



LINDSEY ARCHAEOLOGICAL SERVICES

**Tumby Quarry
Tumby, Lincolnshire**

NGR: TF 5236 3602 (centre)
Planning Application: (E)S189 & 176/1353/99; (E) S189/1248/00
Site Code: TMB 04
LCNCC Accn No.: 2004.195

Archaeological Excavation

Report for

Woodhall Spa Sand and Gravel Ltd

By

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LAS Report No: 798
March 2005

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Contents

List of Figures

List of Plates

Summary	1
Introduction	1
Site Location and Description	1
Planning Background	1
Archaeological Background	2
Summary of Previous Archaeological Investigations	2
Aims and Objectives	3
Method	3
Results	4
Discussion	5
Conclusion	5
Acknowledgements	6
References	6
Contents of the Site Archive	6
Appendix 1: Context Summary	
Appendix 2: Lithic Materials report by Jim Rylatt	
Figures	
Plates	

List of Figures

- Fig.1 Location of land at Tumby (inset C based on the 2000 Ordnance Survey 1:25 000 map Explorer 273. Crown copyright, reproduced with the permission of the Controller of HMSO. LAS Licence no. AL 100002165.
- Fig. 2 Location of excavation area in relation to quarry
- Fig. 3 Location of excavation trench in relation to previous work
- Fig. 4 Plan of excavation
- Fig. 5 Selected sections
- Fig. 6 Selected sections
- Fig. 7 Section through Palaeochannel

List of Plates

- Pl. 1 General view of site, looking east. Scales 2m
- Pl. 2 Ditch 103, section, looking northwest. Scale 0.50m
- Pl. 3 Pit 107, section, looking south. Scale 0.50m
- Pl. 4 Posthole 108, section, looking west. Scale 0.10m
- Pl. 5 Pit 112, section, looking west. Scale 0.50m
- Pl. 6 Pit 114, section, looking north-east. Scale 1m
- Pl. 7 Pit 121, section, looking south-east. Scale 0.50m
- Pl. 8 Pit 110, section, looking north-west. Scale 0.50m
- Pl. 9 Section through palaeochannel, looking south. Scale 2m

Tumby Quarry, Lincolnshire
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Summary

Excavation of the sand 'island', north of the former course of the River Bain failed to reveal any significant archaeological remains. However the presence of plough furrows showed the processes which may have removed or truncated archaeological data. This excavation is part of a continuing scheme of archaeological work which included fieldwalking, evaluation and excavation of the area which has already produced 7202 flints. A further 41 worked flints were found within the topsoil which suggest that the site had been a location of flint working during the late Mesolithic/early Neolithic periods but was unlikely to represent an area of occupation. The presence of a palaeochannel on the east of the site is may represent an earlier course of the River Bain which was superseded by the construction of the Horncastle Canal in the 18th century.

Introduction

Lindsey Archaeological Services was commissioned by Woodhall Spa Sand and Gravel Ltd to undertake an archaeological excavation at the Tumby site (Fig. 1). The work was carried out in accordance with the general requirements set out in *Lincolnshire Archaeological Handbook* published by the Archaeology Section, Lincolnshire County Council (1998). Work commenced 23rd August and was completed 6th September 2004.

Site Location and Description

The site lies to the west of Tumby village 10km south-west of Horncastle, at a height of around 10m O.D. It is bounded to the west by the course of the Old River Bain, and to the east by the River Bain. The earlier course of the River Bain which flows through the site is partly followed by the parish boundary between Tumby and Tattershall Thorpe.

Planning Background

Woodhall Spa Sand and Gravel Ltd applied for planning permission to extract sand and gravel on land at Tumby application nos. (E)S189 & 176/1353/99. A further application was made for the temporary storage of topsoil and subsoil on land between the River Bain and east of the proposed mineral extraction site, application no. (E) S189/1248/00. A request was made by the Highways & Planning Directorate (dated September 30th 2002) following submission of a report on further archaeological evaluation of the area submitted by Lindsey Archaeological Services in July 2002.

Subsequent to submission of the report by LAS in July 2002 the Archaeology Section of the Highways and Planning Directorate recommended further archaeological excavation in the areas of densest flint

deposits on both sand islands. It is suggested that larger scale excavation might succeed where evaluation trenching failed to positively identify Neolithic features.

Excavation of two areas up to 50m x 50m was requested, one on each sand island where the concentrations of flint were the greatest. It was further agreed that if no features were revealed after an area of 25m x 50m had been stripped under strict archaeological supervision, then the remaining area could be abandoned. However, both north and south sand islands are to be investigated in this way (Fig. 2).

Any features be revealed would be hand cleaned followed by full recording and excavation as appropriate.

Archaeological Background

A survey of mineral extraction and its impact upon archaeological sites in North Lincolnshire in 1976 (Field 1977) identified the lower Bain Valley area as one of considerable archaeological potential. This led to excavations at West Ashby in 1977 (Field 1985) and Tattershall Thorpe, Iron Age enclosure in 1980 (Chowne et al. 1986) and 1986 (Chowne 1986); Tattershall Thorpe, Neolithic settlement in 1981 (Chowne et al. 1992) and West Ashby in 1984. More recently excavations at Grange Farm Quarry, Kirkby on Bain have revealed extensive evidence for Neolithic occupation (Field 1995 and Taylor 1996, McDaid forthcoming).

Other archaeological remains in the area include a concentration of Bronze Age metalwork from Tattershall Thorpe village which, although too far away from the present site to have a direct impact, does indicate that the area continued to be settled in this period. Iron Age enclosures near Tattershall Airfield are some of the most important in Lincolnshire.

Roman occupation in the area is less clear with few dated finds. Roman pottery has been found in the top fills of Iron Age ditches and a coin hoard was found in quarry workings at Tattershall Thorpe. It is likely that at least some of the cropmarks recorded in the area are Roman in date.

Only two finds of Anglo-Saxon date have been found in the area but one of these is of international importance; a 6th century smith's grave found during excavation of the Neolithic site at Tattershall Thorpe (Chowne 1986).

Summary of Previous Archaeological Investigations (Fig. 3)

A phased programme of investigation has been undertaken since 1998. The first stage was a fieldwalking survey (Field and Williams, 1998). 716 flints, of largely Neolithic date with a small Bronze Age component were recovered. No Mesolithic flints were identified. The raw material comprised local flint pebbles while the flint distribution suggested that flint working was taking place on both sides of a meandering valley which was a former course of the river Bain with flint concentrations being confined to areas of higher sandy ground which protruded from alluvial deposits which covered the lower lying

ground. The alluvium covered a series of palaeochannels which were former courses of the River Bain.

An archaeological evaluation was undertaken in 1999 to establish whether archaeological remains survived, particularly in areas where remains might be preserved below the alluvial deposits in the lower reaches of the valley (Field, McDaid, 2000). Three trenches were positioned across, and at either side, of a palaeochannel (Fig. 2). While 184 flints were retrieved no prehistoric land surfaces or Neolithic features were revealed. The results suggested that the land on either side of the river course was used primarily for manufacture of flint tools rather than domestic occupation, with material from all stages of manufacture but only a small number of finished tools represented in the assemblage. The evaluation did however establish that the valley floor contained organic deposits with a high palaeoenvironmental potential. Carbon 14 dates obtained from the palaeochannels of 2835-2340BC established that they were of Neolithic and Bronze Age date, broadly contemporary with the work flint retrieved from the flanking higher ground..

A second evaluation was undertaken in 2002 (McDaid, 2002) involving a programme of more intensive fieldwalking and additional excavation (Fig. 2). Over 5000 flints were found, confirming the concentrations of activity within the general scatter on the north sand island and a lighter flint scatter on the south island already identified during the earlier programme of fieldwalking. The flints represented activity ranging from late Mesolithic to the early Bronze Age.

The purpose of the excavation was to examine an area of ground with a low density of worked flints on the plough surface to see if features survived any better than in the previously investigated areas with a high surface density of flints. Despite the presence of various shallow features none could be dated conclusively to the Neolithic period.

Aims and Objectives

The purpose of the current programme of excavation was to positively identify prehistoric features associated with the period of flint production. It was carried out as a condition of the planning permission.

Method

The excavation trench measuring 25m x 50m was excavated using a 360° excavator with a toothless dyking bucket, to the first archaeological horizon. All machine excavation was monitored by an experienced archaeologist. Archaeological recording was carried out by a team of four experienced archaeologists, including a Site Director. A full written (single context) and photographic record was made of the site, including site plans at a scale of 1:50, along with 1:10 scale sections of individual features.

The trenches were hand-cleaned to reveal features in plan and carefully selected cross-sections

through the features were excavated to obtain enable sufficient information about form, development date and stratigraphic relationships.

Results (Fig 4)

Natural features/Palaeochannels

Machine stripping of the topsoil **100**, a brown grey sand, revealed the natural layer **101** at a depth of 0.40m. The natural was a brown orange medium sand with flint inclusions and occasional lenses of clay and patches of compact sand. Running along the east of the site was deposit **122** a medium grey sand which represented the upper fill of a north/south aligned palaeochannel. This channel was investigated by means of an east/west orientated machine-excavated trench located at the east end of the site (Pl. 9).

Plough furrows

Frequent plough furrows were revealed cutting the sand natural **101** (Fig. 4). The furrows were more clearly visible at the west end of the site but were present throughout. Three general orientations of ploughing were identified, the most frequent being furrows aligned north/south and northwest/south east. Furrows were also recorded running northeast/southwest. Evidence of tree rooting and animal activity were also present on site. The presence of furrows showed the impact of agricultural activity on the area and, along with the ground soil conditions, may explain the relative absence of archaeological features compared to the high number of flint artifacts found in the topsoil. The ploughing will also have affected the location of flint finds within the topsoil and must be considered when plotting and interpreting flint artifacts.

Excavated features

Nine features were revealed on site and all were located along, or near, to the northern edge of the site. Running parallel to the north edge was the linear ditch **103**, which contained the fill **102** (Fig. 4, Pl. 2). This entered the site from the west and ended near the centre of the site, where it was very shallow. It was 0.65m wide and 0.22m deep with steep sides and a flat base, the fill **102** was a compact mid orange brown sand. No finds were revealed so the function or date of this feature is unknown however it had been cut by numerous plough furrows suggesting it is not modern.

*undated/
not modern
ditch*

To the north of this in the west of the site were two pits **105** and **107** (Fig. 5, Pl. 3). **105** was a shallow sub-circular pit which contained the pale brown sand **104** and contained two small flints. Immediately north of this was the slightly larger pit **107**, oval in plan it was 0.69m x 0.26m and 0.56m and contained an orange brown sandy silt **106**. The presence of the flints may date these pits to the Neolithic period.

*2
neo pits.*

To the east, three smaller features were revealed including two possible shallow postholes, **108** and **110** (Fig. 5). **108** (Pl. 4) was circular with a shallow concave profile and contained a mid grey silty sand **109**. **110** was oval also with a shallow concave profile and contained a similar fill **111** (Pl. 8). Just west of these was **112** a shallow sub oval pit containing a light grey silty sand **113** (Fig. 5, Pl. 5).

*undated
3x pits?
1x pit*

South of ditch 103 were four features (Fig. 5). 118 and 114 were both shallow pits containing light yellow brown sand 117 and 115 (Pl. 6). West of this were pits 119 and 121 (Pl. 7) which contained fills 118 and 120, these are however more likely to represent natural variation or root disturbance.

4x pits
natural

Flint artifacts

41 pieces of struck or modified flint were retrieved during the excavation, the majority of which date to the late Mesolithic or early Neolithic period, with two possible Bronze Age pieces. The nature of the flint suggests it was sourced from the site or its immediate environs where it had been deposited by glacial and fluvial activity. The flint could have been collected from river banks or tree throws or by digging into the surface of outcropping gravel beds. The majority of the flint assemblage was, however, derived from the topsoil suggesting that recent ploughing has disturbed any underlying stratified deposits and removed any associated archaeological features

Discussion

The 2004 excavations confirmed the findings of the previous evaluation and excavations which suggest that no significant remains survive beneath the topsoil whether in areas of dense or sparse flint scatters. The intensity of modern ploughing was evident in the numerous plough scores recorded during the excavations. The majority of the flint pieces recovered from this excavation (68.9%) were in a fresh or relatively good condition suggesting that a large proportion of the assemblage had been contained within features or prehistoric soil horizon and were probably only truncated by modern ploughing activity. The lack of prehistoric features is either due to their removal by ploughing or that the activity associated with the flint manufacture did not leave any significant remains.

Over 7000 (7243) flints have now been recovered during earlier excavation and fieldwalking on the site since 1998, which forms one of the largest group of worked flints to have been collected in Lincolnshire. While there is a Mesolithic/Early Neolithic component in the assemblage the main focus of activity appears to have been in the later Neolithic/Early Bronze Age. This nevertheless indicates a continued exploitation of the raw flint material along the former banks of the River Bain. The shifting course of the river Bain and the likelihood of seasonal flooding, may also explain why it may not have been a suitable location for occupation. However the richness of the resources, such as the raw flint as well as fish, fowl, reeds growing on the river banks, etc. may explain why the area was a focus of activity. It is possible that temporary or seasonal camps which were present may have only left scant traces. Further investigation of the environmental remains contained within the former palaeochannels is the subject of a separate programme of work being undertaken by James Rackham and may throw further light on the exploitation of this part of the valley in the prehistoric period.

Conclusion

While the high level of flint finds indicates that flint tools had been manufactured in the area during the prehistoric period, all stages of archaeological work have revealed an almost complete absence of

buried features. The fresh state of the flint suggests that features may have been present until recently and the intense level of modern agricultural activity has almost completely destroyed the small number of features that were present. The importance of the site however is not in the presence of prehistoric features but in the large assemblage of worked flint, which merits more detailed academic research which lies outside the scope of the planning process.

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Lindsey Archaeological Services
March 2005

Acknowledgements

LAS would like to thank Woodhall Spa Sand and Gravel Ltd for their help. The lithics report was by Jim Rylatt. This report was edited and collated by Naomi Field.

Reference

- Williams, M. and Field, N; 1998. *Land at Tumby, Lincolnshire. Fieldwalking Survey*, LAS report 353
- McDaid, M. and Field, N. 2000. *Land at Tumby, Lincolnshire. Archaeological Evaluation*, LAS report 424
- McDaid, M. 2002. *Land at Tumby, Lincolnshire. Archaeological Evaluation II*, LAS report 603

Contents of Site Archive

Context sheets: 22
Plans: 8
Sections: 8
Correspondence
Photographs: LAS film nos. 04/102, 04/98, 04/99, 04/106
Specialist reports: Lithic Materials by Jim Rylatt

APPENDIX 1

Appendix 1

Tumby, Lincs (TMB 04) Context Summary

Context No	Type	Description	Finds
100	Layer	Topsoil: Brown grey medium sand, with flint inclusions	Yes
101	Layer	Natural: Brown orange medium sand with flint inclusions	
102	Fill of 103	Mid orange brown sand	
103	Cut	East/west linear ditch	
104	Fill of 105	Light brown sand	Yes
105	Cut	Pit	
106	Fill of 107	Orange brown sandy silt	
107	Cut	Pit	
108	Cut	Posthole	
109	Fill of 108	Mid grey silty sand	
110	Cut	Pit	
111	Fill of 110	Light grey silty sand	
112	Cut	Pit	
113	Fill of 112	Light grey silty sand	
114	Cut	Pit	
115	Fill of 114	Yellow brown sand	
116	Cut	Posthole	
117	Fill of 116	Yellow brown sand	
118	Fill of 119	Grey brown sand	
119	Cut	Pit	
120	Fill of 121	Yellow brown sand	
121	Cut	Pit	
122	Layer	Light brown grey medium sand	

APPENDIX 2

**Tumby Quarry, Tumby, Lincolnshire
TMB 04**

Lithic Materials: Catalogue and Assessment

Report by Jim Rylatt – November, 2004

1.0 Introduction

This report relates to a small assemblage of lithic material that was recovered during an excavation at Tumby Quarry, Lincolnshire. A total of 41 pieces of struck or modified flint were retrieved, which weighed a total of 194 grams. This assemblage comprised three cores, one core fragment, one burin, one notched flake, one retouched blade, four unmodified secondary flakes, four unmodified tertiary flakes, three unmodified secondary blades, four unmodified tertiary blades, fourteen blade-like flakes and one chip.

2.0 Description

2.1 Raw material

All of the lithic artefacts examined were produced from flint. Where cortical surfaces survived it was possible to establish that the raw materials were derived from secondary deposits; the cores and secondary flakes have areas of thin, abraded cortex. Any relatively large areas of this surface generally had a rounded profile, which indicates that it was sourced from pebbles and cobbles that had been transported and deposited by water. This process limits the size of the constituent nodules, and can also account for the variation in the colour and composition of the components of the assemblage.

Tumby is situated toward the eastern edge of an extensive accumulation of river and glacio-fluvial sheet deposits, which are interleaving layers of sand and gravel (B.G.S., 1995). Almost certainly, it is from the latter that the flint pebbles have been derived, coming either from the site itself, or from its immediate environs. Such pebbles would have been rolled and battered by glacial and fluvial forces prior to their initial deposition, resulting in the thin, irregular and pockmarked nature of their cortex. Additionally, the extreme temperatures experienced in a glacial or periglacial environment are likely to have caused many of the nodules to fracture. This process accounts for the sub-angular, recorticated surfaces evident on a number of the artefacts examined.

The collection of flint from secondary deposits is likely to have been a relatively expedient process. This may simply have involved the inspection of tree throws, or the banks of streams and other adjacent bodies of moving water (Edmonds, 1995). Alternatively, the creation of slight delves into the upper surface of out cropping gravel beds may have proved to be a more reliable means of acquisition, and may possibly account for some of the more irregular earthcut features encountered in the area.

2.2 Condition

Despite the fact that most of the assemblage (95.1%) was recovered from the topsoil, the majority of the pieces were in a fresh or relatively good condition (at least 68.9%). Any post-depositional damage is likely to result from rolling associated with ploughing or other taphonomic processes that cause the bulk movement of sediment. The relative absence of such indicators suggests that much of the assemblage was contained by stratified deposits that were probably only truncated by ploughing within the last decade.

2.3 Characteristics of the assemblage

2.3.1 Cores and core fragments

This assemblage contained three complete cores (7.3%), all of which exhibited traits consistent with Mesolithic to Early Neolithic technologies. The most diagnostic piece was an exhausted type A1 single platform blade core (20) that is indicative of Late Mesolithic microlith production. The other two cores were both of type B2 and had been utilised for the production of both blades and flakes (*A*, *B*). These latter cores were not worked to exhaustion, which potentially reflects the ease with which further flint nodules could be obtained at or near the site. The presence of these blade cores indicates that episodes of core reduction were undertaken on the site during the mid to later Mesolithic and possibly into the Early Neolithic.

Also recovered was a single core fragment from an unpatterned multiple platform core, type Cb (*C*). This piece had been worked in a relatively crude and uncontrolled manner. In particular, the surviving area of one platform had two or three insipient herzian cones, which were the result of miss-hits or blows that had failed to detach a flake. Pronounced negative bulbs of percussion suggested that flakes had been detached with a hard hammer. These traits conform to patterns observed in worked flint of Late Bronze Age and Iron Age date (Young & Humphrey, 1999), and as such the piece may have been created toward the end of the 2nd or in the 1st millennium BC. However, some of the scars seemed to indicate that there had been an intention to create parallel-sided blade-like flakes. If so, this would be more indicative of later Mesolithic to early Neolithic activity. Consequently, there is an intriguing possibility that this piece may have been detached from a nodule being used as a practice piece by a child¹.

2.3.2 Flakes

There were 32 unmodified flakes (78.0% of the total assemblage), of which there were 12 secondary and 20 tertiary removals. Many of the flakes can be classified as blades, or result from associated 'narrow flake' reduction technologies (65.9% of total assemblage). These artefacts exhibit signs of having been removed from prepared cores that generally had single or two platforms. Additionally, some of the other less diagnostic flakes show signs of precise and controlled removal and are probably core trimming flakes.

The majority of the blades and narrow flakes have flat platforms, many of them very small. Furthermore, most of the bulbs of percussion are diffuse or relatively diffuse. This almost certainly indicates that they were produced by soft hammer (e.g. antler) or pressure techniques. Finally, there is a very high incidence of feathered terminations. These attributes

¹ Although far from conclusive, circumstantial support for the latter scenario may come from the fact that there was no other material diagnostic of LBA/IA flint knapping, and that the relative abundance of raw material would have made this an ideal area for teaching techniques of lithic reduction and stone tool manufacture.

indicate that the flint was worked in highly controlled ways, again characteristic of the earlier post-glacial technologies.

The proportion of complete cores to flakes is 1: 12.

2.3.3 *Retouched flakes, tools and modified flint*

The assemblage contains 3 items (7.3%) that have either been transformed into tools (4.9%) or have been modified with minimal retouch (2.4%). In addition there was one unmodified blade-like flake (22) that had edge gloss indicative of use-wear. Although the presence of thinning flake 17 indicates that at least one tool was fabricated in the immediate area, the low incidence of tools and utilised pieces suggests that the manufacture and use of finished tools was not a significant component of the activities undertaken in the immediate environs of this site. Rather, the evidence suggests that this locality was primarily utilised for the preparation of cores and the creation of flake/blade blanks that could be carried away for use elsewhere.

The notched flake (124) was probably used in bone or wood working, and is thought to have been employed like a spoke-shave - for example it could have straightened small branches (e.g. for use as arrow shafts) or removed bark from withies used for basket-making.

The burin (*D*) appears to have a particularly interesting history. It is a relatively thick flake from a small type B1 core that had produced microlithic blades. The surviving section of one platform edge has abrupt retouch suggesting that it was briefly used as core scraper prior to the flake being detached. Following the initial creation of the flake the other platform edge and the bulb were removed, and the adjacent area of one lateral edge was 'backed' or blunted by abrupt retouch. At the same time, a small burin facet was created on the opposing section of the other lat edge. It is thought that burins were used as engraving tools for the creation of grooves and slots in wood, antler and bone.

Very little of the flint recovered was burnt. There were only 2 or 3 such pieces in the whole assemblage (up to 7.3%). Nevertheless, the presence of burnt material indicates that a number of fires or hearths must have been created in the immediate vicinity of the site during the Mesolithic to Early Neolithic period.

3.0 Discussion and conclusions

The vast majority of this small assemblage consisted of blades, blade-like flakes and other flakes with parallel scars on their dorsal faces (70.7%), which would all have been produced from type A and B cores comparable to those found on the same site (7.3%). These morphological traits attest to highly controlled patterns of working that are indicative of Mesolithic to early Neolithic technologies; this bias toward earlier technologies may be even higher, as a further 17.1% of the assemblage did not possess chronologically diagnostic attributes.

Only two items possessed qualities that suggested they resulted from later activity (*11* & *C*). Flake *11* conforms to the later Neolithic/early Bronze Age tradition, while core fragment *C* may be of Late Bronze Age to Iron Age date (but see also 2.3.1, above).

Overall, the composition of the assemblage suggests that there may have been some earlier Mesolithic activity, but the main period of activity took place during the later Mesolithic, with visitations continuing into the early Neolithic. The small number of artefacts and the general absence of tools suggests that there was no sustained activity or occupation,

and as a consequence this is probably debris produced and deposited at a succession of small, temporary camps.

5.0 References

B.G.S. 1995 *Horncastle, England and Wales Sheet 115*. Solid and Drift Geology. 1: 50,000 Provisional Series. Keyworth, British Geological Survey.

Edmonds, M. E. 1995 *Stone Tools and Society*. London, Batsford.

Young, R. & Humphrey, J. 1999 Flint use in England after the Bronze Age: a time for a re-evaluation? *Proceedings of the Prehistoric Society* 65: 231-242.

TMB 04

Catalogue of worked and modified lithic materials:

| Key to abbreviations:

Type	(P) (S) (T)	Primary Secondary Tertiary
Date	Mes L.Mes E.Neo Neo BA	Mesolithic Late Mesolithic Early Neolithic Neolithic Bronze Age
Size	comp incomp.	complete – (if so, dimensions given*) Incomplete
Recort	(recorticated)	Yes Partly
Burnt	poss	Yes Possible
Retouch	poss u/w	Yes Possible Use-wear
Platf	(platform) abrad comp cort crush	abraded complex cortical crushed
Bulb	diff. pron sm.pr v.sm.pr	diffuse pronounced small pronounced very small pronounced
Term	(termination) feath hinge step	feathered hinged stepped
P-dep damage	(post-depositional damage) poss	Yes Possible

Comments

b-l	blade-like
dep	depositional
dist	distal
frag	fragment
IA	Iron Age
irreg	irregular
lat	lateral
LBA	Late Bronze Age
platf	platform
poss	possible/possibly
post-dep	post-depositional
prep	preparation
prob	probable
prox	proximal
v	very

*Measurements are given only for complete flakes. The first figure relates to the maximum length, measured perpendicular to the striking platform; the second to maximum breadth, measured at a right angle to the length. Figures for the percentage of cortex relate to the total area of the dorsal surface and platform.

TMB 04: worked and modified lithic materials

SF no.	C'text no.	Type	Date	Weight (g)	Size (mm)	Recort.	Burnt	Retouch	Platf	Bulb	Term	P-dep damage	Comments
1	100	blade-like flake (T)	Mes/E.Neo	<0.1	19x7	yes			flat	diffuse	step	no	v small b-l flake, prob result of platf edge prep/maintenance
2	100	blade-like flake (T)	L.Mes/E.Neo	1.6	29x12	partly	yes		flat	diffuse	hinge	poss	crested blade/b-l flake; partly calcined, with pot-lids detached; part of distal end removed, but prob occurred prior to burning
3	100	blade (T)	Mes/E.Neo	2.9	37x18	yes			flat	v.sm.pr	feath	yes	blade with slightly irreg termination - dist end suggests type A core worked on anvil; post dep damage to margins; brown translucent flint
4	100	blade-like flake (T)	Mes/E.Neo	0.4	27x10	partly			flat	v.sm.pr	feath	no	small & slightly irreg b-l flake, prob result of platf edge prep/maintenance; greyish-brown translucent flint
5	100	blade (S)	L.Mes/E.Neo	2.6	48x12	yes			flat	v.sm.pr	feath	no	long narrow blade, with area of thin abraded cortex at dist end 1 lat edge (15%); platf edge prep, poss by limited abrasion
6	100	blade-like flake (S)	L.Mes/E.Neo	4.6	46x21	partly			flat	sm.pr	feath	no	b-l flake, with broader, irreg dist end, latter cortical - thin, rounded & abraded cortex; poss from type A core, with platf edge prep; brownish-grey translucent flint
7	100	flake (S)		5.1	-	partly		poss			feath		medial & distal frag of flake, prob deliberately truncated; dorsal scars suggest from type B3 core; small area of thin, rounded & abraded cortex (5%); irreg retouch or slight post-dep damage to dist end - uncertain; poss from blade core; greyish-brown translucent flint
8	100	blade-like flake (T)	L.Mes/E.Neo	1.3	20x23	yes			comp	diffuse	feath	yes	small irreg flake, poss core rejuvenation (struck from platf opposed to direction of dorsal scars); from blade core; slight post-dep damage to flake margins
9	100	retouched blade (T)	E.Mes/E.Neo	6.6	49x17	yes		yes	flat	diffuse	feath	yes	crested blade; evidence of platf edge prep; post-dep damage to flake margins, but also evidence of acute retouch to ventral face at dist end of 1 lat edge; form comparable to material from Star Carr (E.Mes), although vent retouch unusual (could also be of E.Neo date)
10	100	blade-like flake (T)	L.Mes/E.Neo	2.3	34x17				flat	sm.pr	feath		prob from type A blade core; crushing/platf prep scars adjacent to small flat platf; pale

TMB 04: worked and modified lithic materials

SF no.	C'text no.	Type	Date	Weight (g)	Size (mm)	Recort.	Burnt	Retouch	Platf	Bulb	Term	P-dep damage	Comments
													brownish-grey translucent flint
11	100	flake (T)	Neo/BA	5.6	-			poss	comp	pron			irreg flake from multi-platform (poss discoidal) core; part of distal end has detached, poss deliberately truncated, while remainder was poss abruptly retouched by removal of spalls; greyish-brown semi-translucent flint
12	100	blade (T)	L.Mes	0.8	-	yes					feath	no	distal end of long & v thin blade of microlithic proportions, prob from B3 core; poss deliberately truncated and discarded
13	100	blade-like flake (S)	L.Mes/E.Neo	0.6	21x12				flat	sm.pr		yes	small, blade-like flake; translucent brown flint; <5% cortex adjacent to platf
14	100	blade (S)	E.Neo	2.7	-	yes					feath	no	dist end of large blade, with irregular margins - deliberately truncated from more reg medial section; thin abraded cortex (25%); greyish-brown translucent flint
15	100	blade-like flake (S)	L.Mes/E.Neo	4.9	47x16	yes			flat	diffuse	feath	yes	slightly irregular b-l flake, with v thin, abraded and rounded cortex along both lat edges (40%) - prob from early stages of core prep; slight chipping of flake margins; brownish-grey translucent flint
16	100	blade (T)	L.Mes	<0.1	-	yes			flat	diffuse		yes	prox frag of small blade - a post-dep break; some platf edge prep; greyish-brown translucent flint
17	100	flake (T)		<0.1	16x15	partly			flat	diffuse	feath		small flake - form and dorsal scars suggest thinning flake from latter stages of manufacture of tool; greyish-brown translucent flint
18	100	flake (S)		5.8	22x37	partly			flat	pron	feath	no	relatively large, broad flake, with 1 smaller but similar removal from dorsal surface - both are hard hammer removals; cortex is thin, rounded and abraded (50%); flake removed during early stages of core prep
19	100	flake (T)	L.Mes/E.Neo	<0.1	19x12	yes			flat	sm.pr	feath	poss	small & slightly irreg b-l flake, prob result of platf edge prep/maintenance; slight post-dep damage to margins
20	100	core	L.Mes	12.4	22x23	partly						no	exhausted type A1 (pyramidal) blade core

TMB 04: worked and modified lithic materials

SF no.	C'text no.	Type	Date	Weight (g)	Size (mm)	Recort.	Burnt	Retouch	Platf	Bulb	Term	P-dep damage	Comments
													(12+ blades), latter of microlithic proportions; greyish-brown translucent flint
21	100	blade (T)	L.Mes	1.1	37x9	yes			flat	v.sm.pr	feath	no	small blade, prob from type A core; brownish-grey translucent flint
22	100	blade-like flake (S)	L.Mes	1.9	29x16	yes		u/w	flat	diffuse	feath		b-l flake from type B core; small area of thin abraded cortex extends down both lat edges (<10%), with exception of dist end of 1 lat edge which has areas of diffuse polish and chipping = use-wear; greyish-brown translucent flint
23	100	blade-like flake (T)	L.Mes	<0.1	20x6	partly			abraded	v.sm.pr	hinge	no	small, narrow b-l flake, prob from blade core; greyish-brown translucent flint
24	100	blade (T)	L.Mes/E.Neo	0.8	-	yes			crush	sm.pr			prox (& medial?) frag of blade, prob deliberately truncated; poss from type A blade core; slight chipping to margins, but appears to have occurred in antiquity
25	100	blade-like flake (T)	L.Mes/E.Neo	3.2	45x15	yes			flat	diffuse	feath	no	slightly irreg b-l flake, prob from type B1 core, with platf edge prep; indent in 1 lat edge reflecting presence of voids within core
26	104	blade-like flake (T)	L.Mes/E.Neo	3.7	31x16	partly			flat	diffuse		no	crested, short b-l flake, prob from type A core; significant platf edge prep; poss step termination, but appears more likely that deliberately truncated - E.Neo? ; poss Wolds flint
101	100	blade-like flake (T)	L.Mes/E.Neo	<0.1	-	yes					hinge	no	medial/distal frag of small b-l flake; poss platf edge prep/maintenance; greyish-brown translucent flint
114	100	chip		<0.1	-	yes						no	small flint frag, with flake surfaces on dorsal & ventral faces; greyish-brown translucent flint
117	100	flake (S)		1.8	27x15				cort	diffuse	feath		small flake, largely cortical - thin, rounded, abraded cortex (75%); early stages of core prep; brown translucent flint
120	100	flake (T)		<0.1	-							poss	prox frag, prob from blade or b-l flake; platf is detached; greyish-brown translucent flint

TMB 04: worked and modified lithic materials

SF no.	C'text no.	Type	Date	Weight (g)	Size (mm)	Recort.	Burnt	Retouch	Platf	Bulb	Term	P-dep damage	Comments
124	100	notched flake (S)	E.Neo	9	48x25	partly		yes	cort.	diffuse		poss	relatively large flake from type A blade core; tip of dist end removed by abrupt retouch, 1 lateral edge cortical (c. 35% of dorsal surface has thin, rounded & abraded cortex), other lat edge has 11mm wide notch created by removal of small, abrupt spalls; brownish-grey translucent flint
126	104	flake (S)		2.7	-	yes					hinge		medial & distal frag of thick, b-l flake; 40% of dorsal surface has thin, abraded cortex, remainder is recorticated; heavy patina on ventral face; prob L.Mes/E.Neo
A	100	core	Mes/E.Neo	51.3	42x29	yes						yes	type B2 core utilising an ovate pebble, with thin, rounded & abraded cortex; one end has been tested by the creation of a small platf & the removal of 3 small irreg flakes - second platf created at other end from which number of larger blades were detached (11+ removals); blades up to 40mm long & 15mm wide, poss E.Neo?
B	100	core	Mes/E.Neo	33	40x35	partly						no	type B2 core, with area of thin abraded cortex; large flakes were removed from one half, while series of blades were detached from other half - blades removed from 2 platfs set at c.150 degrees to each other
C	100	core frag	BA?	11.1	30x34								frag of type Cb core (3+ platfs), with flake surfaces on all sides (13+ removals); has been crudely worked - small area of 1 platf survives, and has insipient herzian cones of 2 or 3 miss-hits, while opposite end has some crushing suggesting core rested on an anvil - ventral surface is v irreg & almost corrugated, while negative bulbs suggest use of hard hammer; some of scars suggest removal of parallel-sided b-l flakes, but others are more irreg - could be a practice piece for a child & poss of L.Mes/E.Neo date, but exhibits many of traits associated with expedient LBA & IA flint knapping; brownish-grey translucent flint
D	100	burin (S)	L.Mes	8.8	30x25		poss	yes	flat	diffuse	hinge	no	relatively thick flake from small type B1 blade core, poss removed for core rejuvenation; surviving platf edge has retouch indicative of

TMB 04: worked and modified lithic materials

SF no.	C'text no.	Type	Date	Weight (g)	Size (mm)	Recort.	Burnt	Retouch	Platf	Bulb	Term	P-dep damage	Comments
													use as core scraper; other platf edge and bulb have been detached, adjacent section of cortical lat edge has been abruptly retouched, while opposing section of other lat edge has small burin facet; cortex thin, rounded & abraded; mid-dark grey semi-translucent flint - bubbly inclusions and greasy lustre poss indicative of heat treatment of core prior to knapping
E	100	blade (T)	L.Mes/E.Neo	0.7	31x10	partly							small slightly irreg blade; some platf edge prep; brownish-grey flint with dark inclusions
F	100	blade (T)	L.Mes/E.Neo	0.5	23x7	yes			flat	diffuse	step		small blade, poss from type A core; some platf edge prep
G	100	blade-like flake (S)	L.Mes/E.Neo	1.6	41x13	partly			crush	sm.pr	step		long, irreg b-l flake from type B1 (or Ca core); probably for core rejuvenation/maintenance, as removes irreg projection caused by negative bulb of hard hammer removal (prob a primary flake); small area of thin abraded cortex; greyish-brown translucent flint
H	100	blade (T)	L.Mes/E.Neo	1.9	-	yes			flat	sm.pr		yes	prox frag of blade with a post-dep break; some platf edge prep; poss E.Neo; brownish-grey translucent flint
J	100	blade (S)	L.Mes/E.Neo	0.7	-		yes					poss	dist end of narrow blade, with thin abraded cortex; heavily burnt with granular structure

TMB 04: worked and modified lithic materials

No. of finds	Type	Date	Weight (g)	Size (mm)	Recort.	Burnt	Retouch	Platf	Bulb	Term	P-dep damage
41	burin 1	L.Mes 7	194.0g	comp 29	yes 20	yes 2	yes 3	flat 21	diff 14	feath 18	yes 8
	notched flake 1	Mes/E.Neo 5		incomp 12	partly 13	poss 1	poss 2	comp 2	v.sm.pr 5	hinge 5	no 16
	retouched blade 1	L.Mes/E.Neo 18					u/w 1	cort 2	sm.pr 7	step 3	poss 5
	flake (S) 4	E.Neo 2						crush 2	pron 2		
	flake (T) 4	Neo/BA 1						abrad 1			
	blade (S) 3	BA? 1									
	blade (T) 8										
	blade-like flake (S) 5										
	blade-like flake (T) 9										
	core 3										
	core frag 1										
	chunk/chip 1										

THE FIGURES

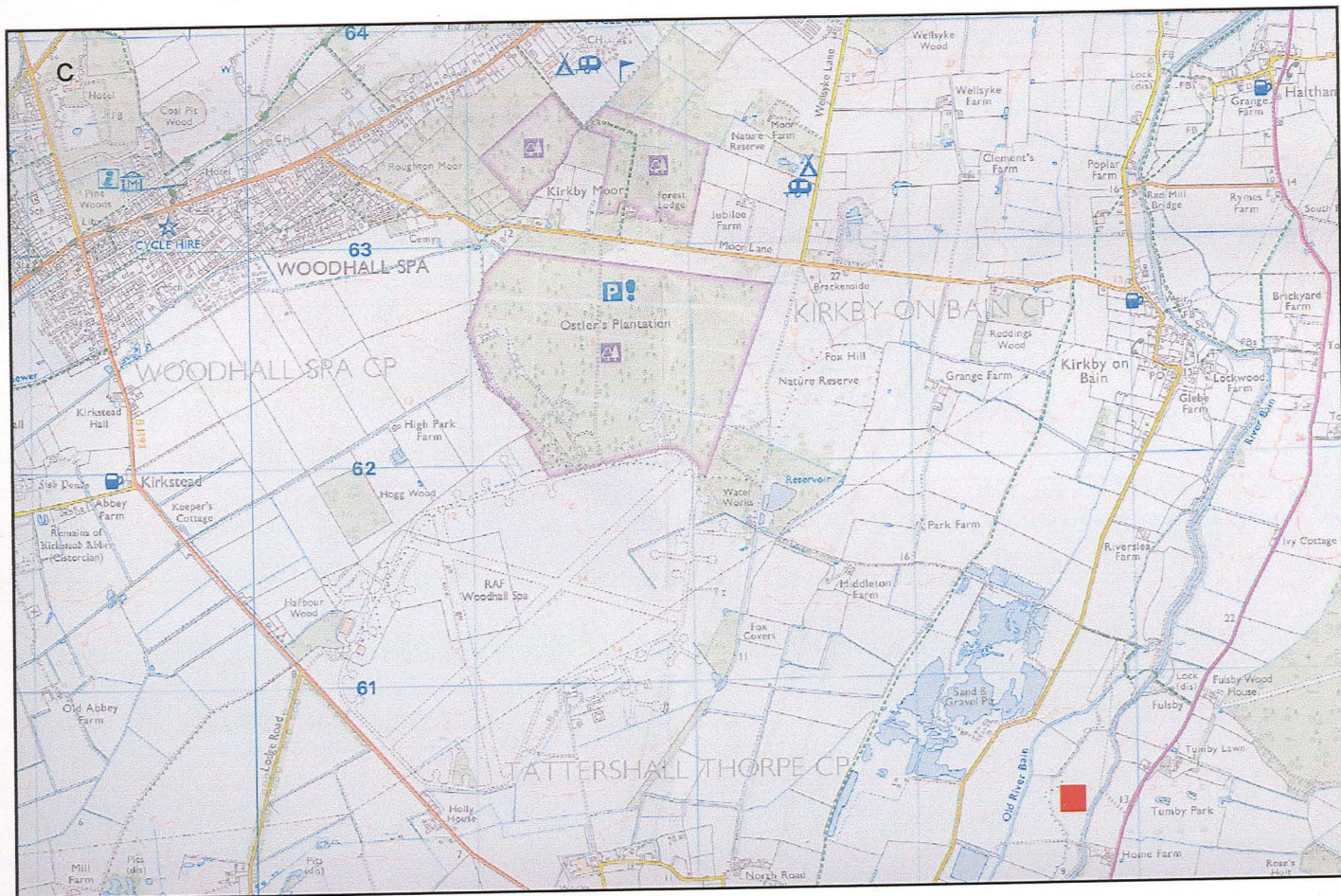
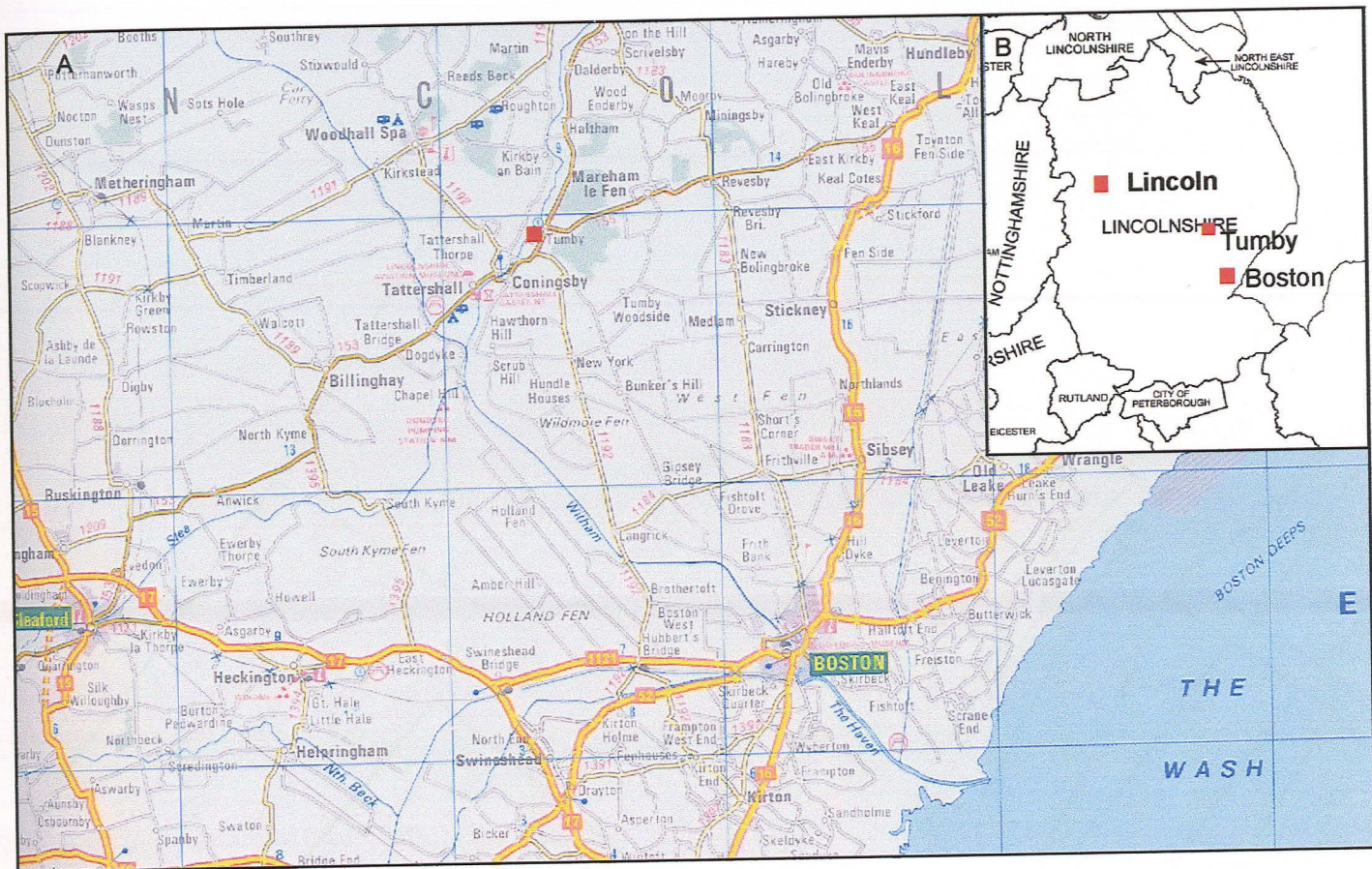


Fig. 1 Location of land at Tumberley. (C based on the 2000, 1:25 000 Ordnance Survey map, Explorer 273, Crown copyright, reproduced with the permission of the controller of HMSO. LAS Licence No. AL 10002165).

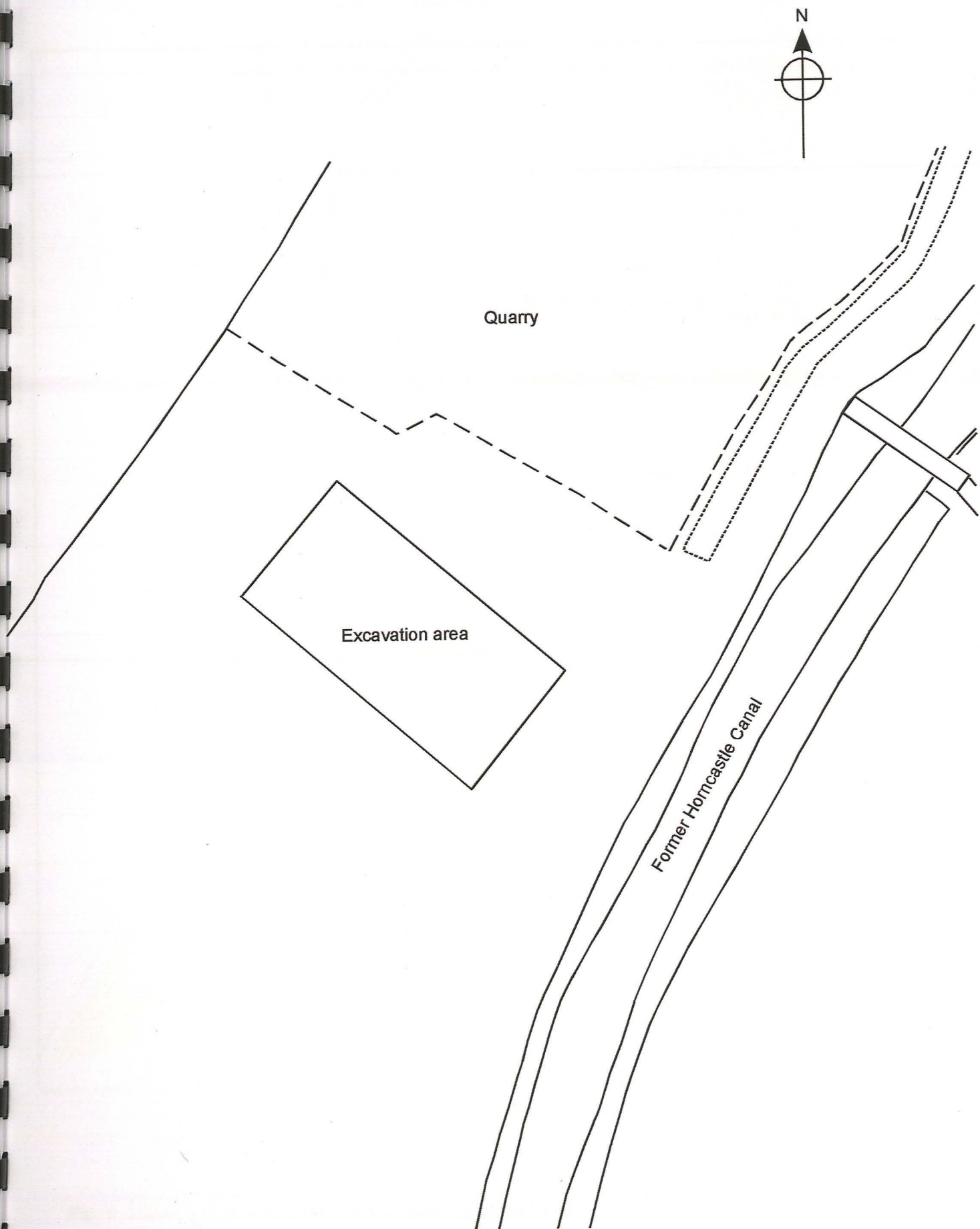


Fig. 2 Location of excavation trench in relation to quarry

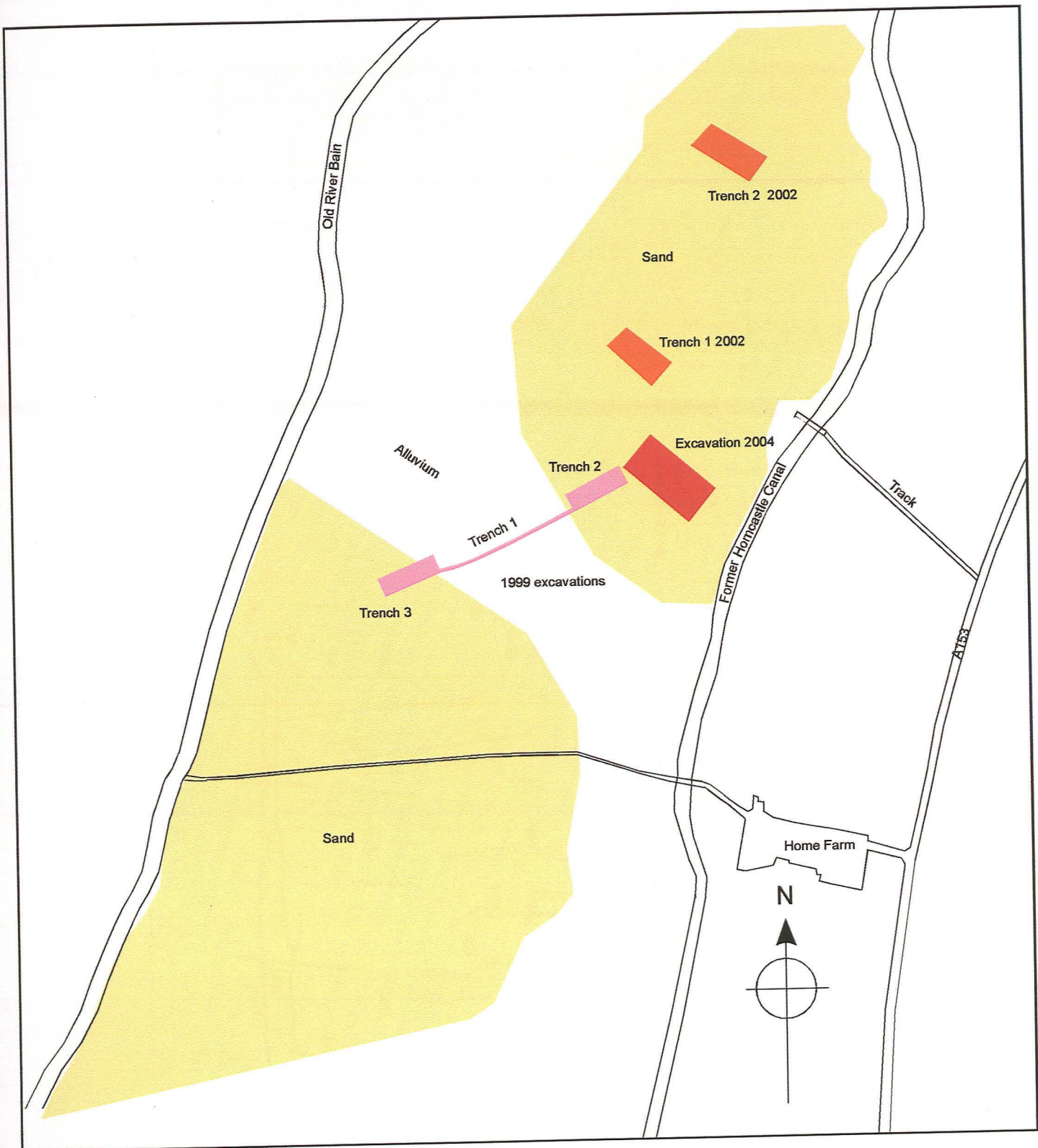
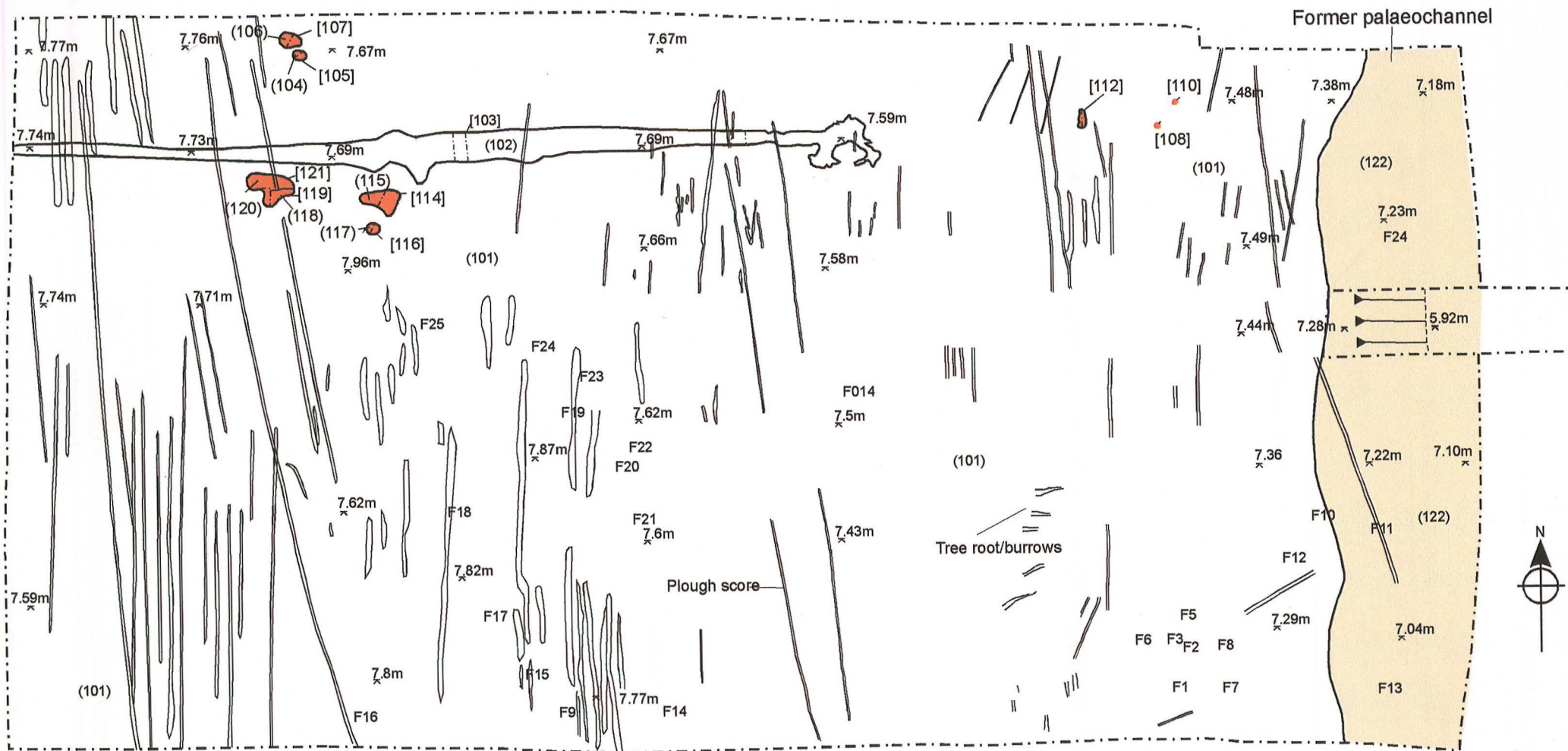


Fig. 3 Location of excavation trench in relation to previous work.



Key
 F1 etc Location of worked flint



Fig. 4 Plan of site

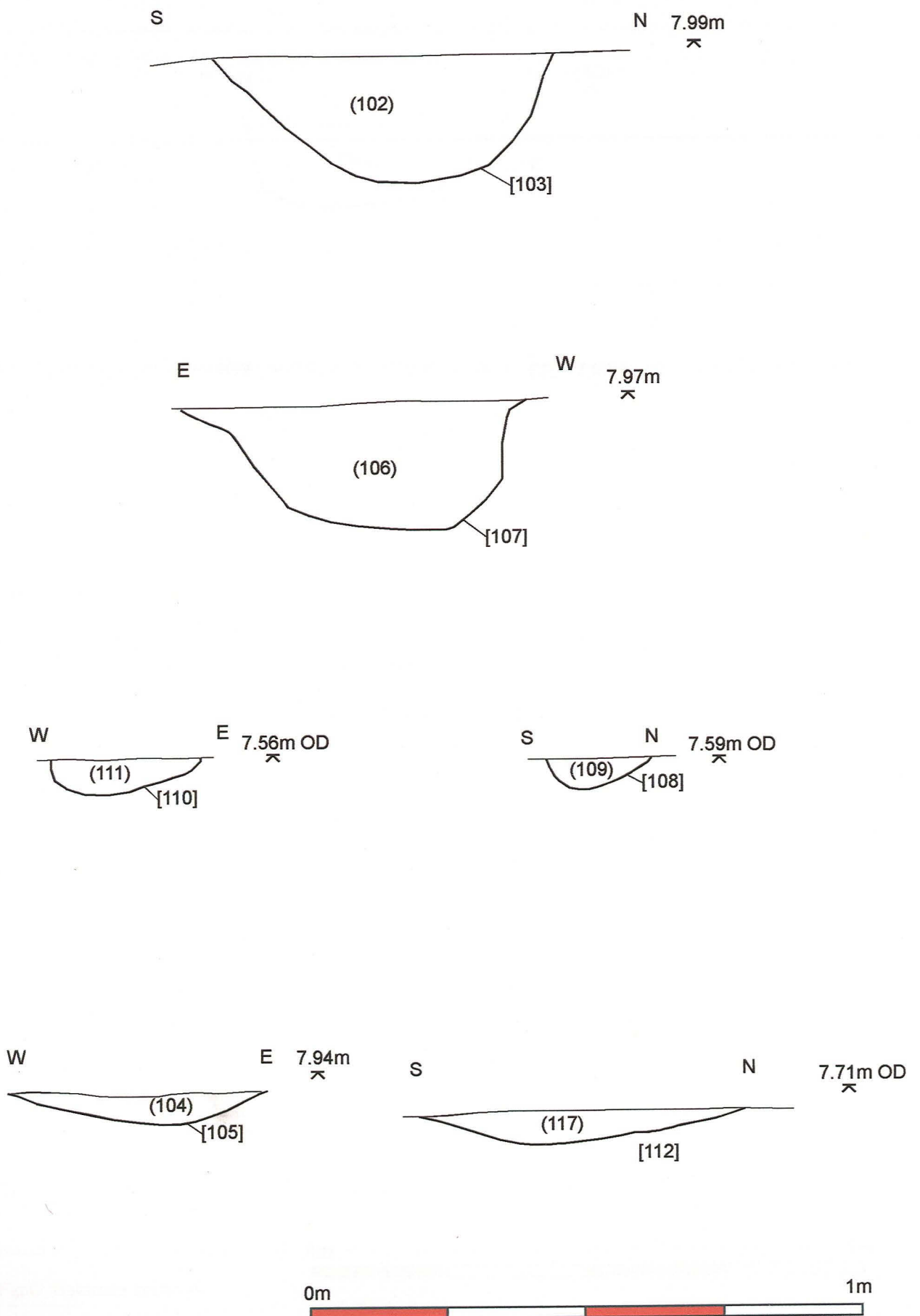


Fig. 5 Selected sections

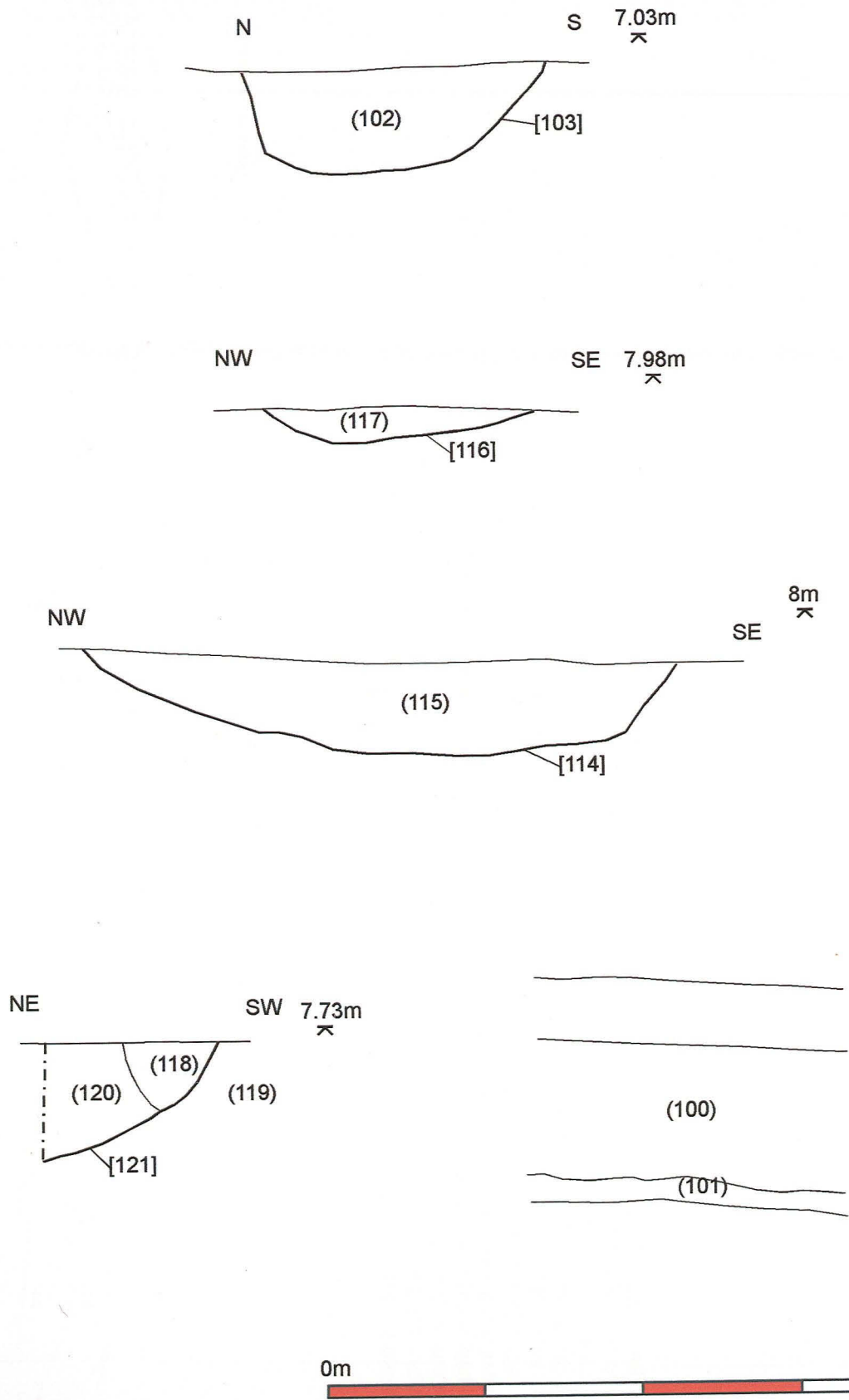
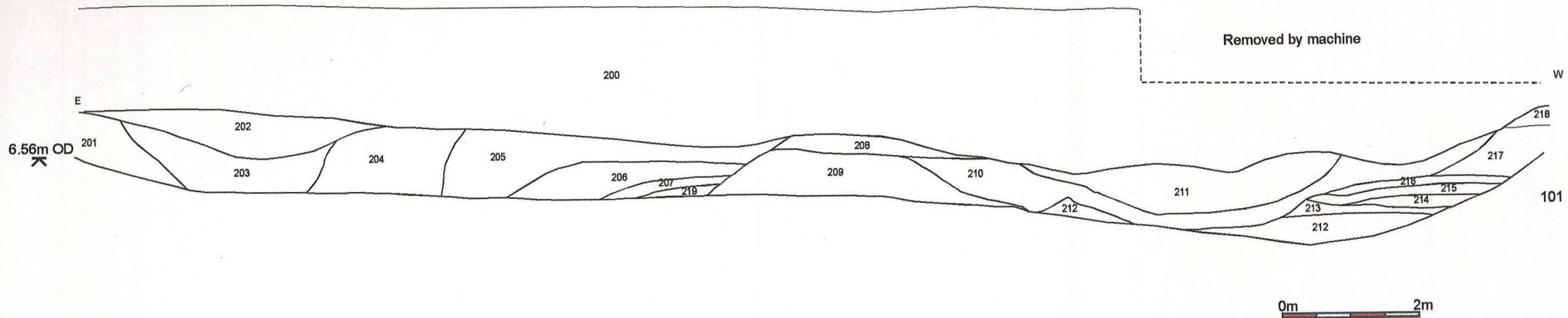


Fig.6 Selected sections



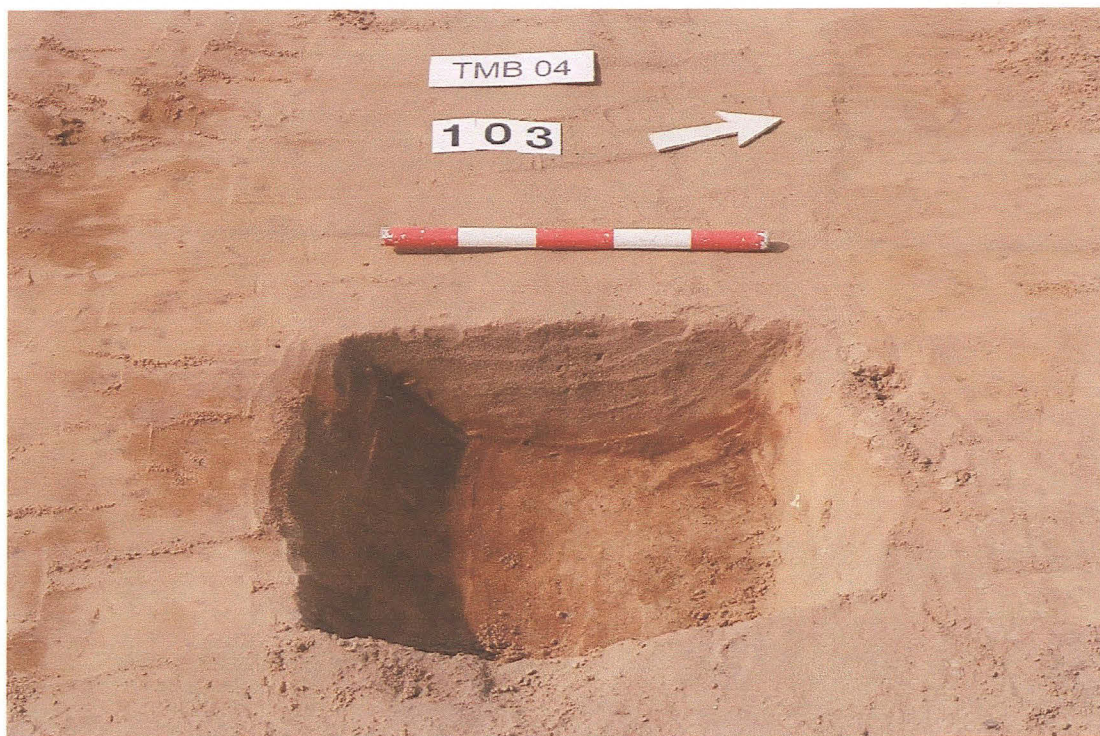
- | | | | |
|-----|---|-----|--------------------------------|
| 200 | Light brown grey medium sand | 211 | Mixed yellow and grey sands |
| 201 | Orange sand occasional flint pebble inclusions | 212 | Grey sand with flint pebbles |
| 202 | Dark brown grey silty sand, moist and loose | 213 | Yellow sand |
| 203 | Flint pebbles in light grey sand | 214 | Yellow sand with brown patches |
| 204 | Frequent flint pebbles in orange grey sand | 215 | Dark brown sandy clay |
| 205 | Fine yellow grey brown mixed sands | 216 | Yellow sand |
| 206 | Brown sandy gravel | 217 | Mid grey moist silty sand |
| 207 | Moist dark brown grey mid compaction silty clay | 218 | Orange brown sand |
| 208 | Light grey sand with mod pebble inclusions | 219 | Grey sand |
| 209 | Orange gravelly sand | | |
| 210 | Dark grey mid compaction moist sandy clay | | |

Fig. 7 Section through Palaeochannel

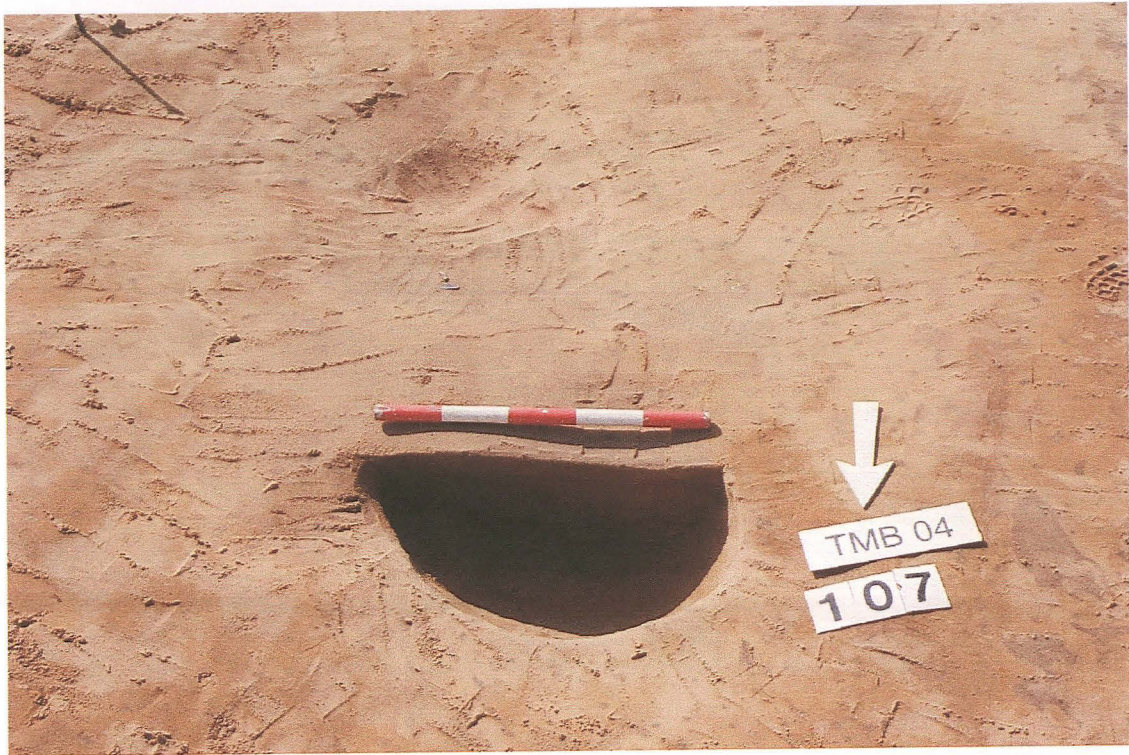
THE PLATES



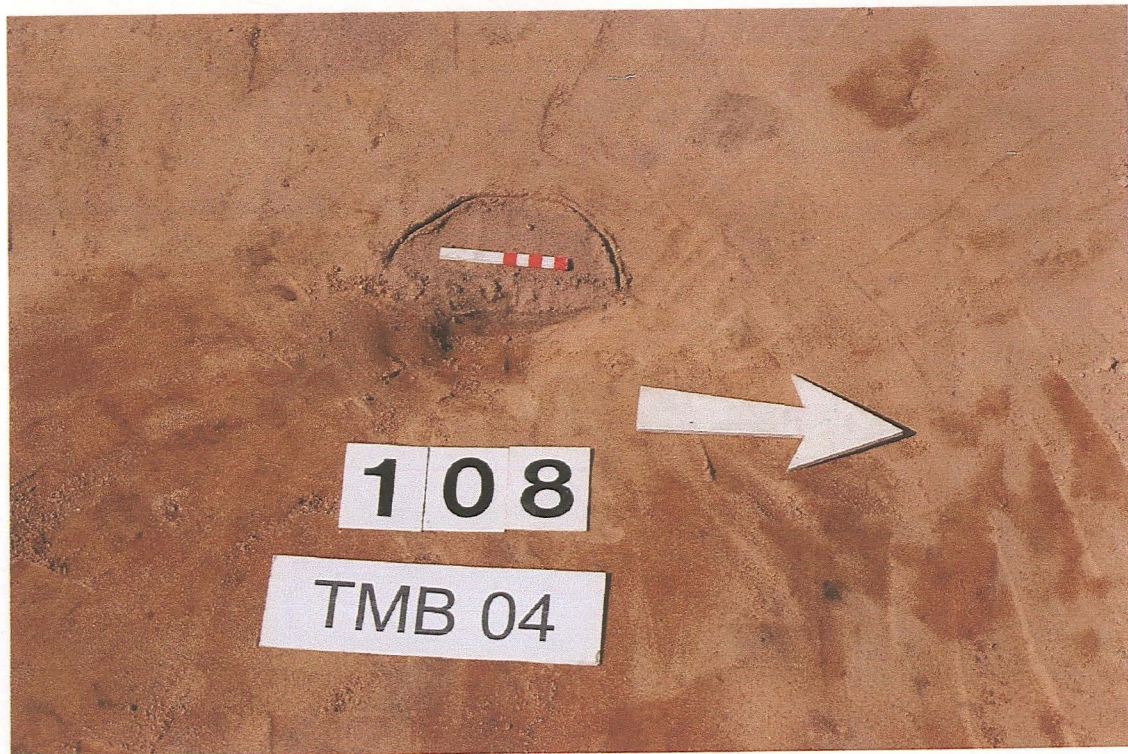
Pl. 1 View of excavation area looking east. Scales 2m.



Pl. 2 Ditch 103, section, looking northwest. Scale 0.50m



Pl. 3 Pit 107, section, looking south. Scale 0.50m.



Pl. 4 Posthole 108, section, looking west. Scale 0.10m



Pl. 5 Pit 112, section, looking west. Scale 0.50m.



Pl. 6 Pit 114, section, looking north-east. Scale 1m



Pl. 7 Pit 121, section, looking south-east. Scale 0.50m



Pl. 8 Pit 110, section, looking north-west. Scale 0.50m



PI.9 Section through paleochannel, looking south. Scale 2m.