

Chapter 4: Prince Regent Lane

Introduction (Figs 4.1-4.4)

The Stage I evaluation at the Prince Regent Lane site involved the excavation of 27 test pits (TPs 50-76). This was followed by 8 evaluation trenches (T20-T27) as part of the Stage II works; 3 to the north-east of the Prince Regent Lane junction and 5 to the south-west (Fig. 4.1).

T20, T22-24 and T27 all lay within the Newham, formerly Beckton, recreation ground, laid out in the 1890s. The earliest maps of the district (Roque 1746; Chapman and Andre 1777) show the local area as open fields and pasture surrounded with drainage ditches. The area of the present park was known as the Plaistow Levels, which suggests that even in the 18th century the area was still marshy and prone to periodic flooding. The Chapman and Andre map shows the edge of the marshland considerably further north, on the line of the current Barking Road (Fig. 1.6). The area remained predominantly rural in 1896 when two small farms still existed to the north of the present Newham Way. Before 1840 Prince Regent Lane was known as Trinity Mills Lane and was certainly in existence in 1819. Prince Regent Lane, along with Tollgate Road, is one of the oldest roads in the area. T25 and T26 lay within the grounds of the Terence Macmillan leisure centre. Previously this side of the Newham Way was taken up with housing which dated mostly to the beginning of the 20th century. These were partly destroyed during the Blitz and were finally demolished in the 1970s to make way for the new sports complex.

Geoarchaeological modelling of the test pit data revealed that beneath the modern overburden the surface of the Pleistocene sands and gravels, forming the edge of the terrace, lay at relatively high elevations over much of the site, sealed by a shallow deposit of silty clay alluvium. Deeper alluvial and peat sequences, however, were noted in the far western end of the site (TPs 50, 51, 53 and T23) where the Pleistocene deposits rapidly shelved away (Fig. 4.2).

Archaeological remains identified during the evaluation work were dated to the Neolithic, Bronze Age and Roman periods. On the higher ground activity appears to have been concentrated in the central area of the site in the vicinity of T20, T21 and T24. This included artefact scatters of mixed date on the weathered surface of the Pleistocene deposits, sealed beneath the alluvium. A series of middle to late Bronze Age and Roman linear features may represent the remains of field systems or boundary ditches. In the western part of the site discrete localised features occurred within and beneath the deeper alluvial sequences and included a timber structure in T23, defined by two substantial timber piles and an accumulation of woodworking debris. One of the piles produced a radiocarbon date within the first half of the 2nd millennium BC.

To mitigate the impact of the proposed Freemasons Road Underpass, Phase III investigations consisted of the detailed excavation of the timber structure identified in T23. To enable the

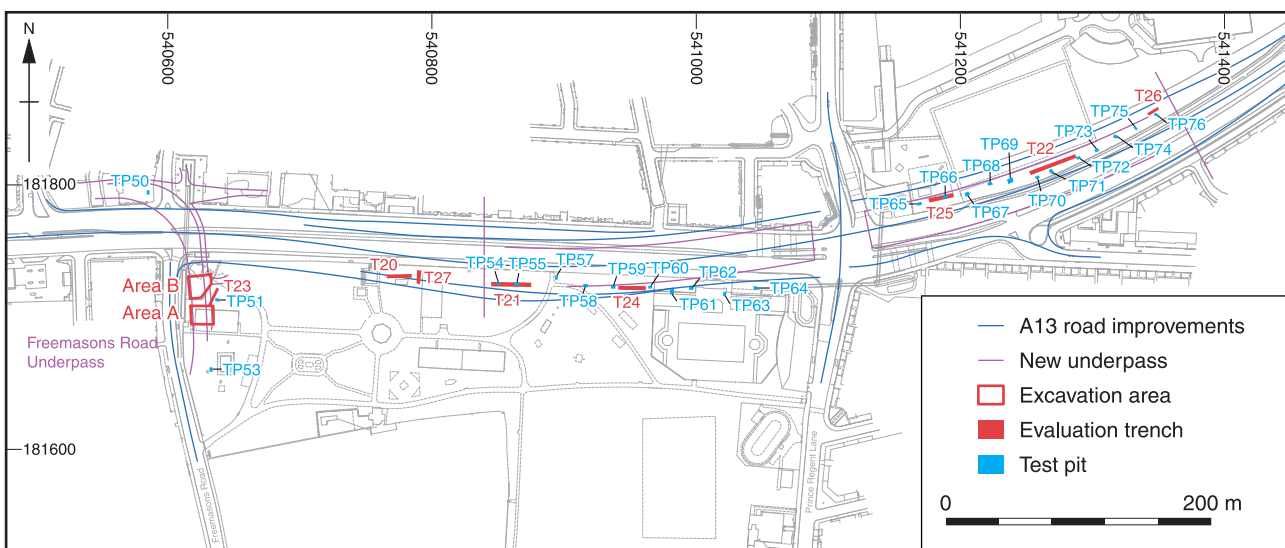


Fig. 4.1 Plan of archaeological interventions, Prince Regent Lane

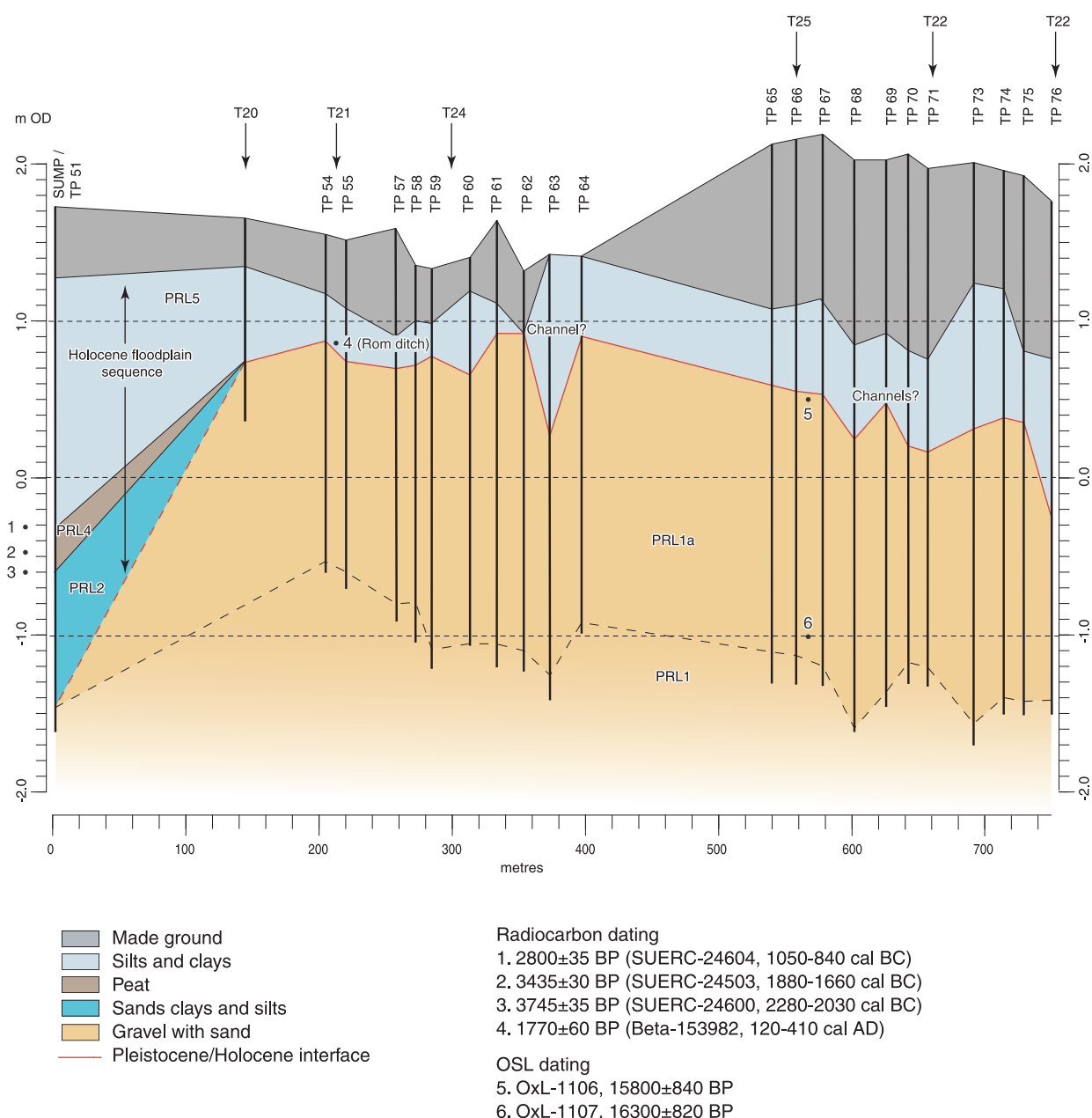


Fig. 4.2 Stratigraphical cross-section based on evaluation test pit data, Prince Regent Lane

excavation two temporary cofferdams of sheet piles were constructed: Area A (17m x 14m) and Area B (17m x 17m) (Plate 1). The modern overburden and underlying alluvium was removed by mechanical excavator to the first archaeological horizon, after which excavation proceeded by hand. A land surface formed on alluvial deposits was exposed in the base excavations and produced a mixed assemblage of flint artefacts and pottery dating from the Neolithic and middle to late Bronze Age periods. A series of features, concentrated on the slightly higher ground in Area B, truncated this surface and included stake holes, postholes, ditches and pits. The timber structure was further exposed in Area A and formed a double row of piles with associated artefact scatters.

A total of about 250 worked, or possibly worked,

wooden items were exposed and lifted at this site, some deriving from the evaluation phase but most coming from the cofferdam excavations (Areas A and B). Following washing of the material off-site, unworked bark and twig fragments were listed and discarded together with small broken fragments of wood chips. Fifty two items were recorded on pro-forma timber sheets with sketches and 23 items were drawn to scale. Subsequently a small selection were retained for conservation and 10 items were photographed in detail. In total, 23 samples were taken for species identification and 11 for tree-ring studies. This assemblage is 'medium sized' if compared nationally but is large by the standards of other London sites, and is the second largest assemblage from the A13 project.



Plate 1 Cofferdam excavation, Freemasons Road (FRU02, Area A)

Palaeoenvironmental work during the evaluation stage focused on characterising the deeper sediment sequence exposed in T23. Further examination of biological remains from the sediments excavated during the Phase III works at Freemasons Road Underpass was carried out as part of the post-excavation assessment stage (Fig. 4.3). Unfortunately the key monoliths examined during the assessment phases were not available to carry on to full analysis. For this reason the samples retrieved from a small drainage sump excavated immediately to the south of Area A have been the subject of detailed pollen work (Druce, Appendix 3). The sequence of deposits in the sump has been correlated with the main excavation through comparison of stratigraphy and dating evidence (Fig. 4.4). A total of 13 samples from a range of deposits were processed for radiocarbon dating. Overall the assessment indicated that the preservation of ostracods, foraminifera and diatoms was very poor and conse-

quently no detailed analytical work was carried out. The results of the assessment, however, have provided useful information in terms of characterising the environments of deposition associated with the sediments. Macroscopic plant and insect remains were variably preserved and detailed analysis has been carried out on a representative selection of the richest bulk samples available from the main excavation areas (see Appendix 3).

Sedimentary architecture and environments of deposition

The pre-Holocene sediments and basement topography

Fluvial gravel (PRL1)

The basal part of the investigated sequence comprised poorly-sorted coarse flint gravel, varying

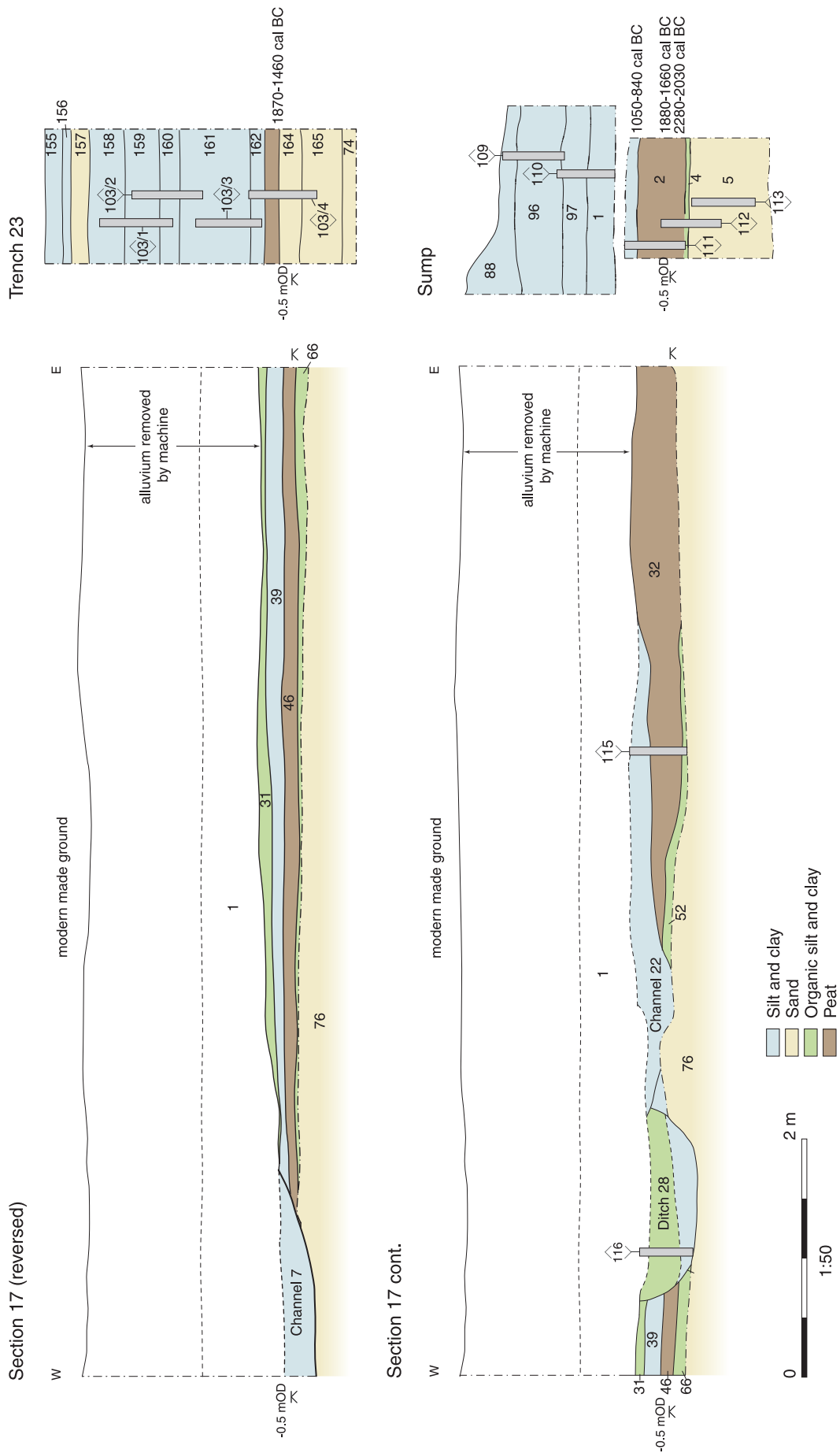


Fig. 4.3 Sample sections, Freemasons Road

Atmospheric data from Reimer et al (2004); OxCal v3.10 Bronk Ramsey (2005); cub r:5 sd:12 prob usp[chron]

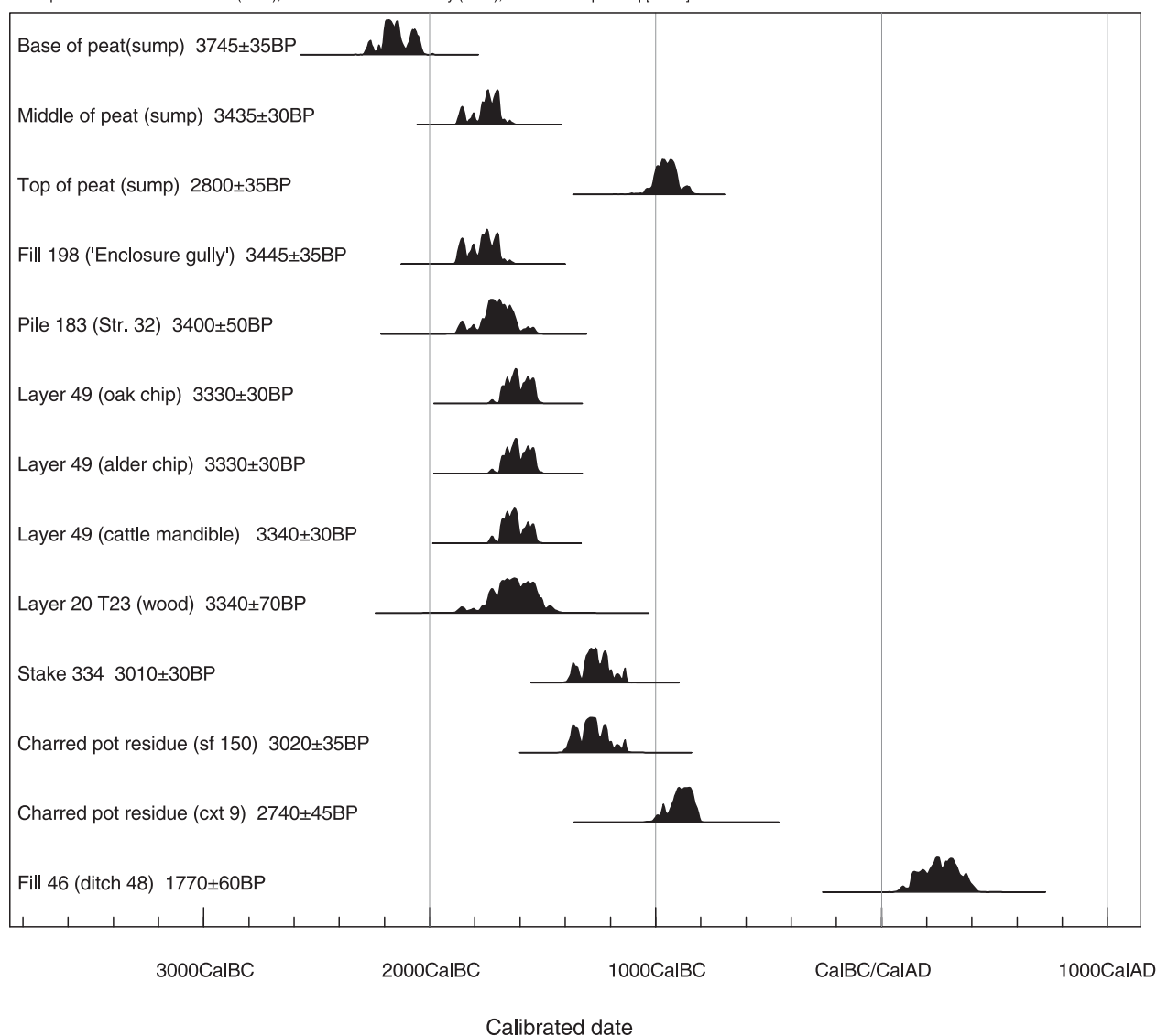


Fig. 4.4 Radiocarbon dates, Prince Regent Lane and Freemasons Road

from less than 10mm in diameter to clasts in excess of 100mm. In places these deposits were interbedded with sands. The gravels were exposed in most of the test pits, but were only penetrated to a maximum depth of about 0.3m. They are typically associated with high-energy rapid sedimentation in braided channels during Pleistocene cold climate episodes. The oldest parts of the sequence exist beneath a series of dated colluvial deposits (see below) and by implication would exceed 30,000 BP. The more recent sediments exist below the modern floodplain (as in T23) and probably date to 12,000-15,000 BP.

Colluvial sand and gravel (PRL1a)

Extensive deposits of sand overlay the fluvial gravels across much of the site (TP54–TP76 and T20–26), although the transition between the two units was gradational. The sands were not examined in detail as the excavations were prone to flooding and the

sections unstable. However, considerable variation was noted in the structure of these deposits where they exhibited clear bedding of sands, sandy-gravels and silts. OSL age estimates from TP66 produced results ranging from 15800±840 BP to 16300±820 BP. There was an absence of associated palaeoenvironmental material, but sedimentological information coupled with the known age of the sediments indicates that these deposits are likely to have been laid down by colluvial and solifluction processes during intervals of severe cold with frozen ground dominant. These sediments would have accumulated on a slope southwards towards the contemporary braided channel system of the Thames. Periodic washing of the surface and erosion of sands from higher gravel terraces is likely to have contributed to the accumulation of the sediment stack here, although erosional episodes probably alternated with times of more stable landsurface generation.

The early Holocene topographic template

The early Holocene topographic template at Prince Regent Lane is represented by the surface of the Pleistocene sediments. Examination of the shape of the template reveals the highest elevations, up to +0.90m OD, occur in the central part of the site. Elevations gradually reduce eastwards to around -0.2m OD, and more rapidly westwards to about -1.5m OD in the vicinity of Freemasons Road Underpass. This surface, where exposed, was generally described as weathered or 'dirty' sand. In the lower lying areas associated cultural material generally dates to the Neolithic and Bronze Age. On the higher ground the relatively late date for alluvial inundation resulted in features of prehistoric and Roman date occurring at this level.

The Holocene sediments

Freshwater sand and clay-silt (PRL2)

Minerogenic sediments dominated by blue grey clay-silts or sandy-silts occurred directly above the Pleistocene gravels. These sediments are indicative of the earliest processes taking place as an indirect result of sea level rise during the early Holocene resulting in backing up of waters in river valleys. Sedimentation appears to have occurred at the margins of the site; in the low-lying areas on the relict undulating Late Glacial landsurface (TP50-TP53, Area A and Area B). Some erosion and redeposition of sands on the steeper slopes underlain by the Pleistocene colluvial sediments may also have occurred, particularly near the break of slope. Low-energy environments of deposition are indicated by the sediment grain size. Accumulation appears to have taken place under freshwater conditions as indicated by the presence of charophyte oogonia (calcified fruiting bodies of stonewort), water flea eggs and fish remains which included 3-spined stickleback and eel (fish remains identified by S. Parfitt) although the last two also inhabit estuaries and coastal waters (Nicholson pers. comm). Unfortunately these sediments contained no diatoms, ostracods or foraminifera and pollen preservation was poor.

In both Areas A and B at Freemasons Road this surface appeared to have been eroded and scoured by alluvial action leaving an irregular undulating surface. With only a difference of c 0.10m between the highest levels recorded in Area B and Area A, there seems to be only a very gradual incline south towards the Thames. The upper layers of these deposits were often described as weathered sand or 'dirty' soil suggesting a subsequent drier period and surface stability. Cultural artefacts and features cut into this surface date from the early Neolithic to middle Bronze Age periods.

The pollen spectra for equivalent deposits in sump sequence, below -0.68m OD, predating c 2000-2300 BC, indicates a local environment of damp alder carr and sedge, with lime, hazel and oak

woodland growing on the drier slopes or interfluvies. Arboreal pollen is relatively well represented although areas of disturbed or lightly grazed ground are indicated by the presence of dandelion and plantains. There was also evidence of possible cereal cultivation, with one or two cereal-type pollen grains although this remains equivocal. A temporary decline in arboreal pollen was noted at very top of the weathered silty sand, together with a corresponding increase in grass pollen. This may suggest a clearance episode; however lime woodland appears to be most affected, decreasing from 25% to 15% of total land pollen (TLP) with both alder and hazel showing very little change.

Freshwater peat and organic silt (PRL4)

Typically these deposits rest on the alluvial deposits described above and were only present in the test pits at the western end of the site; in T23 and the excavations for Freemasons Road Underpass. Levels of contained organic matter in these contexts were low and they are in no way true peats. Rapid lateral changes in the composition of this unit and the decrease in organic content (relative to minerogenic content) moving towards the drier, higher ground may indicate greater inputs of minerogenic sediment from the terrace edge and the mobilisation of the Pleistocene colluvial deposits. At Freemasons Road the earliest organic sedimentation appears to have occurred in the slightly lower lying hollows on the surface of the alluvium in Area A (organic clay layer 66 and 52 in Area A and layer 4 in the sump). This was followed by more widespread peat formation (layer 2 in the sump, layers 46, 47 and 32 in Area A and layers 123, 105, 101, 102 and 108 in Area B). Radiocarbon dating of the base of the peat in the sump suggests accumulation commenced in the south-eastern area during the early Bronze Age at 2280-2030 cal BC (SUERC-24600: 3745±35 BP) at c -0.60m OD and ceased during the late Bronze Age at 1050-840 cal BC (SUERC-24604: 2800±35 BP). In other slightly higher areas peat accumulation probably started a little later as evidenced by the presence of pottery sherds and radiocarbon dates from the first half the 2nd millennium BC from timber and animal bone scattered on the surface of the underlying alluvium.

The pollen spectra from the sump sequence initially indicates a similar environment to that described above with damp alder carr and sedge, and lime, hazel and oak woodland growing on the drier ground. Up-profile, however, there is evidence that conditions became rapidly wetter and much more open. Damp species-rich sedge fen and grassland developed immediately at the site and freshwater pools and streams were prevalent with green algae, aquatics and bulrushes. A radiocarbon determination at -0.48m OD dates the onset of this period of sedge fen development to the later part of the early Bronze Age at 1880-1660 cal BC (SUERC-24598: 3435±30 BP). It is during this period that the timber bridge or jetty (Str. 32) was constructed at

Freemasons Road (see below). On the drier ground the pollen indicates woodland cover also declined which may be related to human activity. A slight increase in bracken may indicate increased grazing (Behre 1986) and cereal-type pollen is recorded once more.

The macroscopic remains from the peat and organic feature fills provided a broadly similar picture to that obtained from the pollen. Seeds and cones of alder and fruit of branched bur-reed indicate carr or fen conditions. Aquatic species included crowfoots, water-plantain, water-pepper and occasional seeds of duckweed, as well as oogonia (calcified fruiting bodies) of stonewort and the larval cases of caddisfly. These last three items are particularly indicative of standing water. The insect fauna was also dominated by beetles associated with slow flowing or stagnant water, typified by the predatory 'diving beetle' *Agabus bipustulatus* and the small hydreanid *Octhebius*. *Tanysphyrus lemnae* which feeds on duck weed was also present, together with *Liosoma deflexum* which is often associated with the marsh marigold. Episodic higher energy flooding is indicated, however, by Elmids species such as *Oulinnius* spp. and *Elmis aenea* which are normally associated with flowing water crossing over sands and gravels. Seeds of waterside vegetation which might have included species growing within the shallow muddy water include branched bur-reed, club-rushes, water dropwort, fool's water-cress, gypsywort and water-mint. The beetles *Donacia simplex* and *Plateumaris sericea* are particularly associated with branched bur-reed and other vegetation such as reeds and sedges. Seeds of elder and bramble may indicate shrubby disturbed ground and certainly disturbed habitats and nitrogen rich soil are suggested by fat hen, stinging nettle, black nightshade, hairy buttercup and docks. Wet or damp grassland is indicated by meadow species including possible meadow rue, ragged robin, and buttercups. There was also some indication of the openness of the landscape from the 'click beetle' *Adelocera murina* commonly associated with grassy ground and woodland edges, as well as from the presence of *Aphodius*, a 'dung beetle'.

Freshwater and estuarine clay silt (PRL5)

The upper alluvial deposits sealing the peat are dominated by minerogenic sediments, predominantly clay and silt-sized fractions, mottled in places and containing abundant traces of modern roots. This group of sediments, where present, typically underlay the modern made ground and varied in thickness from less than 0.3m to 2.65m. A radiocarbon date of 1050-840 cal BC (SUERC-24604: 2800±35 BP) was obtained from the top of the underlying peat in the sump sequence, implying that the change to minerogenic sedimentation at Freemasons Road dates to the late Bronze Age or early Iron Age. This is confirmed by pottery sherds recovered from features cut into the top of the peat

and filled with clay silt in the main excavation area. Higher up on the gravel terrace these sediments directly overlay Pleistocene colluvial deposits but also sealed features of Roman date. This implies the higher ground remained relatively dry ground well into the historical period. The pollen from the sump sequence at Freemasons Road immediately above the peat interface shows little change apart from a slight rise in pollen of the goosefoot family, which does include species that grow on saltmarshes. Other than this there was very little in the pollen assemblage to suggest a major increase in saline conditions as yet, although the sedimentary changes seen here are likely to be related to shifts in the morphology of the river during the period of estuary expansion.

Several erosion channels were recorded cutting into the top of the peats in the main excavation area. The clay-silt fills of these channels and the overlying alluvium indicates they were laid down under aqueous conditions and they show evidence of strong weathering and pedogenesis. This sub-aerial weathering is also indicated by the decalcification of the diatoms and the presence of earthworm granules. Ostracods from the upper fill of one of the channels included a few specimens of the freshwater *Candona* group. The presence of sponge spicule fragments, as well as marine and brackish diatoms, however, suggests encroaching estuarine conditions.

The upper part of the alluvium from the excavations was not analysed in detail but pollen work from the evaluation stage in T23 indicated the gradual development of open saltmarsh vegetation with freshwater marshes on the inland edge. Foraminiferal and ostracod evidence suggests mixed brackish and freshwater conditions where the introduction of freshwater species probably derives from influxes of freshwater from streams draining the inland marshes.

The cultural evidence from the gravel terrace (Fig. 4.5)

Mesolithic and Neolithic

Evidence for Mesolithic and Neolithic activity identified during the evaluation stages on the higher ground of the gravel terrace is largely inferred by the presence of a small amount of worked flint characteristic of these periods on the weathered surface of the Late Glacial colluvial sands and gravels, as well as residual components in later features. The condition of the flint was frequently described as chipped or abraded and is consistent with material that has resided in the soil for a long period. Artefactual material of Bronze Age date was also often found in the same contexts. The quantity of material perhaps suggests small scale and intermittent activity. No evidence of any intentional 'patterned' or structured deposition was identified, and in general the material suggests

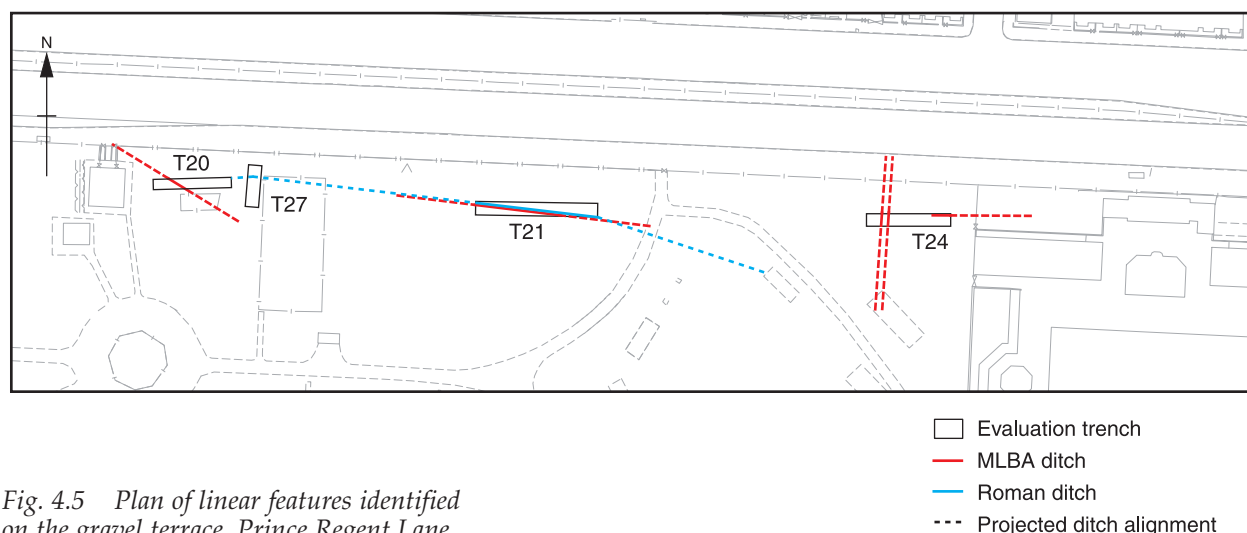


Fig. 4.5 Plan of linear features identified on the gravel terrace, Prince Regent Lane

deposition through casual loss and/or accidental redeposition. A single sherd of impressed decorated Peterborough Ware pottery was also recovered from a Bronze Age pit fill (95) in T21. A number of ephemeral features cutting the weathered sand were initially thought to be of Neolithic date. Many of these features, however, were quite irregular and are likely to be of natural origin. Artefactual evidence, where present, comprised occasional fragments of burnt flint and undiagnostic struck flint and cannot be securely dated to this period given features of later date also occur at this horizon.

Middle to late Bronze Age

Along with the Neolithic material, the evaluation identified a general scatter of middle to late Bronze Age pottery and worked and burnt flint lying on the surface of the Late Glacial colluvial sands and gravels. The condition of the material was better than that from the earlier periods and more indicative of an *in situ* assemblage, with limited reworking. This, together with a small number of features perhaps suggests a focus of settlement activity on the higher terraces during this period. The features comprised a series of linear ditches, probably the remains of field systems or boundary ditches, and a small number of shallow pits concentrated in the centre of the site in T20, T21 and T24 (Fig. 4.5). The features were generally filled with minerogenic silty clay and artefactual material included worked flint, burnt flint, animal bone and pottery dated to the middle to late Bronze Age. The primary fill of the ditch in T21 (context 91) produced a single sherd of a Deverel-Rimbury bucket urn and a fragment of burnt clay, possibly a loom weight of cylindrical type, was recovered from a pit in the same trench (fill 95). An interrupted ditch in T20 may represent a boundary defining activity to the east, and re-cutting of the north-south ditch in T24 suggests that some of these alignments

were of enough importance to maintain. The study area, however, is, too small to infer the nature or extent of any associated settlement.

In addition to the archaeological features a number of possible small channels were also identified in the eastern part of the site in T22 and T26. The channel in T26 not only showed evidence of re-cutting/braiding, but the complex fills also demonstrated changing flow patterns and rates. There was some indication of human activity associated with these channels. Flint flakes and burnt flint were recovered from the channel fills and from the weathered sand between the channels in T22.

Roman

A series of linear features of Roman date were identified during the evaluation. It is likely that three ditches recorded in T20, T21 and T27 form part of the same ditch (Fig. 4.5), and a further ditch section was recorded in T26. Although a number of sherds of middle to late Bronze Age pottery was recovered from these features along with worked flint, these are likely to be residual. A fragment of charcoal from the ditch in T21 (context 46) yielded a radiocarbon date of cal AD 120-410 (Beta-153982: 1770±60 BP) and a single sherd of Oxfordshire Red Colour-coated (OXRC) dated to about AD 270-400 was also recovered from the same feature (context 39). The Roman activity may represent the edge of a field system or boundary ditch aligned along the edge of the gravel terrace and appears to reinforce aspects of the earlier terrace edge landscape broadly coinciding with the Bronze Age features.

Post Roman

Evidence for occupation following the Roman period was largely absent. The only post Roman pottery was 19th century and came from an early 20th century cut in T21.

The cultural evidence from the wetland zone (Freemasons Road Underpass)

Mesolithic and Neolithic

Artefacts from the weathered sands and later deposits

Similar to the gravel terrace, evidence of activity for the earlier periods at Freemasons Road is largely inferred by the presence of a small assemblage of worked flint and pottery located on the weathered surface of the lower alluvium (layers 76, 81 and 106, Fig. 4.6), as well as residual material in later features. The finds from the weathered surface also included artefacts of Bronze Age date suggesting a prolonged period of activity on a relatively stable land-surface with little sedimentation. A possible enclosure ditch and associated postholes, thought perhaps to be Neolithic during the assessment stage, has subsequently been radiocarbon dated to the 2nd millennium BC (see below). A number of ephemeral irregular features cutting the weathered silt are likely to be of natural origin and generally contained occasional artefactual material of mixed date.

Indication of the earliest presence at the site is provided by a residual Mesolithic micro-burin from a middle Bronze Age ditch (feature 183). No other certain Mesolithic material was identified. The struck flints were concentrated on the western side of Area B, suggesting a discrete scatter that continued to the west. A number of these pieces are likely to have been detached from the same cores but refitting exercises were not profitable. Technologically, the material recovered is predominantly blade based. There was a relatively low proportion of knapping waste and a high proportion of retouched pieces (scrapers and edge-retouched cutting flakes and blades), and potentially useable flakes exhibiting micro-wear damage. This suggests that, although some core reduction was occurring, the assemblage primarily represents tool use rather than production. A bifacially worked flake (layer 106) may indicate attempts at arrowhead manufacture and other possible arrowhead blanks were found as residual material in later phases at Freemasons Road. The material from the features that cut the silts includes a number of blades and blade-like flakes but these generally appear to have been residually incorporated and are very fragmented and include many burnt pieces. Retouched pieces include two edge-retouched flakes, both probably used as cortically backed knives (natural feature 163, fill 162 and layer 66), a side-and-end scraper (layer 66), a bifacially worked flake (gully 169, fill 168) and an invasively retouched flake (ditch 132, fill 141). The last two may represent very early stages in arrowhead manufacture (Bishop, Appendix 2).

Nine sherds of early Neolithic pottery were also recovered from similar contexts, including a rolled rim (natural feature 137, fill 136) and a decorated bowl sherd, possibly from a Mildenhall style bowl

(layer 81, SF98, Fig. A2.1, 7). Middle Neolithic Peterborough Ware comprised two sherds with impressed twisted cord decoration (layer 76/40 SF46 and layer 49 SF114). A single sherd is from the neck of a probable 'barbed wire' decorated Beaker (layer 49, SF77, Fig. A2.1, 21). It is from a straight or gently shouldered vessel rather than the globular form of the East Anglian style (Barclay and Rayner, Appendix 2).

Early to middle Bronze Age

The 'enclosure' (Area B)

A number of features cutting the surface of the lower alluvial silts in Area B, based on radiocarbon dating, appear to date to the first half of the second millennium BC (Fig. 4.7). This included an east-west linear gully (cut nos 199, 169, 165 and 190), 0.27m to 0.48m deep, with a possible return to the north (cut no. 254). The 1.50m gap between cuts 169 and 199 may mark the location of an entrance. Cut 190 was truncated to the east and west by later intrusions. The gully was characterised by steeply sloping or near vertical sides falling to a slightly concave base and was filled by a mid grey sandy silt. The only artefact retrieved was a single struck flint from fill 168 (cut 169), but a fragment of wood from fill 198 (cut 199) produced a radiocarbon date of 1890-1660 cal BC (SUERC-24599: 3445±35 BP).

Immediately to the north of this gully, and probably associated with it, was a series of five postholes (cut nos. 151, 153, 157, 159 and 155) forming an east-west alignment covering a distance of 4.30m. All five postholes were filled with a similar soft mid grey brown silty sand. Postholes 151, 153 and 157 were spaced approximately 1.5m apart, while posthole 159 extends the line a further 1m to the east. Posthole 155 interrupts this regular spacing as it was set 0.65m to the east of 153. The five postholes were set out on an east-west alignment covering a distance of 4.30m. The presence of cut features appears to suggest that ground conditions in the slightly raised northern part of Area B during this period were dry enough to carry out certain activities. The gully and associated postholes (Plate 2) may represent a field enclosure or other land division or perhaps a foundation trench or drip gully of a structure. This group of features may demarcate a parcel of land to the north and east that continues beyond the limits of the excavation.

Timber structure 32 (Area A)

In Area A a large timber structure, defined by a double row of oak piles (Str. 32) appears to have been constructed during the same period as the 'enclosure' in Area B (Fig. 4.7 and 4.8 (A); Plates 3 and 4). One of the piles (pile 183) produced a radiocarbon date of 1880-1600 cal BC, at 90.4% (Beta-152738: 3400±50 BP). Analysis of the site stratigraphy and reconstruction of the ancient

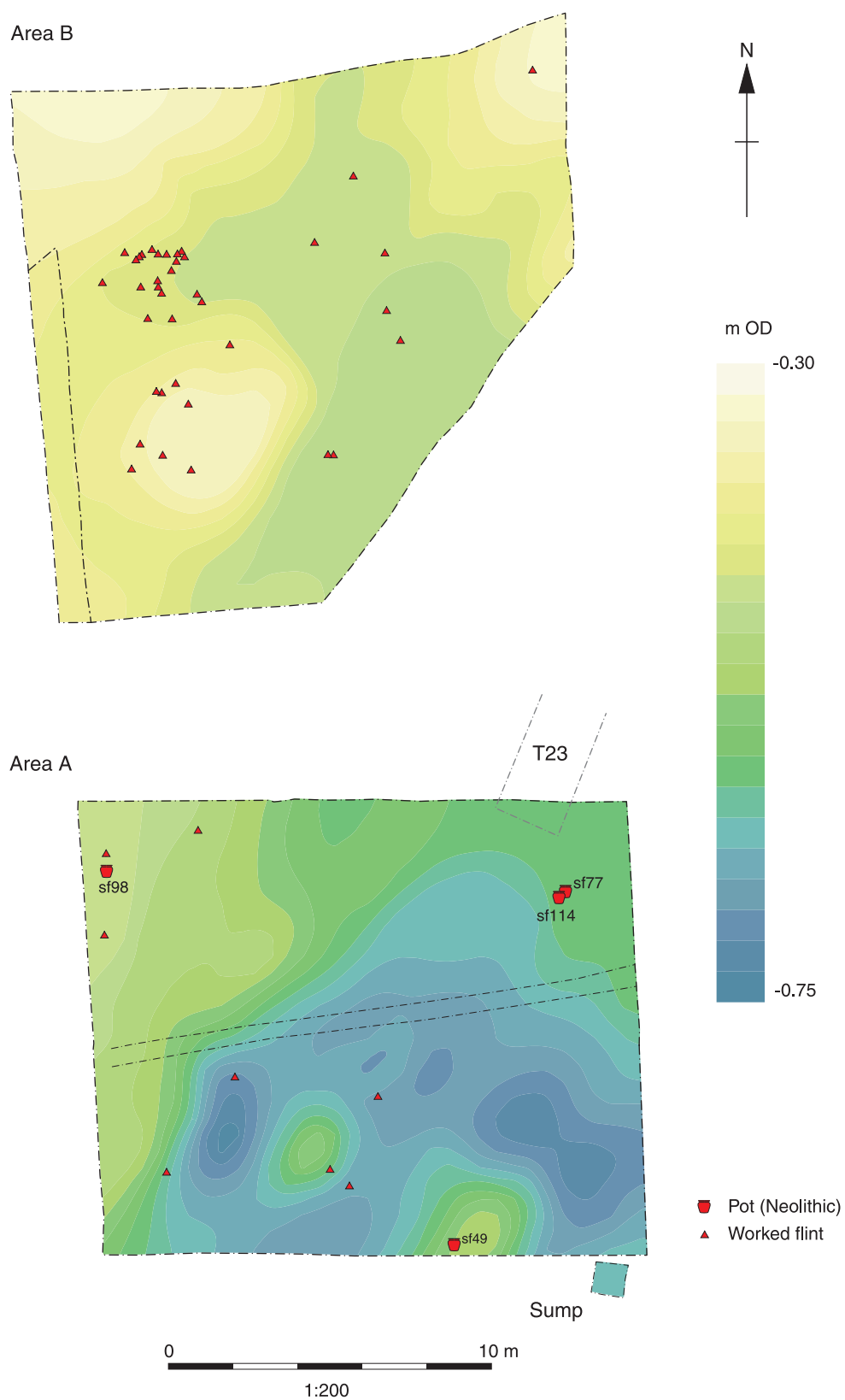


Fig. 4.6 Modelled surface of weathered sands with recorded artefacts, Freemasons Road

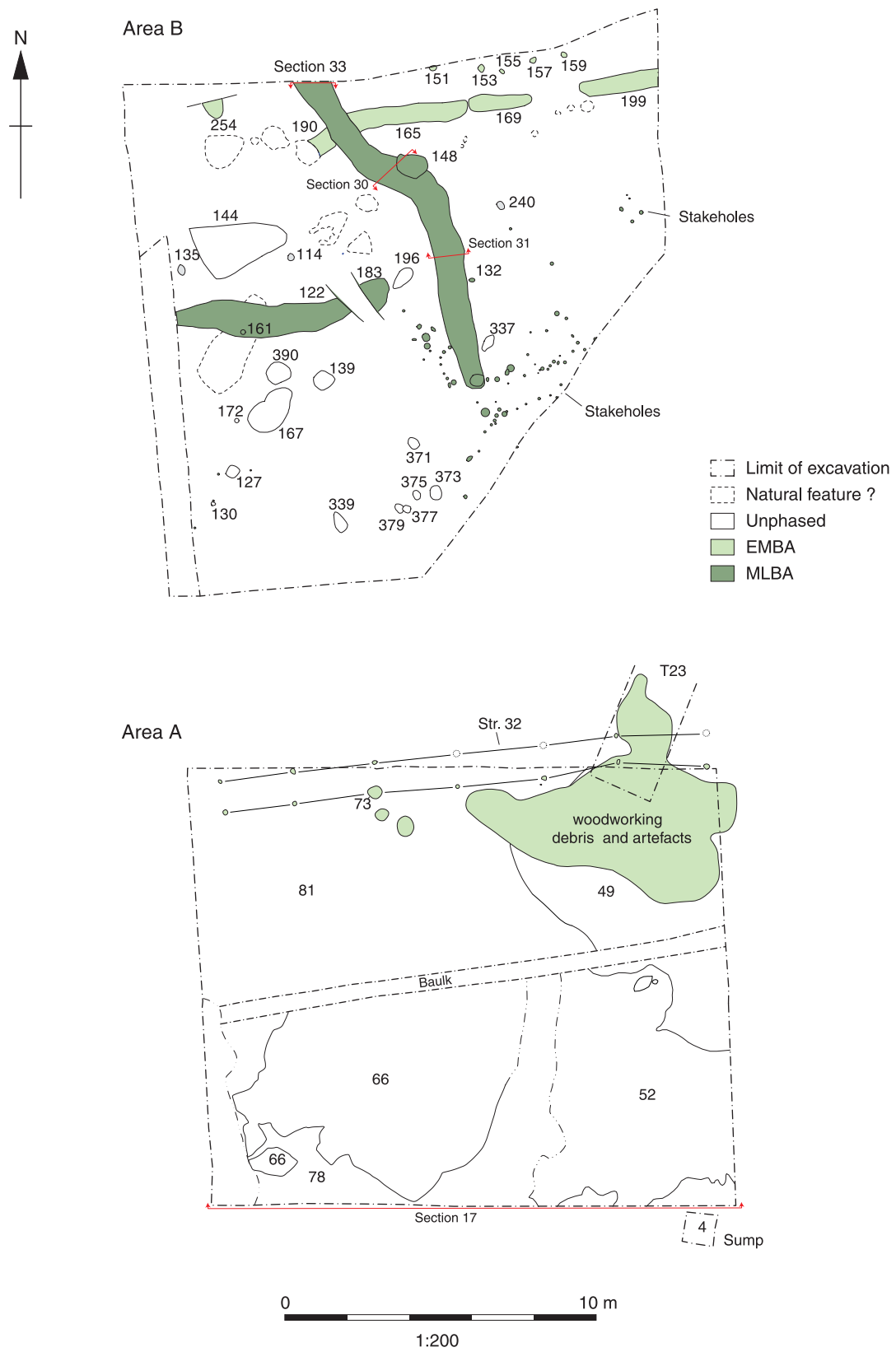


Fig. 4.7 Plan of Bronze Age features, Freemasons Road



Plate 2 'Enclosure' gully and associated postholes, Freemasons Road (Area B)

topography tends to support the interpretation that this structure was a bridge or jetty running from the higher ground out into a wetland zone. It also appears to have been built during a period of increasing wetness which the pollen studies suggest coincided with a phase of reduction in woodland and increased open grazing and agriculture. Recent topographic modelling work in the Lea Valley suggests that during the early Bronze Age a large floodplain island existed immediately to the east of Freemasons Road. It is possible the pile structure at Freemasons Road linked the drier ground of the terrace to this island (Fig. 4.8 (B); Corcoran *et al.* 2011).

The structure was traced for over 16m on an east-west alignment but was obviously longer, continuing beyond the edges of the excavation area. A total of ten *in situ* piles were excavated and recorded (Plate 3), including two identified in T23. They were arranged in a fairly regular pattern, in pairs. With

the implied location of additional piles, a total of seven pairs of vertically set timbers could be measured at between about 2.2m and 2.8m apart with the centres of each pair around 1.0m to 1.1m apart. The piles were cut from fast or medium growth timber having a maximum of about 50-70 annual rings. The comparative youth of the parent trees has prevented successful tree-ring dating but does indicate that they derive from oaks growing fairly fast in rather open, probably managed woodland of some form.

Most of the piles were round whole logs between 150mm and 210mm diameter with the bark removed but two were cleft out of larger logs. Pile 57 was a cleft 1/8th section and pile 79 a 1/4 log section (Fig 4.9; Plate 4). They were all truncated by ancient rot and measured between 0.61m and 0.96m in length with the highest standing to -0.18m OD. All the piles had multifaceted 'pencil type' points and most had fairly

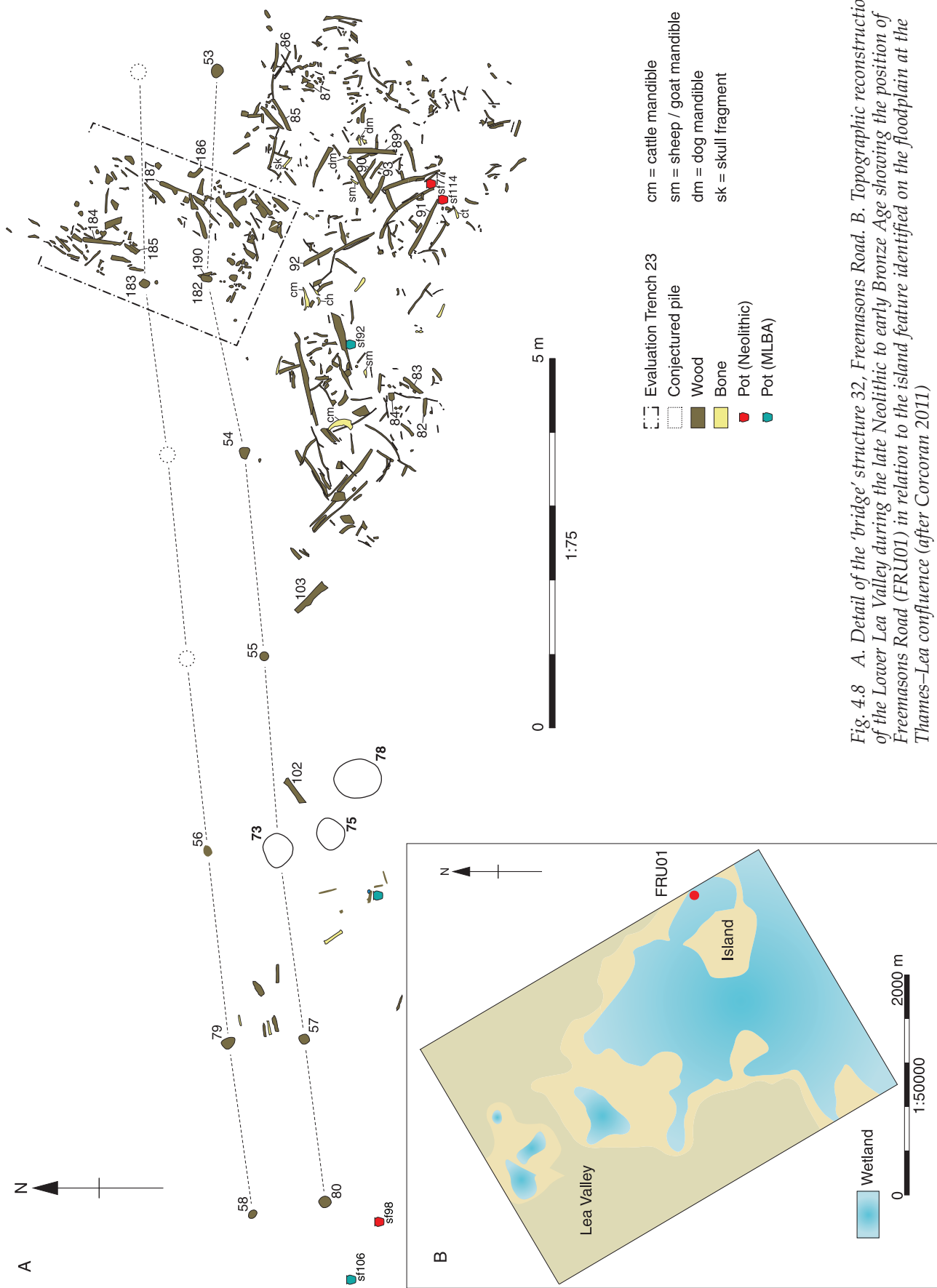


Fig. 4.8 A. Detail of the 'bridge' structure 32, Freemasons Road. B. Topographic reconstruction of the Lower Lea Valley during the late Neolithic to early Bronze Age showing the position of Freemasons Road (FRU01) in relation to the island feature identified on the floodplain at the Thames-Lea confluence (after Corcoran 2011)



Plate 3 Excavation of timber pile 55 from 'bridge' Structure 32, Freemasons Road (Area A)

well-preserved tool marks. These were smooth, with some incomplete examples up to 65mm wide, implying the use of a rounded axe blade of about 70mm wide. Such tool marks have been found to be typical of large scale woodwork of the middle Bronze Age. Earlier Bronze Age axe marks are generally wider and later Bronze Age marks substantially narrower (Sands 1997, 79; Goodburn 2003a, 104; 2004, 132). The late early to middle Bronze Age radiocarbon dating thus broadly confirms this emerging pattern. Although none of the marks were exactly the same in terms of any small features left by nicks in the axe blades used ('signature marks') the axe marks on piles 79 and 56 were so similar that they could have been cut with the same tool.

Post pit 73, 0.42m in diameter and 0.43m deep, probably marks the original location of a further pile that was later removed. The pit was characterised by steeply sloping sides falling to a pointed base and was filled with a dark brown clayey sandy silt (fill 72) containing a flint flake, a trimming flake and a quantity of burnt flint. A small assemblage of bone fragments included frog/toad bones and a spine from a three-spined stickleback (identified by J. Liddle). Some 0.20m to

the south of pile 54 a smaller cleft alder stake (context 94) may be associated with Structure 32. In addition, to the south of pit 73, two circular features were recorded (cut nos. 75 and 78). These were very shallow (0.08m and 0.07m deep) with sloping sides falling to a slightly concave base and both were filled with a loose light brownish grey silty sand. Burnt flint, struck flint, animal bone and indeterminate prehistoric pottery were recovered from feature 75 (fill 74).

Layer 49 (Fig. 4.7 and 4.8; Plate 5) on the east side of the trench comprised a dark brown organic clay silt up to 0.20m thick overlying the surface of the natural sand that appears to have built up around the piles of Structure 32. It covered an area of some 6-7m east-west and 5m north-south extending east of the trench edge. From this layer an assemblage of pottery, burnt and struck flint, daub, worked wood and animal bone was recovered. Three radiocarbon dates from layer 49 add support to the view that much of the material is likely to be directly associated with the use of Structure 32. This includes an oak 'sliver' type chip and an alder chip (93) which produced identical calibrated dates of 1690-1520 cal. BC (SUERC-27349: 3320±30 BP and SUERC-27362: 3330±30 BP)

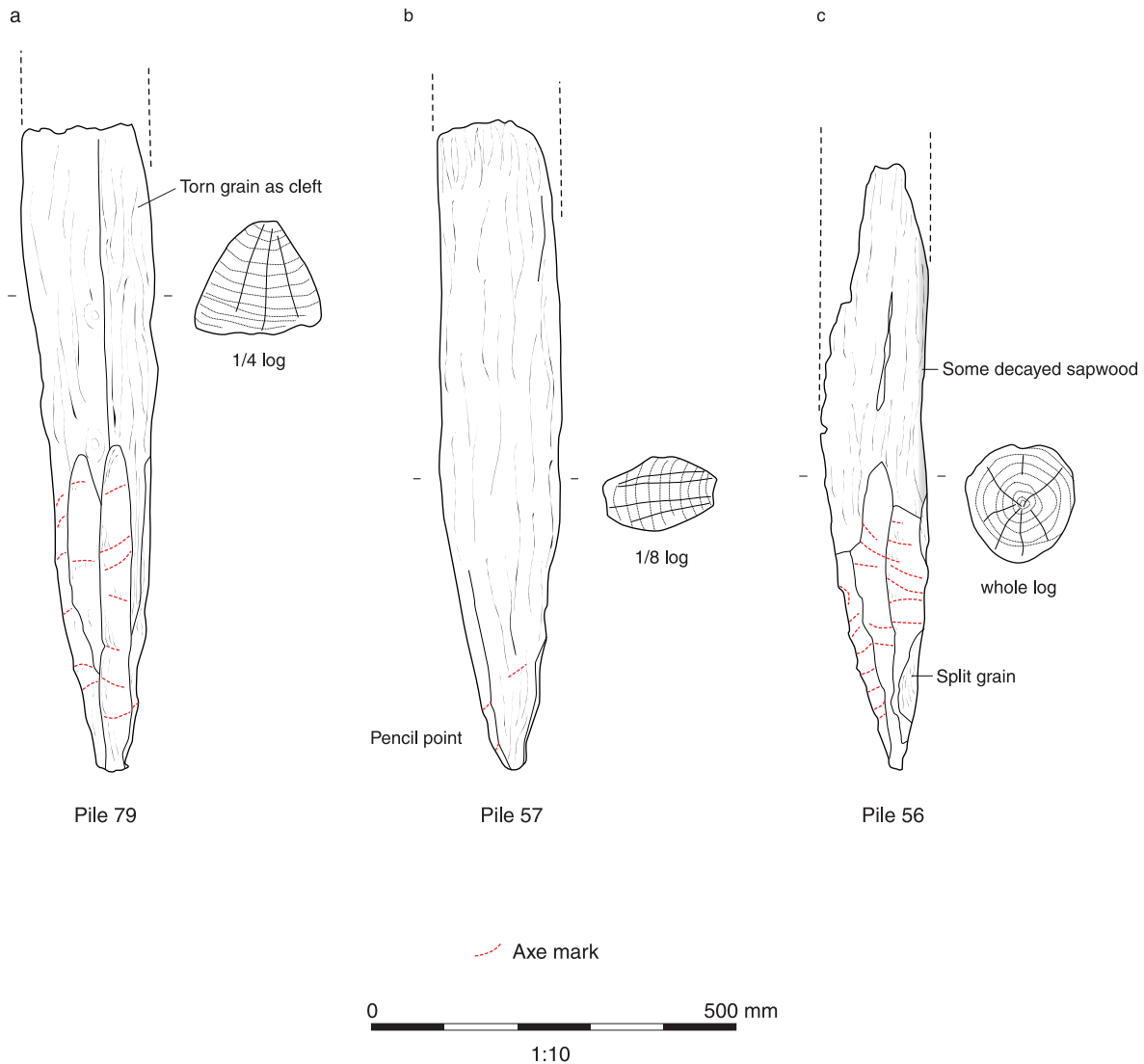


Fig. 4.9 Oak piles from 'bridge' structure 32, Freemasons Road

as well as a cattle mandible which was also dated to 1690-1520 cal BC at 94% (SUERC 27345: 3340±30 BP).

The small number of pottery sherds recovered from layer 49 were of mixed date comprising four residual Neolithic sherds and a single middle to late Bronze Age sherd. The lithics mostly comprised preparation flakes, flake fragments and cores, and suggest waste discard rather than tool use. The few blades that were present are thought to be residual. The majority of the flints showed technological characteristics dateable to the middle Bronze Age or later. The animal bone included a mix of cattle, sheep/goat (including a goat horncore), pig and dog. Heavy chop marks were evident on the goat horncore, seemingly produced by a metal blade, and a cattle horncore and limb bones also showed cut marks. The dog bones included a partial skull and a pair of mandibles, possibly indicating that an entire head was dumped or redeposited away from the rest of the body. Charcoal fragments from layer

49 derived predominantly from oak and alder with some hazel and ash. Pomaceous fruit wood and six pieces of lime/linden (*Tilia* sp.) were also recovered.

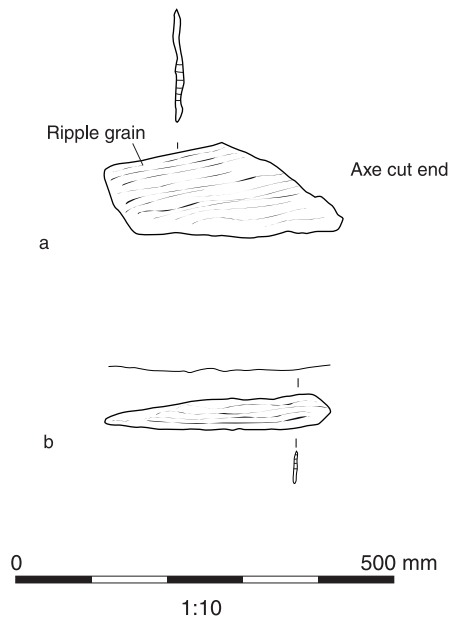
The large amount of waterlogged wood debris mainly consisted of compressed roundwood and bark fragments. Some of the roundwood bore cut marks but much of the material showed no signs of having been worked. It may be that much of the material was deposited naturally or that the wood had been collected, perhaps for firewood, and then dropped. However, the debris also contained elongated wood chips, mainly of oak 'sliver' type, suggesting that the trimming of boards or planks took place near by. Similar elongated slivers and chips were produced during the experimental production of oak planks as part of research into the Dover Boat (Goodburn 2004, 125). They appear to be particularly associated with the use of middle Bronze Age axe blades or 'palstaves' hafted as adzes to smooth very wide planks working along the grain. It was possible to recover a number of the



Plate 4 Excavated timber piles 56 and 57 from 'bridge' Structure 32, Freemasons Road (Area A)

fragile lath-like chips, the longest of which was item 82 (450mm x 75mm x 3mm; Fig. 4.10b). Others were shorter, like wood chip 87 (90mm x 45mm x 4mm). Totally fresh or 'green' oak chips do not normally float in slow moving fresh water and would accumulate near where they were dropped. It is possible that the chips were associated with the preparation of cleft and hewn planks that would have been used for the walkway of such a bridge. The slightly irregular planks would have required

trimming whilst fitting to sit firmly on cross bearers between the pile heads. If that was done working out from the 'land' on the east side of the channel it is quite possible that some of the green heartwood chips would fall and be trapped in sediment where they fell. This phenomenon was recorded at the tidal frontage of the 3rd century AD Roman quayside at Vintners Place City of London (Goodburn 1990). Other timber of fair size was also being cleft and trimmed nearby as shown by



fragment 65 which was a radially cleft alder fragment (c 320mm long x 125mm x 10mm thick; Fig. 4.10a). Alder could have been used for decking the bridge or jetty but would not have lasted long in the wind and rain.

One item of worked wood appears to have been a portable artefact rather than structural woodwork or woodworking debris. Timber 95 was located to the south of the 'bridge' structure on the surface of an organic clay (layer 52). Although one end of the timber was broken off it was identified as a radially cleft piece of oak, trimmed to a 'D' shape in cross section (95mm x 35mm). The original end was bruised as if it had been used as a crow bar or for digging, or, alternatively, it might have been the upper end of a robust fence pale or gatebar.

Fig. 4.10 (left) A sample of woodwork debris from layer 49, Freemasons Road a) alder cleft debris (65) b) oak shaving (82) radially faced

Plate 5 (below) Excavation of debris layer 49 associated with 'bridge' Structure 32, Freemasons Road (Area A)



Middle to late Bronze Age

Artefacts from the weathered sands

The Bronze Age artefact assemblage retrieved from the surface of the alluvial silts (layers 76, 88 and 106) at the base of the excavation comprised a small amount of Deverel Rimbury pottery, struck flint, animal bone and fragments of worked and unworked timber. The pottery was confined to the northern part of Area A (layer 81) and includes a decorated (combed) body sherd from a globular urn (Fig. A2.1, 22) and a base sherd from a bucket urn.

Features in Area B

A number of features dated to the middle to late Bronze Age appear to be concentrated in Area B (Fig. 4.7). The dating is largely based on the pottery assemblage. The presence of Deverel Rimbury pottery and radiocarbon dating suggests much of this activity occurred during the later half of the 2nd millennium BC. Although a few of these features displayed intercutting relationships hinting at a prolonged period of activity, a larger number did not which makes more detailed phasing difficult.

Butt-ended ditch 132, in the central part of the Area B, measured at least 11m long, 1m wide and about 0.50m deep and clearly truncated the earlier 'enclosure' (Plate 6). The ditch was aligned north-south with a dog-leg curve veering to the west approximately two thirds along its length and continuing north beyond the edge of excavation. The sides of the ditch sloped steeply to a slightly concave base (Fig. 4.11). The basal deposit infilling this feature to the north (fill 140) comprised mid grey blue sandy silty clay with occasional lenses of orange sand. To the south the basal deposit (fill 170) consisted of a dark brown silty peat. The upper deposits (fills 146 and 133) consisted of dark brown silty or clayey peat and contained struck flint, burnt flint, animal bone and pottery. The pottery included sherds from a Deverel Rimbury bucket urn and the bone assemblage comprised six fragments from cattle and sheep/goat. Butchery cut marks and dog gnawing were evident on cattle bones.

Located in the central part of Area B was east-west aligned linear feature 122. This feature measured 5.66m in length, 1.28m wide and 0.20m deep and was characterised by steeply sloping sides falling to a concave base. The fill (121) was a soft dark greyish brown clayey silty peat from which were retrieved a single sherd of middle to late Bronze Age pot, burnt flint, struck flint and goat/sheep and cattle bone. The feature continued west beyond the edge of excavation and was truncated to the east by a modern drain. Beyond the drain, what may have been the eastern end of the feature was recorded as feature 183.

Ditch 132 was truncated by a small pit on its eastern side. Pit 148 was at least 0.57m deep and characterised by near vertical sides falling to a flat

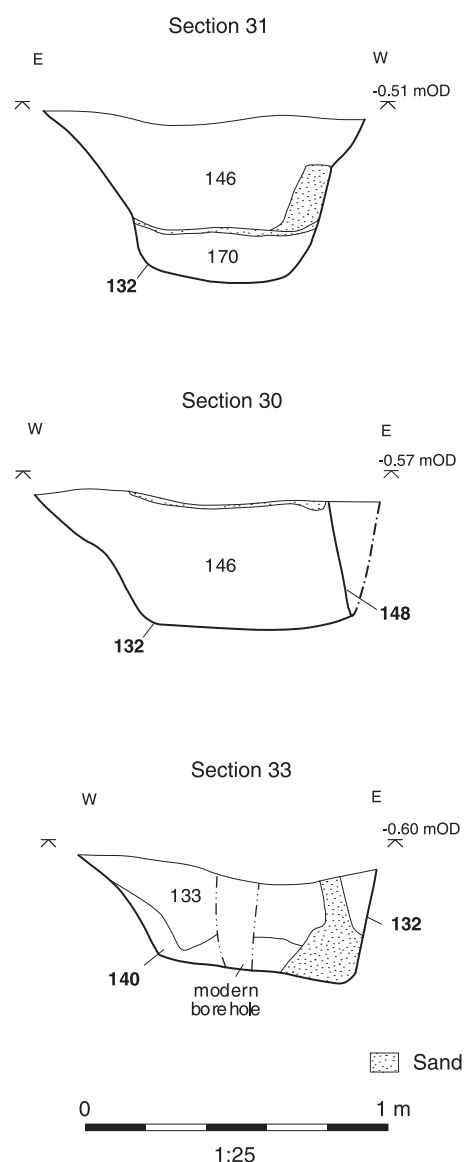


Fig. 4.11 Sections of ditch 132, Freemasons Road

base. The basal fill (192) consisted of dark brown organic clayey silt. This was overlain by a bluish grey silty clay (191) and dark brownish grey clayey sandy silt (147) which contained struck flint and middle to late Bronze Age pottery.

The stakeholes in Area B

In the south-east corner of the trench there was a concentration of postholes and stakeholes that may represent the locations of animal pens or fence lines (Figs 4.7 and 4.12). The pattern of these stakeholes is difficult to discern perhaps suggesting a number of repairs or replacement structures. What can be identified is an arc of stakeholes about 4.70m long in the southern area and perhaps a rectangular structure just to the north. Within this a number of alignments appear to form circular structures, for example features 201, 211, 328 and 330 represent a group of possible postholes forming a circle roughly



Plate 6 Ditch 132 and later stakeholes, Freemasons Road (Area B)

0.40m in diameter. Within the circle, and central to the group, was a fifth posthole (332) although this was notably larger and shallower than the surrounding features. Stakeholes 222, 224, 226, 242 and 244 on the eastern margin of the trench also appear to form a coherent group. Many of the stakeholes appear to have been set in close pairs and if contemporary may have clasped off-cut branch wood and small stems to form a 'dead hedge'. Whether they supported a wattle fence or dead hedge it is possible the structures were used to control livestock or wild herbivores. Another possibly less likely use might have been to hold and straighten freshly cut bark or cleft planks that often separate in a slight curve (Stewart 1984, 43).

In a few of the stake holes stake tips had actually survived and comprised either roundwood (c 55-70mm diameter) or cleft poles. All of the stake tips were identified as alder, apart from 334 which was of hazel and produced a radiocarbon date of 1390-1120 cal BC (SUERC 24291: 3010±30 BP). A pottery sherd from posthole 304 derived from a Deverel Rimbury bucket urn. In the southern part of the trench timbers 342 (not illustrated) and 214 were large oak branches driven into the earth at an acute angle. However, close examination revealed no cut

marks and the 'points' consisted of torn sapwood and bark (Fig 4.12a). Observations in modern wet woodland environments show that dying trees often shed large branches which, on occasion, have sharp wind-broken ends that become embedded in the ground almost vertically and resemble structural piles (Goodburn 1995).

Flood deposit 125

Evidence of a flood episode in Area B prior to the commencement of peat formation is apparent from a spread of eroded branch-like or drift wood timbers (wood spread 164) covering some of the stakeholes (Fig. 4.13). The wood was in turn overlain by a discrete spread of dark brownish grey silty sand (layer 125) 0.17m thick, and a layer of loose orangey brown silty sand (layer 107).

The finds from these two contexts included struck and burnt flint and animal bone and pottery, although the abraded condition of much of this material suggests it has been reworked from its original position by the flood waters. The burnt and struck flint may represent knapping waste rather than tool use and discard. Although some of the flints showed similar technology to that employed during the earlier phases of activity, a substantial

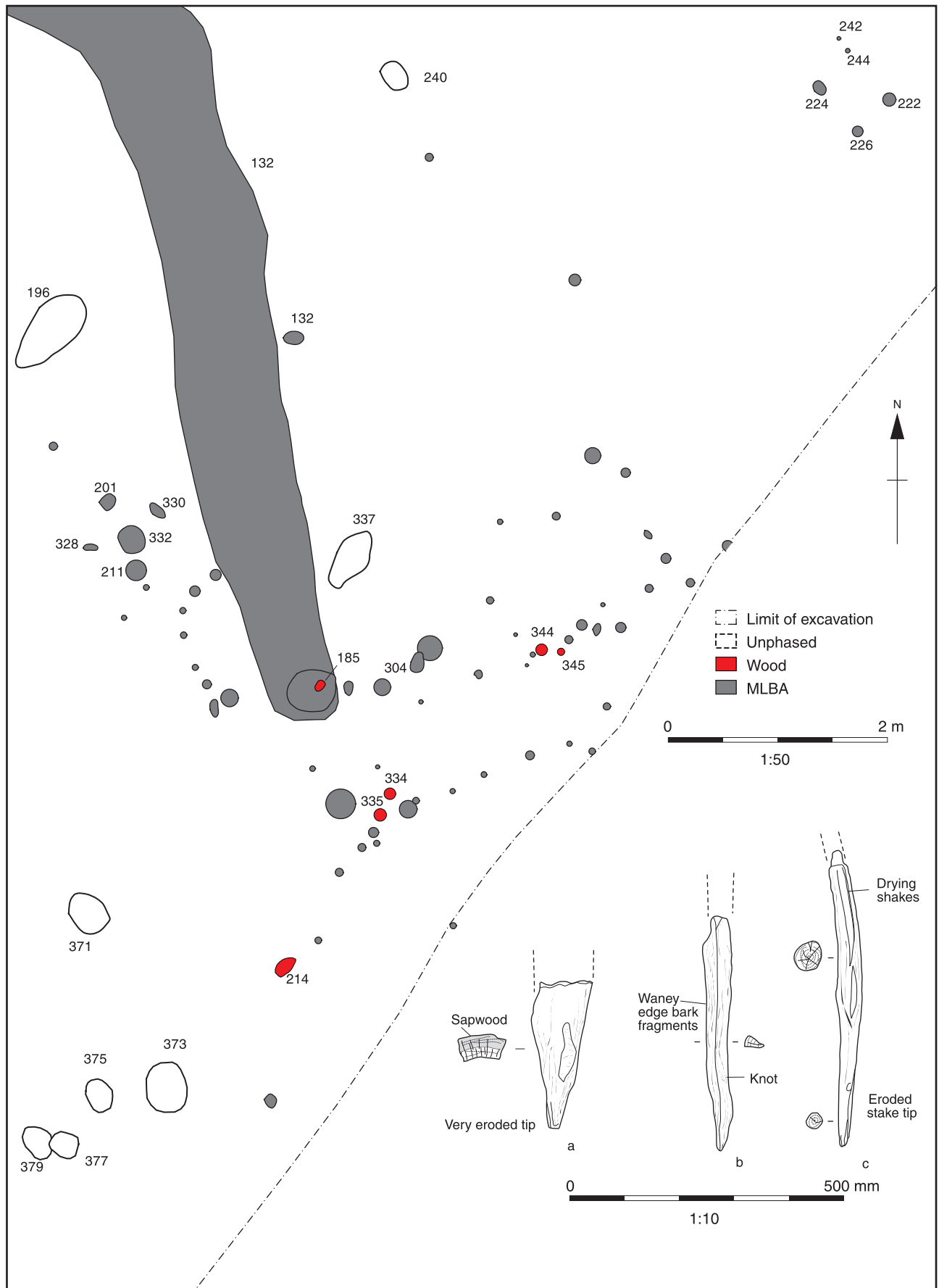


Fig. 4.12 Detail of the middle Bronze Age stake alignments, Freemasons Road a) timber (214) naturally shed oak branch b) stake (344) from a cleft eighth section c) roundwood stake (345)

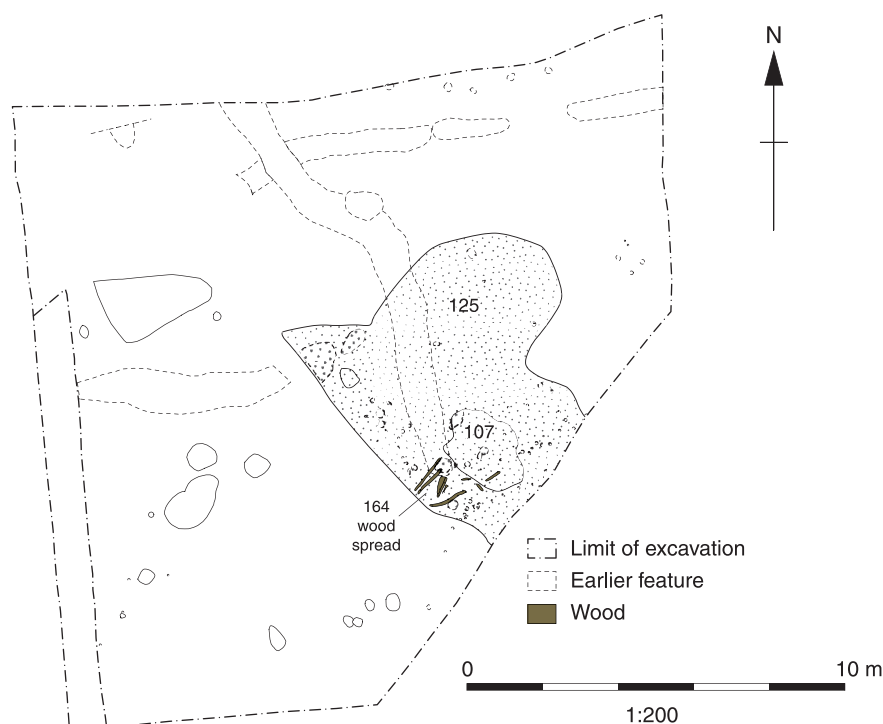


Fig. 4.13 Plan of flood deposit 125, Freemasons Road

proportion showed reduction techniques more typical of those employed during the middle Bronze Age and later. The pottery assemblage comprised 104 sherds (70% of all the pottery recovered from Freemasons Road) and included the fragmentary remains of several plain vessels considered as either transitional between the Deverel-Rimbury and post-Deverel-Rimbury (PDR) traditions (1200-1100 cal BC) and/or belonging to the initial PDR 'plain ware' phase (1150-950 cal BC, Barclay and Rayner Appendix 2). Charred residues within the bases and on the interior surfaces of a number of body and rim sherds indicate that these vessels were used to cook food over a hearth or within an oven. The animal bone from layer 125 comprised 20 fragments and included a partial disarticulated dog skeleton. Cattle bones with evidence of dog gnawing and sheep/goat bones were also recovered. Layer 107 contained cattle skull fragments likely to have derived from the broken remains of a single partial skull (Strid and Nicholson, Appendix 3).

Artefacts from the peat

It appears that peat formation on the surface of the sands had begun in the lower-lying ground in the southern part of Area A during the latter part of the third millennium BC. During the middle Bronze Age this appears to have encroached northwards (peat layers 46, 47, 32), sealing the artefactual material in layer 49. The peat appears to have extended into Area B (peat layers 123, 105, 101, 102 and 108) sometime towards the end of the 2nd

millennium BC judging from the date of the pottery retrieved from the underlying flood deposit 125.

A spread of wooden branches (wood spread 48) in the north of Area A appeared to form a linear arrangement and may have been deliberately laid down, perhaps to consolidate the underlying peat (layer 47) to support human or animal traffic. However, none of the wood showed any signs of being worked and the deposit may have a natural origin. One wooden item (SF1), however, retrieved from peat layer 32 that directly overlay layer 49, was a section of split and axe trimmed yew wood, c 25mm square in cross section and over 0.44m long, tending towards a point at both ends (Fig. 4.14). This piece resembles similar double pointed cleft sticks from Woolwich Manor Way and another middle Bronze Age trackway site on the floodplain at Erith in North Kent (Bennell 1998, 26). The function of these items is unclear but it is likely they were used in food preparation (see Chapter 10).

The majority of the burnt flint and nearly a third of all the struck flint recovered at Freemasons Road came from these peat deposits (Bishop, Appendix 2). The material was concentrated in Area A, especially in the lower peat horizons, suggesting that the peat was traversed and probably relates to the activity recorded in Area B during this period. The quantities of burnt flint suggest dumping in, or the consolidation of, the peat horizons or possibly that a 'burnt mound' type feature was

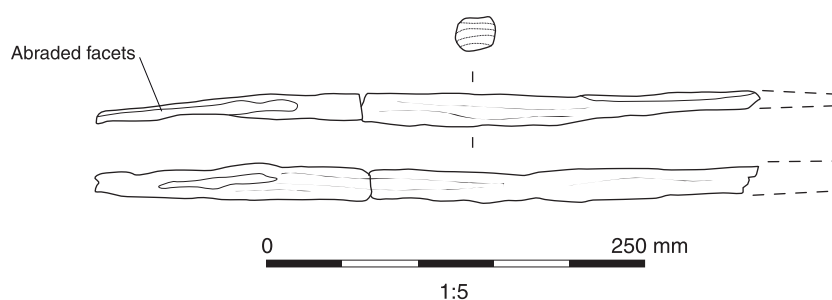


Fig. 4.14 A cleft yew wood object pointed at both ends, Freemasons Road

located in the vicinity. Analysis of the lithics suggests that both use and discard was occurring throughout the period. The majority of the tools were scrapers perhaps indicating that animal processing was occurring, although a variety of other tools would suggest that other activities were also being carried out. That actual knapping was also being carried out, is evidenced by the collection of quantities of preparation flakes, flake fragments and cores. Only minor differences were noted amongst the struck flint recovered from Areas A and B. Area B did contain a higher proportion of useable flakes but less retouched implements than Area A. This may be an indication of the presence of different activity areas. Whilst the peaty deposits may have formed under wet conditions, i.e. standing water, the lithic evidence and perhaps the timber consolidation of the surface of the peat recorded in Area A suggests that there were at least times when the peat was drier and it may have been possible to walk on it.

A quantity of cattle, sheep/goat and pig bones, some of which exhibited butchery marks, was recovered from the peat deposits. The presence of infant and juvenile cattle and sheep/goat bones is an indication that the breeding and/or rearing of these animals occurred in the vicinity. Some of the bones showed signs of dog and rodent gnawing. Interestingly a dog atlas, the first vertebra from the skull, showed approximately three fine chops indicative of an attempt at decapitation (Strid and Nicholson, Appendix 3).

Late Bronze Age to early Iron Age (Fig. 4.15)

The change to minerogenic sedimentation in Area A appears to have occurred early in the first millennium BC. A thin deposit of light brownish grey clay silt (layer 39) overlay the peat and a small quantity of burnt and struck flint, cattle, sheep and pig remains were recovered from the layer. In the central part of the trench a patchy layer of orange/yellow sandy silt with occasional fragments of charcoal and charred wood (layer 34) was recorded that may represent either *in situ* burning or a dump of burnt material. Analysis of the charcoal revealed it to be entirely composed of hazel roundwood. In

the north of the trench a single feature was recorded; pit 45. The pit was at least 0.16m deep was filled with reddish brown clayey silt (fill 44) with occasional fragments of charcoal and pottery dated to the late Bronze Age to early Iron Age.

Overlying these features was a layer of organic dark greyish brown clayey silt alluvium (layer 31). In the north of the trench the irregularity of the surface suggested possible poaching by cattle hooves (Fig. 4.15). Layer 31 was truncated by a north-south linear feature (6.70m x 1.20m), 0.38m deep (cut no. 42/38). The cut was characterised by slightly concave sides sloping to a flat and level base. The fill (fill 41/37) was dark bluish grey organic silt from which two fin spines from a three-spined stickleback were retrieved, evidence that the ditch contained water. Animal bone, including a gnawed cattle bone, and two flint flakes were also recovered. Layer 31 was also truncated by pit 36 (1.25m x 0.40m), 0.30m deep. The pit was filled with a dark greyish brown sandy clayey silt (fill 35), containing a single flint flake. Both pit 36 and ditch 42/38 were truncated by a north-south curvilinear ditch (10.10m x 1.90m), 0.38m deep (cut no. 28) that continued south beyond the limits of the excavation. The basal fill (fill 33) consisted of a dark grey peaty silt from which only small fragments of daub were recovered. The upper fill (fill 27) was a dark brown clayey peat from which burnt and struck flint, daub, butchered cattle and sheep bones and part of a pig skull were recovered. It may be that the ditches recorded here were field boundaries and/or were an attempt to drain the land.

In the north-west quadrant of Area A, a group of five features of possible natural origin were also recorded (cut nos. 24, 30, 19, 21 and 25). All of these features were relatively shallow and irregular with sandy clay fills containing occasional burnt and struck flint and fragments of animal bone.

Two natural channels that appeared to drain to the south were recorded in Area A (cut nos. 22 and 7). The channels were sealed by alluvium at least 1.20m thick which was excavated by a mechanical excavator. Channel 22 was 5.5m wide, at least 0.40m deep and ran north-south across the whole length of the trench for 14m continuing beyond the limits of

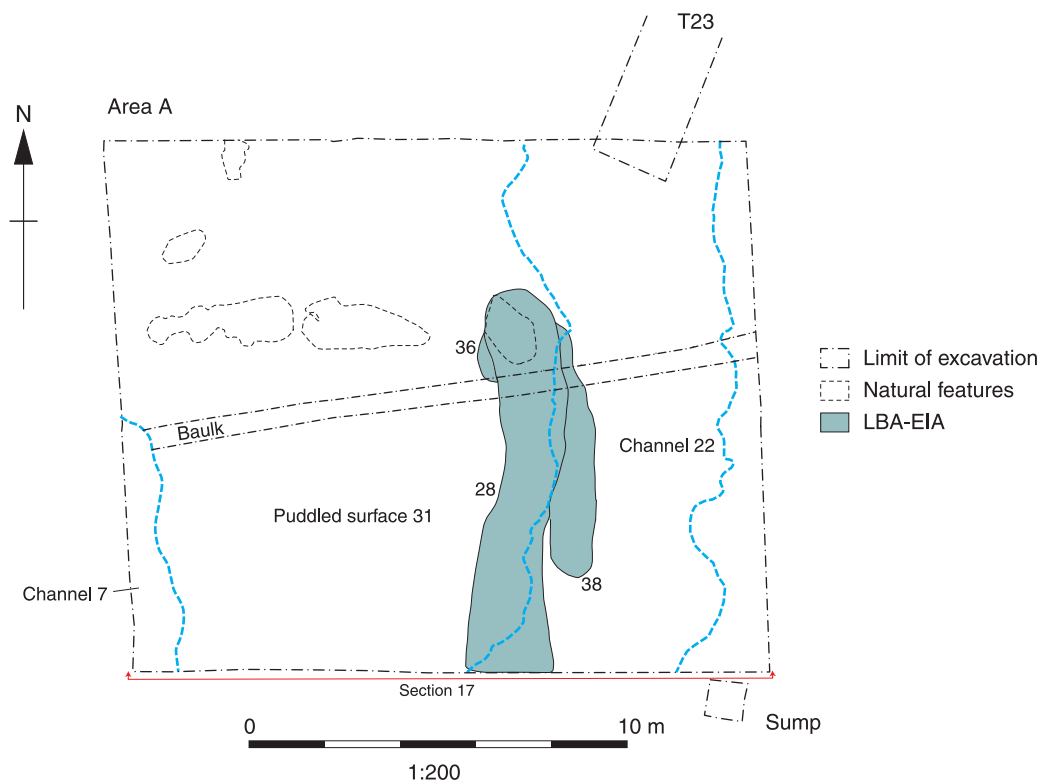


Fig. 4.15 Plan of features within the upper alluvium, Freemasons Road

the excavation both to the north and south. The channel was filled by a sequence of alluvial deposits of clayey and sandy silts. The complex sequence of fills probably resulted from changing flow patterns and rates, which would have caused differing rates of deposition and erosion. On the western side of the trench another natural watercourse, channel 7, was partly exposed (6.7m x 1.5m wide) 0.40m deep, and continued to the west and south beyond the edge of excavation. Again the channel appeared to have silted up naturally.

Natural and unphased features

A number of features were recorded truncating the surface of the lower alluvium in Area B, although most these had irregular profiles suggesting they could be the result of natural root action or perhaps tree-throw holes (Fig. 4.7). This included a group of features to the west of ditch 132 which were filled with dark brown peaty or organic silts and clays and produced occasional struck flint, burnt flint and pottery dated to the middle to late Bronze Age. Two larger features were recorded to the south of this group that appear to intercut, and were themselves cut by ditch 122. These features were quite shallow at 0.15m and 0.42m deep and produced burnt flint, struck flint and bone.

A number of features thought to be of anthropogenic origin truncating the surface of the lower

alluvium may relate to any of the phases of Bronze Age activity. A group of possible postholes, scattered across Area B and filled with a similar soft, mid grey brown sandy silt, were provisionally associated with the 'enclosure' gully during the assessment. They were thought to represent fence lines for animal pens, with the gaps perhaps supporting wattle hurdles. Some of these features, however, were quite widely spaced and could relate to later phases of activity. The only artefactual material recovered was a small amount of burnt flint from posthole 130. Postholes 135, 114 and 240 form an east-west alignment over a distance of 10.40m, 3.0m to the south of the 'enclosure'. To the south and at approximate right angles was a north south alignment of three further postholes: 130, 161 and 172, regularly spaced at 2.90m intervals over a distance of 5.60m. In the south-east corner of Area B was a further cluster of four small pits or possibly postholes (cut nos. 371, 373, 375, 377 and 379). All these features were filled with dark grey brown clayey silt.

In the central part of the trench two possible post-pits (cut nos 196 and 337) were initially thought to be associated with the group of middle Bronze Age stake holes. Both features were filled by greyish brown sandy silt containing burnt and struck flint. Approximately 0.70m to the north of the ditch 122 was a large (3.10m x 1.70m) sub-triangular shaped pit 0.22m deep (cut no.144). The feature was filled

with mid greyish brown sandy silt from which burnt flint was also retrieved (fill 143). To the south of the ditch was a cluster of four small pits. Pits 167 and 390 were filled with a dark brown peaty clay

containing burnt and struck flint, as well as sheep/goat teeth in the case of pit 167 and also pit 127 in this cluster.