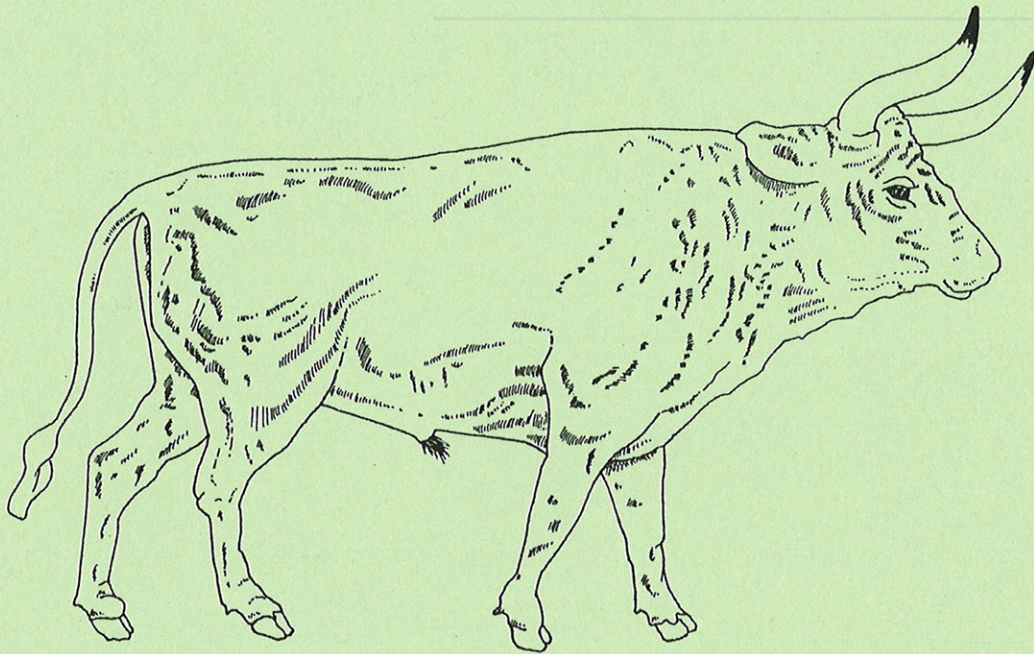


PORLOCK BAY AUROCHS

December 1998

Excavation Report



Prepared for

The Exmoor National Park Authority

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By

Richard McDonnell

Archaeological Consultant

Dungeon Cottage Cocklake Wedmore Somerset BS28 4HB
Tel/Fax 01934 712649

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INTRODUCTION

During April 1998 Nigel Hestor, of the National Trust, Holnicote Estate, was informed that the skeletal remains of a large mammal, possibly a whale, were eroding out of the alluvial deposits on the foreshore in Porlock Bay. Vanessa Straker, of the School of Geographical Sciences, University of Bristol, was contacted and it was decided, with the author, to excavate the site in view of its significant stratigraphic position and Nigel Hestor's concern over possible loss due to casual collection and natural erosive processes. The site was located at SS 8733 4783 and lay at 1.29m OD (6.49m above Chart Datum)(Fig. 1.1).

A salvage excavation of the partial skeleton was undertaken on the 23 April 1998 (McDonnell and Straker in preparation) with the location of the trench marked **A** on Figure 1.2. The recovery of a pelvis ruled out a cetacean and once excavated the bones were identified by Dale Serjeantson, of the University of Southampton, as belonging to an aurochs (*Bos primigenius*). The National Trust generously funded a radiocarbon date on the bone which gave an Early Bronze Age date of Cal. BP 3687 - 3399 (2 σ).

Prior to the October storms of 1996 the site had lain below, and had therefore been protected by, the toe of the shingle ridge. The breach of the ridge and its subsequent migration inland, had exposed the site to the sea. The area was visited several times on a casual basis during 1998 resulting in the recovery of more bone eroding out of the alluvium on the 6th November. A datum post established during the initial excavation indicated that the surface of alluvium had been eroding between April and November 1998.

Concern that further, unexcavated remains would be removed by erosion led the Exmoor National Park Authority to fund a rescue excavation and the site was accordingly excavated on the 7th and 8th of December 1998. The principal objectives were to trench around the area from where the bone had been recorded in order to recover as much of the animal as possible and to determine the extent and stratigraphic context of the remains.

EXCAVATION STRATEGY

The conditions on the site, the position of the toe of the shingle ridge and the mobile beach cobbles had all changed since the salvage excavation in April. The edge of the shingle ridge, unit **004**, had moved 3m back down slope to within 0.70m of the April trench, thereby constraining the area available for investigation, while the surface of the alluvium, unit **001**, had been reduced in height by at least 70mm from 1.29m OD to 1.22m OD in the immediate area of the salvage excavation trench and to its west and south west side.

Eight sampling pits were accordingly opened on the site between the toe of the shingle ridge, **004**, on the south east side and the deposit of beach cobbles, **005**, on the north west side (Fig. 1.2). Pits 1 to 4 were opened on the 7th December to determine the extent of the bone spread while pits 5 to 8 were opened on the 8th. Pit 5 was similarly dug to locate more bone and also to provide a soil sample for palaeoenvironmental analysis from close to the original location of the bone; pit 6 was cut to provide a profile of a depression (**003**), provisionally identified in the field as one side of a possible palaeochannel; pit 7 was dug to sample the alluvium outside the depression; pit 8 was dug to connect pits 4 and 5.

The constant run off of water from under the shingle ridge, throughout the intertidal period, had to be channelled away from the pits by digging gullies up to 100mm deep into the alluvium around the upper margins of the excavated area.

Surface features and deposits were numbered from 000 to 099 while units recorded in the pits were numbered from 100 to 199 in pit 1, from 200 to 299 in pit 2, from 300 to 399 in pit 3 *etc.* The site was planned at 1:50 though the profile was drawn at 1:20. The site was recorded on colour print photographic film. All colour descriptions of soils are Munsell measurements unless stated otherwise.

RESULTS

While very little further bone was recovered from the site the stratigraphic context was established and a possible palaeoenvironmental context for the remains is discussed below. Future monitoring of the area will be informed by the results of this excavation.

The principal feature on the site was the straight edge of a depression, **003**. On the surface it was visibly defined on its north side, by the difference in colour and texture of the dark greenish grey (5BG 4/1) silty clay fill, **001**, and the dark grey (10YR 4/1) silts **002** into which it was formed. At the east north east end the edge was obscured by the shingle ridge, **004**, while at the west south west end it was obscured by the mobile beach cobbles **005**. No other junction of surface deposits was as well defined. On the south west side of the site the clay **001**, that appeared to fill the depression, changed to an undifferentiated mixture of that material and an alluvium, **006**, that looked like unit **002** but had patches of organic material visible on its surface. There was insufficient time available for this apparently merging junction to be investigated and it is not clear if this represents another side of the depression **003**. It seems probable that the south side of this feature will lie under the cobbles of the shingle ridge.

Pit 6 was cut to provide a profile against the edge of the depression **003** and showed a shallow, gently sloping surface; the length of the profile was constrained by the cobbles **004** of the shingle ridge. The fill here, **600**, was a dark greenish grey (5G 4/1) silt with no coarse inclusions while to the south west in pits 1 to 5 and 8 (**100; 200; 300; 400; 500; 800**) it was a noticeably bluer silty clay (5BG 4/1) that very occasionally contained bivalve shell, fragments of wood and animal bone.

A second, lower fill of this feature was recorded in pits 1 to 5. This unit (**101; 201; 301; 401; 501**) was a grey (10YR 5/1) silt with a gritty feel which was probably occasioned by the amount of complete, fragmented and comminuted bivalve shell it contained. There was insufficient time to excavate to the bottom of this unit. Its surface lay between 0.91m and 0.97m OD in pits 1 to 4 but dipped towards the south east to 0.82m OD in pit 5; the lowest value recorded was 0.77m OD in pit 5. The percentage of visible, coarse inclusions increased markedly to the south west across the site and in addition to the shell contained fragments of wood and a hazel nut shell (**501**).

All the skeletal remains from both this and the earlier salvage excavation were recovered from units that appeared to be contained within the depression **003**.

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A Site of salvage excavation trench, April 1998.

S Palaeoenvironmental sampling site.

Note: The scale of the site plan 1.2 and the profile 1.3 are the same.

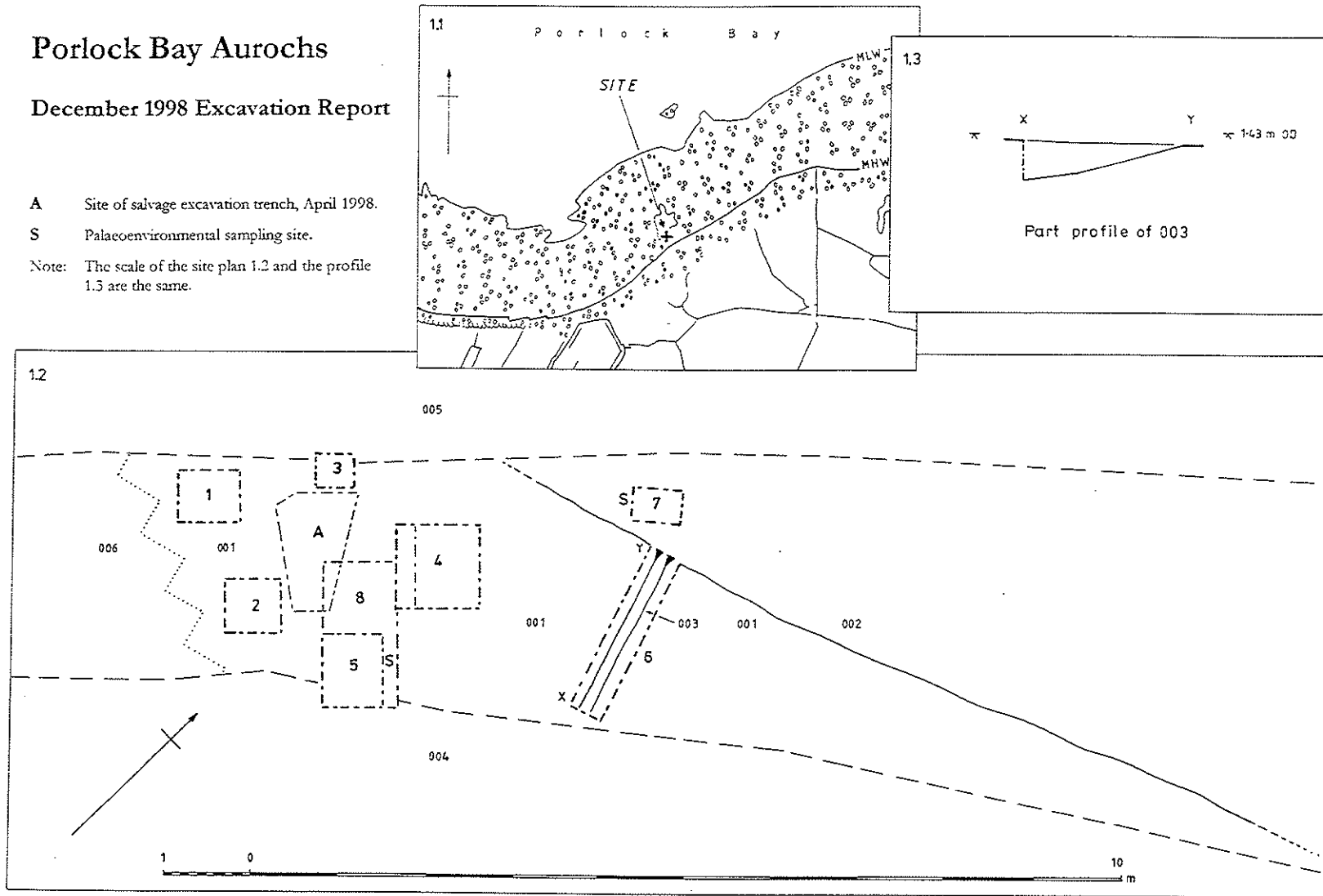


Figure 1. Location plan, site plan and profile of depression 003

RECOVERED MATERIAL

The material recovered from the site included, animal bone, a hazel nut shell and sediment samples for palaeoenvironmental analysis.

The animal bone included fragments from unit **400** at 1.17m OD, a tooth from unit **500** at 1.27m OD and two small pieces of rib from unit **800** at 1.27m OD. This material has yet to be identified.

The hazel nut shell, in two pieces, came from unit **201** at 0.92m OD.

The palaeoenvironmental samples included both monoliths and bulk samples from pits 5 and 7. For details see Table 3.

DISCUSSION

Any interpretation of the depression **003** based on the information obtained during this undertaking will necessarily be an interim one. With only one side confidently plotted the feature might represent the edge of a palaeochannel, a lagoon or even, though less likely, a wave cut feature.

The aurochs bone and the bone recovered during this excavation were all within the upper surviving horizons of the dark greenish grey silty clay **001** and its equivalent pit units (see Table 2); no bone was recovered from below 1.07m OD. Bone from the salvage excavation in April was not recorded below 1.04m OD.

A provisional interpretation of the site, based on the two small scale excavations that have taken place, is that the remains of an aurochs lie within the upper silts of a possible palaeochannel or some other water related feature. The beast may have fallen into the channel while grazing, on what was probably a salt marsh, and drowned. That parts of the animal were found in articulated sections, albeit in one small area, raises the possibility that a dead animal may have been transported in decomposing sections along the course of a channel. It is perhaps notable that no *Phragmites* rhizomes were recorded during this excavation but the remains of rhizomes were found in close association with the skeleton during the salvage excavation in April.

There was insufficient time to investigate the undifferentiated alluvium **006** on the south west side of the site. It was seen to contain visible surface features that may be evidence of another side to the putative palaeochannel while even further to the south west there was the suspicion that there may have been another channel defined on the surface by colour difference in the alluvium. On some parts of the surface, outside the possible channel, there were scattered patches with a high organic content that might provide a radiocarbon date. These may be the remains of the upper horizons of a stabilisation layer or palaeosol which have eroded away elsewhere (Vanessa Straker, *pers comm*).

CONCLUSION

The possibility that the remains of an aurochs lies within a palaeochannel, or some other water related system, suggests that more of the skeleton may be present at other locations on the beach where the fill of the depression has not been significantly eroded. Rather than bringing this element of the archaeology of Porlock Bay to a conclusion, by recovering all of the aurochs remains, the excavation has identified the possibility that not only may more of the beast be present on other parts of the beach but that it is likely to be within a visibly identifiable, Early Bronze Age feature. Further work is required to understand exactly what this feature is and to determine its extent, particularly within the area that is currently subject to erosion.

The deposits to the south west of the site (006) and the possibility of a further, additional palaeochannel need to be investigated. A surviving palaeochannel with a possibly associated palaeosol suggest that there may be significant elements of an Early Bronze Age landscape surviving on the foreshore in Porlock Bay. This would be a unique, intertidal survival on the English side of the Bristol Channel - Severn Estuary. The patchy and eroded nature of the possible palaeosol and its current vulnerable exposure in such a dynamic geomorphological environment means that further assessment and evaluation are required as soon as possible.

In addition to the recommended assessment and evaluation, monitoring of this section of the beach should continue to be included in any future programmes of surveillance of the shingle ridge. Particular attention should be paid to the exposures of alluvium between the seaward edge of the shingle ridge (004) and the mobile deposits of cobbles (005). A more durable system of datum and marker pegs needs to be installed so that records from casual or programmed monitoring can be conveniently mapped over a wider area than the original find spot of the aurochs skeleton.

ACKNOWLEDGEMENTS

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Other acknowledgements are due to Nigel Hestor of the National Trust, for his discussion on the site and for organising the funding of the radiocarbon date; Mark Blathwaite who owns the foreshore on this part of the Bay; Vanessa Straker, of the University of Bristol and English Heritage, for her discussion of the palaeoenvironmental potential of the site, for taking the sediment samples and for co-ordinating the palaeoenvironmental aspects of the excavations; Dale Serjeantson, of the University of Southampton, for identifying the aurochs bone from the salvage excavation in April; and finally Keith Faxon and Nick Berry for their help with the excavation in the wet, muddy and generally awkward circumstances that attends digging and site recording in an intertidal area.

TABLE 1: RECORDED UNITS

No.	pit	particle size	colour	OD		comments
				top	bottom	
001	site	silty clay	5BG 4/1	>1.35m	<1.21m	contains shell and wood fragments
002	site	gritty silt	10YR 4/1	>1.01m	-	-
003	site, 7	-	-	-	-	depression
004	site	cobbles	-	-	-	shingle ridge material
005	site	cobbles	-	-	-	mobile beach deposits
006	site	alluvium	-	-	-	undifferentiated units 001 and 002
100	1	silty clay	5BG 4/1	1.21m	0.91	-
101	1	gritty silts	10YR 5/1	0.91m	0.81m-	contains 2-5% shell fragments
200	2	silty clay	5BG 4/1	1.29m	0.94m	-
201	2	gritty silts	10YR 5/1	0.94m	0.89m-	contains 2% shell frags, hazel shell
300	3	silty clay	5BG 4/1	1.26m	0.96m	-
301	3	gritty silts	10YR 5/1	0.96m	0.88m-	no shell recorded
400	4	silty clay	5BG 4/1	1.27m	0.97m	bone frags at 1.17m OD
401	4	silts	10YR 5/1	0.97m	0.87m-	no shell recorded
500	5	silty clay	5BG 4/1	1.37m	0.82m	tooth at 1.27m OD
501	5	silts-cobbles	-	0.82m	0.77m-	contains shell fragments
600	6	silt	5G 4/1	1.33m	0.87m-	fill of 003
700	7	silty	10YR 4/1	-	-	-
800	8	silty clay	5BG 4/1	-	-	rib fragments at 1.27m OD

TABLE 2: SUMMARY OF SITE UNITS

Item	Unit	Equivalent units
fill of depression	001	100; 200; 300; 400; 500; 600; 800
deposits cut by depression	002	700
depression	003	-
shingle ridge cobbles	004	-
mobile beach cobbles	005	-
undifferentiated surface	006	-
lower fill of depression	-	101; 201; 301; 401; 501

TABLE 3: PALAEOENVIRONMENTAL SAMPLES

pit	type	size	from surface	ODm
5	monolith	0-500mm	0-500mm	1.37-0.87
5	bulk	c.2kg	0-100mm	1.37-1.27
			100mm-200mm	1.27-1.17
			200mm-300mm	1.17-1.07
			300mm-400mm	1.07-0.97
			400mm-500mm	0.97-0.87
7	monolith	0-360mm	0-360mm	1.29-0.93
7	bulk		0-100mm	1.29-1.19
			100mm-200mm	1.19-1.09

APPENDIX 1

SAMPLING PITS REPORT

Pit 1

The purpose of this pit was to sample the area to the west of the original find spot for more bone. It was dug 1m to the west of the April 1998 excavation and was 0.50m by 0.66m by 0.40m deep.

It was cut into the surface of the dark greenish grey (5BG 4/1) clay **001** which was numbered as unit **100** in this pit. This unit extended from the surface at 1.21m OD for 300mm down to 0.91m OD and contained very occasionally small fragments of wood and bivalve shells.

Below the clay **100** lay **101** a deposit of grey (10YR 4/1), gritty silts containing between 2% and 5% of whole and fragmented bivalve shell. It seems probable that the comminuted shell gave the unit its gritty feel. The surface of this deposit was at 0.91m OD and it was excavated for 100mm down to 0.81m OD but was not bottomed.

Pit 2

The purpose of this pit was to sample the area to the south of the original find spot for more bone. It was dug 1m to the west of the April 1998 excavation on the south side of, and contiguous with, the earlier pit and was 0.60m by 0.52m by 0.40m deep.

It was cut into the surface of the dark greenish grey (5BG 4/1) clay **001** which was numbered as unit **200** in this pit. This unit extended from the surface at 1.29m OD for 350mm down to 0.94m OD and contained very occasionally small fragments of wood and bivalve shells.

Below the clay **200** lay **201** a deposit of grey (10YR 4/1), gritty silts containing up to 2% of whole and fragmented bivalve shell and occasionally small fragments of wood. Part of a hazel nut shell was recovered from this deposit.

It seems probable that the comminuted shell gave the unit its gritty feel. The surface of this deposit was at 0.94m OD and it was excavated for 50mm down to 0.89m OD but was not bottomed.

Pit 3

The purpose of this pit was to sample the area to the north west of the original find spot for more bone. It was dug 0.20m to the west of the April 1998 excavation and was 0.50m by 0.40m by 0.38m deep. The pit was flooded throughout most of its excavation.

It was cut into the surface of the dark greenish grey (5BG 4/1) clay **001** which was numbered as unit **300** in this pit. This unit extended from the surface at 1.26m OD for 300mm down to 0.96m OD.

Below the clay **300** lay **301** a deposit of grey (10YR 4/1), gritty silts which did not contain any visible bivalve shell or wood. The surface of this deposit was at 0.96m OD and it was excavated for 80mm down to 0.88m OD but was not bottomed.

Pit 4

The purpose of this pit was to sample the area to the north east of the original find spot for more bone. It was dug 0.50m to the north east of the April 1998 excavation and was 1m by 1m and was stepped to 200mm deep on the south west side and 400mm deep on the north east side.

It was cut into the surface of the dark greenish grey (5BG 4/1) clay **001** which was numbered as unit **400** in this pit. This unit extended from the surface at 1.27m OD for 300mm down to 0.97m OD. Fragments of bone were recovered

from the south west, stepped section, of the pit 100mm below the surface at 1.17m OD.

Below the clay 400 lay 401 a deposit of grey (10YR 4/1), gritty silts that did not contain any visible bivalve shell or wood. The surface of this deposit was at 0.97m OD and it was excavated for 100mm down to 0.87m OD but was not bottomed.

Pit 5

The purpose of this pit was to sample the area to the south east of the original find spot for more bone and to provide a palaeoenvironmental sampling station close to but undisturbed by the earlier excavation. It was dug 0.50m to the south east of the April 1998 excavation and was 0.70m by 0.9m by 0.60m deep. It was later extended as pit 8 to the north west to expose the original excavation pit of April 1998 and to join up with pit 4.

It was cut into the surface of the dark greenish grey (5BG 4/1) clay 001 which was numbered as unit 500 in this pit. This unit extended from the surface at 1.37m OD for 550mm down to 0.82m OD. A tooth was recovered from the unextended pit 100mm below the surface at 1.27m OD.

Below the clay 500 lay 501 a deposit of grey (10YR 4/1), gritty silts which contained broken shell and beach cobbles up to 140mm. The surface of this deposit was at 0.82m OD and was excavated with difficulty for 50mm down to 0.77m OD but was not bottomed.

Pit 6

The purpose of this pit was to provide a partial profile across the edge of the feature 003, provisionally identified in the field as a palaeochannel, and to record the stratigraphy of the fills. It was dug 3m to the east north east of the April 1998 excavation at right angles to the line defined by the edge of units 001 and 002 and was 1.80m by 0.40m and dug to a maximum depth of 0.46m.

The deposit 001, here numbered 600 and defined as silt, overlay 002 and was excavated to reveal the shallow, sloping surface of unit 002 forming the side of the putative channel. The colour of unit 600 was markedly greener (5G 4/1) than the equivalent deposits 500 (5BG 4/1) in pit 5 though no surface junction, merging or otherwise, could be identified.

Pit 7

The purpose of this pit was to provide a sample of alluvium from unit 002 as a control sample for those samples taken in unit 501 in pit 5 within the fill of the putative palaeochannel 003. It was dug 3.5m to the north east of the April 1998 excavation and was 0.50m by 0.60m by 0.30m deep. The pit was flooded throughout most of its excavation.

The only unit recorded were the silts 002, here numbered 700, which were dark grey (10YR 4/1) with no other inclusions.

Pit 8

This pit was an extension of pit 5 and was designed to locate the April 1998 excavation pit and to join up with pit 4. It was dug to a maximum depth of 0.30m from the surface.

The only unit recorded was 800 a dark greenish grey (5BG 4/1) silty clay. Two sections of rib were recovered at 1.27m OD.