ARCHAEOLOGICAL MONITORING REPORT

BOTANY MARSHES, BUSS CREEK, SOUTHWOLD
SWD 045

A REPORT ON THE ARCHAEOLOGICAL MONITORING, 2006
(Planning application no. W/13162/2)

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SCCAS Report No. 2007/222

List of Contributors

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Sue Holden	Freelance illustrator	

Summary

Monitoring of flood defence works at Buss Creek, Southwold, was required to record any archaeological and palaeo-environmental deposits revealed by the various ground works. Cleaning out of a section of Buss Creek revealed a series of large, upright oak planks. Four of these were extracted and their worked ends removed for further study. Tree ring analysis was unable to establish a date for these timbers, however, study of the worked joints present suggested a medieval date, post thirteenth century. It is likely that these timbers represent part of a quay or wharf structure or a revetment associated with wetland reclamation; the area is marked as 'Old Key' on Hodkinson's map of Suffolk dated 1783. It is believed that more of the site remains preserved *in situ*.

HER information

Date of fieldwork:	30.08.2006
Grid Reference:	TM 4948 7657
Funding body:	The Environment Agency
Planning application no.	W/13162/2
OASIS ID No.	38139

Introduction

During work to improve existing and build new flood defences at Buss Creek, Southwold, a series of vertical timbers were exposed by contractors during de-silting. The site lies at TM 4948 7657 (Fig. 1), at a height of approximately 0.5m OD, along the line of Buss Creek. Archaeological interest in this site is due to its potential for the survival of palaeo-environmental evidence and preserved waterlogged deposits. Rare Saxon boat remains (SWD 006) have been found in Buss Creek, *c.*700m east of the site. These comprised well preserved strakes and frames, probably from a merchantman and a much finer vessel. An unfinished side rudder was also recovered, with clench nails and roves typical of early medieval vessels. A radiocarbon sample yielded a date of 1030 +/- 60 BP. There is the potential for the survival of other important archaeological sites to be present within the watercourse and its surrounding wetland environment

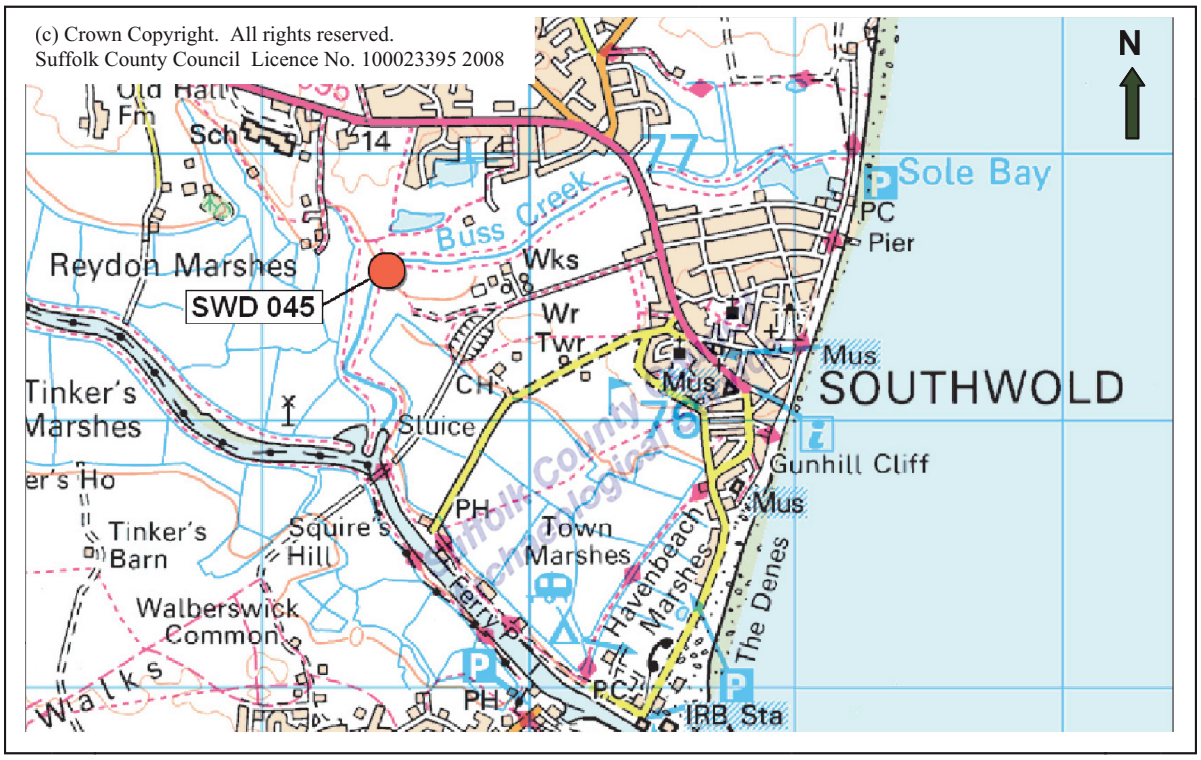

Figure 1. Site location

Methodology

One visit was made to the site by the Field Projects Team of Suffolk County Council's Archaeological Service (SCCAS) in order to assess the significance of timbers encountered during the de-silting of a backfilled section of Buss Creek to the east of the existing embankment. The site was recorded under the Historic Environment Record (HER) code SWD 045, and a digital photographic record of the work was made. The fieldwork was funded by The Environment Agency.

The monitoring archive is held in the County HER in Bury St. Edmunds.

Results

A series of vertical, squared timber planks, butted flush and aligned west to east on the north bank of a backfilled section of Buss Creek were exposed by machining *c.*350mm below the ground surface (Plate 1). Four timbers were removed for analysis prior to the continuation of ground works (Plate 2). Other timbers exposed, and those believed to exist beyond the limits of the excavation, survive preserved *in situ*. The top of each of the exposed timbers had suffered some decay where the burial environment was drier. This decay is most likely to have occurred *in situ,* since the feature went out of use and probably more so since the creek at this point was

backfilled. Backfilling appears to have taken place some time after *c*.1924, when the 3rd edition Ordnance Survey map shows a footbridge across the creek at this point. What is not clear is to what extent the creek had naturally silted up at this time. Whilst the top *c*.300mm of each timber showed signs of desiccation, the majority of each timber was well preserved in a waterlogged, anaerobic environment.

The excavated hole in which the timbers were present measured only *c*.1.8m x 2m, with a depth of *c*.1.2m. It was not possible to expose the wood any deeper as the excavation was inundated by water, making access for recording *in situ* impossible. The deposits exposed in the excavated sections comprised a thin, loamy topsoil over a black, organic rich silt *c*.250mm thick, at the base of which the timbers were just visible. This silt sealed dark bluish grey alluvial clays to the base of the study area.. The location of the machined area is shown in Figure 2.

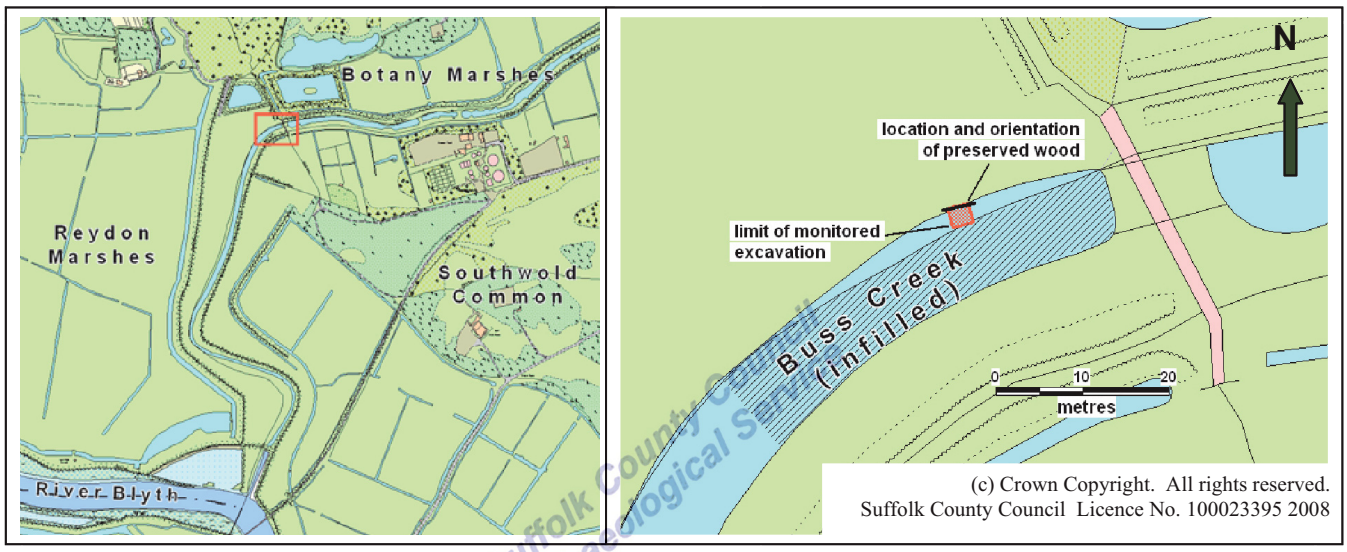

Figure 2. Location of excavated area

Four timbers were removed from the excavated area using the machine bucket, each of varying width but measuring 65mm thick and around 1.5m in length, with short tenon joints 35mm thick at the buried end. These joints were sawn off and taken for analysis by wood specialist Richard Darrah and dendrochronologist Ian Tyers, the results of which are summarised below, with the full reports attached as Appendices I and II. Each sample was cleaned and photographed (Plate 3) before being sent for analysis. In addition, sample 0004 was drawn, following the recommendation of Richard Darrah (Figure 3).

The samples were all tangentially sawn fast grown oak (*Quercus* spp.), with clear tool marks from axe hewing, sawing and drilling with augers. One timber had been reused as it was burnt and had two unexplained auger holes (0001). Although these auger holes could have been part of the structure, the burnt area was incompatible with the wet environment where the structure was found. It is not clear whether the timbers represent the top part of a more complex structure with more structural elements remaining *in situ*, or the bottom of the structure with just the base plate left *in situ*. The excellent preservation suggests a structure buried in deep waterlogged deposits, and a missing sill beam with a mortise slot or holes for the tenons.

Although some faces were pit sawn or trestle sawn, others had been hewn, either to remove saw cuts, or to flatten surfaces. Whilst only small dressed areas survived, it was clear that these hewn surfaces were skilfully finished. It was not possible to date the timbers accurately from this, other than to say that they were later than 1200AD, possibly several centuries later.

Two of the timbers had sufficient rings for dendrochronological analysis (0001 and 0003), however no significant cross-correlations were identified between these and known tree-ring data. None of the wood was submitted for radiocarbon dating for various reasons. If a specific, rather than general date could be established, it would not provide a date for the structure itself. Such a date would refer to the felling of the tree and then only be accurate if sapwood was present. As there appears to be some evidence that some of the timbers were re-used, felling could have taken place hundreds of years prior to the construction of this structure.

Discussion and recommendations

Although only a small area was exposed, the nature and form of the timbers revealed suggest that they may be part of a revetment structure like that at Trig Lane, London (G11, see Fig. 4), the construction of which was dated by dendrochonological analysis to *c.*1385 (Milne, 1978). Figure 4 shows how tenon joints slotted into mortise holes in a horizontal base plate, an arrangement which may still survive below the limits of the excavation here. Whilst evidence of reuse was noted on one of the timbers, it was not clear where this was reused from. From the evidence recovered from this site, it appears to represent a medieval structure.

It was not possible to date the wood closely by dendrochronology or via the worked joints and even if this had been possible, it would only reveal the date the wood was felled or worked rather than the date the structure was built. Even if scientific dating of the wood were possible, four timbers represents a small sample of a potentially much bigger structure which could have been subject to repair and re-use over several centuries.

Whilst it is not possible to be precise about the date of the structure discovered here, map evidence does rule out the possibility that the structure is post-medieval. Hodkinson's map of Suffolk produced in 1783 shows this stretch of Buss Creek labelled 'Old Key', with an area to the west on the River Blyth labelled 'New Key' (Fig. 5). Buildings and an access road are shown at the New Key, whereas 'Old Key' is used to mark a general location. The map suggests that the area of Buss Creek in which the timbers were found was remembered as the location of a former quay but that by 1783, the site was no longer in use. No indications of activity are shown at the find spot on the 1st edition Ordnance Survey map dated *c.*1880.

Buss Creek was formerly a wide, navigable channel which in combination with the river Blyth to the south west, effectively made the town of Southwold an island. Wide stretches of marshland exist beyond both banks of the creek but the area within which the timbers were found represents the narrowest point between the river and higher, drier ground. In terms of location, this appears to be a logical site for a port, wharf or jetty as it is the easiest point of access to the creek from higher land either side.

The timbers represent an important discovery in their own right as a well preserved medieval structure. However, their presence close to known Saxon boat remains also serves to highlight the significance of Buss Creek as an area of medieval and earlier maritime activity where the levels of organic preservation appear to be excellent. As such, it is imperative that the creek is managed with this in mind.

The water table should be kept high in order that anaerobic conditions are maintained around surviving organic artefacts and palaeo-environmental deposits. Any below ground intervention should be kept to a minimum and should only be undertaken following the production of a thorough archaeological desktop assessment. Ditch and dyke cleaning should be undertaken with care and under archaeological monitoring. Work for conservation, biodiversity or enhancement of the environment such as scrapes or ditch widening area should not be undertaken unless under full archaeological supervision following consultation with the SCCAS Curatorial Team.

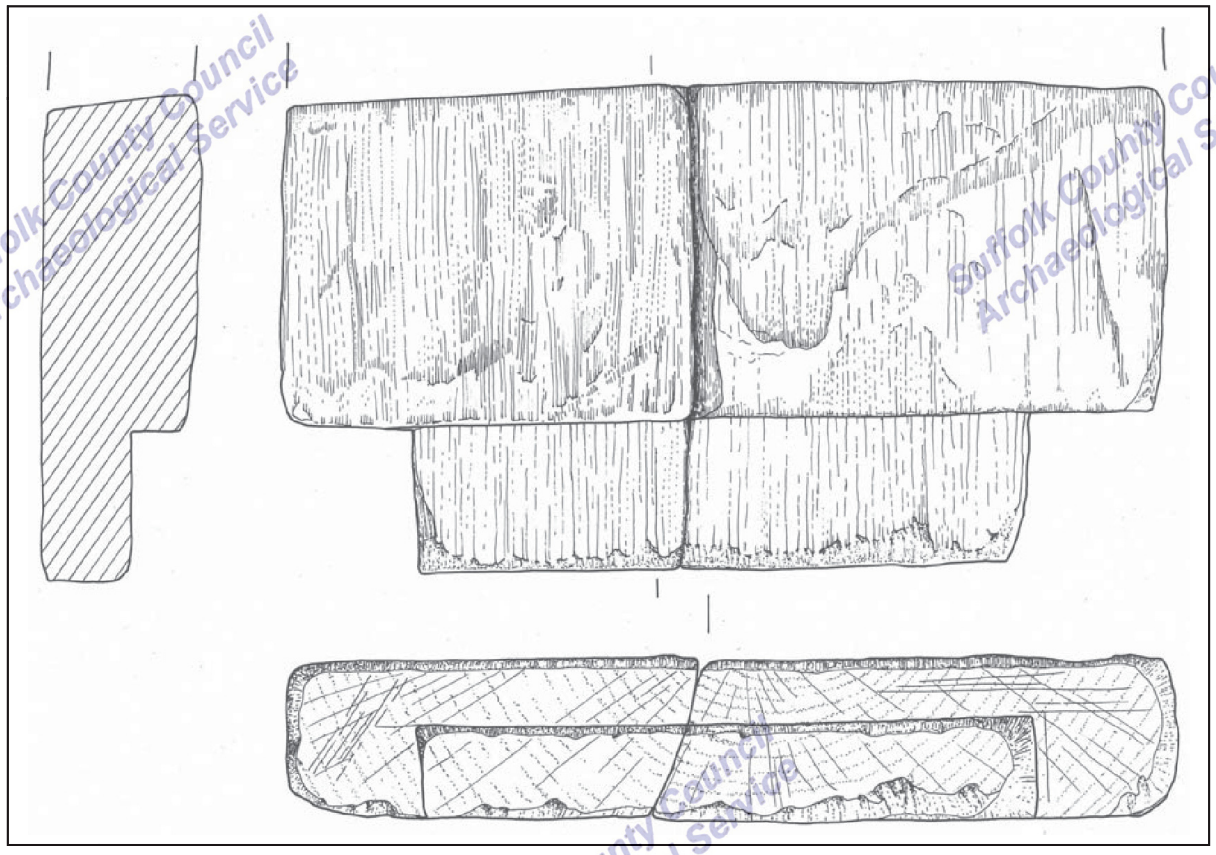

Figure 3. Sample 0004, scale 1:3

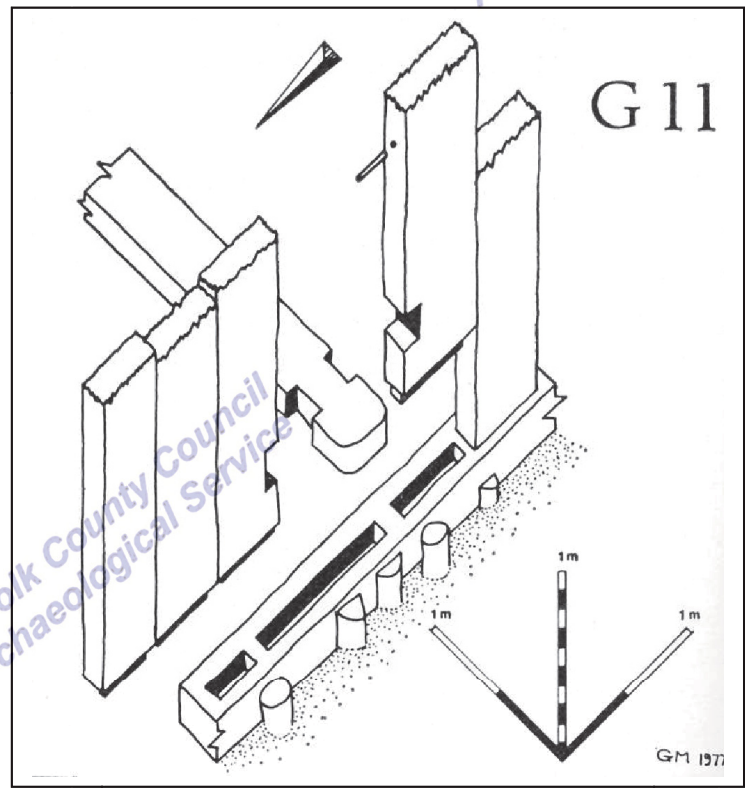

Figure 4. Projection of back-braced revetments at Trig Lane, London (from Milne, 1978, p.94)

Plate 1. Top of timbers within excavated area, exposed by machine.

Plate 2. Timbers following their removal from excavated area, showing worked ends

Plate 3. Worked ends of timbers

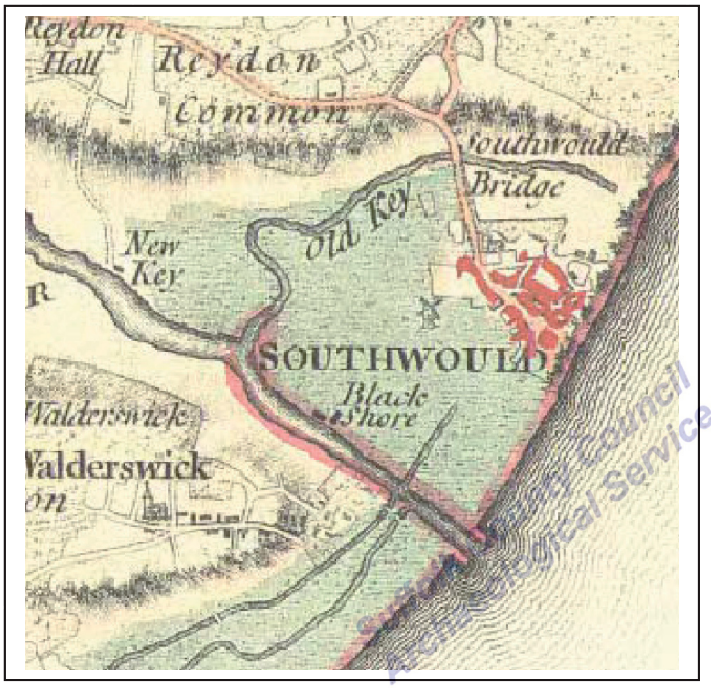

Figure 5. Extract from Hodkinson's map of Suffolk, 1783, showing part of Buss Creek labelled 'Old Key' and New Key on the River Blyth to the west.

References

Milne, G., 1978 'Excavations on the Thames Waterfront at Trig Lane, London, 1974-6' in *Medieval Archaeology Vol. 1, XXII*

Appendix 1

Tree-ring spot dates from archaeological samples

by Ian Tyers

Introduction

A total of 5 samples from the excavated timbers was submitted for dendrochronological assessment and analysis. No absolute dates were obtained from these samples.

Methodology

Each sample was supplied as a complete cross section. It was assumed in the absence of other information that these were obtained from the optimum location for sapwood and bark survival from the timber.

Each sample was assessed for the wood type, the number of rings it contained, and whether the sequence of ring widths could be reliably resolved. For dendrochronological analysis samples need to be either oak (*Quercus* spp.), or another of the dendrochronologically viable timbers types, to contain 50 or more annual rings, and the sequence needs to be free of aberrant anatomical features such as those caused by physical damage to the tree whilst it was still alive. Standard dendrochronological analysis methods (for example, English Heritage 1998) were then applied to each suitable sample. The sequence of ring widths in each sample was revealed by preparing a surface equivalent to the original horizontal plane of the parent tree with a variety of bladed tools. The width of each successive annual growth ring was revealed by this preparation method. The complete sequence of the annual growth rings in the suitable samples were then measured to an accuracy of 0.01mm using a micro-computer based travelling stage. The sequence of ring widths were then plotted onto semi-log graph paper to enable visual comparisons to be made between sequences. In addition cross-correlation algorithms (e.g. Baillie & Pilcher 1973) were employed to search for positions where the ring sequences were highly correlated (Tyers 2004). Highly correlated positions were checked using the graphs and, if any of these were satisfactory, new composite sequences were constructed from the synchronised sequences. Any *t*-values reported below were derived from the original CROS algorithm (Baillie & Pilcher 1973). A *t*-value of 3.5 or over is usually indicative of a good match, although this is with the proviso that high *t*-values at the same relative or absolute position needs to have been obtained from a range of independent sequences, and that these positions were supported by satisfactory visual matching.

Results and Discussion

The submitted material comprised 5 oak (*Quercus* spp.) samples. After the samples were prepared for analysis it was concluded that 3 of them were suitable for measurement (Table 1). A pair of timbers were found to cross-match each other, these were sub-samples derived from the same timber (0003 & 0003b, *t*-value = 15.97, see Figure 1). No significant cross-correlations were identified between these and medieval or post-medieval tree-ring data from England, the rest of Great Britain, or northern Europe.

The failure of these samples to provide any dating evidence may indicate that the relatively short & fast grown tree-ring series within them are dominated by non-climatic signals. Alternatively the relative paucity of local reference data from the eastern coast of East Anglia may be preventing successful analysis of relatively borderline material.

Figure 1. The matched tree-ring series from two sub-samples from the same timber 0003 (red) & 0003b (black).

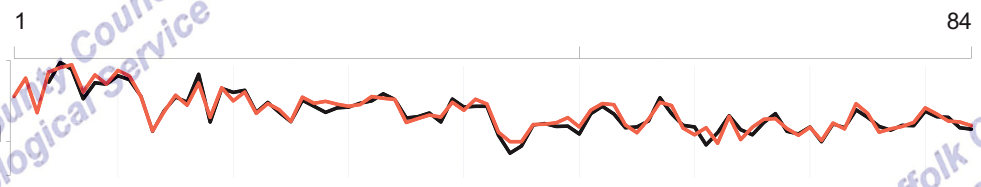

Table 1. Details of the dendrochronological samples from Buss Creek, Southwold, (SWD 045).

Sample	Size (mm)	Total Rings	Sap rings	Date of measured sequence	Interpreted result
0001	255 x 90	37	6	undated	-
0002	180 x 60	~15	-	unmeasured	-
0003	265 x 65	84	18+¼Bs	undated *	-
0003b	265 x 65	81	18+¼Bs	undated *	-
0004	365 x 60	~30	-	unmeasured	-

KEY

* these 2 sub-samples were derived from the same timber see Figure 1. +¼Bs, bark edge, spring felled.

References

Baillie, M.G.L. & Pilcher, J R, 1973 A simple crossdating program for tree-ring research, *Tree Ring Bulletin*, 33, 7-14

English Heritage, 1998 *Dendrochronology: guidelines on producing and interpreting dendrochronological dates*, English Heritage

Tyers, I., 2004 *Dendro for Windows program guide 3rd edn*, ARCUS Rep, 500b

Appendix 2

The medieval timber revetment at Bus Creek
by Richard Darrah

Methodology
The timbers were examined and fully recorded on timber recording sheets. Recommendations for illustration and photography were also made.

Description and discussion
The extracted timber from Bus Creek consisted of the recently sawn off ends of four oak planks all 65mm thick. All four had short tenons 35mm thick. The tenons varied in that three were bare faced (0001, 0003, 0004), two were of reduced width (0002, 0003), one had an edge lap cut at one side (0002). Two were without peg holes (0002, 0004). The timbers were well preserved, rectangular in cross section with waney edges, originally up to 400mm wide and retained clear tool marks, both from axe hewing, sawing and drilling with augers.

The timbers were all tangentially sawn fast grown oak. Most had 30 to 45 rings, but only one had sufficient rings to be datable by dendrochronology (0003). This had 75 rings including complete sapwood. If this timber were to be datable, it would indicate the year that the tree was felled, and probably the year that the structure was built. However this date would have to be treated with caution as one timber had been reused as it was burnt and had two unexplained auger holes (0001). Although these holes could have been part of the structure, the burnt area was incompatible with the wet environment where the structure was found.

Although some faces were pit sawn or trestle sawn, others had been hewn, either to remove saw cuts, or to flatten surfaces. Despite the smallness of the surviving dressed areas, it is clear that these hewn surfaces were skilfully finished. Unfortunately this does not allow us to date the timbers accurately, other than to say that they are later in date than 1200AD, although informed guesswork would suggest that they are several centuries later than this.

It is not clear from the surviving cut off timbers whether they represent the top of the structure with the rest remaining *in situ*, or the bottom of the structure with just the base plate left *in situ*. The excellent preservation suggests a structure buried in deep mud, and a missing sill beam with a mortise slot or holes for the tenons. There is no reason why these should not be part of a revetment structure like Trig Lane TL11 (Milne 1992).

References

Milne, G., 1992 Timber building techniques in London c. 900-1400 *London Middlesex Archaeol. Soc*., 75