)1 D1+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.1.  
Brown humified peat. *Phragmites*, and some wood including alder.
- 508-525  
As3Sh1 D1+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Stiff clay with a peat matrix. Grey/khaki brown.
- 525-561  
Th<sup>2</sup>Sh2  
Brown/red amorphous peat with a *turfa* matrix.  
Beans.
- 561-577  
Coarse weathered sand.
- MP20 (+3.38 m.)
- 170-244  
As3Ag1 Sh+D1+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Fairly dark grey brown silty clay with some organic material. Eroded peat ball with wood at 230-131 cm.
- 244-255  
Missing.
- 255-298  
As3Ag1 Sh+Th<sup>3</sup>+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay, with some humified *turfa* and organic material.
- 298-299  
As3 Sh1 Ag+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Organically enriched clay. Grey with peat veins.
- 299-308  
Sh3Th<sup>2</sup>1 Th<sup>2</sup>(Phra)+  
nig.4, strf.0, sicc.2, elas.0, lim.sup.1.  
Very dark amorphous fairly humified peat with *turfa* and *Phragmites*.
- 308-313  
Sh2Th<sup>2</sup>Th(Phra)2  
nig.3+, strf.2, sicc.2, elas.0, lim.sup.0.  
Brown, stratified *Phragmites* rich peat.
- 313-355  
As3Ag1 Sh+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay. Slightly increase in organic content immediately below the above stratum.
- 355-450  
Same as above  
Became grey/blue further down the stratum.
- 450-472  
Missing.
- 472-509  
Sh4 D1+Th<sup>3</sup>+  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark brown/black amorphous peat. Large piece of wood 3 cm thick and the diameter of the tube at 489-492 cm and 498 cm. Slight minerogenic fraction towards base of stratum.
- 509-513  
Sh3As1  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark grey/brown organically enriched clay.
- 513-527  
As2Ag2 Sh+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty clay with an eroded peat ball at 517 cm.
- 527-531  
Sh2As1Ag1 D1+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Clay with eroded balls of peat.
- 531-561  
Sh4 Th<sup>3</sup>+D1+  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.  
Wood at 536,549 cm. Dark amorphous humified peat. Some eroded Flecks of peat above the upper contact.
- 561-566  
As2Ag2 Th<sup>3</sup>+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty clay. Very small amounts of humified *turfa*. Very white almost like a marl.
- 566-578  
Ga1Gs2 Gg(min)1 Ag+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Coarse grey sandy gravel with some silt.

PENTRE MAWR, ABERGELE.

Fieldwork 16/12/89 &amp; 1 - 5/1/90 DJB

PM11 (+4.45m OD)0-25  
Sc425-82  
As2Ag2  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Light grey silty clay.82-180  
Ag3As1 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey clayey silt with some iron staining.180-220  
Ag2As2  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark grey plastic clay.220-240  
As1Sh2Th<sup>3</sup>1  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Brown peaty clay.240-299  
As2Ag2 Th(*Phra2*) +  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey/blue clay with *Phragmites*.299-359  
Sh3Th<sup>3</sup>1  
nig.3, strf.0, sicc.1+, elas.0, lim.sup.0.  
Brown wet partially humified peat.359-370  
Ag2Sh1As1  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey/brown peaty clay.370-450  
As4  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey clay.450-480  
Didn't sample. Gravel.PM10 (+4.01m OD)0-15  
Sc415-65  
As2Ag2  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty clay.65-90  
As1Ag3 Lf+  
Grey mottled iron stained silty clay.90-185  
As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty clay.185-202  
Sh4  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Brown humified peat.202-280  
As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey silty clay.280-360  
Sh3Th<sup>3</sup>1 D1+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.1.  
Brown fairly humified peat with some wood and a slightly eroded contact.360-365  
Sh3As1  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Brown/grey peaty clay.PM9 (+3.72m OD)0-28  
Sc4  
Top soil

29-70  
As2Ag2 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Red/brown silty clay with iron staining

71-184  
As2AG2 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty clay with slight iron staining

185-200  
As2Ag2+Gg(maj)  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark grey silty clay with some gravel

201-217  
Sh3D11  
nig.3, strf.0, sicc.2, elas.0, lim.sup.1.  
Peat with dark wood

218-223  
Sh3As1+D1  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Organic material with clay particles

224-226  
As3Th<sup>3</sup>1+D1  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.1.  
Slightly organic clay with wood at 226cm.

227-230  
Sh2As2+Th+T1  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Organic mud

231-239  
Sh4+Th<sup>3</sup>  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Brown Peat

240-251  
As3Sh1+T1+Th<sup>3</sup>  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Slightly organic, dark clay

252-259  
As3Sh1+D1+Th  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Lighter clay with woody remains

260-264  
As3Sh1+D1+Th<sup>2</sup>  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark organic clay

265-334

Sh4+Th<sup>3</sup>+Th(*Phra*3)  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Peat with *Phragmites*.

335-342  
As3Sh1  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Slightly organic clay

343-357  
As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey clay with silt

358-365  
Ag2Ga1Gg(maj)1  
Coarse sand and silt with clay

PM8 (+3.52m OD)

0-25  
Sc4  
Top soil

26-52  
As3Ag2 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Very tough brown silt-clay with slight iron staining

53-176  
As2Ag2  
As above, but greyer

177-179  
Ga4  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey sand

180-200  
As4+Sh  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark grey clay with a trace of organic material

201-242  
Sh3Th<sup>3</sup>1  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Partially humified brown peat

243-262  
As3Th(*Phra*3)1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Light brown clay with *Phragmites* remains

263-281  
As4

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey clay

282-304

As4+Th<sup>3</sup>

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Light brown clay with some *turfa*

304-313

Sh3Th<sup>3</sup>1

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Peat

314-327

As4+Th<sup>3</sup>

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Light brown clay with some *turfa*.

328-350

Sh3Th<sup>3</sup>1

nig.3, strf.0, sicc.2, elas.0, lim.sup.1.  
Partially humified peat

351-359

Sh4

nig.4, strf.0, sicc.2, elas.0, lim.sup.0.  
Very dark, completely humified peat

360-376

Sh3D11+As

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Lighter peat, with a minerogenic trace and some wood

377-387

As3Th<sup>3</sup>1

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Light grey organic clay

388-397

As4

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey clay

398-433

Sh4+Th<sup>3</sup>

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Humified peat

434-435

As2Sh2

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey/brown organic clay.

PM7 (+3.53m OD)

0-25

Sc4

Topsoil

26-50

As2Ag2 Lf+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Reddish iron stained clay

51-60

As2Ag2 Lf+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Greyer, iron stained clay

61-161

As2Ag2+Gg(min)

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty clay

162-174

Gg(min)4 Ga+

nig.2, strf.0, sicc.2, elas.0, lim.sup.1.  
Grey gravel with some sand and sharp upper contact.

175-214

As3Ag1

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty clay

215-

As1Sh3

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Very organic clay

-256

Sh3Th<sup>3</sup>1+D1

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Peat

257-293

As4

nig.2, strf.0, sicc.2, elas.0, lim.sup.1.  
Blue/grey clay

294-301

Sh2As2

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey Organic clay

302-325

Sh4+Th<sup>3</sup>

nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark humified peat

326-334  
Sh3As1  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Very organic grey/brown clay

335-380  
Sh4+Th<sup>3</sup>  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Humified Peat with some *turfa*

380-383  
As2Sh2  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Organic clay

384-385  
Sh4  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Humified Peat

386-393  
As4+Sh  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0  
Clay with a trace of organic material

394-417  
Sh4  
nig.4, strf.0, sicc.2, elas.0, lim.sup.0.  
Very dark, humified peat

418-424  
Sh1As3  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Organic clay

424-443  
As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey Silty clay

452-479  
As3Ga1+Dl  
nig.2, strf.0, sicc.2, elas.0, lim.sup.2.  
Dark grey clay with sand

480  
Gg(maj)4  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Pebbles

PM6 (+3.50m OD)

0-19  
Sc4

Top soil

20-88  
As2Ag2 Lf+  
nig.2, strf.1, sicc.2, elas.0, lim.sup.0.  
Red iron stained clay

89-105  
As3Ag1 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Greyer iron stained clay

106-192  
As2Ag2+Gg(min)  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey clay-silt with some gravel

193-214  
Gg(min)4 Ga+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey sandy gravel

215-222  
As3Sh1  
nig.3, strf.0, sicc.2, elas.0, lim.sup.1.  
Dark organic clay

223-265  
Sh4+Th<sup>3</sup>  
nig.3, strf.0, sicc.2, elas.0, lim.sup.3.  
Humified Peat with sharp upper contact.

266-270  
As2Sh2+Dl  
nig.2, strf.0, sicc.2, elas.0, lim.sup.1.  
Organic rich clay

271-306  
As4+Dl+Th<sup>3</sup>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Clay with *Phragmites* and wood (285cm.)

307-315  
Sh4+Th<sup>3</sup>+As  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Humified peat with some herbaceous remains

316-321  
As3Sh1+Th<sup>3</sup>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey clay with humified organic fraction

322-339  
Sh3Th<sup>3</sup>1  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Partially humified brown peat

340-349 Sh3As1 Th <sup>3</sup> +Dl+ nig.2, strf.2, sicc.2, elas.0, lim.sup.0. Laminated clay fraction in a very compact peat	200-241 As3Ag1+Th+Sh nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Grey clay with silt and an organic fraction
350-385 Sh4+Th <sup>3</sup> +Dl nig.3+, strf.0, sicc.2, elas.0, lim.sup.0. Dark humified peat	242-254 As3Sh1+Th <sup>3</sup> nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Organic clay
386-387 As3Sh1+Th <sup>3</sup> nig.2, strf.0, sicc.2, elas.0, lim.sup.2. grey organic clay	255-323 As3Ag1+Th(Phrg3) nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Blue/grey clay with <i>Phragmites</i>
388-393 Sh1Dl3 nig.3, strf.0, sicc.2, elas.3, lim.sup.1. Wood in a peat matrix	324-336 Sh3Dl1 nig.3, strf.0, sicc.2, elas.0, lim.sup.0. Humified peat with some wood.
394-401 As3Sh1+Th( <i>Phra</i> 3) nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Clay with thick <i>Phragmites</i> remains	337-359 Sh4 Dl+ nig.3, strf.0, sicc.2, elas.0, lim.sup.0. Humified peat with some wood.
402-429 Sh3Th <sup>3</sup> 1+Dl nig.3, strf.0, sicc.2, elas.0, lim.sup.1. Peat with some wood	360-374 Sh3Dl1 nig.3, strf.0, sicc.2, elas.0, lim.sup.0. Peat with some wood
430-439 As3Sh1 nig.2+, strf.0, sicc.2, elas.0, lim.sup.0. Dark grey organic clay	375-380 As3Sh1 nig.2+, strf.0, sicc.2, elas.0, lim.sup.0. Dark grey organic clay
440-466 As4+Gg(min) nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Blue/grey clay with some grit	381-408 Sh3Dl1 nig.3, strf.0, sicc.2, elas.0, lim.sup.0. Peat with wood
<u>PM5</u> (+3.41m OD)	409-412 As3Sh1 nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Grey Organic clay
0-24 Sc4 Top soil	413-440 As3Ag1 nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Blue/grey silty clay
25-160 As2Ag2 Lf+ nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Reddish silty clay	441-450 As2Ga1Gg(min)1 nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Clay with a coarse minerogenic component
161-199 As3Ag1 nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Grey clay with silt	

PM4 (+3.41m OD)

0-24

Sc4

Top soil

24-74

As2Ag2

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Very brown silty clay with no iron staining.

74-152

As2Ag2 Lf+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Grey clay with some iron staining.

152-196

As4 Th<sup>3+</sup>

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Blue/grey clay with some *turfa*.

196-214

Sh3Th<sup>2</sup>1 D1+

nig.3, strf.0, sicc.2, elas.0, lim.sup.3.

Brown peat with wood and *turfa*.

214-240

As3Sh1 D1+

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.

Grey organic clay.

240-346

Sh2D11Th<sup>2</sup>1

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Thick brown *turfa* with abundant wood.

Thin organic clay at 262.

346-350

As3Sh1

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Brown organic clay.

350-380

As3Ag1

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Blue/grey silty clay.

380-390

As1Ag1Ga1Gg(min)1

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Silt, clay, sand and gravel. Grey.

390-420

Ag1Ga1Gg(min)2

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Coarse sandy gravel.

PM3 (+3.61m OD)

0-25

Sc4

Topsoil.

25-76

As2Ag2 Lf+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Reddish iron stained silty clay.

76-196

As2Ag2

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Grey silt/clay with some iron staining.

196-210

Sh4 Th<sup>3+</sup>

nig.3, strf.0, sicc.2, elas.0, lim.sup.3.

Humified brown peat with sharp upper contact.

210-225

As3Sh1 Th<sup>3+</sup>

nig.2+, strf.0, sicc.2, elas.0, lim.sup.1.

Grey organic clay with some *turfa*.

225-288

Sh4 Th<sup>3+</sup>

nig.3, strf.0, sicc.2, elas.0, lim.sup.1.

Humified brown peat as above.

288-293

As3Sh1

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Grey partially organic clay.

293-320

Ag1Ga2Gg(min)1

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Gravel. Grey.

PM2 (+3.52m OD)

0-26

Sc4

Top soil

26-162

As1Ag3 Lf+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Iron stained silty clay. Quite light.

162-171

Same as above, but no Lf.

171-174  
Ga4  
Grey sand.

174-190  
As3Ag1 Ga+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty clay with some sand.

190-199  
Sh4 Th<sup>3</sup>+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Brown humified peat.

199-215  
As3Sh1 Th<sup>3</sup>+  
Grey organically enriched clay.

215-244  
Same as 199-215.

244-258  
Missing.

258-298  
Ag2Ga1Gg(min)1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Coarse silty gravel.

320  
Solid and coarse.

PM1 (+3.42m OD)

0-22  
Sc4  
Top soil.

22-101  
As1Ag3  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silt with some clay.

101-149  
Ag3Ga1 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silt with brown sandy nodules.

149-163  
Ga4  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey sand.

163-177

As1Ag2Sh1  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.1.  
Dark organic silt.

190  
Solid.

HENDRE FAWR, VALE OF CLWYD

Fieldwork: 16/3/90 - 19/3/90 DJB, 1/6/90 DJB AJL, 24/6/90 DJB AMG, 9/11/90 DJB AJL

<u>HF1</u> (+4.355 m.) (17 in fnb)	0-27 Missing.
0-26 Sc4	28-90 Ag3As1 Lf+Gs+ nig.2, strf.0, sicc.1, elas.1, lim.sup.0. Orange/brown iron stained silty clay.
27 Hit rock	
<u>HF2</u> (+3.935 m.) (1 in fnb)	91-149 As2Ga2 Lf+ nig.2, strf.0, sicc.2, elas.1, lim.sup.0. Light grey silty clay.
0-40 Missing	150-152 Sh3As1 Th <sup>4</sup> + nig.3, strf.0, sicc.2, elas.1, lim.sup.4. Very compact, dry peaty clay with very sharp upper contact.
41-70 Ag3Ga1 Lf+Gg(min)+ nig.2, strf.0, sicc.1, elas.1, lim.sup.0. Grey dry silt with iron staining.	153-178 Sh2Th <sup>2</sup> D1+ nig.3+, strf.0, sicc.2, elas.0, lim.sup.0. Dark <i>turfa</i> .
71-82 Ga4 nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Light grey sand	179-186 As3Th <sup>3</sup> 1 D1+ nig.2+, strf.0, sicc.2, elas.0, lim.sup.0. Organically enriched clay
83-125 Ag3Ga1 Lf+ nig.2, strf.0, sicc.1, elas.1, lim.sup.0. Iron stained silt.	187-205 As4 Th <sup>3</sup> +D1+ nig.2, strf.0, sicc.2, elas.1, lim.sup.0. Blue/grey clay with <i>Phragmites</i> and detrital wood.
126-147 Ag2As2 nig.2, strf.0, sicc.2, elas.1, lim.sup.0. Grey silty clay.	206 Hit gravel/weathered surface.
148-170 As2Ag2 Th <sup>3</sup> + nig.2+, strf.1, sicc.1, elas.2, lim.sup.0. Silty clay with <i>turfa</i> remains. Slightly laminated.	<u>HF4</u> (+3.880 m.) (2 in fnb)
170- Ga4 nig.2, strf.0, sicc.1, elas.0, lim.sup.0. Very coarse weathered surface.	0-40 Missing.
<u>HF3</u> (+3.880 m.) (18 in fnb)	41-141 As1Ag3 Lf+Th <sup>2</sup> + nig.2, strf.0, sicc.2, elas.1, lim.sup.0. Grey silty clay with iron staining. Very compact and

getting wetter lower down.

142-146

Sh4 Th<sup>3</sup>+Th<sup>3</sup>(Phra)+

nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.

Very dark, compact well humified peat.

147-188

Sh2Th<sup>2</sup> Th<sup>2</sup>(Phra)+D1+

nig.3+, strf.0, sicc.2, elas.1, lim.sup.0.

Dark brown peat with *turfa* and *Phragmites*.

189-210

Ga4 Gg(min)+Gg(maj)+

nig.2, strf.0, sicc.2+, elas.0, lim.sup.0.

Grey sand with coarse pebbles and grit.

211

Hit gravel.

HF5 (+3.700 m.) (19 in fnb)

0-30

Missing

31-97

Ga3As1 Lf+

nig.2, strf.0, sicc.1, elas.1, lim.sup.0.

Iron stained sand and silt.

98-146

As2Ga2 Lf+

nig.2, strf.0, sicc.2, elas.1, lim.sup.0.

Grey clay/silt. Some iron staining.

147-163

Sh2Th<sup>2</sup>

nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.

Very dark, humified peat.

164-226

Sh1Th<sup>3</sup>2D11

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Brown *turfa* with detrital wood. Large piece of alder at 170cm.

227-229

Ag1Ga2Gs1

nig.2+, strf.0, sicc.1, elas.1, lim.sup.0.

Dark grey silt/sand with coarse gravel.

230-235

Ga2Gs2 Gg(min)+

nig.2+, strf.0, sicc.1, elas.1, lim.sup.0.

Dark grey silty/sand.

HF6 (+3.840 m.) (3 in fnb)

0-50

Missing

51-150

Ag3As1 Lf+Th<sup>3</sup>+

nig.2, strf.0, sicc.1, elas.1, lim.sup.0.

Iron stained silty clay. Hard and compact.

151-160

Ag3As1 Lf+Th<sup>3</sup>+Sh+

nig.2, strf.0, sicc.1, elas.1, lim.sup.0.

Same as above with an increase in organic fragments.

161-168

As2Sh1Th<sup>2</sup>1 Th<sup>3</sup>(Phra)+

nig.2+, strf.1, sicc.2, elas.1, lim.sup.0.

Dark grey organic clay.

169-239

Sh2Th<sup>2</sup> D1+

nig.3+, strf.0, sicc.2+, elas.0, lim.sup.0

Dark, black well humified peat, with an increase in wood content lower down.

240-246

As3Sh1 Th<sup>3</sup>(Phra)+Th<sup>3</sup>+

nig.2+, strf.0, sicc.2+, elas.1, lim.sup.0

Grey organic clay.

247-255

AsGa2

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Grey silty clay.

256-282

Ga4

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Grey sand.

282

Hit rock/gravel.

HF7 (+3.690 m.) (20 in fnb)

0-30

Missing.

31-103

Ga3As1 Lf+Gs+  
nig.2, strf.0, sicc.1, elas.1, lim.sup.0.  
Orange/brown silty iron stained clay.

104-126

Ga2As2 Lf+  
nig.2, strf.0, sicc.2, elas.1, lim.sup.0.  
Grey silty clay.

127-345

As4  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark grey, very gooey clay.

HF8 (+3.675 m.) (4 in fnb)

0-50

Missing.

51-158

Ag3As1 Lf+  
nig.2, strf.0, sicc.1, elas.0, lim.sup.0.  
Iron stained silty clay.

159-166

As1Ga1Sh2  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark organic clay.

167-179

Sh4 Th<sup>3</sup>+Th<sup>2</sup>(Phra)+  
nig.4, strf.0, sicc.2+, elas.0, lim.sup.0.  
Very black humified peat.

180-184

As2Sh1Th<sup>2</sup>1 Th<sup>3</sup>(Phra)+  
nig.2+, strf.0, sicc.2+, elas.1, lim.sup.0.  
Grey brown organic clay with black organic remains  
and *Phragmites*.

185-230

Sh1Th<sup>2</sup>3 Th<sup>2</sup>(Phra)+Dl+  
nig.3-, strf.0, sicc.2, elas.1, lim.sup.0.  
Brown *turfa*, with some *Phragmites*.

231-245

As1Sh1Th<sup>2</sup>2  
nig.2+, strf.0, sicc.3, elas.0, lim.sup.0.  
Brown/grey organic clay.

246-295

Missing. Probably running sand.

296

Hit rock/gravel.

HF9 (+3.735 m.) (5 in fnb)

0-40

Missing.

41-132

Ag3As1 Lf+  
nig.2, strf.0, sicc.1, elas.0, lim.sup.0.  
Iron stained silty clay, with increased iron content  
towards the base of horizon.

133-140

As2Ag2 Th<sup>2</sup>+Sh+  
nig.2, strf.0, sicc.2, elas.1, lim.sup.0.  
Some organic remains in a silty clay.

141-162

As2Ag2 Gg(min)+Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty clay with orange sandy nodules.

163-178

As 133-140

179-194

Sh2Th<sup>2</sup>2  
nig.3, strf.0, sicc.2+, elas.0, lim.sup.0.  
Dark brown *turfa*. Compact and well humified.

195-203

As3Th<sup>3</sup>1 Sh+  
nig.2+, strf.0, sicc.2+, elas.1, lim.sup.0.  
Grey brown organic clay.

204-273

Th<sup>2</sup>3Sh1 Th<sup>2</sup>(Phra)+Dl+  
nig.3, strf.0, sicc.2+, elas.0, lim.sup.0.  
*turfa* with detrital remains.

274-307

As3Sh1 Th<sup>2</sup>+Th<sup>2</sup>(Phra)+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey brown organic clay.

308-340

As4 Th<sup>2</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey buttery clay with some *Phragmites*.

341-371  
As3Ag1 Th<sup>2</sup>(Phra)+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark grey silty clay with some *Phragmites*.

371-  
Missing.

HF10 (+3.555 m.) (6 in fnb)

0-30  
Missing.

31-118  
Ag3As1 Lf+  
nig.2, strf.0, sicc.1+, elas.1, lim.sup.0.  
Iron stained silty clay.

119-135  
As2Ag2 Gg(min)+Lf+  
nig.2, strf.0, sicc.1+, elas.1, lim.sup.0.  
Decrease in limus wrt above, but some orange sandy nodules in a dark grey silty clay.

136-154  
Sh2Th<sup>2</sup>  
nig.3, strf.0, sicc.2+, elas.0, lim.sup.0.  
Compact well humified peat.

155-161  
As3Th<sup>3</sup>1 Sh+  
nig.3, strf.0, sicc.2+, elas.0, lim.sup.0.  
Organic clay.

162-223  
Th<sup>2</sup>3Sh1 Th<sup>2</sup>(Phra)+  
nig.3, strf.0, sicc.2+, elas.0, lim.sup.0.  
*turfa* with detrital material.

224-253  
As3Sh1 Th<sup>2</sup>+ Th<sup>2</sup>(Phra)+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey brown organic clay with some *turfa* and *Phragmites*.

254-377  
As4  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey clay.

378-383  
As3Th<sup>2</sup>1 Th<sup>2</sup>(Phra)+  
nig.2, strf.0, sicc.2+, elas.2, lim.sup.0.

Organic clay.

384-405  
Th<sup>2</sup>4 Sh+Th<sup>2</sup>(Phra)+  
nig.3, strf.0, sicc.3, elas.0, lim.sup.0.  
Brown *turfa* with *Phragmites*.

406-410  
Ga4  
nig.2, strf.0, sicc.2+, elas.0, lim.sup.0.  
Grey sand. Therefore peat on sand.

HF11 (+3.555 m.) (7 in fnb)

0-35  
Missing.

36-107  
Ag3As1 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron stained silty clay.

108-112  
Ag2As1Sh1  
nig.3, strf.0, sicc.2, elas.1, lim.sup.0.  
Organic silty clay.

113-133  
Ag2As2 Gg(min)+Lf+  
nig.2, strf.0, sicc.1+, elas.1, lim.sup.0.  
Grey silty clay with orange sand nodules.

134-153  
Sh2Th<sup>2</sup>  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Compact, humified dark brown peat.

154-162  
As3Th<sup>3</sup>1 Sh+  
nig.3, strf.0, sicc.2+, elas.0, lim.sup.0.  
Dark grey organic clay.

163-227  
Th<sup>2</sup>2Sh1D11 Th<sup>2</sup>(Phra)+  
nig.3, strf.0, sicc.2+, elas.0, lim.sup.0.  
*turfa* with detrital wood.

228-241  
As3Sh1 Th<sup>2</sup>+Th<sup>2</sup>(Phra)+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey brown organic clay.

242-282

- As<sub>4</sub>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey clay.
- 283-373  
Ga<sub>4</sub>  
nig.2, strf.1, sicc.3, elas.0, lim.sup.0.  
Grey, wet and very compact sand.
- 374-441  
As<sub>4</sub> Th<sup>2</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey clay with *Phragmites*.
- 442-452  
Th<sup>3</sup>Sh<sub>1</sub> Th<sup>3</sup>(Phra)+Dl+  
nig.3, strf.0, sicc.2+, elas.0, lim.sup.0.  
Fairly humified brown *turfa*.
- 453-469  
As<sub>3</sub>Th<sup>2</sup>1 Th<sup>2</sup>(Phra)+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Brown/grey organic clay with *turfa* and *Phragmites*.
- 470-474  
Sh<sub>2</sub>Th<sup>2</sup> As+  
nig.3, strf.0, sicc.2+, elas.0, lim.sup.0.  
Very humified peat with a trace of minerogenic particles.
- 475-489  
As<sub>3</sub>Ag<sub>1</sub>Th<sup>4</sup>+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark grey silty clay with a trace of *turfa*, which decreases further down the horizon.
- 490  
Hit rock/gravel.
- HF12 (+3.615 m.) (8 in fnb)
- 0-30  
Missing.
- 31-103  
Ga<sub>4</sub> Lf+  
nig.2, strf.0, sicc.1, elas.1, lim.sup.0.  
Grey sand with iron staining.
- 104-131  
As<sub>3</sub>Ga<sub>1</sub>  
nig.2, strf.0, sicc.2, elas.2, lim.sup.0.  
Grey clay with some silt.
- 132-149  
Sh<sub>3</sub>Th<sup>3</sup><sub>1</sub>  
nig.3+, strf.0, sicc.2, elas.2, lim.sup.2.  
Compact, dark humified peat with eroded upper contact.
- 150-157  
As<sub>3</sub>Th<sup>2</sup>1 Th<sup>2</sup>(Phra)+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey/brown organic clay.
- 158-170  
Sh<sub>3</sub>Th<sup>3</sup><sub>1</sub>  
nig.3+, strf.0, sicc.2, elas.1, lim.sup.0.  
Black, humified peat.
- 171-202  
Sh<sub>2</sub>Th<sup>2</sup> D<sub>1</sub>+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Brown woody peat.
- 203-295  
As<sub>4</sub> Th(Phra<sub>2</sub>)<sub>+</sub>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey buttery clay with *Phragmites*.
- 296-429 Ga<sub>4</sub>  
nig.2+, strf.1, sicc.2, elas.1, lim.sup.0.  
Wet grey sand.
- 430-467  
As<sub>4</sub> Th<sup>3</sup>+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey and wet clay.
- 468-477  
Sh<sub>2</sub>Th<sup>2</sup> D<sub>1</sub>+  
nig.3, strf.0, sicc.2, elas.1, lim.sup.0.  
Brown *turfa*.
- 478-521  
As<sub>4</sub> Th<sup>3</sup>+Th<sup>2</sup>(Phra)+  
nig.2, strf.0, sicc.1, elas.1, lim.sup.0.  
Plastic blue/grey clay.
- 522-541  
As<sub>3</sub>Th<sup>2</sup>1 Sh+Th<sup>2</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Organically enriched blue/grey clay.
- 542-562  
As<sub>4</sub> Th<sup>3</sup>+Th<sup>3</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey clay.
- 563

As<sub>2</sub>Ga<sub>2</sub> Gs+  
nig.2, strf.0, sicc.2, elas.2, lim.sup.0.  
Silty clay. Orange sandy nodules.

HF13 (+3.755 m.) (9 in fnb)

0-30  
Missing.

31-154  
Ga<sub>3</sub>As<sub>1</sub> Lf+  
nig.2, strf.0, sicc.1, elas.1, lim.sup.0.  
Iron stained silty clay.

155-268  
As<sub>3</sub>Ga<sub>1</sub>  
nig.2, strf.0, sicc.2, elas.1, lim.sup.0  
Grey clay with some silt.

269-310  
Ga<sub>3</sub>As<sub>1</sub>  
nig.2+, strf.1, sicc.1, elas.2, lim.sup.0.  
Dark grey sandy clay.

311-464  
As<sub>4</sub> Ag+Th<sup>3</sup>+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey clay with some *turfa*.

465-473  
Sh<sub>2</sub>Th<sup>2</sup> D1+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
*Turfa* with excellent upper and lower contacts.

474-579  
As<sub>4</sub> Ag+Th<sup>3</sup>+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey clay.

580-586  
Sh<sub>4</sub> Ga+  
nig.3, strf.0, sicc.2, elas.2, lim.sup.0.  
Dark compact peat. Tiny minerogenic particles visible.

587-588  
Sh<sub>2</sub>Ga<sub>2</sub>  
nig.2+, strf.0, sicc.1, elas.2, lim.sup.0.  
Organic silt.

589-602  
Ga<sub>4</sub> Ag+  
nig.2+, strf.0, sicc.1, elas.2, lim.sup.0.

Compact grey sandy silt.

603  
Hit solid surface.

HF14 (+3.665 m.) (10 in fnb)

0-30  
Missing.

31-149  
Ag<sub>3</sub>As<sub>1</sub> Lf+  
nig.2, strf.0, sicc.1, elas.1, lim.sup.0.  
Iron stained silty clay.

150-157  
As<sub>2</sub>Ga<sub>1</sub>Th<sup>3</sup><sub>1</sub>  
nig.2+, strf.0, sicc.2, elas.1, lim.sup.0.  
Grey brown organically enriched clay.

158-175  
Sh<sub>3</sub>Th<sup>3</sup> D1+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.2.  
Very compact peat, with an eroded upper contact.

176-182  
As<sub>3</sub>Th<sup>2</sup><sub>1</sub> Sh+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Organic clay.

183-240 Sh<sub>2</sub>Th<sup>2</sup> D1+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
*turfa* with limited detrital wood.

241-320  
As<sub>4</sub> Th<sup>3</sup>+Th<sup>2</sup>(*Phra*)+  
nig.2, strf.0, sicc.2, elas.1, lim.sup.0.  
Blue/grey buttery clay, with *Phragmites* decreasing downwards.

321-404  
Ga<sub>4</sub> Th<sup>2</sup>+  
nig.2, strf.0, sicc.1, elas.1, lim.sup.0.  
Grey sand.

405-428  
As<sub>4</sub> Ga+Th<sup>2</sup>+  
nig.2, strf.0, sicc.2, elas.1, lim.sup.0.  
Blue/grey clay with some silt.

429-437  
Sh<sub>2</sub>Th<sup>2</sup> D1+

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
*Turfa*, again with excellent contacts.

438-571

Ga4

nig.2, strf.0, sicc.1, elas.1, lim.sup.0.  
Very compact and uniform grey sand.

572-620

As4 Th<sup>2</sup>(Phra)+Th<sup>2</sup>+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey clay with *Phragmites*.

621-624

Th<sup>2</sup>Sh1As1 Th<sup>2</sup>(Phra)+

nig.3-, strf.0, sicc.2, elas.1, lim.sup.0.  
Peaty clay.

625-636

As3Th<sup>3</sup>1 Th<sup>2</sup>(Phra)+

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Organically enriched clay.

637-661

Ga4 Gs+Gg(min)+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Sand. Getting coarser towards the base and orange in colour.

HF15 (+3.240 m.) (11 in fnb)

0-30

Missing.

31-97

Ag3As1 Lf+

nig.2, strf.0, sicc.1, elas.1, lim.sup.0.  
Iron stained silty clay.

98-137

Sh3Th<sup>3</sup>1

nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.  
Compact, dark peat.

138-141

As3Th<sup>2</sup>3 Sh+

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Organic clay.

142-176

Th<sup>2</sup>Sh1D11

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Woody *turfa*.

177-242

As4 Th<sup>3</sup>+Th<sup>2</sup>(Phra)+

nig.2, strf.0, sicc.1, elas.2, lim.sup.0.  
Blue/grey clay with *Phragmites*.

243-276

Ag2As2

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty clay.

277-342

As 177-242.

343-559

Ga4 Gs+

nig.2+, strf.1, sicc.1, elas.0, lim.sup. Dark grey compact, slightly laminated wet and coarse sand.

560-572

As3Ag1

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey silty clay.

573-576

As2Th<sup>2</sup>2 Th<sup>2</sup>(Phra)+

nig.2+, strf.0, sicc.3, elas.0, lim.sup.0.  
Brownish grey organic clay with *turfa* and *Phragmites*.

577-655

As4 Th<sup>3</sup>+Th<sup>2</sup>(Phra)+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey clay with *Phragmites*, and an increase in *turfa* towards the base.

656-677

Ga2Gs1Gg(min)1 Gg(maj)+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Coarse gravel and sand.

HF16 (+3.465 m.) (12 in fnb)

0-60

Missing.

60-105

Sc1Ga1Gs1Gg(maj)1 Gg(min)+

nig.2, strf.0, sicc.2, elas.2, lim.sup.0.  
Orangy brown gravel, possibly waste material.

106-116

As2Ga2 Th<sup>3</sup>+

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Blocky dark grey clay.

117-138  
Th<sup>3</sup>As<sup>1</sup> Sh+  
nig.3, strf.0, sicc.3, elas.0, lim.sup.0.  
Dark organic clay. Very dry and not at all compact.

139-166  
Sh<sup>3</sup>Th<sup>3</sup><sup>1</sup>  
nig.4, strf.0, sicc.2, elas.0, lim.sup.0.  
Very dark, well humified peat.

167-177  
Sh<sup>4</sup> Th<sup>3</sup>+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Very humified, lighter brown peat.

178-330  
As<sup>4</sup> Th<sup>2</sup>(Phra)+Th<sup>3</sup>+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue grey clay with *Phragmites*.

331-384  
Ga<sup>4</sup>  
nig.2, strf.0, sicc.3, elas.0, lim.sup.0.  
Wet grey sand.

385-602  
As 178-330.

603  
Ga<sup>4</sup>  
nig.2, strf.0, sicc.1, elas.2, lim.sup.0.  
Grey compact sand.

HF17 (+3.535 m.) (13 in fnb)

0-40  
Missing.

41-112  
Ag<sup>3</sup>As<sup>1</sup> Lf+  
nig.2, strf.0, sicc.2, elas.2, lim.sup.0.  
Iron stained silty clay

113-129  
Sh<sup>3</sup>Th<sup>3</sup><sup>1</sup>  
nig.3+, strf.0, sicc.2, elas.1, lim.sup.0.  
Dark, compact humified peat.

130-138  
As<sup>3</sup>Th<sup>3</sup><sup>1</sup> Sh+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey/brown organic clay.

139-159

Sh<sup>3</sup>Th<sup>3</sup><sup>1</sup>  
nig.4, strf.0, sicc.2, elas.1, lim.sup.0.  
Very black, humified peat.

160-176  
Sh<sup>2</sup>Th<sup>3</sup><sup>2</sup> D1+  
nig.3, strf.0, sicc.2, elas.1, lim.sup.0.  
Brown, less humified peat.

177-341  
As<sup>4</sup> Th<sup>3</sup>+Th<sup>2</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.1, lim.sup.0.  
Blue/grey marine clay with *Phragmites*.

342-368  
Same as above (+Ga)

369-376  
Ga<sup>2</sup>Sh<sup>2</sup> Th<sup>3</sup>+  
nig.3, strf.0, sicc.1, elas.1, lim.sup.2.  
Organically enriched silty clay, with eroded upper contact.

377-565  
Ga<sup>4</sup>  
nig.2, strf.1, sicc.1, elas.1, lim.sup.0.  
Grey, compact sand.

566-740  
As<sup>4</sup> Th<sup>3</sup>(Phra)+Th<sup>3</sup>+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey clay with quite a bit of *turfa* and *Phragmites* near upper and lower contacts.

HF18 (+3.575 m.) (14 in fnb)

0-30  
Missing.

31-188  
Ga<sup>3</sup>As<sup>1</sup> Gs+Lf+  
nig.2, strf.0, sicc.1, elas.2, lim.sup.0.  
Iron stained silty sand.

189-408  
Ga<sup>4</sup> Gs+  
nig.2, strf.1, sicc.2, elas.0, lim.sup.0.  
Slightly stratified grey sand.

409-488  
As<sup>4</sup> Th<sup>3</sup>+Th<sup>3</sup>(Phra)+Ga+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.

Grey clay with *Phragmites*.

489-550

Ag<sup>1</sup>As<sup>1</sup>Ga<sup>2</sup>

nig.2, strf.0, sicc.3, elas.0, lim.sup.0.

Grey sandy silt.

551-690

As<sup>4</sup> Th<sup>3</sup> + Th<sup>2</sup>(*Phra*) +

nig.2, strf.0, sicc.2, elas.1, lim.sup.0.

Blue/grey clay, with decreasing organic content down the horizon.

HF19 (+3.505 m.) (15 in fnb)

0-30

Missing.

31-92

Ga<sup>3</sup>As<sup>1</sup> Lf + Gs +

nig.2, strf.0, sicc.2, elas.1, lim.sup.0.

Iron stained sandy clay.

93-133

Ga<sup>3</sup>As<sup>1</sup> Lf +

nig.2, strf.0, sicc.2, elas.1, lim.sup.0.

Iron stained silty clay.

134-152

Sh<sup>3</sup>Th<sup>1</sup>

nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.

Dark, humified peat.

153-168

As<sup>3</sup>Th<sup>2</sup> Th<sup>2</sup>(*Phra*)

nig.2+, strf.0, sicc.2, elas.1, lim.sup.0.

Grey/brown organic clay with *Phragmites*.

169-198

Sh<sup>3</sup>Th<sup>1</sup> Th<sup>2</sup>(*Phra*) +

nig.3+, strf.0, sicc.2, elas.1, lim.sup.0.

Dark, humified peat with excellent upper contact.

199-207

Sh<sup>2</sup>Th<sup>2</sup> Dl + Th<sup>2</sup>(*Phra*)

nig.3, strf.0, sicc.2, elas.1, lim.sup.0.

Brown *turfa* with some wood.

208-214

Th<sup>3</sup>Sh<sup>1</sup>As<sup>1</sup> Th<sup>2</sup>(*Phra*) +

nig.2+, strf.0, sicc.2, elas.1, lim.sup.0.

*turfa* with some clay.

215-219

As 198-207.

220-364

As<sup>4</sup> Th<sup>2</sup>(*Phra*) + Th<sup>3</sup> +

nig.2, strf.0, sicc.2, elas.0, lim.sup.1.

Blue/grey clay with abundant *Phragmites*.

365-395

Ga<sup>4</sup> Ag +

nig.2, strf.0, sicc.1, elas.1, lim.sup.0.

Grey sand.

396-411

As 220-364.

412-418

Sh<sup>2</sup>Th<sup>3</sup>As<sup>1</sup>

nig.3, strf.0, sicc.2, elas.0, lim.sup.2.

Peaty clay. Well humified with an eroded upper contact.

419-583

As<sup>4</sup> Th<sup>3</sup> + Th<sup>2</sup>(*Phra*) +

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Blue/grey clay with *Phragmites*.

584-588

As<sup>3</sup>Th<sup>1</sup> Th<sup>2</sup>(*Phra*) +

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Blue/grey clay, with organic material.

589-615

As 419-583.

HF20 (+3.745 m.) (16 in fnb)

0-30

Missing.

31-91

Ag<sup>3</sup>As<sup>1</sup> Lf +

nig.2, strf.0, sicc.3, elas.1, lim.sup.0.

Iron stained silty clay.

92-158

As<sup>2</sup>Ag<sup>2</sup> Lf +

nig.2, strf.0, sicc.2, elas.1, lim.sup.0.

Iron stained silty clay.

159-185

As<sup>2</sup>Ag<sup>2</sup>

nig.2, strf.0, sicc.2, elas.1, lim.sup.0.

Grey silty clay.

186-330

As<sup>4</sup>

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.

Very gooey grey clay.

331-361

Ga4 Ag+

nig.2, strf.1, sicc.1, elas.2, lim.sup.0.

Grey, slightly stratified sand.

362-376

As4

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Gooey grey clay.

377-380

As1Sh2Th<sup>3</sup>1

nig.3, strf.0, sicc.2, elas.0, lim.sup.1.

Peaty clay.

381-445

Ga4

nig.2, strf.0, sicc.3, elas.0, lim.sup.0.

Dryish compact sand.

HF21 (+3.135 m.)

0-101

Missing.

102-114

Ag2As2 Lf+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Grey silty clay with orange/brown iron staining.

115-128

Sh4 Th<sup>3</sup>+As+

nig.3+, strf.0, sicc.2, elas.0, lim.sup.1.

Dark brown/black, humified peat. Lighter remains of *turfa* material, especially near top contact which is moderately sharp.

129-131

Sh3As1 Th<sup>3</sup>+

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Same as above, with an increase in the clay content.

132-138

As3Ag1 Th<sup>3</sup>+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Grey silty clay with black *turfa* remains, running horizontally across stratum.

139-140

Sh3As1 Th<sup>3</sup>+

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Brown/grey humified peat with some clay.

141-176

Sh3Th<sup>3</sup>1 Th<sup>3</sup>(*Phra*)+

nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.

Dark brown/black humified peat. Some *turfa* and *Phragmites*.

Quite crumbly.

177-188

Sh2Th<sup>3</sup>1Th<sup>2</sup>(*Phra*)1

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

*turfa*/*Phragmites* peat. Lighter than above and slightly less humified.

189-196

As3Ag1 Th<sup>3</sup>+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Grey silty clay with some *turfa*.

197-248

Same as above, but no *turfa*.

249-269

Same as above, with *turfa*.

270-295

Ag2As2

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey silty clay.

296-305

As1Ag2Ga1

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Grey clayey, silt with some sand.

306-336

Ag2Ga2

nig.2, strf.1, sicc.2, elas.0, lim.sup.0.

Grey silty sand, with black flecks, but no sign of any organic material. Slightly laminated.

337-365

As2Ag2

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey silty clay.

366-378

As2Ag2 Th<sup>3</sup>+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey silty clay, with black *turfa* remains.

379-382

Th<sup>3</sup>2Th<sup>2</sup>(*Phra*)1As1

nig.3, strf.2, sicc.2, elas.0, lim.sup.0.

Laminated *turfa*/*Phragmites* peat with some clay.

383-399

As<sub>2</sub>Ag<sub>2</sub> Th<sup>3</sup>+Th<sup>2</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Silty clay with some *turfa* and *Phragmites*.

400-408

Th<sup>2</sup>(Phra)1Th<sup>3</sup>1Sh<sub>2</sub>  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark brown *turfa/Phragmites* peat. *turfa* quite well  
humified.  
Excellent upper contact.

409-438

As<sub>3</sub>Ag<sub>1</sub> Th<sup>2</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey/blue silty clay. Some light brown  
*Phragmites* remains.

439-444

As<sub>2</sub>Ag<sub>2</sub> Ga+Th<sup>3</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Clayey silt, with some humified *Phragmites* and  
coarse material.

445-449

Ag<sub>1</sub>Sh<sub>1</sub>Th<sup>3</sup>1Th<sup>3</sup>(Phra)1  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey/brown humified *turfa/Phragmites* peat with  
some silt.

450-459

Ag<sub>2</sub>Ga<sub>2</sub> Th<sup>3</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty sand.

460-463

Ga<sub>2</sub>Ag<sub>2</sub>Gg(maj)1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Sandy gravel.

HF22 (+2.350 m.)

0-48

As<sub>3</sub>Ag<sub>1</sub> Th<sup>3</sup>+Th<sup>3</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay with some *turfa* and  
*Phragmites*.

48-96

Th<sup>3</sup>3Th+(Phra)<sup>1</sup>1 D1

nig.3+, strf.0, sicc.2, elas.1, lim.sup.0.  
Dark brown very fresh *turfa/Phragmites* peat with  
some birch  
remains.

96-121

Th<sup>3</sup>3Th<sup>2</sup>(Phra)1 Sh+  
nig.3, strf.0, sicc.2, elas.1, lim.sup.0.  
Brown, slightly humified *turfa/Phragmites* peat.

121-157

As<sub>3</sub>Ag<sub>1</sub> Th<sup>2</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay with some *Phragmites*.

157-170

As<sub>2</sub>Sh<sub>2</sub> Th<sup>2</sup>(Phra)+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Organically enriched brown/grey clay.

170-299

As<sub>2</sub>Ag<sub>2</sub> Th<sup>3</sup>+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay.

299-310

Sh<sub>2</sub>Th<sup>3</sup>1Th<sup>2</sup>(Phra)1  
nig.3, strf.0, sicc.2, elas.0, lim.sup.1.  
Humified *turfa/Phragmites* peat. Brown.

310-330

As<sub>3</sub>Ag<sub>1</sub> Th<sup>2</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay.

HF23 (+2.670 m.)

0-50

As<sub>2</sub>Ag<sub>2</sub> Th<sup>3</sup>+Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron stained silty clay.

50-74

Sh<sub>2</sub>Th<sup>3</sup>2 Th<sup>3</sup>(Phra)+  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.  
Moderately humified dark brown *turfa*.

74-82

As<sub>1</sub>Sh<sub>3</sub> Th<sup>3</sup>(Phra)+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Very humified light brown organic clay.

82-90

As<sub>3</sub>Sh<sub>1</sub> Th<sup>3</sup>+D1+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Organically enriched clay with some birch.

90-144

Th<sup>3</sup>Th<sup>2</sup>(Phra)1 D1+  
nig.3+, strf.0, sicc.2, elas.1, lim.sup.0.  
Very dark *turfa*/*Phragmites* peat with some oak and birch.

144-157

Sh<sub>2</sub>Th<sup>2</sup> Th<sup>2</sup>(Phra)+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Partially humified light brown *turfa*.

157-294

As<sub>3</sub>Ag<sub>1</sub> Th<sup>2</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey/blue silty clay with some *Phragmites*. Organic material at 210.

294-302

Sh<sub>2</sub>Th<sup>3</sup>1Ag<sub>1</sub>  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Light brown humified peat with some silt.

302-447

Ga<sub>3</sub>Ag<sub>1</sub> Th<sup>3</sup>+  
nig.2, strf.1, sicc.2, elas.0, lim.sup.0.  
Grey silty sand.

447-498

As<sub>3</sub>Ag<sub>1</sub> Th<sup>2</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay with some *Phragmites*.

498-527

Ag<sub>2</sub>As<sub>1</sub>Sh<sub>1</sub> Th<sup>3</sup>+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Organically enriched clayey silt. Light brown/grey.

527-540

Boulder clay.

HF24 (+2.525 m.)

0-28

As<sub>2</sub>Ag<sub>2</sub> Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron stained silty clay.

28-44

Sh<sub>3</sub>Th<sup>3</sup>1 Th<sup>3</sup>(Phra)+  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.  
Very dark humified peat.

44-54

As<sub>2</sub>Ag<sub>1</sub>Sh<sub>1</sub> Th<sup>3</sup>(Phra)+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Organically enriched silty clay.

54-100

Th<sup>3</sup>Sh<sub>1</sub>  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Brown *turfa*.

100-190

As<sub>4</sub> Ag + Th<sup>3</sup>+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Fine Battleship-grey clay.

190-230

Ag<sub>4</sub> As+  
nig.2, strf.1, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silt.

230-494

As<sub>3</sub>Ag<sub>1</sub>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay.

494-504

Ag<sub>2</sub>As<sub>1</sub>Sh<sub>1</sub> Th<sup>3</sup>+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Organically enriched silt. Light brown/grey.

504-520

Ag<sub>2</sub>Ga<sub>2</sub> Gg(min)+Gg(maj)+Th<sup>3</sup>(Phra)+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Silty sand with some gravel and *Phragmites*.

HF25 (+2.425 m.)

0-20

As<sub>3</sub>Ag<sub>1</sub> Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron stained silty clay.

20-30

Sh<sub>3</sub>Th<sup>3</sup>1 Th<sup>3</sup>(Phra)+  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.3.  
Humified dark peat with eroded upper contact.

30-37

As<sub>2</sub>Sh<sub>2</sub> Th<sup>3</sup>(Phra)+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Light brown organic clay with some *Phragmites*.

37-84

Th<sup>3</sup>Sh<sub>1</sub> D1+Th<sup>2</sup>(Phra)+

nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.  
Partially humified *turfa* with some oak and *Phragmites*.

84-96  
Same as above, with Nig.3.

96-105  
Missing

105-225  
As3Ag1 Th<sup>3+</sup>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay.

225-315  
Ga3Ag1 Th<sup>3+</sup>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Light grey silty sand with some *turfa*.

HF26 (+2.545 m.)

0-29  
Sh2Th<sup>3</sup>1Th<sup>2</sup>(Phra)1 D1+  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.  
Fairly humified dark brown/black peat with some *Phragmites* and wood.

29-38  
Sh2Th<sup>3</sup>1As1 D1+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Light brown peaty clay. Some *Phragmites* and wood.

38-106  
D11Th<sup>2</sup>2Th<sup>2</sup>(Phra)1  
nig.3, strf.0, sicc.2, elas.1, lim.sup.0.  
Brown fresh *turfa*/woody peat with some *Phragmites*. Oak and alder abundant. Wood increasing towards edge of basin?.

106-281  
As3Ag1 Th<sup>3+</sup>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay.

281-286  
Ag2Sh2 Th<sup>3+</sup>  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Silty peat. Light brown and very humified.

286-297  
Ga3Ag1 Th<sup>3+</sup>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty sand with some *turfa*.

HF27 (+2.235 m.)

0-34  
Ag4 As+Lf+Th<sup>3+</sup>  
nig.2, strf.1, sicc.2, elas.0, lim.sup.0.  
Iron stained, slightly stratified silt.

34-117  
Ag4 Ga+Th<sup>3+</sup>  
nig.2, strf.1, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silt with some sand. Blocky and slightly stratified.

117-130  
Ag2Sh1Th<sup>3</sup>1  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Light brown fairly humified organic silt.

130-153  
Sh3Th<sup>3</sup>1 Th<sup>2</sup>(Phra)+  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark brown very compact humified peat.

153-169  
As2Sh1Th<sup>3</sup>(Phra)1  
nig.2+, strf.1, sicc.2, elas.0, lim.sup.0.  
Organically enriched clay with some *Phragmites*.

169-189  
Sh2As1Th<sup>3</sup>(Phra)1  
nig.2, strf.2, sicc.2, elas.0, lim.sup.2.  
Humified *turfa*/*Phragmites* peat. Stratified. Light brown.

189-260  
As3Ag1 Th<sup>3</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey/blue silty clay.

260-300  
Ag4 Ga+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty sand.

300-327  
As3Ag1 Th<sup>3+</sup>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay.

327-335  
Sh2As1Th<sup>3</sup>(Phra)1 Th<sup>3+</sup>  
nig.3, strf.0, sicc.2, elas.0, lim.sup.2.  
Lightish brown *Phragmites* rich peat with eroded upper contact.

335-360

As3Ag1 Th<sup>3</sup>+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey silty clay.

HF28 (+2.585 m.)

0-40

Ag3As1 Lf+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

iron stained silty clay.

40-100

Ag3Ga1

nig.2, strf.2, sicc.2, elas.0, lim.sup.0.

Laminated grey silty sand.

100-145

Ag3As1 Ga+Th<sup>3</sup>+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey silt with some *turfa*.

145-175

Sh4 Th<sup>2</sup>(Phra)+Th<sup>3</sup>+D1+

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Dark red/brown compact humified peat.

175-188

Sh3As1 Th<sup>3</sup>(Phra)+

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.

Light brown humified peat with some clay.

189-201

Sh2Th<sup>3</sup>1Th<sup>2</sup>(Phra)1 As+

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Humified *Phragmites* rich peat.

201-274

As2Ag1Sh1 Th<sup>3</sup>(Phra)+

nig.2+, strf.0, sicc.2, elas.0, lim.sup.1.

Organically enriched light brown clay.

274-320

As3Ag1 Th<sup>3</sup>(Phra)+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey silty clay with some *Phragmites*.HF29 (+2.525 m.)

466-498

As3Ag1 Th<sup>3</sup>(Phra)+

nig.2, strf.1, sicc.2, elas.0, lim.sup.0.

Blocky Battleship-grey silty clay with some *Phragmites*.

498-503

Sh3As1 Th<sup>2</sup>(Phra)+

nig.3+, strf.0+, sicc.2, elas.0, lim.sup.0

Dark brown/black slightly stratified peat with some *Phragmites*. Good upper contact.

503-520

Ag3As1 Sh+Ga+Th<sup>2</sup>(Phra)+

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.

Coarse clayey silt with some *Phragmites* and other organic enrichment.

520-555

Boulder clay.

PRESTATYN

Fieldwork: 9/8/90 DJB

P1

0-45

Sc4

Peaty top soil.

45-100

Sh4 D1+As+

nig.3, strf.0, sicc.2+, elas.0, lim.sup.0.

Dry red/brown humified peat. Very dry. Some wood.

100-136

As2Ag2 Sh+D1+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey silty clay, with some alder.

136-180

Sh3Th(*Phra*<sup>2</sup>)1

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.

Light brown *Phragmites* peat.

180-228

Ag2As2Sh1 Th(*Phra*<sup>2</sup>)+

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.

Brown/grey muddy silt with some *Phragmites*.

228-300

As3Ag1 Th(*Phra*<sup>2</sup>)+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Blue/grey clay with some *Phragmites*.

300-310

Ga4

nig.2, strf.1, sicc.2, elas.0, lim.sup.0.

Grey sand.

P2

0-40

Sc4

Peaty and dry top soil

40-110

Sh2Th<sup>2</sup>

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Very loose dark brown *turfa*.

110-115

Ag3As1 Sh+Lf+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Dry, hard and compact silt.

115-118

Sh4

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Dry compact humified peat.

118-130

As2Ag1Th<sup>3</sup>1 D1+Th(*Phra*<sup>2</sup>)+

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.

Light brown/grey organic clay.

130-246

As3Ag1Th(*Phra*<sup>1</sup>)+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Blue/grey fine clay with some silt. Excellent *Phragmites*.

246-291

Ga4

nig.2, strf.1, sicc.2, elas.0, lim.sup.0.

Grey, slightly laminated sand.

P3

0-40

Sc4

Peaty top soil.

40-77

Sh3Th<sup>3</sup>1 D1+

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Crumbly humified peat. Dark brown. Some birch.

77-95

As2Ag2 Lf+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Grey brown silty clay.

95-112

Sh4 D1+Th<sup>3</sup>+Th(*Phra*<sup>3</sup>)+

nig.3, strf.0, sicc.2, elas.0, lim.sup.2.

Very compact humified peat. Dark brown.

112-116

As3Ag1 Th<sup>3</sup>+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Grey/blue silty clay.

116-226  
As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty clay. Going khaki towards base.

226-271  
Ga4  
nig.2, strf.3, sicc.2, elas.0, lim.sup.0.  
Grey laminated sand.

271  
Impenetrable. Hard sand?

#### P4

0-20  
Sc4  
Peaty top soil.

20-80  
Sh4 Dl+As+Ga+Th<sup>3</sup>+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark humified peat with some sand and *Phragmites*.  
Very crumbly. Sand is probably wind blown from dunes.

80-101  
Same as above stratum, but more compact.

101-120  
Didn't sample.

121-191  
As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Very blue clay.

191-232  
Ga4  
nig.2, strf.3, sicc.2, elas.0, lim.sup.0.  
Grey sand.

232  
Impenetrable.

#### P5

0-50  
Sc4  
Peaty top soil.

50-108  
As2Ag2 Ga+Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty clay.

108-118  
Ga2Ag2 Lf+  
nig.2, strf.1, sicc.2, elas.0, lim.sup.0.  
Iron stained sandy silt. Some iron staining and slightly laminated. Brown/orange.

118-185  
As3Ag1 Th(*Phra*<sup>3</sup>)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay with some *Phragmites*.

185-292  
Ga4  
nig.2, strf.2, sicc.2, elas.0, lim.sup.0.  
Grey laminated sand.

292  
Impenetrable.

#### P6

0-45  
Sc4  
Peaty top soil with sand.

45-58  
Ga2Ag2 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron stained silty sand.

58-204  
As3Ag1 Th(*Phra*<sup>3</sup>)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay.

204-266  
Ga4  
nig.2, strf.1, sicc.2, elas.0, lim.sup.0.  
Grey, slightly laminated sand.

#### P7

0-54  
Sc4  
Peaty top soil with some sand.

54-70  
Ag3As1 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron stained clayey silt.

70-93  
As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay.

93-107

Sh3Th<sup>1</sup> Ga +

nig.3, strf.0, sicc.2, elas.0, lim.sup.2.

Compact and humified brown/red peat with modern *turfa* rootlets.

107-165

As3Ag1

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey silty clay.

165-220

Ga4

nig.2, strf.2, sicc.2, elas.0, lim.sup.0.

Grey sand.

**P8**

0-58

Sc4

Very peaty top soil.

58-73

Ga1Ag3 Lf+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Iron stained silty sand.

73-109

As3Ag1 Th<sup>3</sup>+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey silty clay.

109-255

Ga4

nig.2, strf.2, sicc.2, elas.0, lim.sup.0.

Grey sand.

NEWTON CARR, HOYLAKE

Fieldwork: 29/8/90 - 30/8/90 DJB JBI, 31/8/90 - 1/9/90 DJB, 19/3/91 DJB JBI, 30/4/91 - 1/5/91 DJB AJL, 20/6/91 DJB AMG

NC1

0-30  
Sc4

30-90  
Ag3Ga1 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey/brown iron stained silty clay.

90-150  
Ga1Ag2As1 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey/brown iron stained sandy silt with some clay.

150-205  
Ga4 Ag+  
nig.2, strf.0, sicc.1, elas.0, lim.sup.0.  
Grey wet sand.

NC2

0-30  
Sc4

30-129  
Ga3Ag1 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey iron stained silty sand.

129-149  
As2Ag1Sh1 Lf+  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey/Brown organic silty clay with some iron staining.

149-181  
As3Ag1 Th<sup>3</sup>+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay with some *turfa*.

181-206  
Sh3Th<sup>3</sup>1 D1+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.1.  
Red/brown humified peat. Some *turfa* and woody detrital material.

206-240  
Th<sup>2</sup>(Phra)2Th<sup>2</sup>1Sh1  
nig.2+, strf.1, sicc.2, elas.0, lim.sup.0.  
Light brown slightly laminated *turfa*/Phragmites peat.

240-255  
As2Ag1Th<sup>1</sup>(Phra)1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay with some fresh Phragmites.

255-262  
As2Sh2 Th<sup>3</sup>+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark grey/black muddy humus substance with clay.

262  
Weathered boulder clay.

NC3

0-30  
Sc4

30-122  
Ga3Ag1 Lf+  
Iron stained silty sand.

122-139  
As2Sh2  
nig.3, strf.0, sicc.2+, elas.0, lim.sup.0.  
Dark brown dry organic clay.

139-158  
Sh3As1 D1+  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.  
Humified dark brown peat with some clay and wood.

158-221  
Sh2D11Th<sup>3</sup>1  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Moderately humified brown *turfa*. Some seeds.

221-266  
Ld2Th<sup>2</sup>(Phra)2

nig.3, strf.0, sicc.2, elas.0, lim.sup.0. Dark brown <i>limus</i> with very fresh <i>Phragmites</i> .	286-324 Ag4 As+Th <sup>2</sup> ( <i>Phra</i> )+Th <sup>3</sup> + nig.2, strf.1, sicc.2, elas.0, lim.sup.0. Blue grey silt with some <i>Phragmites</i> .
266-294 Ag3As1 Th <sup>2</sup> ( <i>Phra</i> )+ nig.2, strf.1, sicc.2, elas.0, lim.sup.0. Blue/grey clayey silt with some <i>Phragmites</i> .	324-394 Ag3As1 nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Blue/grey clayey silt.
294-358 As3Ag1 nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Fine blue/grey silty clay.	394-420 Same as above, but pinky/grey.
358-378 Same as above, but pinky brown.	<u>NC5</u>
379 Solid.	0-20 Sc4
<u>NC4</u>	20-140 Ga3Ag1 Lf+ nig.2, strf.0, sicc.3, elas.0, lim.sup.0. Dry grey silty sand. Some iron staining.
0-40 Sc4	140-164 As1Ga1Ag2 nig.2+, strf.0, sicc.2, elas.0, lim.sup.0. Dark grey sandy silt with some clay.
40-130 Ga3Ag1 Lf+ nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Grey iron stained silty sand.	164-190 Sh3D11 nig.3+, strf.0, sicc.2, elas.0, lim.sup.0. Dark brown amorphous humified peat with bits of light brown wood.
130-160 Same as above, but no Lf+	190-224 As3Th <sup>2</sup> ( <i>Phra</i> )1 Battleship-grey/blue clay with <i>Phragmites</i> . Getting darker lower down.
160-211 As2Ag2 Sh+Th <sup>3</sup> + nig.2+, strf.0, sicc.2, elas.0, lim.sup.0. Dark grey silty clay with some <i>turfa</i> .	224-320 Ag3Ga1 nig.2, strf.1, sicc.2, elas.0, lim.sup.0. Grey sandy silt.
211-256 Sh4 D1+ nig.3, strf.0, sicc.2, elas.0, lim.sup.0. D.brown humified amorphous peat. Some birch and alder wood remains.	320-473 As3Ag1 nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Pinky/grey silty clay.
256-270 As2Ag1Th <sup>2</sup> ( <i>Phra</i> )1 Sh+ nig.2, strf.0, sicc.2, elas.0, lim.sup.0. Grey silty clay with <i>Phragmites</i> .	473-486 Ga4
270-286 Ld3Th <sup>2</sup> ( <i>Phra</i> )1 nig.3, strf.0+, sicc.2, elas.0, lim.sup.0. Brown <i>limus</i> with <i>Phragmites</i> .	

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Pink sand.

### NC6

0-25  
Sc4

25-80  
Ga3Ag1 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron stained silty sand. Grey.

80-140  
As1Ag2Ga1  
nig.2, strf.2, sicc.2, elas.0, lim.sup.0.  
Silty sand. Grey. Laminated.

140-270  
Ga4  
nig.2, strf.0, sicc.1+, elas.0, lim.sup.0.  
Grey wet sand.

### NC7

0-20  
Sc4

20-80  
Ga3Ag1 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty sand with iron staining.

80-116  
As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty clay.

116-124  
Sh1As2Ag1 Th<sup>3+</sup>  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark grey organically enriched clay.

124-179  
Sh4 D1+Th<sup>2+</sup>  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark brown humified amorphous peat with some wood and *turfa*.

179-202  
As3Th<sup>2</sup>(Phra)1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey slightly blue fine clay with fresh *Phragmites*.

202-217  
Ld3Th<sup>2</sup>(Phra)1  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Brown *limus* with *Phragmites*.

217-315  
Ag3Ga1 Th<sup>3+</sup>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silt with some sand and humified *turfa* near upper contact.

315-417  
As2Ag2  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Pinky silty clay.

### NC8

0-95  
As1Ga1Ag2  
nig.2, strf.2, sicc.2, elas.0, lim.sup.0.  
Intercalated silts and sands.

### NC9

0-50  
Sc4

50-95  
Till

### NC10

0-20  
Sc4

20-110  
As3Ag1 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey/brown iron stained silty clay.

110-120  
As1Sh2Th<sup>2</sup>1 Anth+  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.4.  
Dark brown/black *turfa* with some clay and eroded upper contact.

120-156  
 Sh4 D1+Th<sup>2</sup>+Th<sup>2</sup>(Phra)+  
 nig.4, strf.0, sicc.2, elas.0, lim.sup.0.  
 Dark humified amorphous peat becoming lighter  
 towards the  
 base.

156-170  
 As3Th<sup>2</sup>(Phra)1 Th<sup>2</sup>+Sh+  
 nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
 Blue/grey clay with some *Phragmites*.

170-186  
 Ld2Dh1Th<sup>2</sup>(Phra)1  
 nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
 Light brown *limus* with *Phragmites* and detrital  
 material.

186-226  
 As3Th<sup>2</sup>(Phra)1  
 nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
 Blue/grey clay with *Phragmites*.

226-234  
 As3Ag1 Th<sup>3</sup>+  
 nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
 Blue/grey silty clay with *Phragmites*.

234-290  
 Ag3Ga1  
 nig.2, strf.1, sicc.2, elas.0, lim.sup.0.  
 Blue/grey sandy silt.

290-380  
 Same as above, but grey.

380-470  
 As2Ag2  
 nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
 Grey/brown/pink silty clay.

470-485  
 As2Ag1Sh1  
 nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
 Silty clay with organic enrichment.

485-510  
 Till.

#### NC11

0-25  
 Sc4

25-116

As2Ag2 Lf+  
 nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
 Brown/grey silty clay with some iron staining.

116-150  
 Sh4 Th<sup>3</sup>+Th<sup>2</sup>(Phra)+  
 nig.4, strf.0, sicc.2, elas.0, lim.sup.4.  
 Humified black peat with eroded upper contact.

150-193  
 Ld2Dh1Th<sup>2</sup>(Phra)1  
 nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
 Light brown *limus* peat with fresh *Phragmites* and  
 detrital.

193-206  
 As2Th<sup>2</sup>(Phra)2  
 nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
 Blue/grey clay with *Phragmites*.

206-230  
 As4 Ag+Th<sup>2</sup>(Phra)+  
 nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
 Blue/grey fine silty clay.

230-350  
 Ag3Ga1  
 nig.2, strf.1, sicc.2, elas.0, lim.sup.0.  
 Grey/blue sandy silt.

350-450  
 As2Ag2  
 nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
 Pinky/grey silty clay.

450-470  
 Till.

#### NC12

0-15  
 Sc4

15-90  
 Ga3Ag1 Lf+  
 nig.2, strf.0, sicc.3, elas.0, lim.sup.0.  
 Dry grey/yellow sand.

90-127  
 As1Ag3 Lf+  
 nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
 Grey silty clay with some iron staining.

127-149

Sh4 Ag+Th<sup>3</sup>+  
nig.4, strf.0, sicc.2, elas.0, lim.sup.4.  
Amorphous black peat with some *turfa*.

149-178  
Ld3Th<sup>2</sup>(Phra)+ Sh+Dh+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Light brown *limus* with some *Phragmites* and  
detritus.

178-218  
As3Th<sup>2</sup>(Phra)1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
*Phragmites* rich blue/grey clay.

218-330  
Ag3Ga1  
nig.2, strf.1, sicc.2, elas.0, lim.sup.0.  
Blue/grey silt.

330-584  
As2Ag2  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey/brown clayey silt.

584-625  
As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey buttery silty clay.

625-640  
Sh4 D1+Th<sup>3</sup>+Th<sup>2</sup>(Phra)+  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.1.  
Dark brown humified peat with some *turfa* and  
*Phragmites*. Piece of alder at base of layer.

640-665  
Gs3Ga1 D1+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.2.  
Coarse grey sand.

665-675  
Till.

### NC13

0-35  
Sc4

35-150  
Ag3As1 Ga+Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron stained clayey silt.

150-215  
As1Ag3  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey clayey silt.

215-224  
Ga2Ag2  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty sand.

224-230  
Ld4 Th<sup>2</sup>(Phra)+As+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Light brown *limus*.

230-270  
Ag4 Ga+  
nig.2, strf.1, sicc.2, elas.0, lim.sup.0.  
Slightly stratified blue/grey silt.

270-304  
As3Ag1 Th+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey silty clay.

304-320  
As2Ag2  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark grey silty clay.

320-385  
As2Ag2  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Pinky grey silty clay.

385-422  
As3Ag1 Th<sup>2</sup>+Th<sup>2</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey/blue silty clay. Some *turfa* and  
*Phragmites* near top of  
stratum.

422-441  
Till.

### NC14

0-30  
Sc4

30-86  
Ag3Ga1 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron stained sandy silt.

- 86-146  
Ag3As1 Ga+Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron stained clayey silt with some sand.
- 146-161  
As2Ag2 Ga+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey clay-silt.
- 161-193  
Sh4 D1+Th<sup>2</sup>+Th<sup>2</sup>(Phra)+  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.1.  
Dark brown, fairly humified peat. Some wood, *turfa*  
and  
*Phragmites*.
- 193-213  
Ld3Dh1 Th<sup>2</sup>+Th<sup>2</sup>(Phra)+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Light brown *limus* with detritus.
- 213-247  
As2Th<sup>2</sup>(Phra)1Dh1  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey clay with *Phragmites* and detritus.
- 247-257  
Sh2Dh1Anth1 Th<sup>2</sup>+  
nig.4, strf.0, sicc.2, elas.0, lim.sup.0.  
Black peat with charcoal.
- 257-316  
Ld2Th<sup>1</sup>(Phra)2 Dh+  
nig.3, strf.1, sicc.2, elas.0, lim.sup.0.  
Very fresh *limus/Phragmites*. peat.
- 316-340  
As3Th<sup>2</sup>1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey/blue clay with some *turfa*.
- 340-396  
Ag4 As+  
nig.2, strf.1, sicc.2, elas.0, lim.sup.0.  
Slightly stratified blue/grey silt.
- 396-469  
As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey/blue silty clay with black flecks.
- 469-540  
As2Ag2  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Pinky/grey silt-clay.
- 540-607  
As3Ag1 Th<sup>3</sup>+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty clay.
- 607-624  
Sh4 D1+Th+  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.1.  
Very compact humified peat with some wood and  
*Phragmites*.
- 624-650  
Missing.
- NC15
- 0-40  
Sc4
- 40-60  
Ga2Ag2 Lf+  
nig.2, strf.0, sicc.2+, elas.0, lim.sup.0.  
Dry silty sand with some iron staining.
- 60-142  
Ag3As1 Ga+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron stained silt with some clay and sand.
- 142-174  
Sh4 Th<sup>2</sup>+Th<sup>2</sup>(Phra)+  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.  
Humified dark amorphous peat with some  
*Phragmites* and *turfa*.
- 174-205  
Ld2Dh1Th<sup>2</sup>(Phra)1  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
L.brown *limus* with *Phragmites* and detritus.
- 205-223  
As2Th<sup>2</sup>(Phra)1Dh1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey clay with *Phragmites* and detritus.
- 223-286  
Ld3Dh1 Th<sup>2</sup>(Phra)+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Light brown *limus* peat with some *Phragmites* and  
detritus.
- 286-290  
Missing.

290-310  
As3Th<sup>2</sup>(Phra)1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey clay with *Phragmites*.

310-360  
As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
B/G silty clay with black flecks.

360-375  
Ga2Gs2  
nig.2, strf.0, sicc.1+, elas.0, lim.sup.0.  
Wet grey sand.

375-408  
Till.

#### NC18

0-85  
Ag3Ga1  
nig.2, strf.0, sicc.1+, elas.0, lim.sup.0.  
Light iron stained sandy silt

85-110  
Missing.

110-129  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark grey silty clay with eroded pockets of peat.

129-137  
Sh4 Th<sup>2</sup>(Phra)+  
nig.3+, strf.0, sicc.2+, elas.0, lim.sup.1  
Very dark brown amorphous humified peat, with a slightly eroded upper contact.

137-143  
Ld3Th<sup>2</sup>(Phra)1  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
*limus/Phragmites* peat. Light brown.

143-151  
Ld2As1Th<sup>2</sup>(Phra)1  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark/brown black *limus*.

151-170  
Ga2Ag2

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silty sand.

170-210  
Boulder clay.

#### NC19

0-40  
Missing.

40-145  
Ag3Ga1 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron stained silty sand.

145-180  
Sh4 D1+Th<sup>3</sup>(Phra)+  
nig.3+, strf.0, sicc.2, elas.0, lim.sup.2.  
Dark brown humified peat with an eroded upper contact

180-210  
Ld3Th<sup>2</sup>(Phra)1  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Light brown *limus* peat.

250  
Boulder clay.

#### NC20

0-20  
Missing.

20-100  
Ga2Ag2  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Dry sandy silt.

100-130  
Ag3Sh1  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.2.  
Eroded peat with silt.

130-144  
Ga3Gg(min)1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Eroded till with sand.

144

Boulder clay.

NC21

0-25

Missing.

25-122

Ag3Ga1 Lf+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Iron stained sandy silt.

122-150

Sh4 Th<sup>3</sup>+PTM+

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Dark humified peat with rare shells.

150-172

Ld3Th<sup>2</sup>(Phra)1

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.

Light brown *Phragmites* rich *limus*.

172-187

As3Th<sup>3</sup>(Phra)1

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Fine grey clay with some *Phragmites*.

187-207

Sh3Th<sup>3</sup>(Phra)1

nig.3+, strf.0, sicc.2, elas.0, lim.sup.0.

Dark brown humified peat.

207-240

Ld3Th<sup>2</sup>(Phra)1 As+

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.

Light brown *limus* with some *Phragmites* and clay.

240-283

As3Ag1

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Soft grey clay with some silt.

283

Boulder clay.

NC22

0-25

Missing.

25-130

As1Ag3 Ga+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Brown clay-silt with some iron staining.

130-193

Ga4 Fe+ PTM+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Blue sand with some shells and rare iron staining.

193-244

Ld3Th<sup>2</sup>(Phra)1

nig.3, strf.0, sicc.2, elas.0, lim.sup.4.

Detrital *limus* peat with an eroded upper contact.

244-262

As3Ag1 Th<sup>2</sup>(Phra)+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey silty-clay with some *turfa*.

262-271

As3Sh1 Th<sup>2</sup>(Phra)+

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Clay rich peat with some *Phragmites*. Very inorganic.

271-308

As2Ag2 Th<sup>3</sup>+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Blue/grey clay-silt.

308

Boulder clay.

NC23

0-20

Missing.

20-133

As1Ag3 Ga+Lf+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Brown/grey iron stained silt with some clay and sand.

133-183

Ld3Th<sup>2</sup>(Phra)1

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Dark brown well humified *limus* peat.

183-195

As3Ag1 Th<sup>2</sup>(Phra)+

nig.2, strf.0, sicc.2, elas.0, lim.sup.0.

Battleship-grey silt-clay with some *Phragmites*.

195-255

Ld3As1 Th<sup>2</sup>(Phra)+

nig.3, strf.0, sicc.2, elas.0, lim.sup.0.

Brown *limus* peat with a clay fraction and some *Phragmites*.

- 255-285  
Ag<sub>3</sub>As<sub>1</sub> Th<sup>2</sup>(Phra)+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silt-clay with some *Phragmites*.
- 285-294  
As<sub>3</sub>Th<sup>2</sup><sub>1</sub>  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Organic rich grey/brown clay.
- 294-325  
As<sub>3</sub>Ag<sub>1</sub>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue/grey silt-clay.
- 325-345  
As<sub>2</sub>Ag<sub>2</sub>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue silt with some clay.
- 345  
Boulder clay.
- NC24
- 0-30  
Missing.
- 30-140  
Ga<sub>4</sub> Ag+Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Brown sand with some iron staining and silt.
- 140-161  
As<sub>2</sub>Ag<sub>2</sub>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silt-clay.
- 160-215  
Ld<sub>3</sub>Th<sup>2</sup>(Phra)<sub>1</sub>  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Dark brown well humified *limus* peat.
- 215-231  
As<sub>1</sub>Ag<sub>3</sub>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Soft grey silt-clay.
- 231-274  
Ld<sub>3</sub>Sh<sub>1</sub> As+Th<sup>2</sup>(Phra)+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
*limus* peat with some clay and *Phragmites*.
- 274-310  
As<sub>2</sub>Ag<sub>2</sub>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silt-clay.
- 310-325  
As<sub>3</sub>Th<sup>2</sup><sub>1</sub>  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Soft brown organic rich clay.
- 325-352  
As<sub>2</sub>Ag<sub>2</sub>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Soft blue silt with some clay.
- 352-370  
Ag<sub>4</sub> Ga+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Blue silt with some sand.
- 370  
Boulder clay.
- NC25
- 0-25  
Missing.
- 25-191  
Ga<sub>4</sub> Ag+Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron stained sand with some silt.
- 191-260  
Ag<sub>1</sub>Ga<sub>3</sub>  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Homogeneous grey silt-sand.
- 260-296  
Ga<sub>4</sub> PTM+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey, fairly coarse sand, with some shell remains.
- 296-305  
Ld<sub>3</sub>Th<sup>2</sup>(Phra)<sub>1</sub>  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Light brown *limus* peat.
- 305-330  
As<sub>2</sub>Ag<sub>2</sub>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Battleship-grey silty-clay.
- 330-343  
Ga<sub>1</sub>Ag<sub>2</sub>As<sub>1</sub>  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey silt-sand with some clay.

343-466  
As2Ag2 Sh+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey/pink silty clay with some organic remains.

466  
Boulder clay.

#### NC26

0-20  
Missing.

20-44  
As1Ag2Ga1 Lf+  
nig.2, strf.0, sicc.3, elas.0, lim.sup.0.  
Very, dry iron stained silt-sand-clay.

44-142  
Ga3Ag1 Lf+  
nig.2, strf.2, sicc.2, elas.0, lim.sup.0.  
Brown, laminated sand with some silt.

142-275  
nig.2, strf.3, sicc.2, elas.0, lim.sup.0.  
Ga4 PTM+  
Laminated, wet grey sand with broken shells.

275-320  
Ga4  
nig.2, strf.1, sicc.1, elas.0, lim.sup.0.  
Very wet grey slushy sand.

320-344  
Ga4 PTM+  
nig.2, strf.2, sicc.2, elas.0, lim.sup.0.  
Grey laminated sand with some shells.

344-346  
As1Ld2Th<sup>2</sup>(Phra)1  
nig.2+, strf.0, sicc.2, elas.0, lim.sup.2.  
Organic remains, with an eroded upper contact.

346-395  
Ag3As1  
nig.2, strf.2, sicc.2, elas.0, lim.sup.0.  
Laminated grey silt with some sand.

395-520  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Pinky/grey silty clay.

520-530  
As2Ag2 Sh+

nig.2+, strf.0, sicc.2, elas.0, lim.sup.0.  
Organically enriched clay.

530-537  
As3Ag1  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Soft blue/grey clay with some silt.

537-567  
Ga3Ag1 Sh+  
nig.3, strf.0, sicc.2, elas.0, lim.sup.0.  
Black sand with organic enrichment.

567-570  
Ga4  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Grey sand.

570  
Solid.

#### NC27

0-20  
Missing.

20-67  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Golden brown sand.

67-144  
Ga4 Ag+  
nig.2, strf.1, sicc.2, elas.0, lim.sup.0.  
Slightly laminated grey sands.

144-329  
Ga4  
nig.2, strf.0, sicc.3, elas.0, lim.sup.0.  
Slushy, wet grey sand.

330  
Impenetrable sand.

#### NC30

0-20  
Missing.

20-50  
As1Ag2Ga1 Lf+  
nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
Iron stained silty clay with some sand.

50-140  
 Ga3Ag1 Lf+As+  
 nig.2, strf.1, sicc.2, elas.0, lim.sup.0.  
 Slightly laminated sand with some silt and iron staining.

140-650  
 Ga4 Ag+  
 nig.2, strf.1, sicc.1+, elas.0, lim.sup.0.  
 Very wet, slightly stratified grey sand. Amorphous and quite fine. Some detrital wood between 320-480 with a vertical orientation.

650  
 Sand became impossible to core through, but the base had not been reached.

### NC31

0-35  
 Top soil.

35-147  
 Ga2Ag2 Lf+  
 nig.2, strf.0, sicc.2+, elas.0, lim.sup.0.  
 Dry sandy silt with some iron staining.

147-160  
 Ga4  
 nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
 Grey/brown sand.

160  
 Sand very hard to core through.

### NC32

0-25  
 Top soil.

25-54  
 Ga4 Lf++  
 nig.2, strf.0, sicc.3, elas.0, lim.sup.3.  
 Dry iron-stained sand.  
 Looks very much like blown sand.

54-80  
 As2Ag2 Lf+  
 nig.2, strf.0, sicc.2, elas.0, lim.sup.0.  
 Battleship-grey silty-clay.

80-173

As1Ag3 Lf+Ga+  
 nig.2, strf.1, sicc.2, elas.0, lim.sup.0.  
 Slightly laminated silt with some clay. Getting coarser towards the base.

173-201  
 Ga4 PTM+  
 nig.2, strf.1, sicc.2, elas.0, lim.sup.0.  
 Grey, very slightly laminated sand with tiny unidentifiable shell fragments.

**Abbreviation of names**

AJL Antony Long  
JBI Jim Innes  
AMG Andrew Goodwillie  
PN Petra Neve  
DJB Dave Bedlington

**Appendix 6.**  
**Biostratigraphy Results.**

**Morfa Penrhyn - 20. Diatoms.**

	432	424	416	400	392
<i>Actinocyclus roperii</i>	0	0	0	0	0
<i>Actinocyclus alienus</i>	1	0	0	0	0
<i>Asterolampra marylandica</i>	0	0	0	0	0
<i>Auliscus argus</i>	0	0	0	0	0
<i>Auliscus caelatus</i>	1	0	0	0	0
<i>Auliscus sculptus</i>	0	0	0	0	0
<i>Biddulphia rhombus</i>	0	0	0	1	0
<i>Caloneis brevis</i>	0	0	0	0	0
<i>Cocconeis distans</i>	1	0	0	0	0
<i>Coscinodiscus apiculatus</i>	0	2	0	7	2
<i>Coscinodiscus denarius</i>	2	0	0	0	0
<i>Coscinodiscus diversus</i>	0	12	9	12	4
<i>Coscinodiscus excentricus</i>	0	0	0	0	0
<i>Coscinodiscus radiatus</i>	0	0	0	0	0
<i>Coscinodiscus sp.</i>	5	0	2	1	0
<i>Diploneis bombus</i>	0	0	0	0	0
<i>Diploneis incurvata</i>	0	0	0	0	0
<i>Paralia sulcata</i>	44	33	38	61	70
<i>Melosira westii</i>	0	0	0	1	1
<i>Navicula carinifera</i>	0	0	0	0	0
<i>Navicula distans</i>	0	0	0	0	0
<i>Navicula grevillei</i>	0	0	0	0	0
<i>Navicula latissima</i>	0	0	0	0	0
<i>Navicula retusa</i>	0	0	0	0	0
<i>Nitzschia socialis</i>	6	3	25	0	0
<i>Podosira stelliger</i>	30	32	30	29	41
<i>Stephanopyxis turris</i>	0	0	0	0	0
<i>Surirella fastuosa</i>	0	0	0	0	0
<i>Thalassiosira rotula</i>	0	0	0	0	0
<i>Thalissora decipans</i>	0	0	0	0	0
<i>Triceratium alterans</i>	0	0	0	0	0
<i>Triceratium favus</i>	10	3	4	1	2
<i>Triceratium perpendiculare</i>	2	4	3	0	0
<i>Actinophylus undulatus</i>	5	4	4	3	5
<i>Diploneis didyma</i>	11	5	13	3	1
<i>Diploneis smithii</i>	12	11	1	1	0
<i>Hyalodiscus scoticus</i>	0	0	0	0	0
<i>Navicula abrupta</i>	0	0	0	0	0
<i>Navicula albiensis</i>	0	0	0	0	1
<i>Navicula arenaria</i>	0	0	0	0	0
<i>Navicula forcipata</i>	0	0	0	0	0
<i>Navicula marina</i>	0	0	0	0	0
<i>Rhaphoneis amphicornis</i>	0	0	0	3	0
<i>Synedra crystallina</i>	0	0	0	0	0
<i>Nitzschia punctata</i>	0	7	2	1	3
<i>Scoliopleura tumida</i>	5	8	2	0	0
<i>Caloneis formosa</i>	0	0	6	3	2
<i>Cyclotella striata</i>	3	1	1	0	0

<i>Diploneis interrupta</i>	1	2	0	1	1
<i>Gyrosigma</i> sp.	0	0	0	0	0
<i>Navicula elegans</i>	0	0	0	0	0
<i>Navicula halophila</i>	0	0	0	0	0
<i>Navicula peregrina</i>	2	1	2	1	0
<i>Nitzschia bilobata</i>	0	0	0	0	0
<i>Nitzschia navicularis</i>	61	67	93	26	66
<i>Diploneis ovalis</i>	0	5	2	0	0
<i>Navicula cuspidata</i>	0	0	0	0	0
<i>Navicula pusilla</i>	0	0	0	0	0

354      346      338      330      322

<i>Actinocyclus roperii</i>	0	0	0	0	0
<i>Actinocyclus alienus</i>	1	0	0	0	0
<i>Asterolampra marylandica</i>	1	0	0	0	0
<i>Auliscus argus</i>	0	0	1	0	0
<i>Auliscus caelatus</i>	0	0	0	0	0
<i>Auliscus sculptus</i>	0	0	1	0	0
<i>Biddulphia rhombus</i>	0	0	0	0	0
<i>Caloneis brevis</i>	1	0	0	0	0
<i>Cocconeis distans</i>	0	0	0	0	0
<i>Coscinodiscus apiculatus</i>	1	2	1	0	0
<i>Coscinodiscus denarius</i>	1	0	0	0	0
<i>Coscinodiscus diversus</i>	5	4	1	2	0
<i>Coscinodiscus excentricus</i>	0	0	0	0	0
<i>Coscinodiscus radiatus</i>	0	0	0	0	0
<i>Coscinodiscus</i> sp.	0	0	0	0	0
<i>Diploneis bombus</i>	0	0	0	0	0
<i>Diploneis incurvata</i>	0	0	0	0	0
<i>Paralia sulcata</i>	54	46	19	11	9
<i>Melosira westii</i>	3	1	0	2	0
<i>Navicula carinifera</i>	0	0	0	0	0
<i>Navicula distans</i>	1	0	0	0	0
<i>Navicula grevillei</i>	0	0	0	0	0
<i>Navicula latissima</i>	1	0	0	0	0
<i>Navicula retusa</i>	1	0	0	0	0
<i>Nitzschia socialis</i>	0	0	0	1	0
<i>Podosira stelliger</i>	14	41	27	48	27
<i>Stephanopyxis turris</i>	0	0	0	0	1
<i>Surirella fastuosa</i>	0	0	0	0	0
<i>Thalassiosira rotula</i>	0	0	0	0	0
<i>Thalissora decipans</i>	0	0	0	0	0
<i>Triceratium alterans</i>	0	0	0	0	0
<i>Triceratium favus</i>	3	8	3	5	2
<i>Triceratium perpendiculare</i>	0	2	2	5	4
<i>Actinophylus undulatus</i>	8	4	2	0	0
<i>Diploneis didyma</i>	18	4	26	47	22
<i>Diploneis smithii</i>	3	2	16	5	1
<i>Hyalodiscus scoticus</i>	0	0	0	0	0
<i>Navicula abrupta</i>	1	0	0	0	0
<i>Navicula albiensis</i>	0	0	0	0	0
<i>Navicula arenaria</i>	1	0	0	0	0
<i>Navicula forcipata</i>	0	0	0	0	0
<i>Navicula marina</i>	0	0	0	0	0

<i>Rhaphoneis ampicornis</i>	2	0	0	0	0
<i>Synedra crystallina</i>	0	1	0	0	0
<i>Nitzschia punctata</i>	5	1	2	5	2
<i>Scoliopleura tumida</i>	8	0	0	0	4
<i>Caloneis formosa</i>	6	6	3	4	3
<i>Cyclotella striata</i>	0	1	1	1	0
<i>Diploneis interrupta</i>	0	0	1	2	0
<i>Gyrosigma</i> sp.	0	0	0	0	0
<i>Navicula elegans</i>	0	0	0	0	0
<i>Navicula halophila</i>	3	0	0	0	0
<i>Navicula peregrina</i>	4	1	0	3	0
<i>Nitzschia bilobata</i>	0	0	0	0	0
<i>Nitzschia navicularis</i>	61	41	84	62	123
<i>Diploneis ovalis</i>	1	0	2	0	0
<i>Navicula cuspidata</i>	0	0	0	0	0
<i>Navicula pusilla</i>	0	0	0	0	0
	317	315	299	298	294
<i>Actinocyclus roperii</i>	0	0	0	0	0
<i>Actinocyclus alienus</i>	0	0	0	0	0
<i>Asterolampra marylandica</i>	0	0	0	0	0
<i>Auliscus argus</i>	0	0	0	0	0
<i>Auliscus caelatus</i>	0	0	0	0	0
<i>Auliscus sculptus</i>	0	0	0	0	0
<i>Biddulphia rhombus</i>	0	0	0	0	0
<i>Caloneis brevis</i>	0	0	0	0	0
<i>Cocconeis distans</i>	0	0	0	0	0
<i>Coscinodiscus apiculatus</i>	0	0	0	0	1
<i>Coscinodiscus denarius</i>	0	0	0	0	0
<i>Coscinodiscus diversus</i>	0	0	1	1	0
<i>Coscinodiscus excentricus</i>	0	0	0	0	0
<i>Coscinodiscus radiatus</i>	0	0	0	0	0
<i>Coscinodiscus</i> sp.	0	0	0	2	0
<i>Diploneis bombus</i>	0	1	0	0	0
<i>Diploneis incurvata</i>	1	4	0	0	0
<i>Paralia sulcata</i>	3	2	7	6	15
<i>Melosira westii</i>	1	0	0	0	0
<i>Navicula carinifera</i>	0	0	1	0	0
<i>Navicula distans</i>	0	2	0	0	0
<i>Navicula grevillei</i>	0	0	0	0	0
<i>Navicula latissima</i>	0	0	3	0	3
<i>Navicula retusa</i>	0	0	0	0	0
<i>Nitzschia socialis</i>	0	0	10	17	2
<i>Podosira stelliger</i>	7	5	5	7	8
<i>Stephanopyxis turris</i>	0	0	0	0	0
<i>Surirella fastuosa</i>	0	0	0	0	0
<i>Thalassiosira rotula</i>	0	0	0	0	0
<i>Thalassiosira decipans</i>	0	0	0	0	0
<i>Triceratium alterans</i>	0	0	1	0	0
<i>Triceratium favus</i>	1	2	1	0	5
<i>Triceratium perpendiculare</i>	0	0	0	2	2
<i>Actinophylus undulatus</i>	0	0	4	1	4
<i>Diploneis didyma</i>	186	178	17	37	106
<i>Diploneis smithii</i>	0	1	3	8	3

<i>Hyalodiscus scoticus</i>	0	0	0	0	0
<i>Navicula abrupta</i>	0	0	0	0	0
<i>Navicula albiensis</i>	0	0	0	0	0
<i>Navicula arenaria</i>	0	0	2	0	0
<i>Navicula forcipata</i>	0	0	0	0	0
<i>Navicula marina</i>	0	0	2	0	2
<i>Rhaphoneis amphicornis</i>	0	0	1	1	0
<i>Synedra crystallina</i>	0	0	0	0	0
<i>Nitzschia punctata</i>	1	4	3	0	4
<i>Scoliopleura tumida</i>	0	0	5	5	2
<i>Caloneis formosa</i>	1	3	2	15	1
<i>Cyclotella striata</i>	0	0	0	0	0
<i>Diploneis interrupta</i>	0	0	4	2	0
<i>Gyrosigma sp.</i>	0	0	0	1	0
<i>Navicula elegans</i>	0	1	0	0	3
<i>Navicula halophila</i>	0	0	0	0	0
<i>Navicula peregrina</i>	1	1	130	65	2
<i>Nitzschia bilobata</i>	0	0	0	0	0
<i>Nitzschia navicularis</i>	6	10	17	21	39
<i>Diploneis ovalis</i>	0	0	14	1	1
<i>Navicula cuspidata</i>	0	0	0	0	0
<i>Navicula pusilla</i>	0	0	3	0	0

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<i>Actinocyclus roperii</i>	0	1	0	0	0
<i>Actinocyclus alienus</i>	0	0	0	0	0
<i>Asterolampra marylandica</i>	0	0	0	0	0
<i>Auliscus argus</i>	0	0	1	1	0
<i>Auliscus caelatus</i>	0	0	0	0	0
<i>Auliscus sculptus</i>	0	0	0	1	0
<i>Biddulphia rhombus</i>	0	0	0	0	0
<i>Caloneis brevis</i>	0	0	0	0	0
<i>Cocconeis distans</i>	0	0	0	2	0
<i>Coscinodiscus apiculatus</i>	5	4	6	4	0
<i>Coscinodiscus denarius</i>	0	0	0	0	0
<i>Coscinodiscus diversus</i>	0	0	0	0	0
<i>Coscinodiscus excentricus</i>	0	0	0	2	0
<i>Coscinodiscus radiatus</i>	1	0	0	0	0
<i>Coscinodiscus sp.</i>	1	0	0	0	1
<i>Diploneis bombus</i>	0	0	1	0	0
<i>Diploneis incurvata</i>	0	0	1	0	0
<i>Paralia sulcata</i>	48	25	40	24	18
<i>Melosira westii</i>	2	0	0	5	0
<i>Navicula carinifera</i>	0	0	0	0	0
<i>Navicula distans</i>	0	0	0	0	2
<i>Navicula grevillei</i>	0	0	0	2	0
<i>Navicula latissima</i>	0	1	0	0	1
<i>Navicula retusa</i>	0	0	0	0	0
<i>Nitzschia socialis</i>	2	1	2	1	2
<i>Podosira stelliger</i>	31	17	48	53	56
<i>Stephanopyxis turris</i>	0	0	0	0	0
<i>Surirella fastuosa</i>	0	0	0	0	0
<i>Thalassiosira rotula</i>	2	1	0	0	0
<i>Thalassiosira decipans</i>	0	0	0	0	0

<i>Triceratium alterans</i>	0	0	0	0	0
<i>Triceratium favus</i>	10	7	3	7	4
<i>Triceratium perpendiculare</i>	2	1	2	6	2
<i>Actinophylus undulatus</i>	7	2	10	2	2
<i>Diploneis didyma</i>	11	32	6	14	36
<i>Diploneis smithii</i>	0	23	10	11	26
<i>Hyalodiscus scoticus</i>	0	2	0	0	0
<i>Navicula abrupta</i>	0	1	0	0	0
<i>Navicula albiensis</i>	0	0	0	0	0
<i>Navicula arenaria</i>	0	0	0	0	0
<i>Navicula forcipata</i>	0	1	0	0	0
<i>Navicula marina</i>	0	1	1	0	1
<i>Rhaphoneis ampicornis</i>	4	0	3	0	0
<i>Synedra crystallina</i>	0	0	0	0	0
<i>Nitzschia punctata</i>	0	7	1	0	2
<i>Scoliopleura tumida</i>	2	3	6	17	18
<i>Caloneis formosa</i>	2	1	2	0	0
<i>Cyclotella striata</i>	0	2	0	0	0
<i>Diploneis interrupta</i>	2	0	4	0	1
<i>Gyrosigma</i> sp.	0	0	0	0	0
<i>Navicula elegans</i>	0	2	2	2	3
<i>Navicula halophila</i>	0	3	1	1	0
<i>Navicula peregrina</i>	6	0	0	1	0
<i>Nitzschia bilobata</i>	0	0	2	0	0
<i>Nitzschia navicularis</i>	70	63	54	45	22
<i>Diploneis ovalis</i>	0	0	0	0	0
<i>Navicula cuspidata</i>	0	0	0	0	0
<i>Navicula pusilla</i>	0	0	0	0	0

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<i>Actinocyclus roperii</i>	0	0	0
<i>Actinocyclus alienus</i>	0	0	0
<i>Asterolampra marylandica</i>	0	0	0
<i>Auliscus argus</i>	0	0	0
<i>Auliscus caelatus</i>	0	0	0
<i>Auliscus sculptus</i>	0	0	1
<i>Biddulphia rhombus</i>	0	0	0
<i>Caloneis brevis</i>	0	0	0
<i>Cocconeis distans</i>	0	0	0
<i>Coscinodiscus apiculatus</i>	4	1	10
<i>Coscinodiscus denarius</i>	0	0	0
<i>Coscinodiscus diversus</i>	0	0	0
<i>Coscinodiscus excentricus</i>	0	0	0
<i>Coscinodiscus radiatus</i>	0	0	0
<i>Coscinodiscus</i> sp.	1	0	0
<i>Diploneis bombus</i>	0	0	0
<i>Diploneis incurvata</i>	0	0	0
<i>Paralia sulcata</i>	14	8	5
<i>Melosira westii</i>	4	2	3
<i>Navicula carinifera</i>	0	0	0
<i>Navicula distans</i>	3	0	0
<i>Navicula grevillei</i>	0	6	0
<i>Navicula latissima</i>	0	0	0
<i>Navicula retusa</i>	0	0	0

<i>Nitzschia socialis</i>	2	0	2
<i>Podosira stelliger</i>	26	8	24
<i>Stephanopyxis turris</i>	0	0	3
<i>Surirella fastuosa</i>	0	3	5
<i>Thalassiosira rotula</i>	0	0	0
<i>Thalissora decipans</i>	0	0	1
<i>Triceratium alterans</i>	0	0	0
<i>Triceratium fавus</i>	2	0	5
<i>Triceratium perpendiculare</i>	7	5	8
<i>Actinophylus undulatus</i>	2	1	0
<i>Diploneis Didyma</i>	20	29	22
<i>Diploneis Smithe</i>	84	6	5
<i>Hyalodiscus scoticus</i>	0	0	0
<i>Navicula abrupta</i>	0	0	0
<i>Navicula albiensis</i>	0	0	0
<i>Navicula arenaria</i>	0	0	0
<i>Navicula forcipata</i>	0	0	0
<i>Navicula marina</i>	1	0	2
<i>Rhaphoneis amphicornis</i>	0	0	0
<i>Synedra crystallina</i>	0	0	0
<i>Nitzschia punctata</i>	0	6	0
<i>Scoliopleura tumida</i>	17	31	0
<i>Caloneis formosa</i>	0	1	0
<i>Cyclotella striata</i>	0	0	0
<i>Diploneis interrupta</i>	0	0	2
<i>Gyrosigma sp.</i>	0	0	0
<i>Navicula elegans</i>	1	0	0
<i>Navicula halophila</i>	0	0	0
<i>Navicula peregrina</i>	2	0	1
<i>Nitzschia bilobata</i>	0	0	0
<i>Nitzschia navicularis</i>	5	43	38
<i>Diploneis ovalis</i>	0	0	0
<i>Navicula cuspidata</i>	0	0	0
<i>Navicula pusilla</i>	0	0	0

**Morfa Penrhyn - 20. Pollen analysis.**

	309	311	313
<b>Betula</b>	1	1	1
<b>Pinus</b>	6	5	2
<b>Ulmus</b>	13	17	13
<b>Quercus</b>	37	29	12
<b>Tilia</b>	0	1	2
<b>Alnus</b>	12	4	5
<b>Corylus</b>	19	19	43
<b>Ericaceae</b>	1	0	1
<b>Gramineae</b>	60	72	79
<b>Cyperaceae</b>	0	1	3
<b>Ranunculaceae</b>	0	1	0
<b>Chenopodiaceae</b>	0	0	3
<b>Aster-type</b>	0	0	1
<b>Rumex</b>	1	0	0
<b>Plantaginaceae</b>	1	2	3

<b>Nymphaea</b>	<b>1</b>	<b>0</b>	<b>1</b>
<b>M.alterniflorum</b>	<b>2</b>	<b>1</b>	<b>2</b>
<b>Lemna</b>	<b>4</b>	<b>0</b>	<b>3</b>
<b>Typha angustifolia</b>	<b>2</b>	<b>4</b>	<b>8</b>
<b>Polypodium</b>	<b>3</b>	<b>0</b>	<b>0</b>
<b>Filicales</b>	<b>2</b>	<b>0</b>	<b>2</b>

## Pentre Mawr - 18. Pollen analysis.

	201	211	221	226	231
Betula	3	0	0	0	0
Pinus	7	1	0	1	0
Ulmus	6	4	0	3	2
Quercus	34	12	13	23	27
Tilia	1	1	0	0	0
Alnus	58	51	35	52	81
Corylus	12	16	7	8	7
Salix	1	0	0	2	1
Ericaceae	0	0	0	0	0
Gramineae	61	55	16	28	22
Cyperaceae	12	4	76	14	5
Cirsium-type	0	1	0	1	0
Ranunculaceae	5	1	2	3	2
Helianthemum	0	0	1	0	0
Caryophyllaceae	0	0	0	0	0
Chenopodiaceae	0	0	0	1	1
Aster-type	2	0	0	0	0
Mentha	0	0	0	0	0
Cryptomagrama	2	0	0	0	0
Filipendula	0	1	0	1	0
Saxifraga	0	0	0	1	0
Eilobium	0	0	0	1	0
Umbelliferae	0	0	1	0	0
Sambucus	0	0	1	10	2
Rumex	0	1	1	1	1
Plantaginaceae	2	0	0	0	0
P.maritima	0	0	0	0	0
Nymphaea	0	0	0	0	0
M.alterniflorum	1	9	2	0	0
Typha latifolia	0	0	0	0	0
Typha angustifolia	0	0	0	2	0
Polypodium	13	24	9	6	4
Filicales	3	17	8	47	5

	236	241	398	402	415
Betula	0	2	0	2	2
Pinus	3	2	2	1	4
Ulmus	0	1	10	4	4
Quercus	11	34	22	26	23
Tilia	0	0	4	1	0
Alnus	88	19	32	21	29
Corylus	9	10	6	16	12
Salix	0	0	0	0	0
Ericaceae	0	0	0	0	2
Gramineae	27	46	114	77	55
Cyperaceae	12	27	10	4	24
Cirsium-type	0	0	0	0	0
Ranunculaceae	0	2	0	0	0
Helianthemum	0	0	0	0	0

Caryophyllaceae	0	3	1	0	0
Chenopodiaceae	1	1	0	1	1
Aster-type	0	1	1	0	1
Mentha	0	0	0	0	1
Cryptomagrama	0	0	0	0	0
Filipendula	1	0	0	0	0
Saxifraga	0	0	0	0	0
Eilobium	0	0	0	0	0
Umbelliferae	0	1	0	0	2
Sambucus	2	0	0	0	0
Rumex	0	0	1	0	0
Plantaginaceae	2	2	0	0	0
P.maritima	0	1	0	0	0
Nymphaea	1	0	1	0	0
M.alterniflorum	1	0	1	0	0
Typha latifolia	0	1	0	0	0
Typha angustifolia	0	0	0	0	0
Polypodium	6	1	0	1	0
Filicales	1	1	5	7	1

419      423      431

Betula	0	1	1
Pinus	8	12	5
Ulmus	4	0	3
Quercus	12	16	17
Tilia	0	0	0
Alnus	26	28	27
Corylus	8	13	7
Salix	0	0	0
Ericaceae	1	0	5
Gramineae	68	61	60
Cyperaceae	10	12	12
Cirsium-type	1	1	0
Ranunculaceae	0	0	0
Helianthemum	0	0	0
Caryophyllaceae	0	1	0
Chenopodiaceae	3	2	1
Aster-type	6	2	0
Mentha	0	0	0
Cryptomagrama	0	0	0
Filipendula	1	0	0
Saxifraga	0	0	0
Eilobium	0	0	0
Umbelliferae	0	0	0
Sambucus	0	0	0
Rumex	2	0	3
Plantaginaceae	0	0	2
P.maritima	0	0	0
Nymphaea	2	0	0
M.alterniflorum	0	0	1
Typha latifolia	0	0	0
Typha angustifolia	0	0	0
Polypodium	2	8	3

**Filicales****4****31****3**

## Hendre fawr - 21. Lower diatoms.

	443	441	439	433	425
<i>Diploneis interrupta</i>	171	169	175	10	28
<i>Nitzschia navicularis</i>	4	8	5	26	68
<i>Diploneis didyma</i>	5	7	5	52	15
<i>Paralia sulcata</i>	3	5	0	8	7
<i>Navicula pusilla</i>	15	0	5	0	0
<i>Diploneis smithii</i>	4	5	9	13	43
<i>Cyclotella striata</i>	1	3	0	0	2
<i>Podosira stelliger</i>	1	8	3	8	11
<i>Navicula peregrina</i>	1	6	3	27	3
<i>Scoliopleura tumida</i>	0	3	1	5	1
<i>Nitzschia socialis</i>	0	5	0	1	2
<i>Rhaphoneis amphiceros</i>	0	6	0	1	0
<i>Coscinodiscus perforatus</i>	0	1	0	0	0
<i>Tricerratum perpendiculare</i>	0	0	1	0	3
<i>Nitzschia punctata</i>	0	0	0	16	9
<i>Diploneis ovalis</i>	0	0	0	8	3
<i>Coscinodiscus diversus</i>	0	0	0	3	0
<i>Diploneis crabo</i>	0	0	0	3	0
<i>Tricerratum sp.</i>	0	0	0	1	0
<i>Diploneis bombus</i>	0	0	0	12	0
<i>Nitzschia dubia</i>	0	0	0	2	0
<i>Coscinodiscus sp.</i>	0	0	0	3	3
<i>Nitzschia fasciculata</i>	0	0	0	1	0
<i>Actinophylus undulatus</i>	0	0	0	0	2
<i>Nitzschia spectabilis</i>	0	0	0	0	2
<i>Coscinodiscus diversus</i>	0	0	0	0	0
<i>Navicula digioradiata</i>	0	0	0	0	0
<i>Caloneis formosa</i>	0	0	0	0	0
<i>Surirrella smithii</i>	0	0	0	0	0
<i>Navicula marina</i>	0	0	0	0	0
<i>Cymbella aspera</i>	0	0	0	0	0
<i>Navicula distans</i>	0	0	0	0	0
<i>Coconeis distans</i>	0	0	0	0	0
<i>Tricerratum favus</i>	0	0	0	0	0
<i>Navicula hungarica</i>	0	0	0	0	0
<i>Coscinodiscus apiculatus</i>	0	0	0	0	0

	421	417	411	409	396
<i>Diploneis interrupta</i>	80	60	98	173	8
<i>Nitzschia navicularis</i>	41	65	45	8	18
<i>Diploneis didyma</i>	12	5	3	4	20
<i>Paralia sulcata</i>	3	12	8	7	6
<i>Navicula pusilla</i>	0	0	0	0	0
<i>Diploneis smithii</i>	32	47	39	13	6
<i>Cyclotella striata</i>	0	8	0	0	0
<i>Podosira stelliger</i>	19	3	9	6	0
<i>Navicula peregrina</i>	0	3	0	1	115
<i>Scoliopleura tumida</i>	1	0	2	0	2
<i>Nitzschia socialis</i>	3	4	0	0	13

<i>Rhaphoneis amphiceros</i>	0	1	0	0	3
<i>Coscinodiscus perforatus</i>	0	0	0	0	0
<i>Tricerratum perpendiculare</i>	4	1	1	0	0
<i>Nitzschia punctata</i>	4	4	1	0	4
<i>Diploneis ovalis</i>	1	0	0	0	1
<i>Coscinodiscus diversus</i>	0	0	0	0	0
<i>Diploneis crabo</i>	0	0	0	0	0
<i>Tricerratum sp.</i>	0	0	0	0	0
<i>Diploneis bombus</i>	0	1	0	0	1
<i>Nitzschia dubia</i>	0	0	0	0	0
<i>Coscinodiscus sp.</i>	0	1	1	0	1
<i>Nitzschia fasciculata</i>	0	0	0	0	0
<i>Actinophylus undulatus</i>	0	0	0	0	1
<i>Nitzschia spectabilis</i>	1	0	0	0	0
<i>Coscinodiscus diversus</i>	1	0	0	0	0
<i>Navicula digioradiata</i>	0	0	0	0	1
<i>Caloneis formosa</i>	0	0	0	0	2
<i>Surirella smithii</i>	0	0	0	0	6
<i>Navicula marina</i>	0	0	0	0	0
<i>Cymbella aspera</i>	0	0	0	0	0
<i>Navicula distans</i>	0	0	0	0	0
<i>Coconeis distans</i>	0	0	0	0	0
<i>Tricerratum favus</i>	0	0	0	0	0
<i>Navicula hungarica</i>	0	0	0	0	0
<i>Coscinodiscus apiculatus</i>	0	0	0	0	0

392      388      384      381      360

<i>Diploneis interrupta</i>	13	3	8	6	3
<i>Nitzschia navicularis</i>	82	96	107	62	92
<i>Diploneis didyma</i>	1	4	12	42	17
<i>Paralia sulcata</i>	5	11	6	0	24
<i>Navicula pusilla</i>	1	0	0	0	0
<i>Diploneis smithii</i>	13	4	24	36	6
<i>Cyclotella striata</i>	2	4	0	0	3
<i>Podosira stelliger</i>	2	1	3	0	22
<i>Navicula peregrina</i>	17	11	0	2	0
<i>Scoliopleura tumida</i>	0	15	1	0	5
<i>Nitzschia socialis</i>	9	11	8	0	2
<i>Rhaphoneis amphiceros</i>	0	0	2	0	0
<i>Coscinodiscus perforatus</i>	0	0	0	0	0
<i>Tricerratum perpendiculare</i>	0	0	1	0	4
<i>Nitzschia punctata</i>	50	25	26	51	1
<i>Diploneis ovalis</i>	1	0	1	0	0
<i>Coscinodiscus diversus</i>	0	0	2	3	0
<i>Diploneis crabo</i>	0	0	0	0	0
<i>Tricerratum sp.</i>	0	0	0	0	0
<i>Diploneis bombus</i>	0	1	0	0	0
<i>Nitzschia dubia</i>	0	0	0	1	0
<i>Coscinodiscus sp.</i>	2	5	1	0	9
<i>Nitzschia fasciculata</i>	0	0	0	0	0
<i>Actinophylus undulatus</i>	0	1	0	0	0
<i>Nitzschia spectabilis</i>	0	0	0	0	0

<i>Coscinodiscus diversus</i>	0	0	0	0	0
<i>Navicula digioradiata</i>	1	0	0	0	0
<i>Caloneis formosa</i>	0	0	0	0	1
<i>Surirella smithii</i>	0	0	0	0	0
<i>Navicula marina</i>	4	3	0	0	0
<i>Cymbella aspera</i>	0	1	0	0	0
<i>Navicula distans</i>	0	3	0	0	0
<i>Coconeis distans</i>	0	1	0	0	0
<i>Triceratium favus</i>	0	0	0	0	9
<i>Navicula hungarica</i>	0	0	0	0	3
<i>Coscinodiscus apiculatus</i>	0	0	0	0	1

130      132      135      138      140

<i>Diploneis interrupta</i>	136	125	134	82	144
<i>Triceratium sp.</i>	2	0	5	3	0
<i>Diploneis smithii</i>	3	6	0	0	15
<i>Navicula peregrina</i>	5	2	1	31	0
<i>Coscinodiscus sp.</i>	1	0	0	0	0
<i>Nitzschia punctata</i>	4	0	0	10	0
<i>Paralia sulcata</i>	0	4	2	0	0
<i>Cyclotella striata</i>	0	2	0	0	0
<i>Nitzschia navicularis</i>	0	1	28	25	2
<i>Diploneis incurvata</i>	0	0	22	0	0
<i>Pinnularia sp.</i>	0	0	1	0	0
<i>Triceratium favus</i>	0	0	4	2	2
<i>Synedra tabulata</i>	0	0	0	1	0
<i>Podosira stelliger</i>	0	0	0	0	0
<i>Auliscus sculptus</i>	0	0	0	0	0
<i>Actinophylus undulatus</i>	0	0	0	0	0
<i>Coscinodiscus diversus</i>	0	0	0	0	0
<i>Rhaphoneis amphiceros</i>	0	0	0	0	0
<i>Coscinodiscus perforatus</i>	0	0	0	0	0
<i>Nitzschia scalaris</i>	0	0	0	0	0
<i>Biddulphia rhombus</i>	0	0	0	0	0
<i>Stauroneis gregorii</i>	0	0	0	0	0

188      192      196      200      204

<i>Diploneis interrupta</i>	53	2	4	4	73
<i>Triceratium sp.</i>	2	3	4	0	2
<i>Diploneis smithii</i>	25	0	1	0	7
<i>Navicula peregrina</i>	65	5	2	8	2
<i>Coscinodiscus sp.</i>	1	0	0	5	0
<i>Nitzschia punctata</i>	0	1	0	2	0
<i>Paralia sulcata</i>	0	6	16	4	6
<i>Cyclotella striata</i>	0	5	5	0	7
<i>Nitzschia navicularis</i>	1	105	80	122	43
<i>Diploneis incurvata</i>	0	0	0	0	0
<i>Pinnularia sp.</i>	0	0	0	0	0
<i>Triceratium favus</i>	0	2	0	1	0
<i>Synedra tabulata</i>	0	0	0	0	0

<i>Podosira stelliger</i>	1	12	22	5	2
<i>Auliscus sculptus</i>	2	3	0	0	0
<i>Actinophylus undulatus</i>	0	2	10	7	2
<i>Coscinodiscus diversus</i>	0	0	3	0	0
<i>Rhaphoneis amphiceros</i>	0	0	1	0	0
<i>Coscinodiscus perforatus</i>	0	0	2	0	0
<i>Nitzschia scalaris</i>	0	0	0	2	0
<i>Biddulphia rhombus</i>	0	0	0	1	0
<i>Stauroneis gregorii</i>	0	0	0	0	1

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<i>Diploneis interrupta</i>	59
<i>Triceratium sp.</i>	0
<i>Diploneis smithii</i>	23
<i>Navicula peregrina</i>	5
<i>Coscinodiscus sp.</i>	0
<i>Nitzschia punctata</i>	0
<i>Paralia sulcata</i>	3
<i>Cyclotella striata</i>	0
<i>Nitzschia navicularis</i>	62
<i>Diploneis incurvata</i>	0
<i>Pinnularia sp.</i>	0
<i>Triceratium favus</i>	0
<i>Synedra tabulata</i>	0
<i>Podosira stelliger</i>	11
<i>Auliscus sculptus</i>	0
<i>Actinophylus undulatus</i>	1
<i>Coscinodiscus diversus</i>	0
<i>Rhaphoneis amphiceros</i>	0
<i>Coscinodiscus perforatus</i>	0
<i>Nitzschia scalaris</i>	0
<i>Biddulphia rhombus</i>	0
<i>Stauroneis gregorii</i>	1

## Hendre fawr - 21. Pollen analysis.

	402	404	406	408
<i>Betula</i>	2	6	5	4
<i>Pinus</i>	25	34	23	21
<i>Ulmus</i>	5	3	11	5
<i>Quercus</i>	44	40	35	27
<i>Tilia</i>	1	0	1	0
<i>Alnus</i>	15	5	5	7
<i>Corylus</i>	11	3	11	26
<i>Juniperus</i>	0	0	1	0
<i>Ericaceae</i>	0	1	0	0
<i>Gramineae</i>	37	21	50	69
<i>Cyperaceae</i>	2	1	2	3
<i>Ranunculus-type</i>	1	0	0	0
<i>Caryophyllaceae</i>	0	2	0	0
<i>Chenopodiaceae</i>	2	29	3	2
<i>Filipendula</i>	2	1	0	0
<i>Rumex</i>	3	1	1	0

Plantaginaceae	1	2	2	1	
P. maritima	0	1	0	0	
M. alterniflorum	0	0	1	0	
Lemna	0	92	27	0	
T. latifolia	0	12	0	1	
Polypodium	5	3	3	1	
Filicales	0	1	0	0	
	141	143	175	179	183
Betula	0	2	2	3	6
Pinus	4	1	4	2	1
Ulmus	0	4	8	5	4
Quercus	10	14	31	11	27
Tilia	4	5	5	2	6
Alnus	26	38	13	20	12
Corylus	14	17	11	2	25
Juniperus	0	1	0	0	0
Salix	1	1	0	0	0
Gramineae	52	36	79	80	80
Cyperaceae	10	7	1	5	3
Cirsium-type	0	0	0	1	0
Ranunculaceae	0	0	0	1	0
Caryophyllaceae	0	0	0	0	6
Chenopodiaceae	49	15	1	5	24
Aster-type	0	0	0	0	1
Artemisia	0	1	0	0	1
Filipendula	1	2	0	0	0
Saxifragaceae	3	0	0	0	0
Rumex	0	2	0	8	1
Reseda	0	0	0	1	0
Plantaginaceae	5	3	3	4	0
Cryptogramma	1	0	0	0	0
Potamogeton	0	0	1	4	5
Lemna	1	4	0	0	0
Polypodium	0	1	2	1	1

## Hendre fawr - 29. Diatoms.

	481	483	485	487	489
<i>Aulacodiscus argus</i>	0	0	0	1	0
<i>Coscinodiscus centralis</i>	2	0	0	0	0
<i>Coscinodiscus denarius</i>	0	0	0	0	1
<i>Coscinodiscus sp.</i>	0	1	0	0	0
<i>Diploneis suborbicularis</i>	1	0	0	0	0
<i>Paralia sulcata</i>	34	14	7	6	6
<i>Podosira stelliger</i>	9	6	6	1	3
<i>Triceratium perpendiculare</i>	0	0	0	0	2
<i>Triceratium sp.</i>	2	0	0	0	0
<i>Actinophylus undulatus</i>	3	0	0	0	0
<i>Diploneis didyma</i>	0	0	0	1	3
<i>Diploneis smithii</i>	4	0	0	5	5
<i>Navicula crucicla</i>	0	0	1	0	0
<i>Scoliopleura tumida</i>	0	0	0	0	0
<i>Stauroneis gregorii</i>	0	1	0	0	0
<i>Cyclotella striata</i>	7	3	0	1	0
<i>Diploneis interrupta</i>	7	8	3	6	11
<i>Navicula peregrina</i>	3	2	3	0	1
<i>Nitzschia navicularis</i>	49	57	53	76	90
<i>Nitzschia punctata</i>	81	60	80	55	26

	491	493	495	497
<i>Aulacodiscus argus</i>	0	0	0	0
<i>Coscinodiscus centralis</i>	0	0	0	0
<i>Coscinodiscus denarius</i>	3	0	0	0
<i>Coscinodiscus sp.</i>	0	0	0	0
<i>Diploneis suborbicularis</i>	0	0	0	0
<i>Paralia sulcata</i>	10	8	7	14
<i>Podosira stelliger</i>	8	0	0	3
<i>Triceratium perpendiculare</i>	0	0	0	0
<i>Triceratium sp.</i>	0	0	0	1
<i>Actinophylus undulatus</i>	1	1	0	2
<i>Diploneis didyma</i>	0	0	0	0
<i>Diploneis smithii</i>	14	20	16	14
<i>Navicula crucicla</i>	0	0	0	0
<i>Scoliopleura tumida</i>	0	0	1	1
<i>Stauroneis gregorii</i>	0	0	0	0
<i>Cyclotella striata</i>	0	2	1	3
<i>Diploneis interrupta</i>	12	23	17	37
<i>Navicula peregrina</i>	5	7	12	7
<i>Nitzschia navicularis</i>	75	68	92	64
<i>Nitzschia punctata</i>	24	21	5	4

## Newton Carr - 17. Diatoms.

	151	153	158	174	178
<i>Actinophylus undulatus</i>	1	0	0	0	0
<i>Auliscus sculptus</i>	0	0	0	0	0
<i>Caloneis brevis</i>	0	0	0	0	0
<i>Cocconeis distans</i>	1	0	1	0	0
<i>Coscinodiscus apiculatus</i>	0	2	5	0	0
<i>Coscinodiscus centralis</i>	0	0	0	0	0
<i>Coscinodiscus margaritus</i>	0	0	0	0	0
<i>Coscinodiscus perforatus</i>	0	0	0	0	0
<i>Coscinodiscus sp.</i>	1	0	0	0	0
<i>Diploneis incurvata</i>	0	0	0	0	0
<i>Melosira sulcata</i>	5	5	1	0	0
<i>Melosira westii</i>	0	0	0	0	0
<i>Navicula lattissima</i>	0	0	0	0	0
<i>Nitzschia socialis</i>	1	0	0	0	0
<i>Pinnularia trevylana</i>	0	0	0	0	0
<i>Podosira stelliger</i>	4	0	0	0	0
<i>Thalassiosira nordenskioldii</i>	0	0	0	0	0
<i>Trachyneis aspera</i>	0	0	0	0	0
<i>Tricerratum alterans</i>	0	0	0	0	0
<i>Tricerratum favus</i>	5	0	0	0	0
<i>Tricerratum perpendiculare</i>	0	0	2	0	0
<i>Tricerratum sp.</i>	1	0	0	0	0
<i>Diploneis smithii</i>	3	0	0	0	0
<i>Diploneis didyma</i>	0	2	0	0	0
<i>Navicula marina</i>	0	0	0	0	0
<i>Rhaphoneis amphiceros</i>	2	1	1	0	0
<i>Navicula crucicula</i>	0	0	0	0	0
<i>Nitzschia punctata</i>	0	0	0	0	0
<i>Scoliopleura tumida</i>	9	0	0	0	0
<i>Caloneis formosa</i>	0	30	6	0	0
<i>Cyclotella striata</i>	0	0	0	0	0
<i>Diploneis interrupta</i>	180	139	8	0	0
<i>Gyrosigma sp.</i>	0	0	0	0	0
<i>Navicula elegans</i>	17	0	0	0	0
<i>Navicula peregrina</i>	11	41	38	5	2
<i>Navicula salinarum</i>	0	0	0	0	0
<i>Nitzschia navicularis</i>	3	1	0	0	0
<i>Nitzschia scalaris</i>	0	0	6	0	0
<i>Synedra tabulata</i>	0	0	0	0	0
<i>Navicula mutica</i>	0	0	0	0	0
<i>Diploneis ovalis</i>	0	0	0	0	0
<i>Navicula hungarica</i>	0	0	0	0	0
<i>Navicula pusilla</i>	0	0	1	0	0
<i>Nitzschia denticula</i>	0	0	0	0	0
<i>Nitzschia subtilis</i>	0	0	6	0	4
<i>Navicula bilobata</i>	0	3	0	0	0
<i>Actinocyclus normanii</i>	0	0	0	0	0
<i>Coscosira polychorda</i>	0	0	0	0	0
<i>Navicula lattissima</i>	0	0	0	0	0
<i>Navicula albiensis</i>	0	0	0	0	0
<i>Diploneis papula</i>	0	0	0	0	0
<i>Thalassiosira decipans</i>	0	0	0	0	0

<i>Thalassiosira fluvatilis</i>	0	0	0	0	0
<i>Biddulphia rhombus</i>	0	0	0	0	0
<i>Gyrosigma litorale</i>	0	0	0	0	0
<i>Auricula dubia</i>	0	0	0	0	0
<i>Cocconeis scullatium</i>	0	0	0	0	0
<i>Surriella fastuosa</i>	0	0	1	0	0
<i>Navicula digiatorra</i>	0	0	2	0	0
<i>Synedra acus</i>	0	5	0	0	0
<i>Rhaphoneis surirella</i>	0	0	0	0	0
<i>Cymatopleura surirella</i>	0	0	0	0	0
<i>Navicula distans</i>	0	0	0	0	0
<i>Pinnularia sp.</i>	0	0	4	0	0
<i>Pinnularia gentilis</i>	0	0	75	187	192
<i>Cymbella aspera</i>	0	0	0	2	3
<i>Synedra sp.</i>	0	0	7	0	0
<i>Eutonia parallela</i>	0	0	5	4	6
<i>Pinnularia intermedia</i>	0	0	0	0	0
<i>Navicula amphibola</i>	0	0	0	0	0
<i>Eutonia arcus</i>	0	0	1	0	0
<i>Synedra ulna</i>	0	0	0	0	0
<i>Synedra capita</i>	0	0	0	0	0
<i>Gomphonema acumilatum</i>	0	0	0	0	0
<i>Stauraneus anceps</i>	0	0	19	4	0
<i>Stauraneus smithii</i>	0	0	6	3	0

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<i>Actinophylus undulatus</i>	0	0	0	0	0
<i>Auliscus sculptus</i>	0	0	0	0	0
<i>Caloneis brevis</i>	0	0	0	0	0
<i>Cocconeis distans</i>	0	0	0	0	0
<i>Coscinodiscus apiculatus</i>	0	0	0	0	0
<i>Coscinodiscus centralis</i>	0	0	0	0	0
<i>Coscinodiscus margaritus</i>	0	0	0	0	0
<i>Coscinodiscus perforatus</i>	0	0	0	0	0
<i>Coscinodiscus sp.</i>	0	0	0	0	0
<i>Diploneis incurvata</i>	0	0	0	0	0
<i>Melosira sulcata</i>	0	0	0	0	0
<i>Melosira westii</i>	0	0	0	0	0
<i>Navicula lattissima</i>	0	0	0	0	0
<i>Nitzschia socialis</i>	0	0	0	0	0
<i>Pinnularia trevylana</i>	0	0	0	0	0
<i>Podosira stelliger</i>	0	0	0	0	0
<i>Thalassiosira nordenskioldii</i>	0	0	0	0	0
<i>Trachyneis aspera</i>	0	0	0	0	0
<i>Tricerratium alterans</i>	0	0	0	0	0
<i>Tricerratium favus</i>	0	0	0	0	0
<i>Tricerratium perpendiculare</i>	0	0	0	0	0
<i>Tricerratium sp.</i>	0	0	0	0	0
<i>Diploneis smithii</i>	0	0	0	0	0
<i>Diploneis didyma</i>	0	0	0	0	0
<i>Navicula marina</i>	0	0	0	0	0

<i>Rhaphoneis amphicerus</i>	0	0	0	1	0
<i>Navicula crucicula</i>	0	0	0	0	0
<i>Nitzschia punctata</i>	0	0	0	0	0
<i>Scoliopleura tumida</i>	0	0	0	0	0
<i>Caloneis formosa</i>	0	0	0	0	0
<i>Cyclotella striata</i>	0	0	0	0	0
<i>Diploneis interrupta</i>	0	0	0	0	1
<i>Gyrosigma</i> sp.	0	0	0	0	0
<i>Navicula elegans</i>	0	0	0	0	0
<i>Navicula peregrina</i>	0	12	34	23	8
<i>Navicula salinarum</i>	0	0	0	0	0
<i>Nitzschia navicularis</i>	0	0	0	0	0
<i>Nitzschia scalaris</i>	0	0	2	0	0
<i>Synedra tabulata</i>	0	1	0	0	0
<i>Navicula mutica</i>	0	0	0	0	0
<i>Diploneis ovalis</i>	0	0	0	0	0
<i>Navicula hungarica</i>	0	0	0	0	0
<i>Navicula pusilla</i>	0	0	0	3	7
<i>Nitzschia denticula</i>	0	0	0	0	0
<i>Nitzschia subtilis</i>	0	0	21	33	30
<i>Navicula bilobata</i>	0	0	0	0	0
<i>Actinocyclus normanii</i>	0	0	0	0	0
<i>Coscinosira polychorda</i>	0	0	0	0	0
<i>Navicula lattissima</i>	0	0	0	0	0
<i>Navicula albiensis</i>	0	0	0	0	0
<i>Diploneis papula</i>	0	0	0	0	0
<i>Thalassiosira decipans</i>	0	0	0	0	0
<i>Thalassiosira fluvatilis</i>	0	0	0	0	0
<i>Biddulphia rhombus</i>	0	0	0	0	0
<i>Gyrosigma litorale</i>	0	0	0	0	0
<i>Auricula dubia</i>	0	0	0	0	0
<i>Cocconeis scullatium</i>	0	0	0	0	0
<i>Surriella fastuosa</i>	0	0	0	0	0
<i>Navicula digiatorra</i>	0	0	0	0	0
<i>Synedra acus</i>	0	0	0	0	0
<i>Rhaphoneis surirella</i>	0	0	0	0	1
<i>Cymatopleura surirella</i>	0	0	0	0	0
<i>Navicula distans</i>	0	0	0	0	0
<i>Pinnularia</i> sp.	0	1	0	0	0
<i>Pinnularia gentilis</i>	186	168	144	147	142
<i>Cymbella aspera</i>	6	12	9	9	3
<i>Synedra</i> sp.	0	0	6	0	0
<i>Eutonia parallela</i>	10	8	3	8	11
<i>Pinnularia intermedia</i>	0	0	1	7	4
<i>Navicula amphibola</i>	0	0	0	2	0
<i>Eutonia arcus</i>	0	0	0	0	3
<i>Synedra ulna</i>	0	0	0	0	4
<i>Synedra capita</i>	0	0	0	0	1
<i>Gomphonema acumilatum</i>	0	0	0	0	0
<i>Stauraneus anceps</i>	3	0	0	0	0
<i>Stauraneus smithii</i>	0	0	0	0	0

	196	198	200	206	208
<i>Actinophylus undulatus</i>	2	0	0	0	0
<i>Auliscus sculptus</i>	0	0	0	0	0
<i>Caloneis brevis</i>	0	0	0	0	0
<i>Cocconeis distans</i>	0	0	0	0	0
<i>Coscinodiscus apiculatus</i>	0	0	1	6	4
<i>Coscinodiscus centralis</i>	0	0	0	0	0
<i>Coscinodiscus margaritus</i>	0	0	0	0	0
<i>Coscinodiscus perforatus</i>	0	0	0	0	0
<i>Coscinodiscus sp.</i>	0	3	0	0	0
<i>Diploneis incurvata</i>	0	0	0	0	1
<i>Melosira sulcata</i>	5	3	2	8	6
<i>Melosira westii</i>	0	0	0	0	0
<i>Navicula lattissima</i>	0	0	0	0	0
<i>Nitzschia socialis</i>	0	0	0	0	2
<i>Pinnularia trevylana</i>	0	0	0	0	0
<i>Podosira stelliger</i>	1	1	2	8	2
<i>Thalassiosira nordenskioldii</i>	0	0	0	0	0
<i>Trachyneis aspera</i>	0	0	0	0	0
<i>Tricerratum alterans</i>	0	0	0	0	0
<i>Tricerratum favus</i>	0	0	0	1	0
<i>Tricerratum perpendiculare</i>	0	1	0	4	1
<i>Tricerratum sp.</i>	0	0	0	0	0
<i>Diploneis smithii</i>	0	0	0	3	1
<i>Diploneis didyma</i>	1	0	0	1	0
<i>Navicula marina</i>	0	0	0	0	0
<i>Rhaphoneis amphiceros</i>	1	1	1	7	1
<i>Navicula crucicula</i>	0	0	0	0	0
<i>Nitzschia punctata</i>	0	0	0	1	1
<i>Scoliopleura tumida</i>	0	0	0	34	44
<i>Caloneis formosa</i>	0	1	0	0	0
<i>Cyclotella striata</i>	0	0	0	0	0
<i>Diploneis interrupta</i>	1	1	1	84	38
<i>Gyrosigma sp.</i>	0	0	0	0	0
<i>Navicula elegans</i>	0	0	0	3	3
<i>Navicula peregrina</i>	52	60	165	32	65
<i>Navicula salinarum</i>	0	0	0	4	0
<i>Nitzschia navicularis</i>	0	0	1	2	4
<i>Nitzschia scalaris</i>	12	48	6	0	1
<i>Synedra tabulata</i>	0	0	5	0	0
<i>Navicula mutica</i>	0	0	0	0	0
<i>Diploneis ovalis</i>	0	0	1	20	26
<i>Navicula hungarica</i>	0	0	0	0	0
<i>Navicula pusilla</i>	0	0	0	0	0
<i>Nitzschia denticula</i>	0	0	0	0	0
<i>Nitzschia subtilis</i>	84	27	16	0	0
<i>Navicula bilobata</i>	0	0	0	0	0
<i>Actinocyclus normanii</i>	0	0	0	0	0
<i>Coscosira polychorda</i>	0	0	0	0	0
<i>Navicula lattissima</i>	0	0	0	0	0
<i>Navicula albiensis</i>	0	0	0	0	0
<i>Diploneis papula</i>	0	0	0	0	0
<i>Thalassiosira decipans</i>	0	0	0	0	0
<i>Thalassiosira fluvatililis</i>	0	0	0	0	0
<i>Biddulphia rhombus</i>	0	0	0	0	0

<i>Gyrosigma litorale</i>	0	0	0	0	0
<i>Auricula dubia</i>	0	0	0	0	0
<i>Cocconeis scullatium</i>	0	0	0	0	0
<i>Surriella fastuosa</i>	0	0	0	0	0
<i>Navicula digiatorra</i>	4	1	1	0	0
<i>Synedra acus</i>	0	0	2	0	0
<i>Rhaphoneis surirella</i>	1	1	0	0	0
<i>Cymatopleura surirella</i>	0	0	0	0	0
<i>Navicula distans</i>	0	0	0	0	0
<i>Pinnularia sp.</i>	0	1	0	0	0
<i>Pinnularia gentilis</i>	27	4	0	0	0
<i>Cymbella aspera</i>	1	2	0	0	0
<i>Synedra sp.</i>	0	0	0	0	0
<i>Eutonia parallela</i>	2	0	0	0	0
<i>Pinnularia intermedia</i>	2	0	0	0	0
<i>Navicula amphibola</i>	14	10	0	0	0
<i>Eutonia arcus</i>	2	0	0	0	0
<i>Synedra ulna</i>	7	41	3	0	0
<i>Synedra capita</i>	0	0	0	0	0
<i>Gomphonema acumilatum</i>	1	0	0	0	0
<i>Stauraneus anceps</i>	0	0	0	0	0
<i>Stauraneus smithii</i>	0	0	0	0	0

210      213      216      218      221

<i>Actinophylus undulatus</i>	1	0	1	2	1
<i>Auliscus sculptus</i>	0	0	0	0	1
<i>Caloneis brevis</i>	0	0	0	0	0
<i>Cocconeis distans</i>	0	0	0	0	0
<i>Coscinodiscus apiculatus</i>	3	1	0	0	6
<i>Coscinodiscus centralis</i>	0	0	0	0	0
<i>Coscinodiscus margaritus</i>	0	0	0	0	0
<i>Coscinodiscus perforatus</i>	1	0	0	0	0
<i>Coscinodiscus sp.</i>	0	0	0	0	0
<i>Diploneis incurvata</i>	0	0	0	1	1
<i>Melosira sulcata</i>	20	5	7	8	16
<i>Melosira westii</i>	1	1	0	2	0
<i>Navicula lattissima</i>	1	0	0	0	0
<i>Nitzschia socialis</i>	4	18	3	1	0
<i>Pinnularia trevylana</i>	0	2	2	3	0
<i>Podosira stelliger</i>	11	5	7	5	17
<i>Thalassiosira nordenskioldii</i>	0	1	0	0	0
<i>Trachyneis aspera</i>	0	0	0	0	1
<i>Tricerratium alterans</i>	0	0	0	0	0
<i>Tricerratium favius</i>	5	2	1	4	8
<i>Tricerratium perpendiculare</i>	3	0	1	5	2
<i>Tricerratium sp.</i>	1	0	0	0	0
<i>Diploneis smithii</i>	1	1	3	11	13
<i>Diploneis didyma</i>	1	0	3	3	1
<i>Navicula marina</i>	0	0	0	0	0
<i>Rhaphoneis amphiceros</i>	2	2	2	0	0
<i>Navicula crucicula</i>	0	1	0	0	0

<i>Nitzschia punctata</i>	0	0	1	0	1
<i>Scoliopleura tumida</i>	36	19	18	10	43
<i>Caloneis formosa</i>	0	0	0	0	1
<i>Cyclotella striata</i>	0	0	0	0	0
<i>Diploneis interrupta</i>	70	24	114	135	60
<i>Gyrosigma</i> sp.	0	0	1	0	0
<i>Navicula elegans</i>	1	1	0	2	3
<i>Navicula peregrina</i>	50	117	27	1	18
<i>Navicula salinarum</i>	3	10	0	0	0
<i>Nitzschia navicularis</i>	3	0	3	2	8
<i>Nitzschia scalaris</i>	0	0	0	0	0
<i>Synedra tabulata</i>	0	0	0	0	0
<i>Navicula mutica</i>	0	0	0	0	0
<i>Diploneis ovalis</i>	24	2	12	5	8
<i>Navicula hungarica</i>	0	0	0	0	0
<i>Navicula pusilla</i>	0	2	0	0	0
<i>Nitzschia denticula</i>	0	0	0	0	0
<i>Nitzschia subtilis</i>	0	0	0	0	0
<i>Navicula bilobata</i>	0	0	0	0	0
<i>Actinocyclus normanii</i>	0	0	0	0	0
<i>Coscinosira polychorda</i>	0	0	0	0	0
<i>Navicula lattissima</i>	0	0	0	0	0
<i>Navicula albiensis</i>	0	0	0	0	0
<i>Diploneis papula</i>	0	0	0	0	0
<i>Thalassiosira decipans</i>	0	0	0	0	0
<i>Thalassiosira fluvatilis</i>	0	0	0	0	0
<i>Biddulphia rhombus</i>	0	0	0	0	0
<i>Gyrosigma litorale</i>	0	0	0	0	0
<i>Auricula dubia</i>	0	0	0	0	0
<i>Cocconeis scullatium</i>	0	0	0	0	0
<i>Surriella fastuosa</i>	0	0	0	0	0
<i>Navicula digiatorra</i>	0	0	0	0	0
<i>Synedra acus</i>	0	0	0	0	0
<i>Rhaphoneis surirella</i>	0	0	0	0	0
<i>Cymatopleura surirella</i>	0	0	0	0	0
<i>Navicula distans</i>	0	0	0	0	0
<i>Pinnularia</i> sp.	0	0	0	0	0
<i>Pinnularia gentilis</i>	0	0	0	0	0
<i>Cymbella aspera</i>	0	0	0	0	0
<i>Synedra</i> sp.	0	0	0	0	0
<i>Eutonia parallela</i>	0	0	0	0	0
<i>Pinnularia intermedia</i>	0	0	0	0	0
<i>Navicula amphibola</i>	0	0	0	0	0
<i>Eutonia arcus</i>	0	0	0	0	0
<i>Synedra ulna</i>	0	0	0	0	0
<i>Synedra capita</i>	0	0	0	0	0
<i>Gomphonema acumilatum</i>	0	0	0	0	0
<i>Stauraneus anceps</i>	0	0	0	0	0
<i>Stauraneus smithii</i>	0	0	0	0	0

<i>Actinophylus undulatus</i>	0	0	0	0	0
<i>Auliscus sculptus</i>	0	0	0	0	1
<i>Caloneis brevis</i>	1	0	0	0	0
<i>Cocconeis distans</i>	0	0	0	0	0
<i>Coscinodiscus apiculatus</i>	1	0	0	0	0
<i>Coscinodiscus centralis</i>	1	0	0	0	0
<i>Coscinodiscus margaritus</i>	0	2	0	0	0
<i>Coscinodiscus perforatus</i>	0	0	0	0	0
<i>Coscinodiscus sp.</i>	0	1	0	0	0
<i>Diploneis incurvata</i>	0	3	0	0	0
<i>Melosira sulcata</i>	11	10	8	0	0
<i>Melosira westii</i>	1	0	1	0	0
<i>Navicula lattissima</i>	0	0	0	0	0
<i>Nitzschia socialis</i>	3	6	3	0	0
<i>Pinnularia trevylana</i>	0	0	0	0	0
<i>Podosira stelliger</i>	12	3	11	1	0
<i>Thalassiosira nordenskioldii</i>	0	0	0	0	0
<i>Trachyneis aspera</i>	0	0	0	0	0
<i>Tricerratium alterans</i>	0	1	0	0	0
<i>Tricerratium favus</i>	6	4	3	0	0
<i>Tricerratium perpendiculare</i>	3	0	5	2	1
<i>Tricerratium sp.</i>	0	0	0	0	0
<i>Diploneis smithii</i>	8	1	0	0	0
<i>Diploneis didyma</i>	10	1	4	0	0
<i>Navicula marina</i>	0	3	1	0	0
<i>Rhaphoneis amphiceros</i>	1	0	0	0	0
<i>Navicula crucicula</i>	0	0	0	0	0
<i>Nitzschia punctata</i>	0	0	1	0	0
<i>Scoliopleura tumida</i>	29	5	6	0	0
<i>Caloneis formosa</i>	0	0	0	0	0
<i>Cyclotella striata</i>	1	1	0	0	0
<i>Diploneis interrupta</i>	90	104	44	3	2
<i>Gyrosigma sp.</i>	0	0	0	0	0
<i>Navicula elegans</i>	1	1	0	0	0
<i>Navicula peregrina</i>	11	4	11	13	13
<i>Navicula salinarum</i>	0	19	1	0	0
<i>Nitzschia navicularis</i>	4	5	3	0	0
<i>Nitzschia scalaris</i>	0	0	0	0	0
<i>Synedra tabulata</i>	6	10	5	1	0
<i>Navicula mutica</i>	0	0	1	0	0
<i>Diploneis ovalis</i>	6	5	1	0	0
<i>Navicula hungarica</i>	0	0	0	0	0
<i>Navicula pusilla</i>	0	12	0	0	0
<i>Nitzschia denticula</i>	0	0	3	0	0
<i>Nitzschia subtilis</i>	0	1	2	17	3
<i>Navicula bilobata</i>	0	0	0	0	0
<i>Actinocyclus normanii</i>	0	0	0	0	0
<i>Coscosira polychorda</i>	0	0	0	0	0
<i>Navicula lattissima</i>	0	0	0	0	0
<i>Navicula albiensis</i>	0	0	0	0	0
<i>Diploneis papula</i>	0	0	0	0	0
<i>Thalassiosira decipans</i>	0	0	0	0	0
<i>Thalassiosira fluvatilis</i>	0	0	0	0	0
<i>Biddulphia rhombus</i>	0	0	0	0	0
<i>Gyrosigma litorale</i>	0	0	0	0	0
<i>Auricula dubia</i>	0	0	0	0	0

<i>Cocconeis scullatium</i>	0	0	0	0	0
<i>Surriella fastuosa</i>	0	0	0	0	0
<i>Navicula digiatorra</i>	0	0	0	0	0
<i>Synedra acus</i>	0	0	0	4	0
<i>Rhaphoneis surirella</i>	0	0	0	0	0
<i>Cymatopleura surirella</i>	0	0	0	0	0
<i>Navicula distans</i>	0	0	0	0	0
<i>Pinnularia sp.</i>	0	0	0	0	0
<i>Pinnularia gentilis</i>	0	0	0	135	159
<i>Cymbella aspera</i>	0	0	0	18	16
<i>Synedra sp.</i>	0	0	0	2	4
<i>Eutonia parallela</i>	0	0	0	2	0
<i>Pinnularia intermedia</i>	0	0	0	0	0
<i>Navicula amphibola</i>	0	0	0	0	0
<i>Eutonia arcus</i>	0	0	0	0	0
<i>Synedra ulna</i>	0	0	0	3	0
<i>Synedra capita</i>	0	0	0	4	6
<i>Gomphonema acumilatum</i>	0	0	0	0	0
<i>Stauraneus anceps</i>	0	0	0	0	0
<i>Stauraneus smithii</i>	0	0	0	0	0

239      243      250      252      254

<i>Actinophylus undulatus</i>	0	0	0	2	1
<i>Auliscus sculptus</i>	0	0	0	0	0
<i>Caloneis brevis</i>	0	0	0	0	0
<i>Cocconeis distans</i>	0	0	0	0	1
<i>Coscinodiscus apiculatus</i>	3	0	0	0	1
<i>Coscinodiscus centralis</i>	0	0	0	0	0
<i>Coscinodiscus margaritus</i>	0	0	0	0	0
<i>Coscinodiscus perforatus</i>	0	0	0	0	0
<i>Coscinodiscus sp.</i>	0	0	0	0	0
<i>Diploneis incurvata</i>	0	0	0	0	0
<i>Melosira sulcata</i>	1	0	0	5	0
<i>Melosira westii</i>	1	0	0	1	0
<i>Navicula lattissima</i>	0	0	0	0	0
<i>Nitzschia socialis</i>	0	0	0	0	0
<i>Pinnularia trevylana</i>	0	0	0	0	0
<i>Podosira stelliger</i>	1	3	1	0	2
<i>Thalassiosira nordenskioldii</i>	0	0	1	0	0
<i>Trachyneis aspera</i>	0	0	0	0	0
<i>Tricerratium alterans</i>	0	0	0	0	0
<i>Tricerratium favus</i>	0	0	0	0	1
<i>Tricerratium perpendiculare</i>	1	1	0	2	0
<i>Tricerratium sp.</i>	0	0	0	0	0
<i>Diploneis smithii</i>	0	0	0	0	0
<i>Diploneis didyma</i>	0	0	1	0	0
<i>Navicula marina</i>	0	0	0	0	0
<i>Rhaphoneis amphiceros</i>	1	0	1	4	3
<i>Navicula crucicula</i>	0	0	0	0	0
<i>Nitzschia punctata</i>	0	0	0	0	0
<i>Scoliopleura tumida</i>	0	0	0	0	0

<i>Caloneis formosa</i>	0	0	0	0	0
<i>Cyclotella striata</i>	0	0	0	3	3
<i>Diploneis interrupta</i>	12	6	0	21	11
<i>Gyrosigma</i> sp.	0	0	0	0	0
<i>Navicula elegans</i>	0	0	0	0	0
<i>Navicula peregrina</i>	45	70	96	59	75
<i>Navicula salinarum</i>	0	0	0	0	0
<i>Nitzschia navicularis</i>	0	0	5	4	2
<i>Nitzschia scalaris</i>	0	0	1	2	0
<i>Synedra tabulata</i>	0	0	0	0	0
<i>Navicula mutica</i>	0	0	0	0	0
<i>Diploneis ovalis</i>	4	4	7	10	3
<i>Navicula hungarica</i>	0	0	0	0	0
<i>Navicula pusilla</i>	4	1	3	8	7
<i>Nitzschia denticula</i>	0	0	0	0	0
<i>Nitzschia subtilis</i>	7	0	4	0	0
<i>Navicula bilobata</i>	0	0	0	0	0
<i>Actinocyclus normanii</i>	0	0	0	0	0
<i>Coscinosira polychorda</i>	0	0	0	0	0
<i>Navicula lattissima</i>	0	0	0	0	0
<i>Navicula albiensis</i>	0	0	0	1	0
<i>Diploneis papula</i>	0	0	0	0	0
<i>Thalassiosira decipans</i>	0	0	0	1	0
<i>Thalassiosira fluvatilis</i>	0	0	0	0	0
<i>Biddulphia rhombus</i>	0	0	0	0	0
<i>Gyrosigma litorale</i>	0	0	0	0	0
<i>Auricula dubia</i>	0	0	0	0	0
<i>Cocconeis scullatium</i>	0	0	0	10	0
<i>Surriella fastuosa</i>	0	0	0	1	0
<i>Navicula digiatorra</i>	0	1	0	0	0
<i>Synedra acus</i>	2	0	3	0	1
<i>Rhaphoneis surirella</i>	0	0	0	0	0
<i>Cymatopleura surirella</i>	0	0	0	0	0
<i>Navicula distans</i>	0	0	0	0	0
<i>Pinnularia</i> sp.	0	0	0	0	0
<i>Pinnularia gentilis</i>	99	98	16	9	4
<i>Cymbella aspera</i>	8	10	2	0	0
<i>Synedra</i> sp.	6	0	0	0	0
<i>Eutonia parallela</i>	0	0	1	0	0
<i>Pinnularia intermedia</i>	0	0	0	0	0
<i>Navicula amphibola</i>	0	0	0	0	0
<i>Eutonia arcus</i>	0	0	2	5	7
<i>Synedra ulna</i>	0	0	1	0	0
<i>Synedra capita</i>	12	0	2	45	46
<i>Gomphonema acumilatum</i>	0	0	0	0	0
<i>Stauraneus anceps</i>	0	0	0	7	30
<i>Stauraneus smithii</i>	0	1	0	0	2
	286	290	294	298	302
<i>Actinophylus undulatus</i>	3	0	2	3	3
<i>Auliscus sculptus</i>	4	0	0	0	0

<i>Caloneis brevis</i>	0	0	0	0	0
<i>Cocconeis distans</i>	0	0	0	1	1
<i>Coscinodiscus apiculatus</i>	0	0	3	3	4
<i>Coscinodiscus centralis</i>	0	0	0	0	0
<i>Coscinodiscus margaritus</i>	1	0	0	0	0
<i>Coscinodiscus perforatus</i>	0	0	0	1	0
<i>Coscinodiscus sp.</i>	0	2	0	2	5
<i>Diploneis incurvata</i>	5	0	0	0	2
<i>Melosira sulcata</i>	5	10	19	7	15
<i>Melosira westii</i>	1	1	0	0	0
<i>Navicula lattissima</i>	0	0	0	0	0
<i>Nitzschia socialis</i>	3	2	3	0	2
<i>Pinnularia trevylana</i>	0	0	0	0	0
<i>Podosira stelliger</i>	14	10	20	65	26
<i>Thalassiosira nordenskioldii</i>	0	0	0	0	0
<i>Trachyneis aspera</i>	0	0	0	0	0
<i>Tricerratum alterans</i>	0	0	0	0	0
<i>Tricerratum favus</i>	1	1	6	1	1
<i>Tricerratum perpendiculare</i>	0	3	5	5	4
<i>Tricerratum sp.</i>	0	0	0	0	0
<i>Diploneis smithii</i>	0	3	12	9	3
<i>Diploneis didyma</i>	0	6	3	5	8
<i>Navicula marina</i>	0	0	1	1	0
<i>Rhaphoneis amphiceros</i>	0	1	3	4	10
<i>Navicula crucicula</i>	1	0	0	0	0
<i>Nitzschia punctata</i>	0	0	0	0	1
<i>Scoliopleura tumida</i>	0	2	8	6	2
<i>Caloneis formosa</i>	0	1	0	1	0
<i>Cyclotella striata</i>	0	0	0	0	0
<i>Diploneis interrupta</i>	173	101	72	48	50
<i>Gyrosigma sp.</i>	0	0	0	0	0
<i>Navicula elegans</i>	0	0	2	3	2
<i>Navicula peregrina</i>	7	49	12	12	35
<i>Navicula salinarum</i>	0	0	0	0	0
<i>Nitzschia navicularis</i>	0	6	20	8	0
<i>Nitzschia scalaris</i>	0	0	0	0	0
<i>Synedra tabulata</i>	0	0	0	0	0
<i>Navicula mutica</i>	0	0	0	0	0
<i>Diploneis ovalis</i>	1	20	29	13	8
<i>Navicula hungarica</i>	0	0	0	0	0
<i>Navicula pusilla</i>	3	0	0	0	0
<i>Nitzschia dendicula</i>	0	0	0	0	0
<i>Nitzschia subtilis</i>	0	0	0	0	0
<i>Navicula bilobata</i>	0	4	4	5	1
<i>Actinocyclus normanii</i>	0	1	0	0	0
<i>Coscinosira polychorda</i>	0	0	1	0	0
<i>Navicula lattissima</i>	0	0	0	0	0
<i>Navicula albiensis</i>	0	0	0	0	0
<i>Diploneis papula</i>	0	0	0	0	0
<i>Thalassiosira decipans</i>	0	0	0	0	0
<i>Thalassiosira fluvatilis</i>	0	0	0	0	0
<i>Biddulphia rhombus</i>	0	0	0	0	0
<i>Gyrosigma litorale</i>	0	0	0	0	0
<i>Auricula dubia</i>	0	0	0	0	0
<i>Cocconeis scullatium</i>	0	0	0	0	0
<i>Surriella fastuosa</i>	0	0	0	0	0

<i>Navicula digiattorra</i>	0	0	0	0	0
<i>Synedra acus</i>	0	0	0	0	0
<i>Rhaphoneis surirella</i>	0	0	0	0	0
<i>Cymatopleura surirella</i>	0	0	0	0	0
<i>Navicula distans</i>	0	0	0	0	0
<i>Pinnularia sp.</i>	0	0	0	0	0
<i>Pinnularia gentilis</i>	0	0	0	0	0
<i>Cymbella aspera</i>	0	0	0	0	0
<i>Synedra sp.</i>	0	0	0	0	0
<i>Eutonia parallela</i>	0	0	0	0	0
<i>Pinnularia intermedia</i>	0	0	0	0	0
<i>Navicula amphibola</i>	0	0	0	0	0
<i>Eutonia arcus</i>	0	0	0	0	0
<i>Synedra ulna</i>	0	0	0	0	0
<i>Synedra capita</i>	0	0	0	0	0
<i>Gomphonema acumilatum</i>	0	0	0	0	0
<i>Stauraneus anceps</i>	0	0	0	0	0
<i>Stauraneus smithii</i>	0	0	0	0	0

	306	310	314	316	569
<i>Actinophylus undulatus</i>	0	1	2	0	2
<i>Auliscus sculptus</i>	0	1	0	1	0
<i>Caloneis brevis</i>	0	0	0	0	0
<i>Cocconeis distans</i>	0	1	0	1	2
<i>Coscinodiscus apiculatus</i>	1	0	0	2	2
<i>Coscinodiscus centralis</i>	0	0	0	0	0
<i>Coscinodiscus margaritus</i>	0	0	0	0	0
<i>Coscinodiscus perforatus</i>	0	0	0	0	0
<i>Coscinodiscus sp.</i>	0	0	1	0	3
<i>Diploneis incurvata</i>	0	0	0	0	0
<i>Melosira sulcata</i>	12	3	1	2	43
<i>Melosira westii</i>	2	0	0	0	1
<i>Navicula lattissima</i>	0	0	9	0	0
<i>Nitzschia socialis</i>	2	1	0	0	6
<i>Pinnularia trevylana</i>	0	0	0	0	0
<i>Podosira stelliger</i>	10	1	2	4	19
<i>Thalassiosira nordenskioldii</i>	0	0	0	0	0
<i>Trachyneis aspera</i>	0	0	0	0	0
<i>Tricerratum alterans</i>	0	0	0	0	2
<i>Tricerratum favus</i>	1	2	1	0	9
<i>Tricerratum perpendiculare</i>	3	0	1	0	0
<i>Tricerratum sp.</i>	0	0	0	0	0
<i>Diploneis smithii</i>	25	41	9	1	3
<i>Diploneis didyma</i>	5	5	18	15	5
<i>Navicula marina</i>	3	3	1	0	0
<i>Rhaphoneis amphiceros</i>	5	3	0	0	6
<i>Navicula crucicula</i>	0	0	0	0	0
<i>Nitzschia punctata</i>	1	2	3	0	2
<i>Scoliopleura tumida</i>	5	4	3	2	3
<i>Caloneis formosa</i>	6	1	0	0	0
<i>Cyclotella striata</i>	3	0	0	0	0

<i>Diploneis interrupta</i>	25	15	62	98	0
<i>Gyrosigma</i> sp.	0	0	0	0	1
<i>Navicula elegans</i>	4	2	2	0	0
<i>Navicula peregrina</i>	64	80	31	17	3
<i>Navicula salinarum</i>	0	0	0	0	0
<i>Nitzschia navicularis</i>	3	0	0	1	43
<i>Nitzschia scalaris</i>	0	0	0	0	0
<i>Synedra tabulata</i>	0	0	0	0	0
<i>Navicula mutica</i>	0	0	0	0	0
<i>Diploneis ovalis</i>	9	5	0	1	0
<i>Navicula hungarica</i>	0	0	2	2	0
<i>Navicula pusilla</i>	4	0	29	31	0
<i>Nitzschia denticula</i>	0	0	0	0	0
<i>Nitzschia subtilis</i>	0	0	0	0	0
<i>Navicula bilobata</i>	0	0	12	10	0
<i>Actinocyclus normanii</i>	0	0	0	0	0
<i>Coscinosira polychorda</i>	0	0	0	0	0
<i>Navicula lattissima</i>	0	2	0	1	0
<i>Navicula albiensis</i>	0	1	0	0	0
<i>Diploneis papula</i>	1	0	0	0	0
<i>Thalassiosira decipans</i>	1	0	0	0	6
<i>Thalassiosira fluvatilis</i>	1	0	0	0	0
<i>Biddulphia rhombus</i>	0	0	0	0	0
<i>Gyrosigma litorale</i>	0	0	0	0	26
<i>Auricula dubia</i>	0	0	0	0	0
<i>Cocconeis scullatium</i>	0	0	0	0	0
<i>Surriella fastuosa</i>	2	0	2	0	0
<i>Navicula digiatorra</i>	0	1	0	0	2
<i>Synedra acus</i>	6	30	32	14	0
<i>Rhaphoneis surirella</i>	0	0	0	0	2
<i>Cymatopleura surirella</i>	0	0	0	0	2
<i>Navicula distans</i>	0	0	0	0	8
<i>Pinnularia</i> sp.	0	0	0	0	0
<i>Pinnularia gentilis</i>	0	0	0	0	0
<i>Cymbella aspera</i>	0	0	0	0	0
<i>Synedra</i> sp.	0	0	0	0	0
<i>Eutonia parallela</i>	0	0	0	0	0
<i>Pinnularia intermedia</i>	0	0	0	0	0
<i>Navicula amphibola</i>	0	0	0	0	0
<i>Eutonia arcus</i>	0	0	0	0	0
<i>Synedra ulna</i>	0	0	0	0	0
<i>Synedra capita</i>	0	0	0	0	0
<i>Gomphonema acumilatum</i>	0	0	0	0	0
<i>Stauraneus anceps</i>	0	0	0	0	0
<i>Stauraneus smithii</i>	0	0	0	0	0
	571	573	575	577	621
<i>Actinophylus undulatus</i>	12	4	3	10	1
<i>Auliscus sculptus</i>	0	2	0	0	0
<i>Caloneis brevis</i>	0	0	0	0	0
<i>Cocconeis distans</i>	1	9	2	6	9

<i>Coscinodiscus apiculatus</i>	10	15	3	8	11
<i>Coscinodiscus centralis</i>	0	0	0	0	0
<i>Coscinodiscus margaritus</i>	0	0	0	0	0
<i>Coscinodiscus perforatus</i>	0	3	0	0	0
<i>Coscinodiscus sp.</i>	3	13	9	11	2
<i>Diploneis incurvata</i>	0	0	0	0	0
<i>Melosira sulcata</i>	47	43	48	50	90
<i>Melosira westii</i>	1	3	3	2	1
<i>Navicula lattisima</i>	0	0	0	0	0
<i>Nitzschia socialis</i>	1	2	5	4	1
<i>Pinnularia trevylana</i>	0	0	0	0	0
<i>Podosira stelliger</i>	40	45	39	32	23
<i>Thalassiosira nordenskioldii</i>	0	0	0	0	0
<i>Trachyneis aspera</i>	0	0	0	0	0
<i>Tricerratium alterans</i>	0	0	0	0	1
<i>Tricerratium favus</i>	11	10	9	11	5
<i>Tricerratium perpendiculare</i>	5	3	3	4	1
<i>Tricerratium sp.</i>	0	0	0	0	0
<i>Diploneis smithii</i>	0	1	0	1	4
<i>Diploneis didyma</i>	3	4	6	1	6
<i>Navicula marina</i>	0	0	0	0	2
<i>Rhaphoneis amphiceros</i>	9	7	3	8	6
<i>Navicula crucicula</i>	0	0	0	0	0
<i>Nitzschia punctata</i>	1	8	11	8	0
<i>Scoliopleura tumida</i>	2	5	5	4	4
<i>Caloneis formosa</i>	0	0	0	0	0
<i>Cyclotella striata</i>	0	0	0	0	2
<i>Diploneis interrupta</i>	0	1	1	0	1
<i>Gyrosigma sp.</i>	0	0	3	0	0
<i>Navicula elegans</i>	0	2	1	0	0
<i>Navicula peregrina</i>	0	1	1	0	1
<i>Navicula salinarum</i>	0	0	0	0	0
<i>Nitzschia navicularis</i>	30	11	13	9	18
<i>Nitzschia scalaris</i>	0	0	0	0	0
<i>Synedra tabulata</i>	0	0	0	0	0
<i>Navicula mutica</i>	0	0	0	0	0
<i>Diploneis ovalis</i>	0	0	0	0	1
<i>Navicula hungarica</i>	0	0	1	0	0
<i>Navicula pusilla</i>	0	1	0	0	0
<i>Nitzschia denticula</i>	0	0	0	0	0
<i>Nitzschia subtilis</i>	0	0	0	0	0
<i>Navicula bilobata</i>	0	0	0	0	0
<i>Actinocyclus normanii</i>	0	0	0	0	0
<i>Coscosira polychorda</i>	0	0	0	0	0
<i>Navicula lattisima</i>	0	1	0	0	0
<i>Navicula albiensis</i>	0	3	0	0	0
<i>Diploneis papula</i>	0	0	0	0	0
<i>Thalassiosira decipans</i>	2	4	0	5	1
<i>Thalassiosira fluvatilis</i>	0	0	0	0	0
<i>Biddulphia rhombus</i>	0	0	1	0	0
<i>Gyrosigma litorale</i>	10	5	13	13	2
<i>Auricula dubia</i>	0	0	1	0	0
<i>Cocconeis scullatium</i>	0	0	3	0	0
<i>Surriella fastuosa</i>	1	2	3	2	1
<i>Navicula digiatorra</i>	1	0	1	1	0
<i>Synedra acus</i>	0	0	0	0	0

<i>Rhaphoneis surirella</i>	4	0	0	3	2
<i>Cymatopleura surirella</i>	0	0	0	0	0
<i>Navicula distans</i>	7	2	6	13	9
<i>Pinnularia</i> sp.	0	0	0	0	0
<i>Pinnularia gentilis</i>	0	0	0	0	0
<i>Cymbella aspera</i>	0	0	0	0	0
<i>Synedra</i> sp.	0	0	0	0	0
<i>Eutonia parallela</i>	0	0	0	0	0
<i>Pinnularia intermedia</i>	0	0	0	0	0
<i>Navicula amphibola</i>	0	0	0	0	0
<i>Eutonia arcus</i>	0	0	0	0	0
<i>Synedra ulna</i>	0	0	0	0	0
<i>Synedra capita</i>	0	0	0	0	0
<i>Gomphonema acumilatum</i>	0	0	0	0	0
<i>Stauraneus anceps</i>	0	0	0	0	0
<i>Stauraneus smithii</i>	0	0	0	0	0

	623	625	627	629	631
<i>Actinophylus undulatus</i>	9	4	2	2	5
<i>Auliscus sculptus</i>	0	0	0	0	0
<i>Caloneis brevis</i>	0	0	0	0	0
<i>Cocconeis distans</i>	10	9	1	4	2
<i>Coscinodiscus apiculatus</i>	11	10	1	11	9
<i>Coscinodiscus centralis</i>	0	0	0	0	0
<i>Coscinodiscus margaritus</i>	0	0	0	0	0
<i>Coscinodiscus perforatus</i>	0	0	0	0	0
<i>Coscinodiscus</i> sp.	4	5	4	4	3
<i>Diploneis incurvata</i>	0	0	0	0	0
<i>Melosira sulcata</i>	72	49	59	58	48
<i>Melosira westii</i>	1	1	4	0	2
<i>Navicula lattisima</i>	0	0	0	0	0
<i>Nitzschia socialis</i>	0	4	9	3	2
<i>Pinnularia trevylana</i>	0	0	0	0	0
<i>Podosira stelliger</i>	32	15	31	28	30
<i>Thalassiosira nordenskioldii</i>	0	0	0	0	0
<i>Trachyneis aspera</i>	0	1	0	0	0
<i>Tricerratum alterans</i>	0	0	1	0	0
<i>Tricerratum favus</i>	5	3	6	3	2
<i>Tricerratum perpendiculare</i>	3	2	0	4	1
<i>Tricerratum</i> sp.	0	0	0	0	1
<i>Diploneis smithii</i>	3	0	2	2	2
<i>Diploneis didyma</i>	7	4	7	5	7
<i>Navicula marina</i>	0	0	0	0	0
<i>Rhaphoneis amphiceros</i>	8	12	6	6	5
<i>Navicula crucicula</i>	0	0	0	0	0
<i>Nitzschia punctata</i>	1	3	2	3	5
<i>Scoliopleura tumida</i>	7	2	0	6	9
<i>Caloneis formosa</i>	0	0	0	0	0
<i>Cyclotella striata</i>	1	0	0	1	2
<i>Diploneis interrupta</i>	0	1	0	1	5
<i>Gyrosigma</i> sp.	0	0	0	0	0

<i>Navicula elegans</i>	0	0	0	1	3
<i>Navicula peregrina</i>	0	0	7	7	13
<i>Navicula salinarum</i>	0	0	0	0	0
<i>Nitzschia navicularis</i>	32	44	38	39	44
<i>Nitzschia scalaris</i>	0	0	0	3	1
<i>Synedra tabulata</i>	0	0	0	0	0
<i>Navicula mutica</i>	0	0	0	0	0
<i>Diploneis ovalis</i>	0	1	0	1	0
<i>Navicula hungarica</i>	0	0	0	0	0
<i>Navicula pusilla</i>	0	0	0	0	0
<i>Nitzschia denticula</i>	0	0	0	0	0
<i>Nitzschia subtilis</i>	0	0	0	0	0
<i>Navicula bilobata</i>	1	0	1	0	0
<i>Actinocyclus normanii</i>	0	0	0	0	0
<i>Coscinosira polychorda</i>	0	0	0	0	0
<i>Navicula lattissima</i>	0	1	0	0	0
<i>Navicula albiensis</i>	0	0	0	0	0
<i>Diploneis papula</i>	0	0	0	0	0
<i>Thalassiosira decipans</i>	1	4	0	0	0
<i>Thalassiosira fluvatilis</i>	0	0	0	0	0
<i>Biddulphia rhombus</i>	0	1	1	0	0
<i>Gyrosigma litorale</i>	0	1	0	0	0
<i>Auricula dubia</i>	0	0	2	1	0
<i>Cocconeis scullatium</i>	0	0	4	0	0
<i>Surriella fastuosa</i>	3	4	0	1	2
<i>Navicula digiatorra</i>	0	2	0	2	3
<i>Synedra acus</i>	0	0	0	0	0
<i>Rhaphoneis surirella</i>	2	1	0	0	0
<i>Cymatopleura surirella</i>	0	1	0	0	0
<i>Navicula distans</i>	7	18	3	0	0
<i>Pinnularia sp.</i>	0	2	0	0	0
<i>Pinnularia gentilis</i>	0	0	0	0	0
<i>Cymbella aspera</i>	0	0	0	0	0
<i>Synedra sp.</i>	0	0	0	0	0
<i>Eutonia parallela</i>	0	0	0	0	0
<i>Pinnularia intermedia</i>	0	0	0	0	0
<i>Navicula amphibola</i>	0	0	0	0	0
<i>Eutonia arcus</i>	0	0	0	0	0
<i>Synedra ulna</i>	0	0	0	0	0
<i>Synedra capita</i>	0	0	0	0	0
<i>Gomphonema acumilatum</i>	0	0	0	0	0
<i>Stauraneus anceps</i>	0	0	0	0	0
<i>Stauraneus smithii</i>	0	0	0	0	0

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<i>Actinophylus undulatus</i>	2
<i>Auliscus sculptus</i>	0
<i>Caloneis brevis</i>	0
<i>Cocconeis distans</i>	5
<i>Coscinodiscus apiculatus</i>	2
<i>Coscinodiscus centralis</i>	0

<i>Coscinodiscus margaritus</i>	0
<i>Coscinodiscus perforatus</i>	0
<i>Coscinodiscus</i> sp.	2
<i>Diploneis incurvata</i>	0
<i>Melosira sulcata</i>	41
<i>Melosira westii</i>	0
<i>Navicula lattissima</i>	0
<i>Nitzschia socialis</i>	10
<i>Pinnularia trevylana</i>	0
<i>Podosira stelliger</i>	22
<i>Thalassiosira nordenskioldii</i>	0
<i>Trachyneis aspera</i>	0
<i>Tricerratium alterans</i>	0
<i>Tricerratium favus</i>	4
<i>Tricerratium perpendiculare</i>	2
<i>Tricerratium</i> sp.	0
<i>Diploneis smithii</i>	1
<i>Diploneis didyma</i>	7
<i>Navicula marina</i>	1
<i>Rhaphoneis amphiceros</i>	8
<i>Navicula crucicula</i>	0
<i>Nitzschia punctata</i>	3
<i>Scoliopleura tumida</i>	7
<i>Caloneis formosa</i>	1
<i>Cyclotella striata</i>	1
<i>Diploneis interrupta</i>	4
<i>Gyrosigma</i> sp.	0
<i>Navicula elegans</i>	1
<i>Navicula peregrina</i>	10
<i>Navicula salinarum</i>	0
<i>Nitzschia navicularis</i>	63
<i>Nitzschia scalaris</i>	2
<i>Synedra tabulata</i>	0
<i>Navicula mutica</i>	0
<i>Diploneis ovalis</i>	0
<i>Navicula hungarica</i>	1
<i>Navicula pusilla</i>	0
<i>Nitzschia denticula</i>	0
<i>Nitzschia subtilis</i>	0
<i>Navicula bilobata</i>	0
<i>Actinocyclus normanii</i>	0
<i>Coscinosira polychorda</i>	0
<i>Navicula lattissima</i>	0
<i>Navicula albiensis</i>	0
<i>Diploneis papula</i>	0
<i>Thalassiosira decipans</i>	0
<i>Thalassiosira fluvatilis</i>	0
<i>Biddulphia rhombus</i>	0
<i>Gyrosigma litorale</i>	0
<i>Auricula dubia</i>	0
<i>Cocconeis scullatium</i>	0
<i>Surriella fastuosa</i>	0
<i>Navicula digiatorra</i>	2
<i>Synedra acus</i>	0
<i>Rhaphoneis surirella</i>	0
<i>Cymatopleura surirella</i>	0

Navicula distans	0
Pinnularia sp.	0
Pinnularia gentilis	0
Cymbella aspera	0
Synedra sp.	0
Eutonia parallela	0
Pinnularia intermedia	0
Navicula amphibola	0
Eutonia arcus	0
Synedra ulna	0
Synedra capita	0
Gomphonema acumilatum	0
Stauraneus anceps	0
Stauraneus smithii	0

## Newton Carr - 17. Lower Pollen.

	633	635	637	639	641
Betula	3	0	0	1	1
Pinus	4	2	6	7	7
Ulmus	9	9	6	6	3
Quercus	12	18	11	15	19
Tilia	0	1	2	0	1
Alnus	19	20	17	21	35
Corylus	18	18	16	13	18
Juniperus	0	1	0	0	0
Ericaceae	1	0	0	0	0
Gramineae	24	22	26	24	14
Cyperaceae	4	8	8	9	1
Compositae (Tub)	0	0	0	0	0
Cirsium-type	0	0	0	0	0
Caryophyllaceae	0	0	1	0	0
Chenopodiaceae	3	1	3	2	0
Aster-type	0	0	1	0	0
Artemisia	1	0	0	0	0
Rosaceae	1	0	0	0	0
Filipendula	0	1	0	0	0
Plantaginaceae	1	0	3	3	0
Nymphaea	0	1	0	0	0
M.alterniflorum	1	0	0	0	1
Potamogeton	0	1	0	0	0
Lemna	3	1	0	0	4
Polypodium	0	2	0	0	1
Filicales	1	0	0	0	1
Trees	47	50	42	50	67
Shrubs	19	18	16	13	18
Herbs	34	32	42	37	15
Aquatics	4	3	0	0	5
Spores	1	2	0	0	1

	643	645	651
Betula	1	1	1
Pinus	4	8	15
Ulmus	12	5	10
Quercus	12	14	11
Tilia	0	1	0
Alnus	44	30	36
Corylus	12	20	9
Juniperus	0	0	0
Ericaceae	0	0	1
Gramineae	13	16	17
Cyperaceae	0	2	0
Compositae (Tub)	0	1	0
Cirsium-type	0	1	0
Caryophyllaceae	0	0	0
Chenopodiaceae	0	0	0
Aster-type	1	1	0
Artemisia	0	0	0
Rosaceae	0	0	0
Filipendula	0	0	0
Plantaginaceae	1	1	0
Nymphaea	0	0	0
M.alterniflorum	1	0	0
Potamogeton	0	0	0
Lemna	5	0	0
Polypodium	2	0	0
Filicales	1	0	0
Trees	72	58	72
Shrubs	12	20	11
Herbs	16	22	17
Aquatics	7	0	0
Spores	3	0	0

Newton Carr - 17. Upper pollen.

	201	203	230	232
Betula	8	7	5	7
Pinus	1	1	1	3
Ulmus	0	3	2	7
Quercus	52	60	44	58
Tilia	4	9	3	2
Alnus	37	29	31	28
Corylus	18	12	18	13
Salix	6	4	1	0
Gramineae	30	22	17	10
Cyperaceae	4	11	3	3
Rosaceae	2	2	0	1
Caltha	0	1	0	0
Chenopodiaceae	2	2	3	4
Aster-type	9	8	3	0
Artemisia	1	0	1	1
Filipendula	2	0	0	0
Umbelliferae	0	0	1	1

<b>Mentha</b>	0	0	1	0
<b>Typha angustifolia</b>	0	0	0	3
<b>Filicales</b>	14	4	3	1
<b>Trees</b>	102	109	86	105
<b>Shrubs</b>	24	16	19	13
<b>Herbs</b>	50	46	29	20
<b>Aquatics</b>	0	0	0	3
<b>Spores</b>	14	4	3	1

**Appendix 7    Pollen diagrams from    Newton Carr  
Commercial boreholes, completed by  
J.B.Innes.**

**(a) C7**

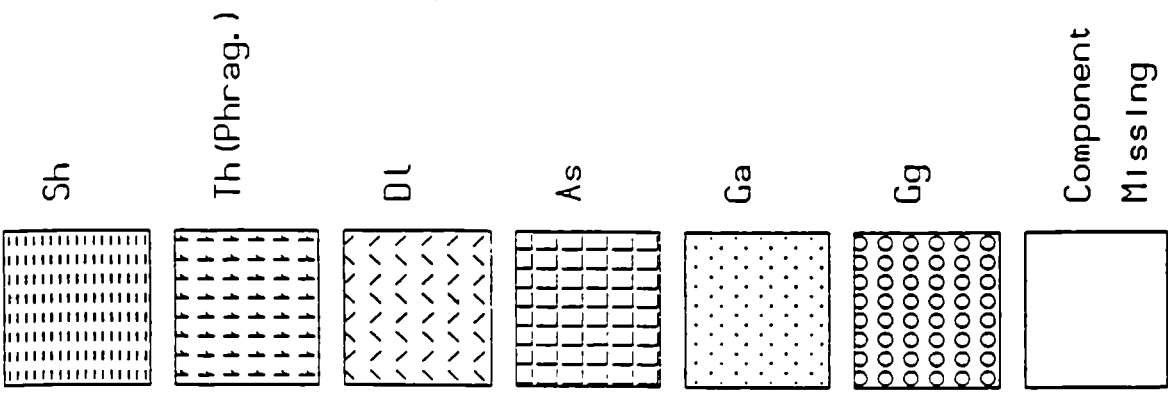
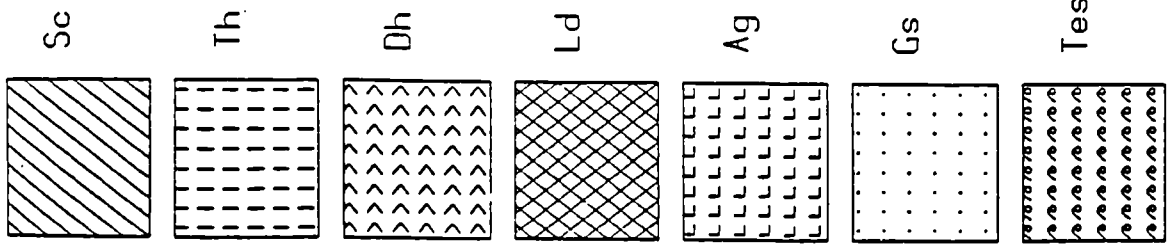
**(b) C8**





**Appendix 8      Lithostratigraphic Key.**

Sc	Stratum confusum.
Sh	Substantia humosa.
Th	T. herbacea.
Dh	D. herbosus.
DI	D. lignosus
Ld	Limus detrituosus
As	A. steatodes.
Ag	A. granosa.
Ga	G. arenosa.
Gs	G. saburralia.
Gg	G. glareosa (minora and majora)



KEY TO STRATIGRAPHIC SYMBOLS USED