EVALUATION OF A LATE IRON AGE AND ROMANO-BRITISH SETTLEMENT AND PALAEOCHANNELS OF THE TRENT AT CHAPEL FARM, SHARDLOW & GREAT WILNE, DERBYSHIRE

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TRENT & PEAK
ARCHAEOLOGICAL TRUST

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SUMMARY

- *Four 10x3m trenches were excavated towards the edge of the gravel terrace in Stoneylands Close, with the aim of investigating the character, date and quality of preservation of a complex of features revealed during geophysical survey of this area by Oxford Archaeotechnics.*

- *The discovery of a pit or gully with three large flint blades deriving from a single platform core, possibly cached together for future use, raises the intriguing possibility of a phase of later Neolithic or earlier Bronze Age settlement. This argument may be supported by the discovery in trench 04 of a scatter of possibly in situ flintwork.*

- *A dense pattern of Late Iron Age/Romano-British ditches, gullies and pits correlating closely with the geophysical anomalies was revealed in all four trenches, together with a rich collection of pottery and other artefacts of these periods. These imply a major Late Iron Age/Romano-British settlement, engaged in mixed farming and possibly with associated industrial activities such as pottery production. Occupation may have been concentrated within an area defined by an enclosure ditch demarcating the southern edge of the gravel terrace, but features were also recorded beyond the boundaries of the enclosure. Traces of wall plaster and dressed stone and a possible tessera suggest that in the Roman period the settlement may have incorporated buildings of some architectural pretension. Discoveries of lead and iron artefacts add to the impression of at least moderate wealth.*

- *Five boreholes yielded deposits with potential for the preservation of significant palaeoenvironmental data. Analyses of the insect remains suggested a sequence from flowing water to gradual silting, and indicated a predominantly cleared environment with little mature woodland. The pollen and plant macrofossils from the boreholes include a range of wetland and dryland taxa, and most significantly provide further evidence of an essentially cleared landscape, with evidence of both pasture and arable land.*

- *Radiocarbon samples from four channels suggest a long and complex sequence of channel activity, from the later Neolithic (third millennium BC) to the post-medieval period. The Neolithic and Bronze Age dates for channels P and V sit uneasily with the insect and botanical data, and could imply a protracted sequence of channel scouring and infilling.*

- *No evidence was obtained during excavation of structural remains which might be associated with a bridge located near the Cow Way Drain Pool, or of a trackway leading to such a structure. This does not necessarily imply, however, the absence of a bridge in the vicinity of this pond.*

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INTRODUCTION

An initial desktop assessment of the proposed Chapel Farm extension to Hemington Quarry was prepared for Ennemix Construction Materials Ltd. by Trent & Peak Archaeological Trust in May, 1995 (Knight, Appleton and Howard, 1995). Following discussions with Dr. D. Barrett, County Archaeologist for Derbyshire, a detailed geomorphological and earthwork survey of the proposed extraction area was carried out in March and April, 1996 (Howard, Knight and Malone, 1996). This was accompanied by a geophysical feasibility survey, directed by A.E. Johnson of Oxford Archaeotechnics in April 1996, aimed at determining the suitability of magnetic survey for locating archaeological features in this area. In particular, this was intended to establish whether features indicating a medieval bridge might survive in the vicinity of the Cow Way Drain Pool and whether archaeological features might lie concealed beneath ridge and furrow (Johnson, 1996a). The above work raised a number of questions regarding the environmental and archaeological potential of the area, and it was agreed, after further discussions with Dr. D. Barrett, to carry out the following programme of evaluation work:

Phase 1: further geophysical survey of Stoneylands Close, to clarify the geometry of the magnetic anomalies recorded during the earlier feasibility study, and to investigate whether features might survive beneath ridge and furrow in floodplain contexts within Od Meadow Leys Close. As in previous surveys, particular emphasis was placed upon the possible preservation of medieval bridge remains adjacent to a pool on the Cow Way Drain which it has been suggested might represent a scour pond associated with bridge foundations.

Phase 2: trial excavations of anomalies recorded in Stoneylands Close during the geophysical survey. Four 10x3m trenches were proposed (Fig.2: 01-04), with the aim of investigating the character, date and quality of preservation of the key components of the complex of features recorded during geophysical survey:

01. Trench across two curvilinear features recorded towards the west of the surveyed area. The exact location was determined with the aim of establishing the quality of preservation beneath one of the medieval ridges recorded in this field.

02. Trench across a major curvilinear feature running approximately SW-NE across Stoneylands Close, interpreted provisionally as a leet, and a possible stone structure, indicated by a weak negative anomaly immediately east of the curvilinear anomaly.

03. Trench across an area where the curvilinear anomaly investigated in trench 02 appeared to bifurcate.

04. Trench across one of several large pits or hollows arranged in a curvilinear pattern to the east of the main curvilinear feature investigated in trenches 02 and 03.

Each trench was excavated by machine, employing a 6ft toothless ditching bucket on the back actor of a JCB, down to a level at which archaeological features were clearly visible (topsoil was removed in a single operation, but lower layers were machined in 10cm spits). The exposed surface and sections were cleaned at this level by trowel, photographed and planned,

and an appropriate documentary record made (as described in the *TPAT Field Recording Manual*). Further excavations of archaeological features and deposits which were thus exposed were carried out as required, following close consultation with Dr. D. Barrett.

Phase 3: sampling of palaeochannels recorded during the earlier geomorphological survey of the floodplain by T&PAT (Howard, Knight and Malone, 1966). A total of 10 sample points was selected, as shown in Fig.7 (Boreholes 1-10). These were chosen with the aim of elucidating the development of the fluvial landscape, and hence were widely distributed over the study area. These locations were drilled with a flight auger to establish the stratigraphy and, in particular, the preservation of organic materials. An uncontaminated sample column was extracted from contexts with potential for the preservation of organic remains. The latter were retrieved from an adjacent borehole, using a hollow stem auger and U100 sample box. Radiocarbon samples were taken separately, from another adjacent borehole, also with a hollow stem auger and U100 sample box, where suitable organic deposits were encountered.

A report on the Phase 1 geophysical survey was submitted by Oxford Archaeotechnics in September 1996 (Johnson, 1996b), and the present report is concerned solely with the results of the Phase 2 and Phase 3 evaluations, carried out in November, 1996 by Trent & Peak Archaeological Trust. The work reported here was managed for the Trust by Dr David Knight and supervised by Steve Malone (archaeological excavations) and Dr. Andy Howard (environmental sampling of palaeochannels). Drilling was carried out by Blue Diamond Drilling, Ltd. Specialist reports have been prepared by Jenny Brown (flintwork) Lee Elliott (faunal remains), James Greig (pollen and plant macrofossils), Ruth Leary (Late Iron Age and Romano-British ceramics) and Dr. David Smith (insects).

1 EXCAVATIONS OF LATE IRON AGE AND ROMANO-BRITISH SETTLEMENT

1.1 INTRODUCTION

Topography and Geology

The site is located at the southern edge of a well drained island of sand and gravel, forming part of the Trent Floodplain Terrace (Fig.7). It is demarcated on its southern side by a stream, the Cow Way Drain, which as a result of lateral migration appears to have cut into the edge of the terrace and possibly also the archaeological remains. The area is currently under permanent pasture, although ridge and furrow surviving as low earthworks indicates arable farming in the medieval period.

Site Stratigraphy

The following general stratigraphy was recorded during excavation:

Terrace Deposits. Archaeological features were cut into a fine to medium gravel, set within a matrix of brown sandy silt (context 0050 in all trenches).

Intermittent Alluvial Cover. The gravel is overlain in some areas by varying deposits of reddish brown sandy silt loam/ silty clay loam with few pebbles (0010,0018 in 01; 0016,0017 in 03; 0003 in 04), apparently of alluvial origin. The archaeological features were cut through these deposits, implying thereby a phase of alluviation predating the Late Iron Age and Romano-British occupation to which these features relate. This stratigraphic relationship is of considerable significance, given current debate over the chronology of alluviation on the Trent Valley and the general rarity of well dated instances of pre-Roman alluviation.

Medieval ploughsoil. The Iron Age and Romano-British features generally underlay a brown or dark yellowish brown sandy silt loam (0037 in 01; 0031 in 02; 0032 in 03; 0002 in 04) interpreted as most probably a ploughsoil associated with the phase of medieval ploughing which is implied by the extensive system of ridge and furrow. This deposit was up to 0.3m deep in the medieval furrows, but petered out almost entirely on the ridges (as for example at the east end of trench 03).

Topsoil. Above the sandy silt loam was observed a modern topsoil (0001), up to 0.3m thick. This could originate in an episode of ploughing, but the well preserved nature of the medieval earthworks does not imply a recent history of intensive arable farming.

1.2 TRENCH DESCRIPTIONS

1.2.1 Trench 01 (Fig.3)

Trench 01 was laid out to investigate two curvilinear features recorded in the geophysical survey, immediately west of the main curvilinear anomaly which traversed the terrace to the NW of the Cow Way Drain Pool. Up to 0.3m of topsoil (0001) was removed by machine, together with *c.*0.1m of the medieval ploughsoil (0037). Features could not be clearly identified in plan at this level, and a further 0.2m was removed by machine to clarify the stratigraphy. At this level, a minimum of two linear features, apparently correlating with the geophysical anomalies, could be identified clearly in plan (Fig.3: 0007/0008 and 0009). The boundary between 0007 and the natural gravel was clearly visible, but the relationship between 0007 and 0008 and the edges of 0008 and 0009 could not be precisely defined; in recognition of this, an additional 50mm spit was removed by trowel from a 1m-wide section along the SW side of the trench. 1m-wide sections were then dug across 0009 and 0007/0008, completely removing the fill in a series of 100mm spits.

0007, 0008 and 0035. The stratigraphy of the NW part of the trench proved the most difficult to unravel, due to repeated recutting of a substantial linear boundary. Two main phases of ditch were suggested by a division, observed in plan, between two fills merging indistinguishably at the planned level (0007 and 0008). Examination of the section, however, indicated a considerably more complex sequence of events. The section showed layer b of 0008, a dark yellowish brown sandy silt loam, to underlie material attributable to the basal fill of 0007, a less stony brown/dark yellowish brown sandy loam (0007b). 0007b was in turn cut by a shallow pit or U-shaped ditch with a distinctive fill of brown sandy silt loam and abundant small pebbles (0035), which cut also into the top of 0008. 0035 also cut a layer of almost stone-free dark yellowish brown sandy silt loam which was originally interpreted as a continuation of 0007 (0007a). 0007a could, however, represent either an upper layer of ditch 0008 or, conceivably, yet another phase of recutting. 0007b may also have been truncated by a shallow U-shaped feature, the SE edge of which may be indicated by a stony layer observed high in the section immediately above the NW edge of 0007; similar stone patterning was observed in section on the NW side of 0035, perhaps implying recutting of this feature. 0008 appears also to have been recut on at least one occasion, to judge by the irregular base revealed in section and plan, but there is no suggestion of recutting in the filling. 0007b yielded three sherds of shell-tempered pottery, datable to the Iron Age or Romano-British periods, and two small fragments of lead (Section 1.2.3a). The earlier ditch, 0008, was significantly richer in finds, yielding 49 sherds of pottery, 17 of which derived from a single vessel, a fragment of fired clay and 29 heat-affected stones. A late first to early second century AD date has been suggested for the pottery group.

0009. Another major linear feature, *c.*3m wide, was recorded running SW-NE across the trench, cutting through alluvial silt (0018) and sealed by 0037. This survived to a depth of 1.3m below the modern ground surface, was U-shaped in profile and appeared to have silted naturally with a brown-dark yellowish brown sandy silt loam. A layer of dark brown sandy silt loam with common small to medium pebbles (0009c), which was not seen in plan, may represent a narrow U-shaped gully cut along the NW edge of the ditch. 0009c could be seen in section to be cut by 0008, and hence 0008 must postdate 0009. Six sherds of pottery were

recovered from 0009, together with two pieces of fired clay (one burnt) and one flint tool or core fragment. The pottery included two possible Iron Age sherds and a fine grey ware rim probably from a carinated bowl group common in the late first to mid-second century AD, but a mid-first century AD date would be appropriate for the remaining sherds.

1.2.2 Trench 02 (Fig.4)

Trench 02 investigated the major curvilinear anomaly, interpreted provisionally as a leet stream, at a point where it showed as a single feature, and an anomaly to the east of this feature, tentatively identified as evidence of a stone spread which could imply building footings. Topsoil (0001) and the medieval ploughsoil (0031) were removed by machine to a depth of 0.5m. The features could be seen at this level cut into the natural gravel, but in the centre of the section, underneath the medieval ridge, features survived from 0.25-0.3m below the ground surface. The large linear anomaly corresponded with a ditch (0020) running approximately N-S across the trench. A smaller U-shaped gully (0019) was recorded roughly parallel to 0020, together with a scatter of discrete pits and gullies (0021, 0024, 0025, 0026, 0027, 0028). A 1m-wide cutting was dug across 0019 and 0020, completely removing the fill in a series of 100mm spits. 0021, 0026, 0027 and 0028 were wholly excavated, but only the SW butt end of 0025 was excavated, also in a series of 100mm spits. 0024 was shown to cut 0025, but was not excavated.

0019. A linear gully, 0.5-0.6m wide, was observed to run approximately N-S across the trench. This was U-shaped in section and survived to a depth of *c.*0.7m below ground level. The fill, comprising a stony brown silt loam/ sandy silt loam, appeared to have accumulated naturally. This narrow gully probably continued as 0012 in trench 03, and in both trenches ran parallel to the eastern edge of the larger ditch (0011/0020). No artefacts were recovered from the excavated section, apart from seven heat-affected stones.

0020. A substantial linear ditch ran approximately N-S across the trench. This correlates with the curvilinear geophysical anomaly which extended over 120m to the north and east, and probably with ditch 0011 in trench 03, and contrary to preliminary interpretations seems best interpreted as an enclosure ditch, demarcating a lare block of land at the southern edge of the gravel terrace. The feature was V-shaped in profile, with a bench on its eastern side, was *c.*1.9m wide and survived to a depth of *c.*1.3m below ground level. The eastern bench coincides with a shallower U-shaped recut, centred slightly east of the original axis of the ditch. The fill in both cuts appeared to be due to natural silting; the earlier fill (b) comprised a stony dark brown to very dark greyish brown silt loam while the upper fill (a) was slightly paler and varied slightly in texture, comprising a stony brown/dark greyish brown silt loam/sandy silt loam. 68 sherds of pottery were recovered from the excavated section in trench 02, as well as 12 fragments of fired clay, a sizeable quantity of decayed animal bone and 52 heat-affected stones. The pottery has been divided into three groups on typological grounds: a small quantity of small, handmade bodysherds, one with light scoring or brushing, and two larger groups, one dating to the mid-first century AD (and closely comparable to the group recovered from 0011) and one to the late first to early second century AD. The mid-first century AD group could belong to the earlier cut of the ditch, but the stratigraphic relationships between the chronologically diagnostic sherds cannot be established with certainty.

0021. A small elongated pit (or perhaps the butt end of narrow gully) containing a stony dark brown sandy silt loam was cut by the west section of the trench. It averaged 0.8 by 0.6m wide, but extended for only *c.*0.1m beneath the trench surface. Three Neolithic/early Bronze Age flint blades from a single core were recovered from the upper feature fill (ABT-ABV). It has been suggested that these might have been cached together for future use (Section 1.3.2), and they may therefore indicate a Neolithic or Bronze Age date for this feature.

0024. A sub-rectangular feature, 0.5 x 0.7m, was cut by the north section of the trench. This feature, which cut 0025, was not excavated, but was truncated in the machining and is visible in the section as dark yellowish brown sandy loam.

0025. A linear feature 0.5m wide, surviving to a depth of 0.16m below the trench surface and filled with a mottled dark brown/dark reddish brown sandy loam, was recorded. This could represent the remains of a shallow gully, cut by 0024, but yielded no evidence of date or function.

0026. This was a roughly circular feature, *c.*0.8m in diameter and filled with a dark yellowish brown sandy silt loam, interpreted as a small pit or possibly a post-hole. It survived to a depth of 0.12m below the trench surface, but was visible from at least 0.1m higher in the section. A single heat-affected stone was recovered from the fill.

0027. This was a small kidney-shaped pit, *c.*0.8 long by 0.3m wide, which survived to a depth of 0.10m below the trench surface. The upper fill of yellowish red sandy loam (0027a) appeared burnt, and the feature corresponds well with an anomaly on the geophysical survey plot. The basal fill (b) comprised a yellowish brown sandy loam. A single heat-affected stone was recovered from the feature.

0028. A curving gully was recorded in the SE corner of trench, 0.4m wide at the trench surface by only 0.1m deep (but 0.66m wide at the top, and 0.25m deep as seen in section). The feature is more convincing in section than in plan, where it appeared rather irregular in depth and width and was more reminiscent of animal burrowing (although there is otherwise little evidence of burrowing in these gravelly soils). Three heat-affected stones were recovered from the brown sandy loam fill.

1.2.3 Trench 03 (Fig.5)

Trench 03 investigated the same major curvilinear anomaly as trench 02, but was located *c.*13m further north, at a point where it was shadowed on the geophysical survey by a parallel narrower feature. Topsoil (0001) and medieval ploughsoil (0032) were removed to a depth of 0.6m. The major curvilinear anomaly showed at this level as a ditch (0011), and a 1m section was dug through the feature against the north side of the trench. To the east, the stratigraphy was considerably more complex, with at least 6 intercut features (0012-0015, 0030, 0033), and further trowelled 50mm spits were removed from this area in order to clarify the sequence. Sections were dug across the pit 0013 at its intersection with 0030 and across the intersection of 0033/0012/0030; a 1m length of 0030 was removed stratigraphically where it intersected the south baulk. All features were excavated in a series of 100mm spits.

0033 appeared to be the latest feature, cutting into the edge of 0012. 0012 cut ditch 0030, as well as 0014 and 0015 (neither of which was excavated). Pit 0013 was cut through the fill of 0030. A narrow (*c.*0.2m wide) linear feature, 0038, running roughly perpendicular to 0030, was also seen in the SE corner of the trench, but was not excavated.

0011. This was a linear ditch, 1.8m wide, running N-S across the trench and surviving to 1.3m depth below the modern ground surface. In profile, the feature was approximately V-shaped with a flattish bottom. This appears to be a continuation of ditch 0020, revealed in trench 02, but the recut of 0020 which was visible in the baulk section of trench 02 was not observed in this trench. The fill here was a stony dark to very dark brown/greyish brown silt loam/sandy silt loam. 49 sherds of Late Iron Age or very early Romano-British pottery were retrieved, implying a mid-first century AD date for this group (*cf* early pottery from 0020). Other finds included a flint flake, four fragments of fired clay, animal bone/teeth fragments and 46 heat-affected stones.

0012. This was a linear feature, *c.*0.8m wide, running N-S across the trench and butting some 0.5m from the north section. It survived to a depth of 0.25m below the trench surface (0.8m below modern ground level) and was U-shaped in section. The fill, comprising a brown silt loam/sandy silt loam with few pebbles, appeared to have accumulated as a result of natural silting. This narrow gully may represent a continuation of 0019, recorded in trench 02. A section across its intersection with 0030 and 0033 showed it to cut 0030; this relationship may also be seen in plan, which shows in addition a slight overcut at the NW corner of 0030. 0033 probably cut 0012, but as these features only just impinged this relationship could not be established with certainty. Adjacent to the south baulk 0012 was observed to cut 0014 and 0015, neither of which was excavated. Two sherds, dating from the late first century AD at the earliest, were recovered from the fill of 0012, together with eight heat-affected stones.

0013. This was a sub-rounded pit *c.*0.7m in diameter and 0.35m deep (below the trench surface). The upper fill comprised lenses of orange-brown and possibly burnt material, interleaved with thin, dark charcoal-rich layers; the basal fill was a dark greyish brown sandy silt loam. There is no indication of burning *in situ*, and the pit may contain the detritus of some nearby industrial activity. Only two sherds of pottery were recovered, as well as a fragment of fired clay, several animal bone/teeth fragments and three small heat-affected stones. The pottery included a Trent Valley ware sherd dating from the mid- to late first century AD and a probable Iron Age sherd. The pit was cut into the edge of 0030 and was itself cut by a ditch or pit (0036) which was seen only in section.

0015. This context, which comprised a dark greyish brown sandy silt loam, was not excavated. However, trowelling during cleaning revealed a possible pit or ditch terminal, cutting 0014 but truncated by ditch 0012. Six sherds, attributable to the mid-first century AD and possibly pre-Conquest in date, were recovered from the surface.

0030. This was a linear feature, 0.9m wide, running NW-SE across the trench. It was U-shaped in section, and varied in depth from only 0.15m (below the trench surface) against the southern section, to 0.3m at the northern section (where its full depth below 0032 is 0.56m). The fill of dark-very dark greyish brown silt loam/sandy silt loam appeared to have accumulated naturally. Since 0012 butts within the trench, 0030 would appear to be the

feature seen to continue to the north on the geophysical survey. 18 sherds of pottery were recovered from the cutting across 0030, together with seven heat-affected stones. 0030 was cut by both 0012 and 0013. Most of the sherds may be accorded a mid-first century AD date range, with the exception of a quartz-tempered sherd which could date from the second century.

0033. This was a roughly circular feature, *c*.0.4m in diameter, and 0.14m deep (below the trench surface). It may represent a post-hole on the western edge of, and cut into, 0012. No artefacts were recovered from the fill, which comprised a brown silt loam/sandy silt loam.

1.2.4 Trench 04 (Fig.6)

Trench 04 was laid out over a series of localised geophysical anomalies, apparently arranged in a curvilinear pattern. Topsoil (0001) and medieval ploughsoil (0002) were removed by machine to a depth of *c*.0.4m. A cluster of features was visible in the centre of the trench at this level, below the medieval ridge, but furrow fill still covered the trench surface to either side; an additional 100mm spit was removed manually from either end of the trench to establish whether features might lie concealed beneath this material, but no further features were observed at this level. A 0.5m x 2m extension was dug into the NW baulk to establish more clearly the plan of the feature complex recorded on this side of the trench, and revealed a series of intercut pits. Two 50mm spits were trowelled from the upper fill of these features, in an attempt to elucidate their stratigraphic relationships. A large pit cut by the SE baulk (0006) was fully excavated in a series of 100mm spits, as was the SE end of a shallow gully cut by this feature (0004).

0004. A narrow gully, 0.3-0.4m wide by less than 0.1m deep and filled with a brown silty clay loam, was observed running approximately SE-NW across the trench for *c*.2m. It was cut by 0006 at the SE end, and appeared to peter out before reaching the section at the NW end. A *c*.0.5m length of the feature was excavated, yielding a single flint flake.

0005, 0022, 0023, 0029. A complex series of intercutting pits was recorded against the NW baulk, extending over an area *c*.2m x 2m. Two 50mm spits were removed from the features by trowel, but given the complexity of the relationships and the time available, it was decided not to excavate further at this stage. Two main fills could be distinguished at the base of the second spit: a dark greyish brown silt loam (0005/0022a/0029) and a very dark greyish brown silt loam with occasional charcoal flecks (0022b; 0023); a distinction was drawn between 0005 and 0022a on the grounds of colour, 0022a being very slightly paler than 0005, but the merging boundary between these two contexts could not be clearly defined. A clear boundary could not be defined between fills 0022b and 0023, but they were described separately because removal of the fill and clarification of the feature edges suggested an intersection here between two features. The fill variations recorded at this level in fact correspond only partially with the defined edges of features, and only full excavation could hope to unravel the complex sequence of cuts and recuts. A fairly rich collection of finds was recovered from the two shallow spits removed from the intersection, including 31 pottery sherds and two scraps of fired clay from 0005/0022/0023 and eight sherds of pottery and one fragment of fired clay from 0029. Five heat-affected stones were also retrieved from 0022 and 0023. It would appear that, in common with 0006, these pits had been backfilled

with significant quantities of domestic rubbish. The pottery includes several handmade sherds, possibly of Iron Age date, and also a range of first to late second century AD ceramic types, suggesting a sequence of deposition which might stretch from the Late Iron Age to the early Romano-British period.

0006. A large pit, possibly sub-rectangular in shape to judge by the geophysical survey, was cut obliquely by the SE baulk. The area exposed in plan implied a feature at least 2.5m long by 0.6m wide (the corresponding magnetic anomaly is *c.*3m x 2m), surviving to a depth of 1.35m below the modern ground surface. A single recut is visible in the section, but the oblique nature of the cut prevents accurate determination of the profile. Unabraded and joining pottery sherds were scattered throughout the dark charcoal-rich fill, suggesting deliberate filling. The earlier cut was filled with a very dark greyish brown sandy loam (e) with small patches of decayed bone set within a comparable sandy loam matrix (d). At the base, a stonier layer comprising a dark yellowish brown-dark brown sandy loam with frequent small pebbles was recorded (f). The later cut was characterised by a slightly darker silt loam (b) and incorporated more charcoal and lenses of decayed bone (c). Above this was a dark greyish brown silty loam (a), slightly lighter than (b) and with less charcoal and no bone concentrations. A 15 litre sample of 0006b was collected for assessment for the potential survival of pollen, plant macrofossils and insects. 66 sherds of Romano-British pottery were recovered from the pit, mostly from layers a and b, including a large proportion of at least two grey ware vessels which appear to have been broken while being deposited in the pit. 40 fragments of fired clay were also recovered, including several shaped pieces with rounded right-angled corners which could possibly have formed the edge of an oven or, conceivably, a firebar. In addition to the above, a piece of wall plaster, two fragments of dressed stone, possibly from a building, two corroded iron artefacts, animal bone and 47 heat-affected stones were recovered (Section 1.2.3). A mid to late second century AD date has been suggested for deposition of the pottery, and by implication for the associated domestic debris.

1.3 ARTEFACTS

1.3.1 LATE IRON AGE AND ROMANO-BRITISH POTTERY AND FIRED CLAY. R.S. LEARY

The ceramic material was laid out by context and was examined to determine the quantity of pottery present, the range of fabrics, forms, decoration and condition. The number of sherds present in each context and their ware, form and decoration were recorded (Appendix 1) and the quantity of samian and mortaria was noted to facilitate their referral to appropriate specialists. It is recommended that the pottery be quantified by weight and rim percentage during full analysis.

Quantity of Pottery Artefacts

The assemblage comprised 535 sherds of pottery and fired clay, including one samian and one mortarium sherd and one possible tessera.

Provenance of Pottery

Ceramic artefacts were found in the following contexts:

Context	Sherd Count	Fired Clay
0002	2	
0003	1	
0005	31	2
0006	66	40
0007	3	
0008	49	1
0009	6	2
0011	49	4
0012	2	
0013	2	1
0015	6	
0020	68	12
0029	8	1
0030	18	
0031	3	

Range and variety of material

The assemblage comprised three ceramic phases: a small group of handmade sherds, mostly small and abraded, a group of wheel-thrown vessels in late Iron age/early Romano-British forms and a group of vessels in Romano-British fabrics and forms.

Fabrics

Group 1: handmade, possibly Iron age

PCT: brown, shell-tempered ware.
PMM: brown ware with red-brown inclusions, possibly of Mercia Mudstone.
PQ: brown ware tempered with medium to coarse quartz.

Group 2: wheel-made, Conquest period

BS: brown, quartz-tempered wares.
BSA1: fine, quartz-tempered ware.
BSB1: medium, quartz-tempered ware.
CT: brown, shell-tempered wares.
CTB1: medium, shell-tempered ware.
CTB2: medium, quartz-tempered ware with sparse shell inclusions.
GT: brown or grey, grog-tempered ware.
GTA8: grey with brown margins and grey core, grog-tempered ware.

Group 3: Romano-British

BB1: black burnished ware category 1, dated from 120 A.D. (Williams 1977).
CTA1: buff, shell-tempered ware (*cf* Dool *et al.* 1985, CTA1 in phase 1).
DBY: Derbyshire ware, dated from the mid-second century (Dool *et al.* 1985, 115).
FL: white wares.
FLA: white ware with fine quartz temper.
FLB: orange ware with fine quartz temper and traces of white slip.
GRA: fine grey ware.
GRA1: fine grey ware with laminar fracture and grey core, similar to one of the fine grey wares at Derby Racecourse.
GRA2: fine grey ware. This is a broad group for fine grey wares not further subdivided.
M1: Mancetter-Hartshill mortarium.
NSP: medium, quartz-tempered fabric.
OAA1: fine, orange ware.
OAB1: medium, quartz-tempered orange ware.
OAC1: coarse, quartz-tempered orange ware, identified as belonging to the 'pre-Derbyshire' ware group.
OBA1: fine, yellow-buff ware.
OBB1: medium, quartz-tempered, yellow-buff ware.
OBC1: coarse, quartz-tempered, yellow-buff ware, identified as belonging to the 'pre-Derbyshire' ware group.
TS: samian.

Forms

Group 1: few forms were identified; these included one scored sherd and some bead-rim jars in calcite gritted ware which could belong to this group or the late Iron Age-early Roman group.

Group 2: the late Iron Age-early Roman group included a wide range of forms common from the end of the Iron Age until forms typical of the Flavian-Trajanic period superseded them. These included simple bead-, lipped- and everted-rim jars in BSB1 and CTB2, rebated-rim jars in BSB1, and carinated and cordoned cups or bowls in BSA1 and BSB1. The predominance in this group of quartz tempering, wheel-throwing and fabrics which apart from colour nearly qualify as grey wares suggests a late date when handmade vessels had gone out of use and Roman pottery processes may have been influencing the native potters.

Group 3: the Romano-British pottery comprised a range of fabrics, paralleled in the pottery of phases 1 and 2 at Derby (Dool *et al* 1985: dated Flavian-Trajanic and Hadrianic respectively). These included small numbers of BB1 jars and dishes of the mid-second century, two Derbyshire ware sherds; eight 'pre-Derbyshire' ware sherds, CTA1 used to make rebated-rim jars and combed storage jars, found in phase 1 at Derby and in the Racecourse kilns (Dool *et al* 1985, table 10), fine grey and oxidised wares, comparable to those made at Derby Racecourse, some white wares, also possibly made at Derby, and one sherd each of samian (Dr.18/31) and a Mancetter-Hartshill mortarium. The lack of Derbyshire ware and the BB1 types suggests that little material was deposited after the mid-second century, when Derbyshire ware became more common at Derby.

Contexts

0002-3: unstratified sherds from mediaeval ploughsoil (0002) and alluvium (0003) increased the range of types known from the site, to include a Mancetter-Hartshill mortarium sherd, a FLA sherd, probably from a flagon, and a combed CTA1 sherd (see above).

0005/0022/0023: trowelling of two 50mm spits from the intersection of several pits recorded in trench 04 yielded a total of 31 sherds of pottery and two scraps of fired clay, one of which was burnt. The sherds included several fragments of BB1 jars and dishes, of which one could be dated to the mid- to late second century. A sherd of Derbyshire ware was identified, and possibly a further cupped-rim sherd, but the latter was burnt so intensely that it was difficult to make a certain fabric identification. The small amount of Derbyshire ware suggests sherds were not being added to this group much beyond the mid-second century. In addition to these second century sherds, several CTA1, CTB1 sherds and two sherds of the first century were identified. These included a rebated-rim jar in CTA1 and two handmade sherds, probably of Iron Age date. The sherds were all small and fairly abraded and lacked the large near-complete vessels found in pit 0006. This may be a result of the contrasting nature of the excavated contexts: the former from the top of the excavated feature, the latter from the fill of a deep pit.

0006: 66 sherds of pottery and 40 fragments of fired clay were recovered from this pit. The bulk of this material came from layers a and b, including a large proportion of at least two GRA2 jars which seem to have been broken while being deposited in the pit. Adjoining sherds of both these vessels were found in layers a and b, suggesting these layers were deposited at the same time or within a short space of time. The sherds of one of these jars had then been exposed to weathering to varying degrees, presumably depending on its position in the pit, since adjoining sherds contrasted greatly in their degree of erosion. The other sherds from layers a and b were smaller and often more abraded, suggesting the contents may have come from a deposit of ceramic debris elsewhere which had accumulated in the early second century. These included four BB1 sherds (one a flat-rim bowl of the mid-second century), a samian bowl (Dr.18/31), a Derbyshire ware sherd, an OBA1 flanged hemispherical bowl of the Hadrianic-Antonine period (Dool *et al.* 1985, fig. 40, no. 36), an FLA sherd, sherds of OAB1 and OBA1, sherds of 'pre-Derbyshire' OBC1 from layer a, together with a GRA3 rusticated sherd, a footring base in FLB with traces of white slip and sherds of OAA1. The BB1 and Derbyshire ware suggest a date after 140 AD (Jones and Webster 1970, 22) while the make-up of the group compares well with phase 3 at Derby Little Chester, dated at that site to the mid to late second century. The small amount of Derbyshire ware suggests pottery deposition stopped early in that period. Some late Iron Age quartz and shell tempered sherds in the group may still have been in use as late as the late first century, and may be the earliest sherds to reach the rubbish deposit. Many of the sherds were burnt or blackened. Few sherds classed as table ware, only a flanged bowl sherd and burnt samian sherd, were identified, suggesting a functional bias within the group.

A small group of eight sherds and 33 fragments of fired clay came from fill e, comprising three undiagnostic shell-tempered sherds, four fine, oxidised sherds and a grey ware or BSB bodysherd from a burnished, carinated bowl probably dating to the mid- to late first century. The fine, oxidised wares are similar to those made at the Derby Racecourse kilns and dating to the late first to early second century. The fired clay fragments included several shaped pieces with rounded, right-angled corners which may have formed the edge of an oven or, conceivably, a firebar.

0007: three sherds of pottery, comprising two CTA1 sherds and one CTB1 sherd were retrieved. No forms were recovered, and a fabric similar to CTA1 occurred in phase 1 deposits at Derby (Dool *et al.* 1985, 90). However, the sherds were small and fragmentary, and could be variants of a larger shell-tempered group common in both Iron Age and Romano-British contexts.

0008: 49 sherds of pottery and one scrap of fired clay were recovered, the majority fom layers b/c. At least 17 sherds came from one GRA2 ovoid jar with everted rim and burnished lattice decoration. These sherds were abraded or eroded and were not all adjoining, but clearly came from the same vessel. The form is a long-lived type, but the fabric and decoration invite comparison with the products of the Derby Racecourse kilns and suggest an early second century date (Brassington 1980, 151-2). Many of the remaining sherds were in CTA1. A bodysherd in this fabric from the topsoil was decorated with vertical or horizontal combing; this, together with the

rebated-rim sherd in this fabric from 0005, suggests this ware should be compared with an orange-brown, calcite-gritted fabric used to make early storage jars on Trent Valley 'native' sites such as Holme Pierrepont in the first century, and still in use in Flavian-Trajanic contexts at Derby (Dool *et al* 1985, table 10 CTA1; fig. 39, no.2 and 5; fig. 110, nos. 1 and 10; the latter are rebated rim jars in this fabric, used as cremation urns in the roadside tombs). Other sherds belonging to the late Iron Age-early Roman period include a BSB1 rim and body sherd from a carinated cordoned bowl of the Conquest period. These early sherds were supplemented by other grey ware sherds, including a rouletted sherd similar to rouletted jars common in the second century, and also some small undiagnostic sherds of coarse quartz fabric of Iron Age date. The group could, therefore, belong to the late first to early second century. The absence of BB1 and Derbyshire ware suggests pottery deposition stopped very early in the second century.

0009: six sherds of pottery and two fragments of fired clay, one of which was burnt. The pottery sherds included an everted rim sherd from a fine beaker or bowl in BSA, a BSA1, squared-rim sherd, similar to those of imitation butt beakers, and a GRA2 rim from a bowl, probably belonging to the carinated bowl group common in the late first to mid-second century. Two undiagnostic bodysherds may belong to the Iron Age: a burnt orange sherd with quartz and argillaceous inclusions, and a medium-quartz tempered sherd. Only the grey ware sherd need postdate the Conquest period but all except the Iron Age bodysherds could date to the mid-first century AD.

0011: a group of 49 sherds of pottery and four fired clay fragments. The pottery was all of late Iron Age or very early Roman date, and no true grey wares were identified. Two CTB1 jars with bead and flattened everted rims were identified, the former (layer a) in a very abraded and flaking condition, probably misfired or burnt, the latter with carbonised deposits still adhering to the shoulder (layer b/c). Both of these may have been handmade. A cup or bowl with slightly beaded outcurved rim was identified (layer b/c), probably belonging to the common class of carinated and cordoned bowls of the first century BC/AD. This vessel was made in BSB1, but the fabric was rather greyish brown with dark grey core and medium-sized quartz inclusions, and appeared to be wheel-thrown. The fabric could be classed as grey ware, but only differs from the brown quartz-tempered fabric BSB1 in colour, and is not a true grey ware. Three sherds, including a scored sherd (layer b), were identified in PMM (layers b and c), a fabric similar to one identified at Ockbrook, Derbyshire, used to make Iron Age jars. There, the brown inclusions were identified as Mercia Mudstone. Another sherd, with shell inclusions, PCT, had been heavily burnt (layer c). Other shell-tempered bodysherds in this group may be late Iron Age or early Roman (in all layers). Some slight differences in the pottery assemblages from the three layers could be detected. Layer c contained sherds of fabrics PMM, PCT, CT, BSB1 and CTB2 suggesting the possibility of a very early date in the sequence, perhaps towards the end of the Iron Age. The Romanised fabric and wheel-thrown characteristics of the BSB1 bowl from layer b suggest a date in the first century AD for this group, probably in the middle of the period, and the CTB1 jars were also current in that period. Only the scored ware sherd invites comparison with earlier assemblages, but its small and abraded condition suggests

that it may be redeposited. The group from layer a is comparable in range and date to that fom layer b.

0012: two sherds were recovered: a bodysherd of OBB1 and BSB1, dating to the late first century at the earliest.

0013: a fragment of fired clay, a GT sherd belonging to the 'Trent Valley ware' group and dating to the mid- to late first century AD (Todd 1968), and an undiagnostic and abraded quartz-tempered sherd, probably of Iron Age date.

0015: six sherds of pottery, including a CTB1 rim sherd of a jar with squared, everted rim, a CTB1 everted-rim sherd and a small abraded bodysherd in BSB1. These fabrics and forms could date either side of the Conquest period but the lack of any signs of 'Romanisation' suggests a pre-Roman date is perhaps more likely.

0020: 68 sherds of pottery and 12 fragments of fired clay. The pottery can be divided into three groups: a small quantity of small, handmade bodysherds and two larger groups, one dating to the mid-first century AD and one to the late first to early second century AD. Most of the handmade sherds were tempered with coarse ill-sorted quartz and were orange in colour. One was tentatively identified as a crudely made footring base. One handmade sherd in a dark grey fabric had large mica and igneous inclusions. This sherd had a badly abraded surface, but bore traces of light scoring or brushing.

The mid-first century group comprised a similar range of wares to that from 0011, but included CTB1 sherds of jars, a CTB2 lid-seated jar, a BSB1 jar with footring base, a short everted-rim with faint rilling outside the upper body in BSB1, a BSB1 jar or beaker with small finely executed bead rim, and a BSA1 cordoned bowl with bead rim. The latter was in a brown fabric with grey core and red margins, common in mid-first century contexts. This group compared well with that from feature 0011, trench 03.

The late first to early second century pottery comprised several sherds from a fine grey ware jar and an OBA1 sherd, both similar to fabrics made at Derby Racecourse in the late first to mid-second century, a thick, fine quartz-tempered, off-white sherd with traces of a pale grey surface, perhaps from a flagon base, a GRB1 sherd with three spaced-out cordons with traces of lattice decoration between, perhaps from a jar, and parts of a turned out rim of a storage jar in an orange fabric tempered with sparse quartz and plentiful argillaceous inclusions, GT.

The stratigraphic relationships between these ceramic groups cannot be reconstructed with certainty. However, comparison with feature 11, adjudged to be the same ditch, suggests that the mid-first century group may belong to the first cut of the ditch while the later Romano-British wares of the later first or second century could belong to the later cut, not represented in trench 3. In some cases, such as the storage jar and the cordoned jar, it is not altogether certain to which group they belong. The absence of BB1 and Derbyshire ware, represented elsewhere on the site, suggests activity did not continue far into the second century, if at all.

0029: eight sherds of pottery and one fragment of fired clay were recovered, including a BB1, flat-rim dish of the mid-second century, an oxidised, everted-rim jar, common at Derby in the late-first to mid-second century and bodysherds of GRA2, GRB1, OAC1 and CTB2. The presence of "pre-Derbyshire" and the absence of true Derbyshire may indicate a mid-second century date for this assemblage.

0030: 18 sherds, comprising much of an unusual rebated-rim jar with a groove on the top of the rim in BSB1, an everted-rim in CTB2, a CTB1 sherd, a GT sherd from a wide-mouthed vessel and one OAB1 sherd, possibly burnt. Only the last need date later than the mid-first century AD; it looks like part of the flange of a hemispherical flanged bowl, made at Derby and dated to the second century (Dool *et al.* 1985, fig. 40, no. 36). Thus a mid-first century date is preferred for the group, with one second century sherd, perhaps from the latest fill.

0031: three sherds were recovered from this medieval ploughsoil in trench 02. These comprise two FLA sherds and one GRA sherd, datable to the late first century or later.

The preliminary analysis of the pottery thus suggests activity starting in the late Iron Age and continuing until around the middle of the second century AD, possibly continuously. The few sherds of handmade Iron Age pottery which were recovered may indicate some earlier activity, but its character and duration are not known.

The fabrics and forms belonging to the mid-first century AD add to our knowledge of the variety known. The numerical superiority of quartz-tempered fabrics is unusual and some of the rebated-rim jars are of unusual type. Traces of burning and sooting suggest functional interpretations for some of the vessels as cooking pots, while the absence of such traces on some vessels may indicate their use as tableware.

The early Romano-British group includes forms common at contemporary military and native sites in the vicinity, but the presence of an everted-rim jar waster, together with the unusual multiple-groove shoulder decoration on that form and the presence of fashioned fired clay on the site, raises the possibility of on-site pottery production. The rest of the wares compare with Derby Racecourse products, with small amounts of traded wares from further afield, including samian, mortaria, Black Burnished ware and two Derbyshire ware sherds. The small quantity of tableware may suggest a bias towards kitchen wares in the group.

Condition of material

Most of the pottery was in stable condition and, as each sherd was bagged separately, it is well protected from casual abrasion caused by movement of adjacent bags or of boxes. Some sherds need further careful washing. Some of the shell-tempered sherds were very friable and should be packed with particular care and boxed in robust containers with further packing or they may disintegrate.

Statement of Potential

a) Questions posed in research design
The pottery obtained during excavation permitted reasonably close dating of the features revealed by the geophysical survey, together with several other features which were not recorded in that survey. 0015 contained the earliest group, dating to the early-mid first century AD or possibly as early as the late first century BC. Several features can be dated to the mid-first century AD, namely 0011, 0013, 0030 and a group distinguishable within the material from 0020 but not grouped stratigraphically. Material from 0007 could date to the mid- to late first century AD, perhaps slightly later than the preceding group but not necessarily as late as the second century. Pottery from 0004, 0008 and 0009 contained late first to mid-second century grey wares, but lacked BB1 or Derbyshire ware sherds, and hence is dated late in the first century or early in the second century; 0005, 0006 and 0020 contained similar grey wares but included those later wares, and hence is dated to the mid-second century.

b) New research questions resulting from data collection
The group of pottery from pit 6 included several everted-rim jars of a type common in the Flavian-Trajanic period. One of the jars was apparently a waster, distorted and dented, and all the jars had multiple grooves on the shoulder in contrast to the local habit at Derby of having a single groove. It may be that a local kiln served this area with its own characteristic decorative motifs. The presence of fired clay fragments, including one with two perforations, together with fuel ash slag, raises the possibility of kiln activity in the vicinity, although the evidence is not compelling. The material also sheds valuable light on the character of the Conquest period pottery of the area, and should be compared with that from the Trent Valley, Derby, Leicester and surrounding area. Work on the pottery fabrics could clarify their source, while further analysis of the fabrics and forms could refine the dating.

c) Potential value of data collection to local and national research priorities
The assemblage increases our understanding of the Conquest period pottery assemblage in particular, and suggests a phase, hitherto unrecognised, when shell-tempered fabrics were superseded by quartz-tempered wares but grey wares were not yet being used. Although the quartz-tempered fabrics have been identified before, they have previously been a minor fabric in the groups rather than the principal ware group in a given phase. Their predominance in group 2 suggests a hitherto undetected phase when shell was less common and quartz-tempering dominated the assemblage, presumably as a response to improved kiln technology. Whether this phase was restricted to the potters supplying Chapel Farm or was widespread is not yet clear, but the early assemblage makes a significant contribution to our understanding of Conquest period pottery. The late first to mid-second century group also contributes to our understanding of the distribution of Derby Racecourse wares and, perhaps, to their imitation at Church Farm. Here analysis of the fabrics may clarify the source of the everted-rim jars.

d) Integration of studies of material categories
Comparison of the distribution of the pottery with the fired clay, burnt stones and fuel ash slag may add weight to the suggestion that on- or near-site pottery manufacture could have generated the waster sherd and burnt sherds on the site.

1.3.2 FLINTWORK. J. BROWN

22 pieces of flint were recovered from the excavation, and catalogued according to the standard nomenclature (see Appendix 2). The categories for the flint catalogue were chosen to highlight the diagnostic features of the assemblage. Feature fills were not sieved for finds, and hence some data relating to the flint assemblage may unavoidably have been lost.

Conclusions based on such a small amount of data must always be tentative, but with this proviso a number of general conclusions regarding the date and distribution of the flintwork and the raw material types may be made.

Typology and Dating

The typology of the flint, together with the range of raw materials used, suggests activity in the Late Neolithic/Early Bronze Age. Six of the 22 pieces were used or retouched to form tools; most of these were diagnostic of period. The thumbnail-size scrapers (AOT and AOR), end-scraper (AAF) and wedge (AAJ) are all typical of assemblages dated to the Late Neolithic/Early Bronze Age in this area. The used blade/?microdenticulate (ACS) is also consistent with this date, as are the three large blades (ABT, ABU and ABV). Knapping techniques producing flakes and large blades with plain (*e.g.* ABT, ABU, ALD) or facetted (*e.g.* ABV) platforms are also appropriate to this period. The flint could thus form a homogenous assemblage, with none of the pieces necessarily arguing for extended use of the site, although that still remains a possibility.

Distributions

Extensive re-use of the site in the Romano-British period, with consequent redeposition of the flint, makes comments on original distributions hazardous. In addition, some smaller pieces may not have been retrieved given that contexts were not sieved for lithic finds.

The most significant discovery was of three large flint blades (ABT, ABU and ABV), found together at the top of a small feature (0021) cut into gravel. All three are of very similar flint, with the same red-to-orange water-worn cortex, and all have been removed from a single-platform core. It seems most likely that the three pieces derive from the same core, and may well have been cached together for future use. With their cortex retained as a natural backing, they could have been ready for use in the manner of the used blade/?microdenticulate (ACS). No other finds were retrieved from this feature, and it might conceivably date from a phase of Late Neolithic/ Early Bronze Age activity. Three other pieces were retrieved from undated features: one from a gully (0004) cut by a pit backfilled in the early Romano-British period (0006), one from a curving gully recorded in the corner of trench 02 (0028) and one from a feature (0014) cut by a Romano-British ditch (0012).

Of the remaining flintwork, three pieces had been redeposited in the fills of Romano-British features (0011; 0012/0030; 0028) and one had become incorporated with medieval ploughsoil (0002). More significantly, a total of nine pieces was recovered from the uppermost level of an alluvial accumulation exposed in trench 04 (0003) and cut by Romano-British features.

All of the flintwork was recovered from the area of the trench to the NE of a Romano-British pit complex recorded in the centre of the trench, and was evenly distributed. The circumstances of deposition of the flints are unclear. However, they could represent essentially *in situ* material which had been discarded on an early land surface developed upon alluvium or which had been transported vertically down the soil profile.

Raw materials

The raw materials consist of grey speckled flint and translucent flint of various colours from honey to black. Such materials are commonly seen in flint assemblages from the area, and are presumed to derive from the Trent Valley Gravels.

1.3.3 MISCELLANEOUS FINDS

Examples were also recovered of the following:

a) Dressed Sandstone

Pit 0006 yielded two fragments of worked coarse-grained sandstone. The larger of the two pieces (388g) is approximately triangular in shape and preserves three worked faces (AJK). The other object is significantly smaller (90g) but is also roughly triangular in shape, with two worked faces set roughly at right angles to each other; one of these faces preserves a *c.*15mm-wide groove which may have been formed deliberately. Both fragments derive from objects of uncertain form and function, but are most plausibly interpreted as pieces of dressed stone, possibly from a building. If so, a non-local source for the building material, possibly the Millstone Grit exposures of eastern Derbyshire, may be suggested. Several other smaller irregular fragments of coarse or finer grained sandstone were recovered from elsewhere on the site, but none preserves evidence of working.

b) Heat-Affected Stones

Numerous contexts incorporated fragmentary or occasionally whole water-worn stones which preserved features suggestive of exposure to heat (details in archive). A total of 209 stones was collected, ranging from small pebbles to larger pieces up to 90mm in length and 362g in weight. A wide range of rock types is represented, including quartzite, sandstone, limestone, siltstone and possibly dolerite, all of which could derive from the local gravels (identifications by Dr. R. Firman). Many stones have angular fractures and crazed or cracked surfaces; a small proportion preserves clear evidence of mineralogical changes due to heating, in the form of zones of reduction (blackened cores), oxidation (reddening of surface or interior) and dehydration (bleaching). Possible interpetations for the smaller stones include their use as 'pot boilers', but the fracturing, crazing and cracking of many stones which do not preserve conclusive evidence for heating in the form of mineralogical changes could be due to natural processes such as freeze-thaw.

c) Plaster

A small (15g) fragment of wall plaster was recovered from pit 0006 (AEE), from the same context, interestingly, as the two fragments of probable building stone which have been discussed above. This provides further evidence that architecturally quite accomplished buildings may originally have been associated with the Romano-British phase of occupation, and hints at a community of at least moderate wealth.

d) Tessera R.S. Leary

One small squared sherd was found in ditch 0020 (AIZ) in a fine very pale grey or dirty white fabric. Faint traces of a darker grey surface suggest that it originally had grey surfaces or margins which had been worn or rubbed away. The sherd approximated to a cube, and could have functioned as a tessera, for use in a mosaic; it had perhaps been deliberately fashioned with the darker surfaces worn away in order to show the underlying pale colour.

e) Vitrified Fuel Ash

Five fragments of light-weight and vesicular vitrified material (totalling 12g), pale greenish grey in colour and incorporating small rounded quartz inclusions, were obtained from ditch 0020. Their glassy character and visible flow lines imply sufficiently high temperatures to form low viscosity melts. Similar material is commonly found on Iron Age and Romano-British sites in the Trent Valley and elsewhere (*e.g.* Firman and Mortimer, 1992; McDonnell, 1987); it is conventionally described as 'fuel ash slag', but according to Tylecote (1987, 292) is better described as 'vitrified fuel ash'. Possible mechanisms of formation which have been quoted include accidental hayrick fires or the burning of wattle and daub buildings (*e.g.* McDonnell, 1987). Such conflagrations, however, might be expected to generate a chemical substance closer to wood, and the material could possibly derive instead from an industrial process such as glass making, smelting or pottery production. The possibility of local pottery kilns was raised during assessment of the Romano-British pottery from the site, and in this context the presence of vitrified fuel ash is of particular interest.

f) Ironwork

Fragments of two iron objects, identified provisionally as part of a gently curved blade *c.*10mm wide by 110mm long (AFQ) and a fragment of rod *c.*5mm in diameter by 25mm long (ADT), were recovered from 0006. Both objects are obscured by corrosion products, and final determination of their character must await conservation and radiography.

g) Lead artefacts

Three flattened fragments of corroded lead were retrieved, from pit 0023 (AKD) and ditch 0007 (AOU: two fragments, possibly from the same object). The largest fragment is a

flattened roughly rectangular strip, 30mm long by 10-12mm wide, folded over on one side (AKD). The larger of the two other fragments was also folded.

1.4 ENVIRONMENTAL REMAINS

1.4.1 FAUNAL REMAINS. L. ELLIOTT

Faunal remains were poorly preserved, and the collection was heavily biased towards the more resilient fragments of tooth. A total of *c.*70 fragments, totalling *c.*556g, was recovered. Much of the material, particularly that from the main enclosure ditch (0011/0020), was in poor condition, and exact counts by number and weight are not possible. Only a small proportion of the bone, exclusively fragments of tooth, could be identified by species. A catalogue is provided in Appendix 3. Little can be deduced regarding the animal husbandry regime from these data, apart from the presence of cattle and sheep. Many of the bone fragments preserve evidence of charring and some may have been cut. Any further excavations are unlikely to uncover significant faunal assemblages, given the problems of preservation, and it is suggested that future sampling strategies focus instead upon the identification of contexts with significant palaeobotanical potential.

1.4.2 INSECTS, POLLEN AND PLANT MACROFOSSILS. J. GREIG AND D. SMITH

A 15 litre sample was extracted for assessment of its palaeoenvironmental potential from layer b of a large Romano-British pit (0006) recorded during evaluation trenching of the Late Iron Age/Romano-British settlement on Stoneylands Close (Fig.6: trench 04); this was a very dark greyish brown silt loam. The sampling methodology is described in Sections 2.3 and 2.4.

a) Insect Remains. D. Smith

The sample was processed using the standard method of paraffin flotation as outlined in Kenward *et al.* (1980). A 5 litre sample was extracted, of which 2 litres was retained for plant macro fossil and palynological analysis. The flot was then sorted under a binocular microscope. In contrast to the borehole samples, discussed below, the single sample from feature 0006 contained no insect remains at all.

b) Pollen and Plant Macrofossils. J. Greig

A pollen sample of about 1 cm^3 was taken and prepared for pollen analysis by sieving and swirling to concentrate the organic fraction, followed by acetolysis and mounting for examination. The macrofossils were assessed by taking 200 cm^3 of material, breaking it down in water and separating the organic material, and finally by sieving it into size fractions of >2 mm and 2-0.3 mm. The fractions were sorted, and the identifiable plant remains were listed. These samples produced practically nothing except some charcoal (Appendices 5-6). The concentration of charred remains which is usual in archaeological samples, however, would not be adequately represented by the 200 cm^3 sample size, and it is recommended that the rest of the sample be processed for charred remains to find out whether it contains anything of importance.

1.5 SUMMARY AND CONCLUSIONS

A phase of later Neolithic or earlier Bronze Age settlement is suggested by the discovery of a pit or gully containing three large flint blades deriving from a single-platform core, possibly cached together for future use (trench 02: 0021). The case for early settlement is supported by the discovery in trench 04 of a scatter of possibly *in situ* flintwork, and if accepted would imply partial clearance of this comparatively well drained and fertile gravel island well before the main phase of activity for which archaeological evidence has been obtained.

An unexpectedly dense pattern of Late Iron Age/early Romano-British ditches, gullies and pits, many correlating closely with geophysical anomalies, was revealed in all four trenches. The most impressive feature was a substantial curving ditch, several times recut (0011/0020), which enclosed a large area of *c.*0.5ha at the southern edge of the gravel terrace. This ditch may originally have enclosed an even larger area, for surface investigations suggest truncation of the terrace edge by fluvial erosion associated with lateral migration of the Cow Way Drain. Pottery from 0011 and 0020 suggests an origin for this feature in the mid-first century AD, continuing in use no later perhaps than the second century AD. Some of the handmade pottery from this and other contexts could imply an Iron Age origin for the settlement, but the extent and character of pre-Conquest activity remains uncertain. No traces survived of associated banks, but we may assume that the ditch would originally have formed part of an imposing boundary feature, flanked perhaps by an earth bank upon which could have been set a fence or other structure. A domestic function for the enclosure is suggested by the discovery of a variety of internal features, including pits, gullies and possible post-holes, many containing significant quantities of Late Iron Age/ early Romano-British pottery and other occupation debris (including heat-affected pebbles, vitrified fuel ash and building fragments). None of these features can be shown unequivocally to have been associated with the enclosure, but their ceramic contents suggest strongly that some of the excavated contexts represent contemporary internal features.

Late Iron Age/Romano-British structural remains were also recorded *beyond* the boundaries of the enclosure ditch, suggesting either that settlement activity had extended outside the enclosed area or that the enclosure forms part of a more complex structural sequence incorporating at least one phase of open settlement. Only further excavation could unravel this sequence, but several features of the geophysical plot raise the possibility of an early phase of open settlement. The most significant observation in this respect is the oddly sinuous plan of the enclosure ditch, suggesting perhaps that it had been positioned to avoid pre-existing structures or other obstacles. Of particular interest in this respect is a pronounced outward bulge approximately midway along its course; immediately SE of this bulge may be discerned faintly a roughly circular anomaly, *c.*6m in diameter, which could represent a circular structure around which the enclosure boundary had deviated.

The clearest of the anomalies which was recorded outside the area demarcated by the enclosure ditch is a roughly circular feature located immediately north of the Cow Way Drain. This anomaly appears to correlate with a substantial multi-phased ditch, 0007/0008, uncovered in trench 01, and could represent another ditched enclosure, roughly circular in plan and *c.*20m in diameter (Fig.2). A late first to early second century AD date has been suggested for the pottery from this feature, implying conceivably that it was constructed after

the main enclosure ditch. Further excavation, aimed at obtaining additional datable artefacts and investigating the stratigraphic relationship, if any, between these features, would be required to test this hypothesis. Another linear feature, 0009, was recorded immediately NW of 0007/0008. This yielded a mixture of possible Iron Age sherds and Romano-British pottery of first to second century date; it appeared initially that this feature might be concentric to 0007/0008, but the excavated feature appears to be aligned on a faint linear anomaly continuing northwards away from 0007/0008 (Fig.2).

As noted above, the excavated features yielded a rich collection of pottery and other artefacts of the Late Iron Age/Romano-British periods, mainly pottery. The comparatively small quantity of pottery which on typological grounds may date from the Iron Age period cannot be closely dated, but an origin in the first century AD or possibly earlier may reasonably be advocated. Crucial in this respect are the rare finds of scored pottery: a type of pottery which in this region could originate in the fifth/fourth centuries BC, but which appears mainly to have been in use in the last two centuries BC and earlier first century AD. The finds imply a major Late Iron Age/Romano-British settlement, engaged in mixed farming and possibly with associated industrial activities such as pottery production. Traces of wall plaster and dressed stone and a possible tessera suggest that in the Roman period the settlement may have incorporated buildings of some architectural pretension. Discoveries of lead and iron artefacts add to the impression of at least moderate wealth. A complex web of exchange links is suggested by finds of imported pottery, including samian, mortaria, Black Burnished ware and Derbyshire ware, and by two fragments of dressed building stone derived from a non-local Millstone Grit source.

The finds suggest that activity may not have continued significantly beyond the second century AD, although it should be emphasised that only a small and possibly unrepresentative sample of this very large site has been excavated.

A key question, which remains unanswered, is the relationship of this site to another Romano-British settlement recorded during building work adjacent to Wilne Lane, less than 0.6km to the NW of this site (SK 448308; Usher, 1995). The material from Wilne Lane included tegulae (roof tiles) and other tile fragments, implying a building of some status, together with Iron Age and Romano-British pottery (including grey ware and Derbyshire ware), and provides a further clue to the density of Romano-British settlement in this area. The material from this site has not been published, but assessment of the possible date range and character of the ceramic and other artefacts would be especially worthwhile.

2 EVALUATION OF PALAEOCHANNELS

2. 1 INTRODUCTION AND METHODOLOGY. A.J. HOWARD

A detailed survey of all surface geomorphological features within the boundary of the proposed northern extension to Hemington Quarry in Shardlow and Great Wilne parish demonstrated a complex sequence of relict fluvial features (Fig.7).

As part of further evaluation, it was recommended that ten boreholes be drilled across the area and sampled, to elucidate the age sequence of the palaeochannels and their environmental potential (via the analysis of pollen, plant macrofossils and insect remains). On the day, a time-window in the drilling schedule allowed the drilling of one additional borehole adjacent to the river at the eastern edge of the study area (11). Drilling was undertaken by contracted personnel (Blue Diamond Drilling Ltd.) using a flight auger; the stratigraphy of the cores was recorded by Dr A.J. Howard. Of the eleven holes drilled, five contained materials suitable for dating and environmental analysis. For sampling purposes, two additional boreholes were drilled adjacent to the original core and sampled using a hollow stem auger and U100 sample box, thus providing uncontaminated samples for (a) plant macrofossils, pollen and insects and (b) radiocarbon dating. The positions of all boreholes were recorded using an EDM Total Station and tied into the Ordnance Survey.

2.2 BOREHOLE STRATIGRAPHY AND SAMPLING. A.J. HOWARD

The fine grained infill of the palaeochannels is relatively thin, ranging from *c.*0.60m (Borehole 11) to *c.*2.0m (Borehole 2), with an average thickness of *c.*1.19m. The fill comprised an upper red-brown, inorganic, silty clay, with variable amounts of clay and sand. In boreholes 3, 4, 6, 7, 8 and 11, this silty clay rested directly on the floodplain sands and gravels of the valley floor. In boreholes 1, 2, 5 and 10 a grey organic silt was recorded between the red brown silty clay and the sands and gravels. Borehole 9 yielded a silty peat, *c.*0.50m thick, resting on the sands and gravels. The stratigraphy is summarised below.

Borehole	Description	To Depth (m)
1	Red-brown silty clay	1.00
	Grey organic silt*	1.70
	Coarse clayey gravel	2.50+
2	Red-brown clayey silt	1.25
	Grey organic silt*	2.00
	Coarse clayey sand & gravel	2.50+
3	Red-brown clayey silt	0.50
	Red-brown sandy silt	1.10
	Coarse sand and gravel	2.00+
4	Red-brown friable silty clay	0.50
	Red-brown sandy silty clay	1.10
	Brown coarse sand	1.50
	Brown coarse sand & gravel	2.00+
5	Red-brown silty clay	0.70
	Grey organic silt*	1.60
	Grey coarse sand	2.00
	Grey coarse sand & gravel	2.50+
6	Red-brown silty clay	0.90
	Brown coarse sand	1.40
	Orange coarse sand & gravel	2.00+
7	Red-brown silty clay	0.50
	Red-brown sandy silty clay	1.10
	Coarse clayey sand & gravel	1.50+
8	Red-brown friable silty clay	0.80
	Red coarse sand	1.20
	Orange-brown coarse sand & gravel	2.00+
9	Dark brown humic silty clay	0.60
	Black silty peat*	1.10
	Medium to coarse sand & gravel	2.00+
10	Brown silty clay	0.50
	Grey organic silty clay*	1.10
	Medium to coarse sand & gravel	2.00+
11	Red brown silty clay	0.50
	Grey organic silty clay	0.60
	Medium to coarse sand & gravel	1.50

U100 samples for radiocarbon and environmental analysis were taken from the grey organic silts of boreholes 1, 2, 5 and 10, and from the silty peat of borehole 9 (denoted by an asterisk in the above table). Radiocarbon samples were processed by Beta Analytic Inc. (Section 2.5), while the insect and plant remains were analysed and assessed by Dr. D. Smith (Section 2.3) and J. Greig (Section 2.4). The radiocarbon samples contained low percentages of carbon, and required special pretreatment to isolate the primary carbon fraction for dating. This increased the cost for each date, and it proved necessary to limit radiocarbon dating to samples from boreholes 1, 5, 9 and 10. Full details of the environmental analyses are contained in Appendices 4, 5 and 6, while details of the radiocarbon calibrations are contained in Appendix 7.

2.3 INSECT REMAINS. D. SMITH

Introduction

Most of the insect faunas presented here are from organic samples obtained from boreholes 1a, 2a, 5a, 9a and 10a, derived respectively from channels A, B1, P, AB and V (sampled contexts denoted by an asterisk in the above table: Section 2.2). The samples were obtained by using a flight auger and arrived at the laboratory still in their steel tubes. A 15 litre sample was also extracted for palaeoenvironmental assessment from the fill of a large Romano-British pit (0006) recorded during evaluation trenching of the Late Iron Age and Romano-British settlement on Stoneylands Close (Fig.6: trench 04); this was a very dark greyish brown silt loam (0006b).

It was hoped that an assessment of the insects in this material would be informative at a number of levels:

1) are insect remains present and are these faunas interpretable?
2) what are the fluvial conditions within these channels? Do these alter between the bore holes?
3) what was the nature of the surrounding environment of these channels? Does this alter between the bore holes?
4) is there evidence for settlement adjacent to these channels?

Methods

These samples, on their arrival at Birmingham, were processed using the standard method of paraffin flotation as outlined in Kenward *et al.* (1980). A 4-5 litre sample was extracted from the basal two thirds of each of the organic fills, of which 2 litres was retained for plant macrofossil and palynological analysis. The flot was then sorted under a binocular microscope and where applicable the insect fragments were identified by comparison to the Gorham Collection of British Coleoptera. The weights and volumes of these samples are summarised in the following table:

Sample no.	Weight	litres
BH 1a	3.9kg	4.8
BH 2a	4.1kg	5
BH 5a	4.6kg	4
BH 9a	3.4kg	4
BH 10a	4.5kg	4
0006b (Trench 04)	5.6kg	5

Since this study was aimed at an assessment level, full counts of the number of individuals were not attempted. Instead, the system for 'scanning' faunas as outlined by Kenward *et al.* (1986) was followed. The scanning interval was around 20 minutes for each sample. All the species present have been identified as far as was possible.

When considering the faunas recovered, three points have to be taken into account.

1) the identifications of the insects present are provisional. Equally, many of the taxa present could be identified down to species during a full analysis producing more information. Therefore, these faunas should be regarded as incomplete and possibly biased.
2) usually 8-10 litres of material are processed in order to gain a representative fauna during insect analysis. The small sample processed from Chapel Farm (usually around 5 litres) again means that the recovered faunas are potentially unrepresentative.
3) the various proportions of insects suggested are very notional and subjective.

Results

The insect taxa recovered from the received flots are listed in Appendix 4. The number of individuals present is estimated in the following way:

* = 1-2 individuals
** = 2-5 individuals
*** = 5-10 individuals
**** = 10+ individuals

The taxonomy used for the Coleoptera (beetles) follows that of Lucht (1987).

Discussion

1) Are insects present and are the faunas interpretable?

The five samples from the bore hole survey produced relatively large insect faunas for the amount of material examined. The three largest faunas were recovered from samples 1, 2 and 5 (respectively channels A, B1 and P), and these are probably the most representative. These faunas consisted of a range of Coleoptera (beetles) and Tricoptera (caddis flies). Apart from the sizes of the fauna recovered, there appears to be little variation between the five samples examined. As noted in Section 1.4.2, the single sample from feature 0006 contained no insect remains at all.

2) Water conditions in the palaeochannels

The water beetles from these samples suggest that during their history these channels contained two different fluvial conditions. It is clear from the presence of a number of species, such as the hydrophilids *Stictotarsus duodecimpustulatus* and *Potamonectes depressus* and the elmid, or riffle beetle, *Oulimnius,* that there had been flowing water within these channels. These species are most often associated with running waters with a hard gravelly bottom (Friday, 1988; Nilson and Holmen, 1996). Other species, such as *Hygrotus versicolor, Hydroporus palustris, Graptodytes granularis* and the majority of the Hydraenidae present, are all found in much slower and vegetation filled waters. This is particularly true

of *Hydrochus angustatus* which is normally associated with quite stagnant waters (Hansen, 1987).

Several species of beetle suggest that these channels also contained a range of aquatic plants during their existence. Amongst these are *Nymphaea* (waterlily) and *Glyceria* (water grasses): these are the host plants of *Donacia crassipes*, and N*otaris acridulus* respectively (Koch, 1992). Other species of beetle present such as *Donacia clavipes, D. impressa , D. vulgaris* and *Prasocuris phellandri* suggest that in some of these channels there were stands of *Phragmites* and *Scirpus* reeds and various waterside Umbeliferae.

From the insects present it is clear that a mix of two fluvial environments is represented in these channel fills. It is possible that this is a result of there being a system of contemporary pools and riffles within the same length of the channel base. Alternatively (and perhaps more likely) this mixing of stream conditions is the result of the channels ceasing to be active, silting up and then forming reed beds. It would be interesting to try to establish the degree of variation within the depth of deposits in these channels, should they subsequently be excavated, since this should establish which of these two alternatives is the most likely.

3) Land-use and the surrounding environment

There are no indications of the presence of old or mature woodland in the area during the time that these channels were active. This would initially suggest that these channels date from after the Late Bronze Age (but see Section 2.6). The presence of a cleared landscape from the Late Bronze Age in the Trent valley has been seen at a range of other archaeological sites throughout the area (Rosseff *et al.,* forthcoming; Smith, 1994a, 1994b, 1995a, 1995b, 1996).

There is some limited evidence for the presence of pasture in the general area. This supposition is based on two aspects of the insect faunas recovered.

1) the presence of species of *Aphodius* which are associated with herbivore dung lying in open ground (Jessop, 1986). This would suggest that stock animals, such as cattle, were in the area.
2) The presence of a number of species of plant feeder that are associated with grassland or pasture. Amongst these are the various species of *Apion, Sitona* and *Hypera* that normally feed on clover and *Gymnetron labile* which feeds on plantains. The beetle *A. triguttatus* is also thought to be typical of wet meadow or pasturelands (Koch, 1992).

4) Evidence for settlement

Work on a number of both rural and urban sites in the last twenty years has clearly demonstrated that there is a fauna of insects which are associated with human occupation in the archaeological record (*e.g.* Hall *et al.,* 1983; Kenward and Hall, 1990; Kenward and Allison, 1994). None of this fauna was recovered from these channel deposits, however, and it therefore seems likely that there was no habitation in the immediate area of the sampled contexts.

5) Fluvial geomorphology

With the exception of deposits associated with the medieval bridges at Hemington (Smith, 1995b) and the Neolithic channel fills at Langford meadows, there are still few ancient deposits within the main Trent Valley that appear to contain evidence for fast flowing water conditions (though this is seen in the head waters of the Trent's tributaries such as the Soar and the Penk: Smith, forthcoming). In the case of Hemington this is clearly a main channel deposit, and it would seem that Langford is potentially the remains of a flood surge. This is clearly in contrast to the situation at Chapel Farm where we seem to have a series of migrating channels. Furthermore, the majority of other sites within the floodplain such as Repton (Greenwood: pers. comm.), Yoxal (Rosseff *et al*), Shardlow (Smith, 1996) and Girton (Smith, 1994b) have a completely different nature. These are either cut-off meanders or back swamps and are not active channel deposits.

It would therefore seem that these channels at Chapel Farm may provide a contrasting picture of river behaviour to that already investigated within the floodplain of the Trent. Furthermore, it would be very interesting to compare the insect faunas from these channels to those from the 11,000 year sequence at the adjacent Hemington Bridge site and its associated palaeochannels and the nearby deposits at Shardlow. This would give us a detailed idea of the degree of variation in channel and fluvial deposits that can occur within a relatively small study area.

Recommendations

Should excavation continue in this area it is strongly recommended that the channel deposits which contained insect remains are sectioned, and that a representative column of 10 litre samples is taken in 10 cm spits throughout its depth. These samples should be processed for palaeoentomological analysis and the insects within them identified and fully quantified. This should include both the beetles and the caddis flies.

2.4 POLLEN AND PLANT MACROFOSSILS. J. GREIG

Quantification of material

Five samples were obtained from boreholes in channels A (BH1a), B1 (BH2a), P (BH5a), AB (BH9a) and V (BH10a), together with one sample from a pit containing also significant quantities of Romano-British pottery and other domestic debris (trench 04, context 0006b). The other boreholes yielded only inorganic sands, clays and gravel.

Provenance, data collection and method statement

The palaeochannels were sampled by boring and suitable material (when organic material was seen) was submitted for assessment. The writer did not see the site. The material was waterlogged and the organic material ranged from grey organic clay to a mass of fibrous material. Other relevant work on this material includes study of the insect remains by David Smith.

Assessment methodology: laboratory work

Each sample was assessed for pollen and plant macrofossils. The pollen sample of about 1 cm^3 was taken and prepared for pollen analysis by sieving and swirling to concentrate the organic fraction, followed by acetolysis and mounting for examination. Rather small test counts were made of about 0-150 grains. The results are given in Appendix 5. The macrofossils were assessed by taking 200 cm^3 of material, breaking it down in water and separating the organic material, and finally by sieving it into size fractions of >2 mm and 2-0.3 mm. The fractions were sorted, and the identifiable plant remains were listed (Appendix 6).

Results of assessment

BH1a, BH2a, BH5a and BH10a were organic clays. BH9a was rooty organic material. The sampled fill of pit 0006 (layer b) was a drier and rather mixed sediment. All of the borehole samples which were submitted contained plenty of well preserved plant macrofossils (mainly seeds) and pollen (Appendices 5-6), but as noted above pit 0006 contained practically nothing (see Section 1.4.2).

Borehole 1a (Channel A)
The macrofossils contained ten wetland and aquatic plant taxa compared with four dry land ones; the latter are more interesting for what they can show of the occupied landscape, on dry land. The presence of cornsalad (*Valerianella* cf *rimosa*) shows that nearby dry and probably arable land is represented. The pollen spectrum does not show up the local wetland and marsh flora of the deposit itself very much, showing instead an open landscape with grasslands (Poaceae, grasses, *Plantago lanceolata*, ribwort plantain, *Centaurea nigra*, knapweed).

Borehole 2a (Channel B1)
This shows even more of the flora of dry agricultural land (eight dry land taxa compared with 11 wetland ones, two indeterminate). The pollen spectrum is much the same as before. BH2a has more dry land taxa still (eight compared with seven wetland ones) and charcoal provides more evidence of human activity. The presence of the cornfield weed corn marigold (*Chrysanthemum segetum*) suggests an Iron Age or later date; it becomes very abundant in the medieval period (Greig 1990). The pollen record includes some Cerealia-type pollen including *Secale*-type (rye), Cannabaceae (possible hemp) and also a grain of *Linum usitatissimum*-type (flax), a fairly clear indication of an occupied agricultural landscape in the surroundings, which would typically be of Saxon or later date.

Borehole 9a (Channel AB)
This provided roughly equal numbers of wetland and dry land taxa. The local flora was obviously dominated by *Glyceria* (reed-grass, flote-grass), and the root mass in the sample could be from the same plant. The Cerealia-type pollen is also very high in this sample, although a proportion of this could be from *Glyceria*, which has pollen approaching this size. However the presence of weeds such as black bindweed (*Fallopia convolvulus*) shows that dry land is still represented. The problem of distinguishing between *Glyceria* pollen and that of cereals also applies to the other samples. Further work might partly resolve this difficulty.

Borehole 10a (Channel V)
This also has a partly wetland and partly dry land flora. Distinctive features include Rat-tail plantain (*Plantago major*), present in quantity. It is somewhat unusual for as many as 29 seeds of the above species to be found in one small sample, although together with daisy (*Bellis perennis*) it may represent short grazed pasture with much trampling. These wet places may have been used as water holes by cattle. The presence of greater burnet (*Sanguisorba officinalis*) and knapweed (*Centaurea nigra*) pollen hint at longer grassland or hay meadow. Stinking mayweed (*Anthemis cotula*) represents cornfields, and is mainly found in material of Saxon or medieval date (Greig 1990). This sample also contains 11% heather (Ericales) pollen; it is unclear whether heathland could have been growing close enough for natural pollen transport, or whether this pollen might represent material that was transported to the site in some way, although no macrofossils were found. Finally, an ovum of *Trichuris* was found, something which is abundant in sewage but unexpected in an apparently natural site.

Statement of potential

The test samples from the bore-holes, with well-preserved and abundant pollen and seeds, show the potential for indicating something of the occupied farming landscape in the vicinity at the particular dates represented, and of the grasslands, cultivated crops and their weeds. This is in addition to the mire deposits themselves, in which this evidence was preserved. Further work could usefully be done on the present samples to increase the information from them with further counting of pollen and seeds, and of course the deposits themselves might well be worth further investigation if the possibility arose. The results can be usefully compared with those from analysis of the beetle remains and other data.

2.5 RADIOCARBON DATING

Radiocarbon age determinations were made by Beta Analytic Inc. on the peat fraction of organic sediments retrieved from boreholes 1 and 9 and from organic silts recovered from boreholes 5 and 10 (located in channels A, AB, P and V respectively: Fig.7). All of these samples contained low percentages of carbon, and required special pretreatment and extra costs to isolate the primary carbon fraction for dating. Boreholes 2 (Channel B1) and 11 (Channel AA) yielded respectively a basal organic silt and an organic silty clay containing sufficient carbon for radiometric dating, but cost considerations prevented inclusion of these samples in the current dating programme. The results of dating, including calibrations at two sigma (95% probability), are summarised below (see also Appendix 6).

Borehole 1 (Channel A)
Sample location: basal 18cm of 0.7m thickness of grey organic silt, immediately above sand and gravel
Sample material: peat
Uncalibrated date = 1350+/-50BP (Beta-099235)
Calibrated date (2 sigma) = *cal AD 630 - 780*

Borehole 5 (Channel P)
Sample location: basal 18cm of 0.9m thickness of grey organic silt, immediately above sand and gravel
Sample material: organic sediment
Uncalibrated date = 4150+/-60BP (Beta-099237)
Calibrated date (2 sigma) = *cal BC 2895 - 2560* and
cal BC 2525 - 2500

Borehole 9 (Channel AB)
Sample location: basal 10cm of 0.5m thickness of black silty peat, immediately above sand and gravel
Sample material: peat
Uncalibrated date = 380+/-50BP (Beta-099238)
Calibrated date (2 sigma) = *cal AD 1435 - 1650*

Borehole 10 (Channel V)
Sample location: basal 18cm of 0.6m thickness of grey organic silty clay, immediately above sand and gravel
Sample material: organic sediment
Uncalibrated date = 3540+/-70BP (Beta-099239)
Calibrated date (2 sigma) = *cal BC 2030 - 1685*

It should be emphasised that the above dates only provide a date for the early infilling of channels, and in the case of vigorous high energy features such sediments may only enter the channel towards the end of its life. With this proviso, the dates provide a valuable insight into the fluvial geomorphology of this area, suggesting a protracted sequence of channel

development from the later Neolithic (third millennium BC) to the post-medieval period. This recalls the similarly complex sequence in Hemington Quarry, Leics., where channels dating from the Neolithic onwards have been recorded during gravel extraction (*e.g.* Clay and Salisbury, 1990, 290-1: Channel III).

The main points to emerge from this dating may be summarised as follows:

1. **Channel A (Borehole 1).** This was identified in the assessment as part of a major palaeochannel of the Trent, of unknown date and of unknown relationship to the modern river (Knight, Appleton and Howard, 1995, 10). The radiocarbon determination suggests an early medieval date for this channel, although as noted in the initial assessment the shape and profile of the feature may imply later deepening. The dated sample derived from the basal silts, and hence the feature could have continued as a major channel beyond the seventh to eighth centuries AD.

2. **Channel P (Borehole 5).** Channel P is one of several approximately north-south channels, extending eastwards from near the Cow Way Drain Pool, which it was suggested in the initial assessment could imply eastwards channel migration (*ibid.*, 11-12: Channels P-R). The channel appears to join with a meandering west-east channel (N), recorded to the south of the proposed extraction area, to which channel R and possibly also channel Q may also have been connected. The third millennium BC radiocarbon date for the basal silts of channel P provides unexpected evidence for an early phase of channel activity in this area. It seems unlikely, however, that the channel would have survived as a visible depression up to the present, given the dynamic nature of the floodplain environment, and hence the exact character and course of this early channel must remain uncertain.

3. **Channel AB (Borehole 9).** This is the easternmost and most pronounced of a series of curving linear depressions extending over the eastern part of the study area, and interpreted as ridge and swale topography indicative of eastwards channel migration (*ibid.*, 12-13). The post-medieval date indicated by the radiocarbon determination would support this hypothesis.

4. **Channel V (Borehole 10).** Detailed geomorphological survey identified a significant break in slope between Channel V and the series of curving depressions which formed part of the ridge and swale topography referred to in the preceding paragraph (Howard, Knight and Malone, 1996, 8). It was suggested on these grounds that channel V might be a later feature, truncating these earlier channels, or that the wide depression which is a feature of both channels V and U may have resulted from scouring during comparatively recent flooding. The latter option seems more likely in view of the radiocarbon dates obtained from channels AB and V. Channels Y, Z and AA seem to be related spatially to channel AB, the basal peats from which yielded a post-medieval date, and their truncation by V seems likely, therefore, to postdate significantly the Bronze Age channel which is implied by dating of the basal silts in channel V. The most plausible interpretation, therefore, is to imagine an early channel dating from the Bronze Age period, the course of which may have corresponded partly with channel V, and a complex sequence of later channel development culminating in the formation of a wide linear depression which in flood conditions had expanded laterally to truncate channels Y, Z and AA.

2.6 SUMMARY AND CONCLUSIONS

The programme of environmental sampling demonstrated convincingly that organic deposits suitable for radiocarbon dating and with high potential for the preservation of pollen, plant macrofossils and insect remains survived towards the base of at least five relict channels within the floodplain. The main general points to emerge from assessment of these data may be summarised as follows:

1. Fluvial geomorphology. The radiocarbon dates obtained from the basal organic fills of channels A, P, AB and V suggest a complex and protracted sequence of channel development, extending perhaps from the later Neolithic (third millennium BC) to the post-medieval period. The westernmost of the recorded channels (A) yielded a basal organic silt incorporating material dated to between the seventh and eighth centuries AD, signifying perhaps an early medieval course of the Trent. Channel AB, by contrast, yielded an organic silt incorporating a peaty fraction dated to the post-medieval period (cal AD 1435-1650). This would support the hypothesis, developed in the initial assessment report, that the easternmost part of the floodplain comprised a ridge and swale topography indicating eastwards migration of the Trent. Dates obtained from the basal organic silts of Channels P and V imply fluvial activity in the later Neolithic and Bronze Ages respectively. This recalls the evidence from Hemington Quarry, Leics., for channels dating from the Neolithic onwards. It is doubtful, however, whether such early channels would have survived as visible surface features up to the present, given the dynamic nature of the floodplain environment, and hence the exact character and course of these possible early channels must remain in doubt.

2. Insect remains. Analyses of the insect remains from channels A, B1, P, AB and V suggested in each case a sequence from running water to gradual silting, leading to the establishment of marshy vegetation. They also implied consistently a predominantly cleared environment, with no indications of old or mature woodland, and provided some evidence for nearby pasture. It was suggested, in view of the evidence for an extensively cleared landscape, that the channel fills may have accumulated no earlier than the early first millennium BC (Late Bronze Age).

3. Pollen and plant macrofossils. The pollen and plant macrofossils from the boreholes include a range of wetland and dryland taxa, and most significantly provide further evidence for an essentially cleared landscape, with evidence of both pasture and arable land. Certain species, notably corn marigold and stinking mayweed, are common only from the Iron Age, and an Iron Age or later date is suggested by these data.

The Neolithic and Bronze Age dates for the basal organic silts in channels P and V sit uneasily with the conclusions drawn from the insect and botanical data. This could signify a problem with the radiocarbon samples, or perhaps the presence within later channel deposits of organic clasts derived from earlier bankside deposits. There is, however, no obvious reason to doubt the validity of the radiocarbon samples, while no positive evidence of clasts was observed during the field recording of the core stratigraphy. More significant perhaps is the contrast between the context of the radiocarbon samples, all of which were derived from the basal 18-20cm of the organic deposits, and that of the palaeobotanical and insect

samples, which were derived from the bottom two thirds of each of the organic layers. This reflected the need for a significantly larger sample volume for palaeoenvironmental assessment, together with certain technical difficulties which were encountered during removal of the organic samples from the steel tubes. The possibility must therefore be admitted that the palaeoenvironmental samples could incorporate material of widely varying date. This problem may have been exacerbated by the impact of stock trampling, which could have led to mixing of some layers.

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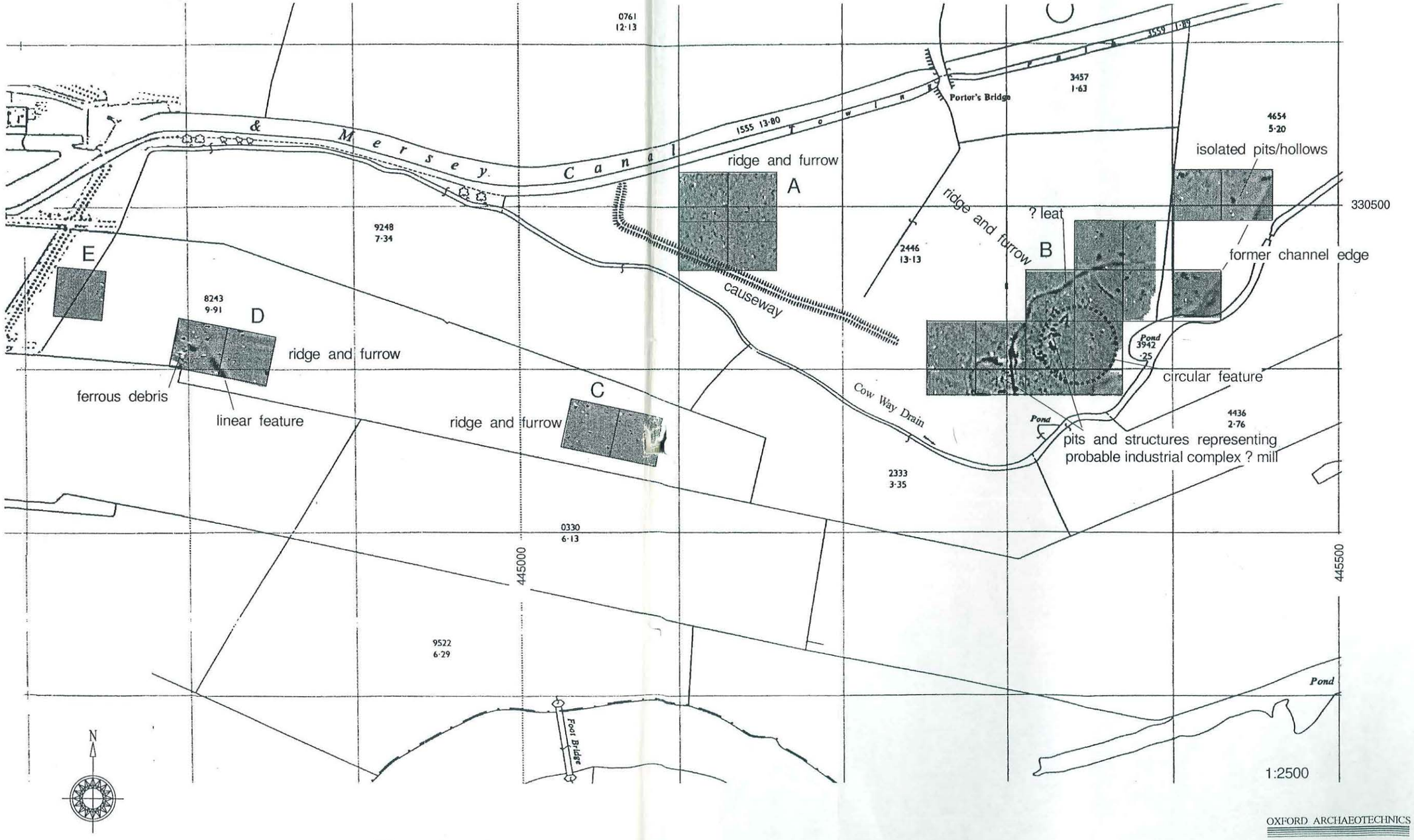
FIGURES

CHAPEL FARM HEMINGTON, DERBYSHIRE

Gradiometer survey: overview/summary



OXFORD ARCHAEOTECHNICS

Figure 1 Chapel Farm gradiometer survey (Oxford Archaeotechnics Ltd.; scale 1:2500)

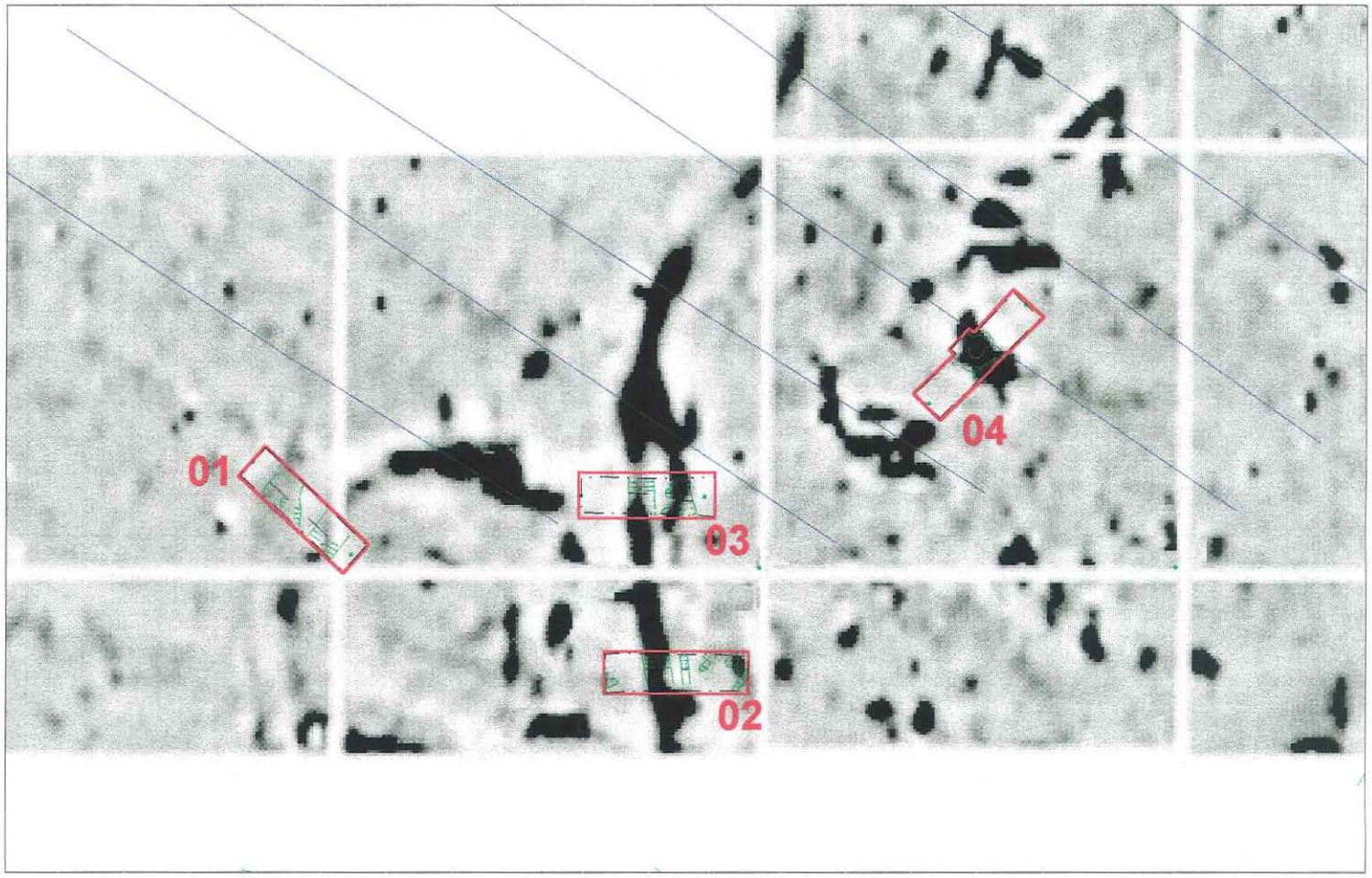


Figure 2 Trench locations (red) and excavated features (green) shown against gradiometer survey (scale 1:500; blue lines indicate centre-line of medieval ridge)

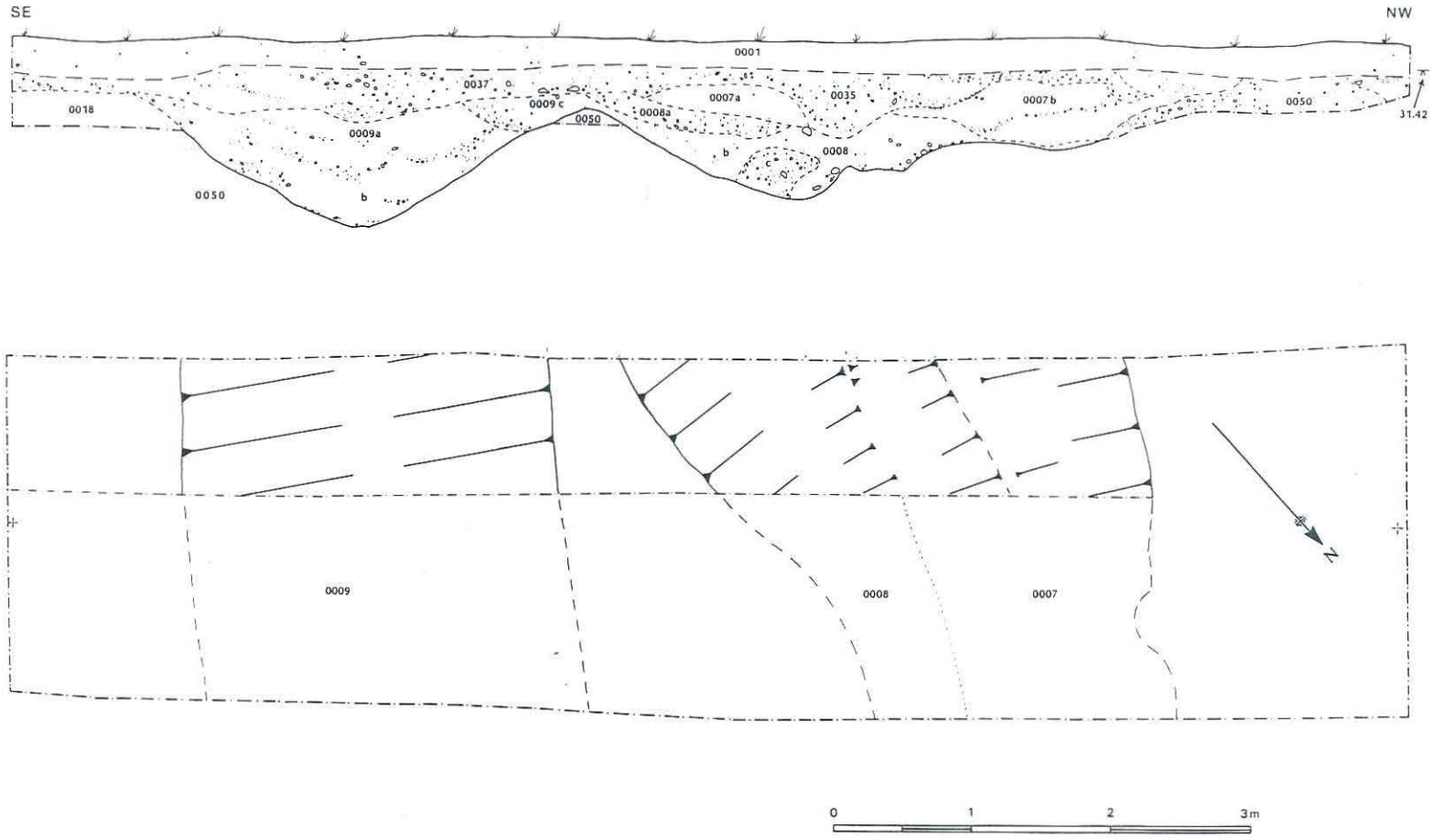


Figure 3 Trench 01 plan and section (scale 1:50)

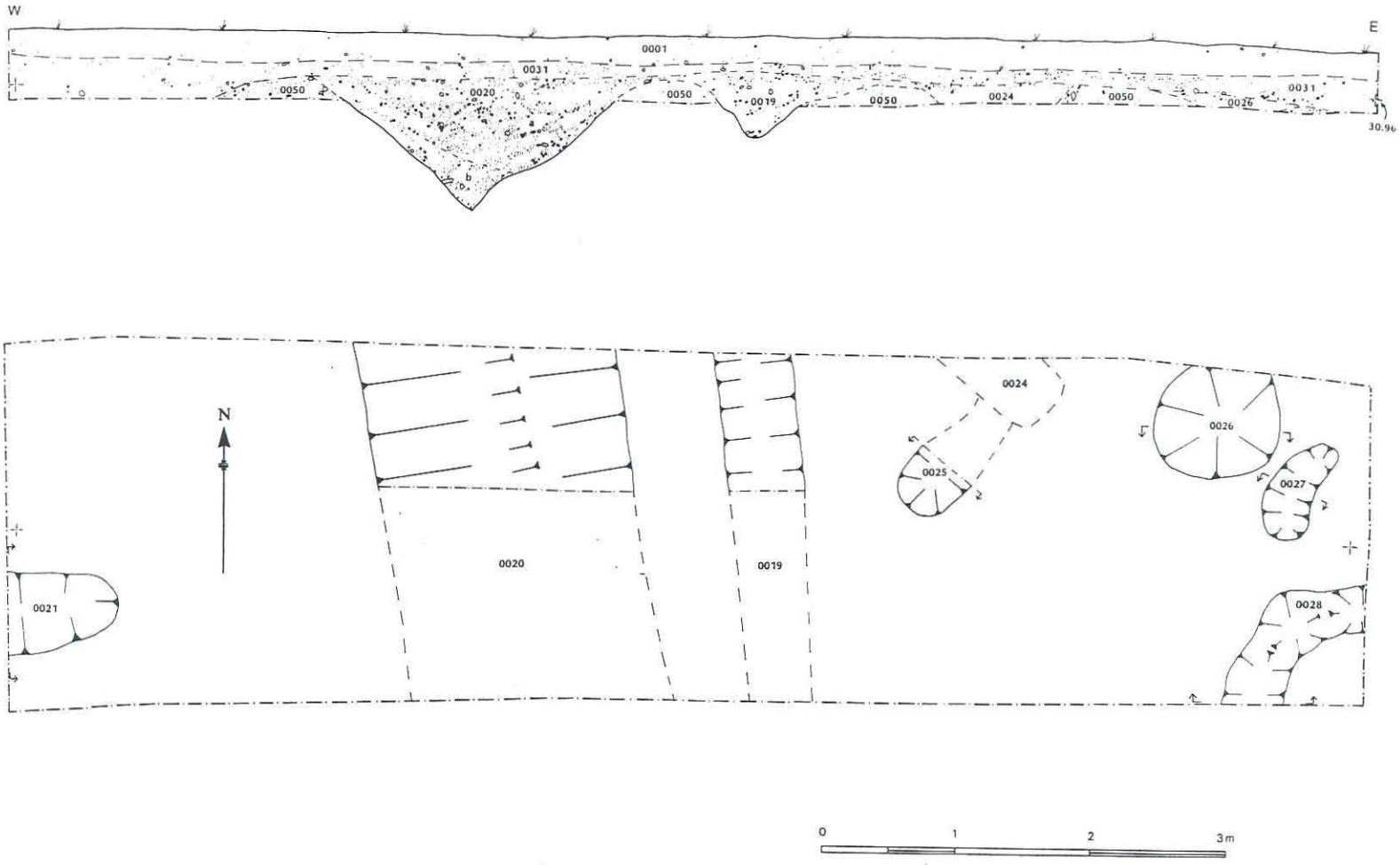


Figure 4 Trench 02 plan and section (scale 1:50)

Figure 5 Trench 03 plan and section (scale 1:50)

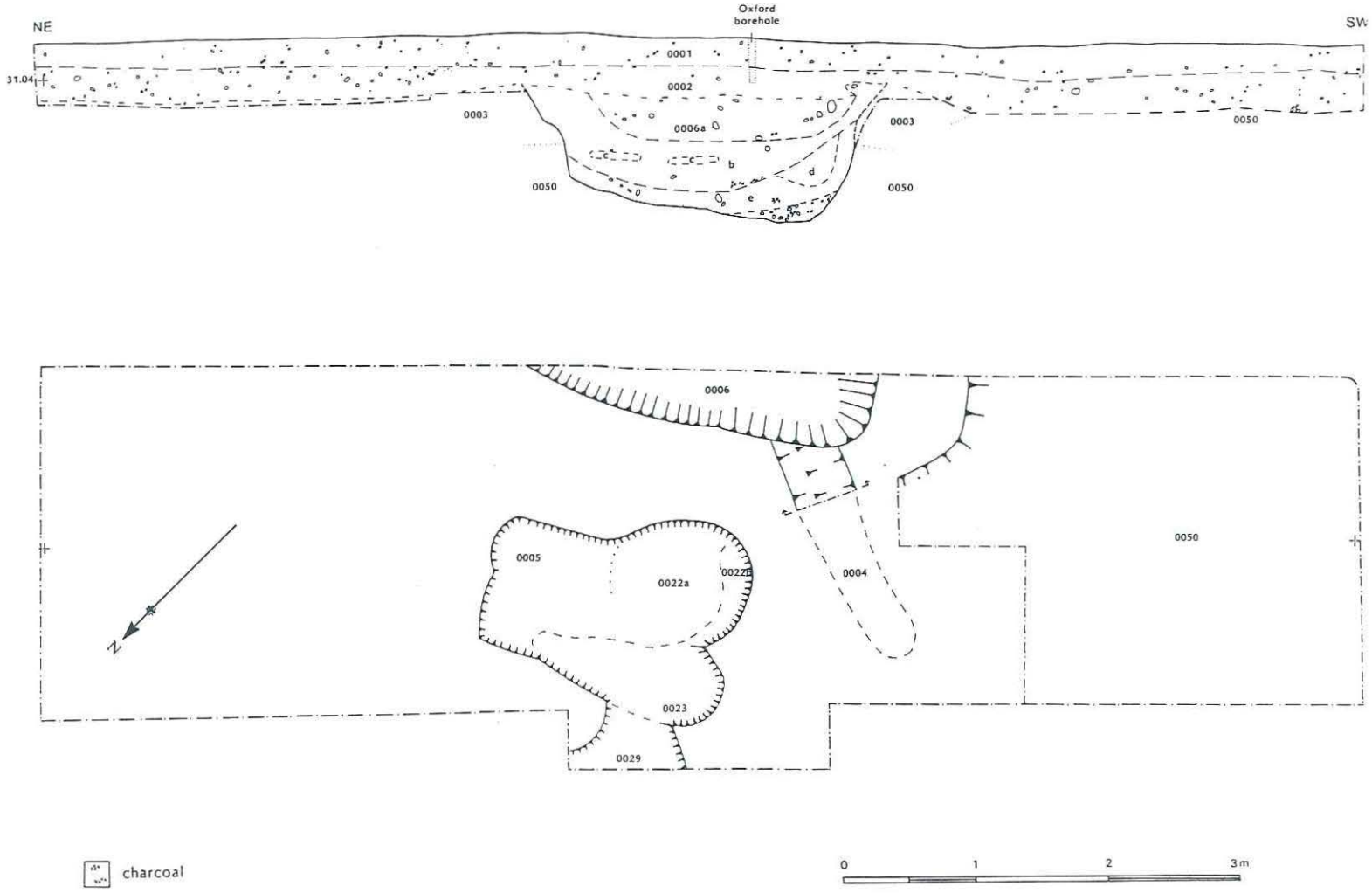


Figure 6 Trench 04 plan and section (scale 1:50)

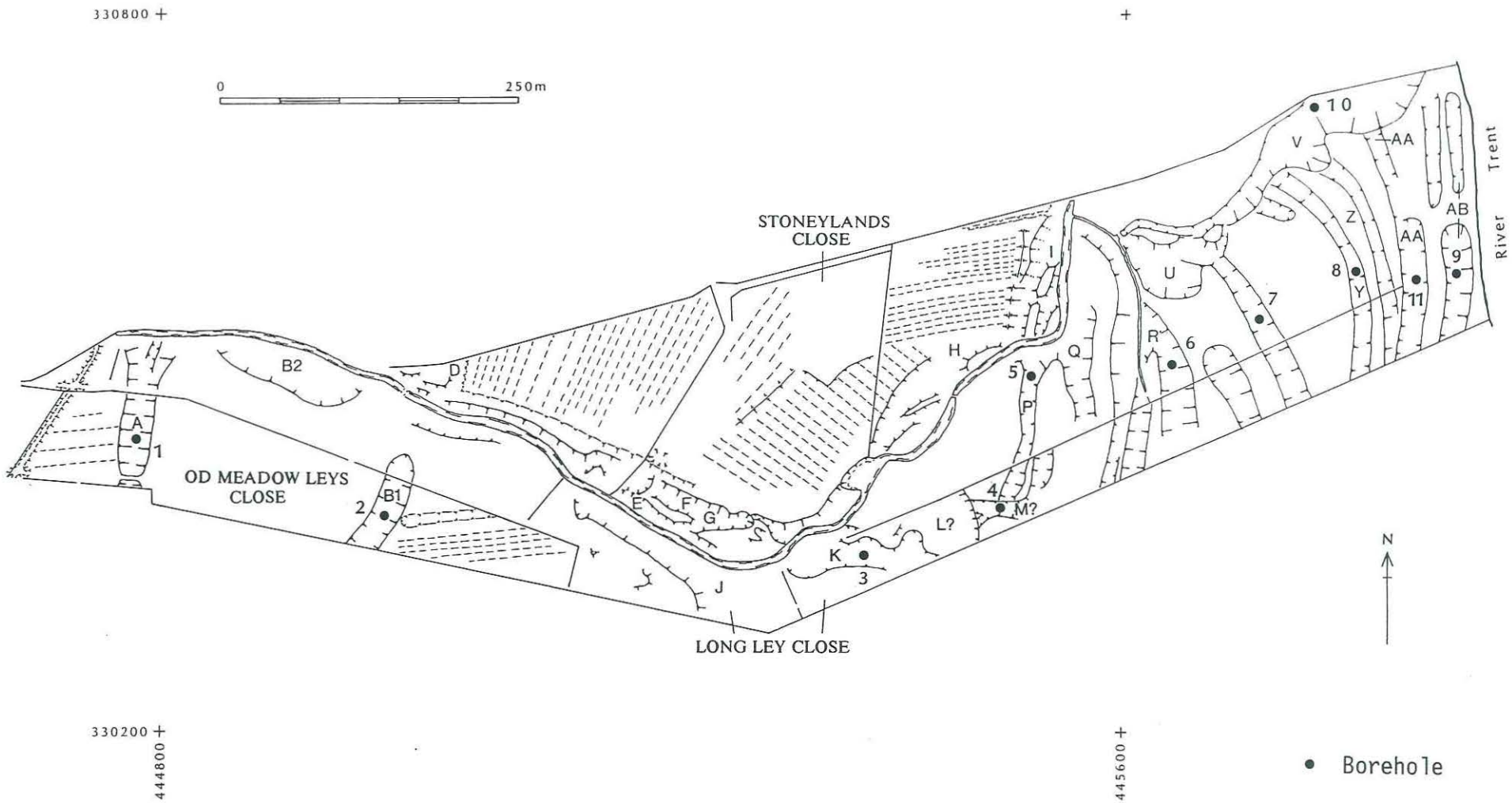


Figure 7 Location of boreholes in palaeochannels (scale 1:5000)

APPENDIX 1

LATE IRON AGE AND ROMANO-BRITISH POTTERY AND FIRED CLAY

Appendix 1: List of Late Iron Age/Romano-British Pottery

Introduction to pottery catalogue and list of codes

The pottery recording sheets list the pottery fabrics and forms from each context. Column 1 records context, 2 the find code, 3 the fabric, 4 the part of the vessel, 5 the sherd count, 6 form, 7, 10 and 13 the decorative techniques, 8, 11 and 14 the decorative motifs, 9, 12 and 15 the positions on the pot occupied by the decoration, 16 any cross joins, 17 the condition of the sherd and 18 any other comments. The following abbreviations and codes are used in addition to the above fabric and form codes:-

Fabric:

FC: fired clay

Form:

18/31: Draggendorf 18/31
B3: flat-rim bowl/dish
CA1: as CA with everted rim
CA2: as CA with bead rim
CB: cordoned and carinated bowl.
CD7: hemispherical flanged bowl
E: wide-mouthed jar
L: jar
LA: shouldered jar
LA2: rebated-rim jar
LA13: everted-tim jar
LA36: bead-rim jar
LA41: jar with short, everted rim
LB: jar with shoulder rebate
LC1: rusticated jar with everted-rim
M: BB1 jar
O: ovoid jar
OA1: fine, ovoid jar with everted rim
PA3: storage jar with everted rim
TUR: turned base

B: bowl or dish
CA: "belgic" type, cordoned or carinated bowl
CAR: carinated

CV: closed vessel
EVT: everted rim
L62: jar with small bead rim
LA1: short, everted-rim jar
LA6: cupped-rim jar
LA14: jar with short, chunky, everted rim
LA88: jar with everted-rim, bifid at the tip with a groove or slight rebate inside
MB: BB1 jar
OA: fine, ovoid jar
P: storage jar
PLN: plain

Part:

PRO: profile
BDY: diagnostic bodysherd
BAS: base
SCR: scraps
FLG: flange

R+B: rim and bodysherd
BDX: undiagnostic bodysherd
B+B: base and bodysherd
HA: handle

Decoration:

Technique:

APL: applied
CB: combed
FLD: folded
GRF: graffiti
GRV: grooved
HSC: handle scar
INC: incised
MLD: moulded
ROU: rouletted

BNH: burnished
CD: cordoned
FTI: finger tip impression
HA: handle
IMP: impressed
IND; indented
PTD: painted
RST: rusticated

SM: smoothed
STB+: stabbing between two grooves
STB: stabbed
STP: stamped

Motif:

ALT: acute lattice
ARC: arc
CHV+: chevron between grooves
CRV: curved
DAH: dash
DBE: double
HRZ: horizontal line
LIN: linear
MUL: multiple
NTC: notch
OB: oblique
OLT:obtuse lattice
OV+: oval between two grooves
SGE: single
STP: strap
VERMUL: multiple vertical lines
WVYVER: vertical wavy
NTC: notched
STP: strap
ALT+: acute lattice between grooves
CRL: circle
DBEHRZ: double horizontal line
FN: finger nailFTI: finger tip
LAT: lattice
LINMUL: multiple linesLPS: loops
NOD: nodular
OBDBE: double oblique
OV: oval
PAN: panel
SCL: scales
VER: vertical
WVY: wavy line
ZZ: ziz zag
SGE: single
WVY: wavy line

Position:

AOO: all over outside
OSR: outside rim
ISR: inside rim
OSN: outside neck
OUB: outside upper body
OLB: outside lower body
ISB: inside body
TOF: top of flange
TOR: top of rim
AO: all over
AOR: all over rim
TOR: top of rim
OSH: outside shoulder
OMB: outside middle body
OSB: outside body
IBS: inside base
OSF: outside flange
ILB: inside lower body

Condition:

BR: burnt
CDPO: carbonised deposits outside
CDPI: carbonised deposits inside
VAB: very abraded
DIS: distorted
FKD: flaked
CRJ: cross joins with
SAME: same vessel as

CONTEXT	FINDSCODE	FABRIC	PART	COUNT	FORM	DECTEC	DECMOTIF	DECPOS	DECTEC2	DECMOTIF2	DECPOS2	JOINS	CONDITION	COMMENTS
0001	AAE	BSB1	BDX	1										
		BSB1	Total	1										
0001	ABZ	CTA1	BDY	1	P	CB		OSB						
		CTA1	Total	1										
0001	AAB	GRA1	BDY	1	CB	BNH		AO	CD	SGE	OSB			
		GRA1	Total	1										
0001	AAC	GRA2	BDY	1	CB?									
0001	AAA	GRA2	BDY	3	OA									
0001	ACL	GRA2	BDX	1										
0001	AAD	GRA2	SCR	1										
		GRA2	Total	6										
0001	ACK	GRB1	BDX	1										
0001	ACM	GRB1	BDY	1	O	CD	SGE	OSN						
		GRB1	Total	2										
0001	Total sherd count			11										
0002	AAG	BSB1?	SCR	1										OR PQ
		BSB1?	Total	1										
0002	AAK	GRA2	BAS	1										
		GRA2	Total	1										
0002	Total sherd count			2										
0003	ACJ	M1	BDX	1										
		M1	Total	1										
0003	Total sherd count			1										
0005	AKC	BB1	BDY	1	M	BNH		OSB						
0005	AAW	BB1	SCR	1										

CONTEXT	FINDSCODE	FABRIC	PART	COUNT	FORM	DECTEC	DECMOTIF	DECPOS	DECTEC2	DECMOTIF2	DECPOS2	JOINS	CONDITION	COMMENTS
0005	AAV	BB1	SCR	1										
0005	AAU	BB1	B+B?	1	B	BNH		OSB						
0005	AAR	BB1	BDY	1	M?	BNH		OSB						
0005	ACW	BB1	BDY	1		BNH		OSB						
		BB1	Total	6										
0005	ACU	CTA1	RIM	1	LA2									
0005	AMB	CTA1	BAS	1	PLN									
0005	ACT	CTA1	BDX	1										
		CTA1	Total	3										
0005	AMC	CTA1?	SCR	1										
		CTA1?	Total	1										
0005	AMH	CTB1	SCR	1										
		CTB1	Total	1										
0005	AAY	DBY	BDX	1										
		DBY	Total	1										
0005	ADD	FC		1										
		FC	Total	1										
0005	AMD	FC?	BDX	1										
		FC?	Total	1										
0005	ACV	GRA2	BDY	1	CAR									
0005	AMK	GRA2	BDX	1										
0005	AMJ	GRA2	BDX	1										
		GRA2	Total	3										
0005	AAS	GRB1	BDX	1										
0005	AMI	GRB1	BDX	1										
0005	AOX	GRB1	RIM	1	LA13?	BNH		ISR						
0005	AAX	GRB1	BDX	1										
		GRB1	Total	4										

CONTEXT	FINDSCODE	FABRIC	PART	COUNT	FORM	DECTEC	DECMOTIF	DECPOS	DECTEC2	DECMOTIF2	DECPOS2	JOINS	CONDITION	COMMENTS
0005	AME	GT?	BDY	1	CA	CD	SGE	OSB						
0005	AAT	GT?	SCR	1										
		GT?	Total	2										
0005	ADC	NSP	SCR	1									BR	BR AND DIRTY
		NSP	Total	1										
0005	AKA	OBA1	SCR	1										
0005	AKB	OBA1	BDX	1										
0005	ACY	OBA1	BDX	1										
		OBA1	Total	3										
0005	ACX	OBC1	BAS	1	PLN									
0005	AMG	OBC1	SCR	1										
0005	ADB	OBC1	RIM	1	LA6								BR	?DBY
0005	AMF	OBC1	SCR	1										
		OBC1	Total	4										
0005	ACZ	PQ	BDX	1										
0005	ADA	PQ	BDX	1										
		PQ	Total	2										
0005	Total sherd count			33										
0006a	ABB	BB1	BDY	1	MB	BNH	WVY	OSN	BNH		OSN			
0006a	AEB	BB1	BDY	1	M	BNH	ALT	OSB					CDPI	
0006a	ADH	BB1	BDY	1	B	BNH	LIN	OBS					CDPO	
		BB1	Total	3										
0006a	AEA	BB1?	B+B	1	B	BNH		OSB	BNH	OB	OSB			
		BB1?	Total	1										
0006a	ABF	BONE		0										
0006a	ADU	BONE		0										
		BONE	Total	0										

CONTEXT	FINDSCODE	FABRIC	PART	COUNT	FORM	DECTEC	DECMOTIF	DECPOS	DECTEC2	DECMOTIF2	DECPOS2	JOINS	CONDITION	COMMENTS
0006a	AED	BSB1	BDX	1										
0006a	AEC	BSB1	BDX	1										
		BSB1	Total	2										
0006a	ANA	BSB?	BDY	1	CA	BNH		OSB					CDPO	
		BSB?	Total	1										
0006a	ABJ	DBY	BDX	1										
		DBY	Total	1										
0006a	ADW	FC		1										
0006a	ADV	FC		1										
0006a	ADJ	FC		1										
0006a	AEF	FC		1										
		FC	Total	4										
0006a	AEG	FC/PR		1										
		FC/PR	Total	1										
0006a	ABC	FLA?	BDX	1										OR ?MOR
		FLA?	Total	1										
0006a	ABG	GRA1	BDY	1	CV									
		GRA1	Total	1										
0006a	ADY	GRA2	BDY	1	CB	GRV	SGE	OSC						
0006a	ABA	GRA2	RIM	1	LA1									
0006a	ABD	GRA2	BDX	1										
0006a	AAZ	GRA2	RIM	1	LA1									
0006a	ABI	GRA2	BDX	1										
0006a	ADF	GRA2	R+B	1	LA2	GRV	DBE	OSH				AFA, AEO	BR	
0006a	ADG	GRA2	BDY	1		GRV	DBE	OSB						
		GRA2	Total	7										
0006a	ADS	GRA3	SCR	1										

CONTEXT	FINDSCODE	FABRIC	PART	COUNT	FORM	DECTEC	DECMOTIF	DECPOS	DECTEC2	DECMOTIF2	DECPOS2	JOINS	CONDITION	COMMENTS
		GRA3	Total	1										
0006a	ADI	OBA1	R+B	1	CD7									
		OBA1	Total	1										
0006a	ADP	OBA1?	BDY	1	CV	BSS?		OLB						?BR BSS - ?BLISTER
		OBA1?	Total	1										
0006a	ABH	OBC1	BDX	1										
0006a	ADQ	OBC1	BDX	1									CDPO	
0006a	ADX	OBC1	BDX	1										
		OBC1	Total	3										
0006a	ADR	PQ?		0										
		PQ?	Total	0										
0006a	AEH	PRE?		1										
0006a	ABE	PRE?	BDX	1										
		PRE?	Total	2										
0006a	ADZ	TS	BDY	1	18/31								BR	
		TS	Total	1										
0006b	AEY	CTA1	BDX	1										
		CTA1	Total	1										
0006b	AEW	FC		1										
		FC	Total	1										
0006b	AEX	FC??		1									BR	
		FC??	Total	1										
0006b	AFJ	GRA2	BDX	1										
0006b	AFE	GRA2	BDY	1		GRV	MUL	OSH					CDPO	
0006b	AEO	GRA2	RIM	1	LA2							ADF		
0006b	AEQ	GRA2	BDY	1	LA	GRV	MUL	OSB						

CONTEXT	FINDSCODE	FABRIC	PART	COUNT	FORM	DECTEC	DECMOTIF	DECPOS	DECTEC2	DECMOTIF2	DECPOS2	JOINS	CONDITION	COMMENTS
0006b	AFI	GRA2	BDX	1									CDPO	
0006b	AFM	GRA2	B+B	1	PLN									
0006b	AFK	GRA2	BDX	1										
0006b	AFB	GRA2	R+B	1	LA1	GRV	MUL	OSH				AEN?		
0006b	AFA	GRA2	R+B	1	LA2	GRV	DBE	OSH				ADF	BR	CDPO
0006b	AFF	GRA2	BDY	1		GRV	MUL	OSH					CDPO	
0006b	AEN	GRA2	R+B	1	LA1	GRV	MUL	OUB				AFB?	DIS	
0006b	AFL	GRA2	BDX	1										
0006b	AFD	GRA2	BDY	1		GRV	MUL	OSH					CDPO	
0006b	AFW	GRA2	SCR	1										
0006b	AFC	GRA2	BDY	1		GRV	MUL	OSH					CDPO	
0006b	AEP	GRA2	R+B	1	LA1	GRV	SGE	OUB						
0006b	AFV	GRA2	BDX	1										
0006b	AEU	GRA2	B+B	1	PLN									
0006b	AET	GRA2	BDX	1										
0006b	AES	GRA2	BDX	1										
0006b	AER	GRA2	BDX	1										
0006b	AFG	GRA2	BDY	1		GRV	MUL	OSH						
0006b	AFH	GRA2	BDX	1										
0006b	AGA	GRA2	B+B	1									CDPO	INCL. BREAK
		GRA2	Total	24										
0006b	AFN	GRA3	BDY	1	LC1	RST?	LIN	OUB				AEV		
0006b	AEV	GRA3	RIM	1	LA1?							AFN		ALMOST WHITE
		GRA3	Total	2										
0006b/d	AFR	FLB	B+B	1	TUR									
		FLB	Total	1										
0006b/d	AFS	OAA1	BDX	1										
0006b/d	AFT	OAA1	BDX	1										
0006b/d	AFU	OAA1	SCR	1										
		OAA1	Total	3										
0006def	AGH	BSB1?	scr	1									CDPO	
		BSB1?	Total	1										

CONTEXT	FINDSCODE	FABRIC	PART	COUNT	FORM	DECTEC	DECMOTIF	DECPOS	DECTEC2	DECMOTIF2	DECPOS2	JOINS	CONDITION	COMMENTS
0006e	AGB	CTB	BDX	1										
		CTB	Total	1										
0006e	AGM	CTB2	SCR	1									CDPO	
0006e	AGG	CTB2	BDX	1										
		CTB2	Total	2										
0006e	AGJ	FC		1										
0006e	AGI	FC		1										
0006e	AGZ	FC		30										Shaped
		FC	Total	32										
0006e	AGE	FC?		1										
		FC?	Total	1										
0006e	AFZ	GRB1?	BDY	1	CB	BNH		OLB						
		GRB1?	Total	1										
0006e	AGF	OAA1	BDX	1										
0006e	AGD	OAA1	BDX	1										
0006e	AGC	OAA1	BDX	1										
		OAA1	Total	3										
0006e	AFO	OAB1	SCR	1										
		OAB1	Total	1										
0006	Total sherd count			106										
0007b	AOZ	CTA1	BDX	1										
0007b	AOY	CTA1	BDX	1										
		CTA1	Total	2										
0007b	AON	CTB1	BDX	1									CDPI	DIRTY
		CTB1	Total	1										

CONTEXT	FINDSCODE	FABRIC	PART	COUNT	FORM	DECTEC	DECMOTIF	DECPOS	DECTEC2	DECMOTIF2	DECPOS2	JOINS	CONDITION	COMMENTS
0007	Total sherd count			3										
0008a/b	AMW	BSB1?	BDY	1	CV									OR BB1?
		BSB1?	Total	1										
0008a/b	AMY	CTA1	BDX	1										
0008a/b	AMZ	CTA1	BDX	2										
		CTA1	Total	3										
0008a/b	AMX	GRA2	BDX	1										
		GRA2	Total	1										
0008a/b	AMV	GRB1	SCR	1	CV	ROU?	DAH?	OSB						
		GRB1	Total	1										
0008a/b	ANW	PMM	SCR	1										
		PMM	Total	1										
0008b	ANK	BSB1	RIM	1	CA2								CDPI	
		BSB1	Total	1										
0008b	ANI	CTA1	BDX	1										
0008b	ANH	CTA1	SCR	1										
0008b	ANG	CTA1	SCR	1										
0008b	ANJ	CTA1	BDX	1										
0008b	ANF	CTA1	SCR	1										
0008b	ANE	CTA1	BDX	1										
0008b	AND	CTA1	BAS	1	PLN									
0008b	ANC	CTA1	BDX	1										
		CTA1	Total	8										
0008b	ANB	PQ	BDX	1										
		PQ	Total	1										
0008b/c	ANM	BSB1	SCR	1										
		BSB1	Total	1										

CONTEXT	FINDSCODE	FABRIC	PART	COUNT	FORM	DECTEC	DECMOTIF	DECPOS	DECTEC2	DECMOTIF2	DECPOS2	JOINS	CONDITION	COMMENTS
0008b/c	ANO	BSB1?	SCR	1										
0008b/c	ANN	BSB1?	SCR	1										
		BSB1?	Total	2										
0008b/c	ANV	CTA1	SCR	1										
0008b/c	ANU	CTA1	BDX	1										
0008b/c	APE	CTA1	BDX	1										
0008b/c	ANR	CTA1	BDX	1										
0008b/c	ANT	CTA1	BDX	1										
		CTA1	Total	5										
0008b/c	APD	FC?	SCR	1									BR	
		FC?	Total	1										
0008b/c	AKQ	GRA2	BDX	1										
0008b/c	AKR	GRA2	BDX	1									BR	
0008b/c	AKS	GRA2	BDY	1	OA								BR	
0008b/c	ANS	GRA2	BDY	1	OA	CD	SGE	OSB	BNH	ALT	OSB			
0008b/c	AKM	GRA2	BDY	1	OA1	GRV	SGE	OSB					BR	CDPO
0008b/c	AKI	GRA2	RIM	1	OA1								BR	
0008b/c	ANQ	GRA2	BDX	1										
0008b/c	AKO	GRA2	BDY	1	OA?								BR	
0008b/c	AKN	GRA2	BDX	1										
0008b/c	AKH	GRA2	RIM	2	OA1								BR	
0008b/c	AKL	GRA2	BDY	1	OA1	GRV	SGE	OSB					BR	
0008b/c	AKJ	GRA2	BDY	1	OA1									
0008b/c	ANP	GRA2	BAS	1	TUR									
0008b/c	AKP	GRA2	BDX	1										
0008b/c	AKK	GRA2	BDY	1	OA1	GRV	SGE	OSB	BNH	ALT	OSB		BR	
0008b/c	ANL	GRA2	BDX	1										
0008b/c	AKG	GRA2	RIM	1	OA1								BR	
0008b/c	AKF	GRA2	BDY	1	OA1									
0008b/c	AKE	GRA2	RIM	1	OA1									
		GRA2	Total	20										

CONTEXT	FINDSCODE	FABRIC	PART	COUNT	FORM	DECTEC	DECMOTIF	DECPOS	DECTEC2	DECMOTIF2	DECPOS2	JOINS	CONDITION	COMMENTS
0008b/c	AMU	GRB1	BDY	1	CV	ROU	DAH	OSB					CDPO	
		GRB1	Total	1										
0008b/c	APF	PQ	SCR	1										
		PQ	Total	1										
0008b/c	APG	PQ/AS	SCR	2										
		PQ/AS	Total	2										
0008	Total sherd count			50										
0009a	AOP	BS	RIM	1	EVT									
0009a	AOQ	BS	RIM	1	EVT									
		BS	Total	2										
0009a	AOJ	BSA1	RIM	1	CA1									?BUTT BEAKER RIM
		BSA1	Total	1										
0009a	AOK	BSB1	BDX	1										
		BSB1	Total	1										
0009a	AOV	FC?	BDX	1										
0009a	AOM	FC?	SCR	1									BR	
		FC?	Total	2										
0009a	AOO	GRA2	R+B	1	CA1	CD	SGE	OUB						
		GRA2	Total	1										
0009a	AOL	PMM	BDX	1									BR	
		PMM	Total	1										
0009	Total sherd count			8										
0011a	ACE	CTB1	RIM	1	LA36									
0011a	ACA	CTB1	BDX	2										
0011a	ACB	CTB1	R+B	2	LB?								CDPO	NEW FORM

CONTEXT	FINDSCODE	FABRIC	PART	COUNT	FORM	DECTEC	DECMOTIF	DECPOS	DECTEC2	DECMOTIF2	DECPOS2	JOINS	CONDITION	COMMENTS
		CTB1	Total	5										
0011b	ALE	BSA?	SCR	1										
0011b	AKW	BSA?	BDY	1		GRV	SGE	OSB						
		BSA?	Total	2										
0011b	AKV	BSB1	BDX	1										
0011b	ALC	BSB1	BDX	2										
0011b	AKU	BSB1	BDX	1										
0011b	ALB	BSB1	RIM	1	CA?							AMP		
0011b	ACC	BSB1		3										
0011b	AKY	BSB1	BDX	2										
		BSB1	Total	10										
0011b	ACD	CTB1		1										
		CTB1	Total	1										
0011b	ALF	FC		1										
0011b	ALH	FC		1										
0011b	ALG	FC		1										
0011b	ALI	FC		1										
		FC	Total	4										
0011b	AKT	NSP	SCR	1										
		NSP	Total	1										
0011b	ALA	PCT	BDX	1										
		PCT	Total	1										
0011b	AKZ	PMM	BDY	2		SC		OSB						
		PMM	Total	2										
0011b/c	AMN	BSA1	BDY	1		GRV	SGE	OSB						
		BSA1	Total	1										
0011b/c	AMP	BSB1	RIM	2	CA1							ALB		

CONTEXT	FINDSCODE	FABRIC	PART	COUNT	FORM	DECTEC	DECMOTIF	DECPOS	DECTEC2	DECMOTIF2	DECPOS2	JOINS	CONDITION	COMMENTS
0011b/c	AMO	BSB1	BDY	1	CV									
0011b/c	AMQ	BSB1	RIM	1	CA1							AMR		
0011b/c	AMR	BSB1	RIM	3	CA1							AMQ		
		BSB1	Total	7										
0011b/c	AML	CTB1	BDY	1								AMM	VAB	
0011b/c	AMM	CTB1	RIM	1	LA36?							AML	VAB	
		CTB1	Total	2										
0011c	ALO	BSB1	BDX	1										
0011c	ALX	BSB1	BDX	1										
0011c	ALZ	BSB1	BDX	1								ALT		
0011c	ALT	BSB1	BDX	1								ALZ		
		BSB1	Total	4										
0011c	ALU	CT	SCR	2										
0011c	ALV	CT	SCR	4										
		CT	Total	6										
0011c	ALR	CTB2?	SCR	1										
		CTB2?	Total	1										
0011c	ALQ	PCT	BDX	1										
0011c	ALW	PCT	BDX	1										
0011c	ALY	PCT	BDX	1										
0011c	ALP	PCT	BDX	1										
0011c	ALN	PCT	BDX	1									BR	?RIM
		PCT	Total	5										
0011c	ALM	PMM	BDX	1										
		PMM	Total	1										
0011	Total sherd count			53										
0012	ANY	BSB1	BDX	1										
		BSB1	Total	1										

CONTEXT	FINDSCODE	FABRIC	PART	COUNT	FORM	DECTEC	DECMOTIF	DECPOS	DECTEC2	DECMOTIF2	DECPOS2	JOINS	CONDITION	COMMENTS
0012	ANX	OBB1	BDX	1										
		OBB1	Total	1										
0012	Total sherd count			2										
0013d	APC	FC	SCR	1										
		FC	Total	1										
0013d	AOF	GTA8	BDX	1										
		GTA8	Total	1										
0013d	APB	PQ?	SCR	1										
		PQ?	Total	1										
0013	Total sherd count			3										
0015	ACH	BSB1?	BDX	1										OR PQ
		BSB1?	Total	1										
0015	ACF	CTB1	R+B	1	LA14									LPRIA?
0015	ACG	CTB1	RIM	4	EVT									LPRIA?
		CTB1	Total	5										
0015	Total sherd count			6										
0020	AHP	BSA1	R+B	1	CA2									
		BSA1	Total	1										
0020	AIS	BSB1	BDX	1										
0020	AIO	BSB1	BDX	1										
0020	AHR	BSB1	BDY	1	CV	CD	SGE	OUB	CD	SGE	OMB		CDPO	
0020	AIE	BSB1	BDX	1									BR	
0020	AHY	BSB1	BDX	1										
0020	AHE	BSB1	RIM	1	LA41							AHD		
0020	AIR	BSB1	BDX	1										

CONTEXT	FINDSCODE	FABRIC	PART	COUNT	FORM	DECTEC	DECMOTIF	DECPOS	DECTEC2	DECMOTIF2	DECPOS2	JOINS	CONDITION	COMMENTS
0020	AHC	BSB1	B+B	1	TUR									JAR
0020	AIJ	BSB1	BDX	1										
0020	AHD	BSB1	BDY	1	JAR	GRV	SGE	OUB	RIL?		OSB	AHE		?FAINT RILLING
0020	AIK	BSB1	BDX	1										
0020	AIL	BSB1	SCR	1										
0020	AIA	BSB1	BDX	1										
0020	AIN	BSB1	BDX	1										
0020	AIP	BSB1	BDX	1										
0020	AIG	BSB1	BDX	1										
0020	AHX	BSB1	BDX	1										
0020	AHU	BSB1	BDX	1										
0020	AHZ	BSB1	BDX	1										
0020	AIW	BSB1	BDX	1										
0020	AIH	BSB1	BDX	1										
0020	AHQ	BSB1	R+B	1	L62									
0020	AIQ	BSB1	BDX	1										
0020	AJQ	BSB1	SCR	1										
0020	AJP	BSB1	SCR	1										
0020	AJL	BSB1	SCR	1										
		BSB1	Total	26										
0020	AJV	BSB?	SCR	1										
		BSB?	Total	1										
0020	AIB	CTA1	BDX	1										
		CTA1	Total	1										
0020	AHN	CTB1	BDX	1									BR	
0020	AHT	CTB1	BDX	1									CDPI	
0020	AHK	CTB1	B+B	1	PLN									
0020	AIF	CTB1	BDX	1										
0020	AII	CTB1	BDX	1										
		CTB1	Total	5										
0020	AHM	CTB2	BAS	1	PLN									
0020	AHI	CTB2	BDX	1										

CONTEXT	FINDSCODE	FABRIC	PART	COUNT	FORM	DECTEC	DECMOTIF	DECPOS	DECTEC2	DECMOTIF2	DECPOS2	JOINS	CONDITION	COMMENTS
0020	AHL	CTB2	BDX	1										
0020	AHF	CTB2	BDX	1										
0020	AHH	CTB2	BDX	1									CDPI?	
0020	AHB	CTB2	R+B	1	LA2	GRV	SGE	OUB	GRV	SGE	OLB		CDPI	
0020	AHJ	CTB2	BDX	1										
0020	AIC	CTB2	BDX	1									CDPI	
0020	AHA	CTB2	R+B	1	LA2									
0020	AHG	CTB2	BDX	1										
		CTB2	Total	10										
0020	AJT	FC	SCR	1										
0020	AJN	FC	SCR	3										
0020	AJW	FC	BDX	1										
0020	AJU	FC	SCR	1										
0020	AJX	FC	SCR	5										
0020	AID	FC		1										
		FC	Total	12										
0020	AIZ	FLA	BDX	1										?tessera FLA or GRA
		FLA	Total	1										
0020	AJD	GRA2	B+B	1	PLN									
0020	AJE	GRA2	BDX	1										
0020	AIM	GRA2	BDX	1										
0020	AJA	GRA2	B+B	1	PLN									
0020	AJF	GRA2	B+B	1	PLN									
0020	AJH	GRA2	BDX	1										
0020	AJI	GRA2	BDX	1										
0020	AJC	GRA2	B+B	1	PLN									
0020	AJB	GRA2	B+B	1	PLN									
0020	AJG	GRA2	B+B	1	PLN									
		GRA2	Total	10										
0020	AHO	GRB1	BDY	1	L	CD	SGE	OMB	CD	SGE	OUB			
0020	AHV	GRB1	BDX	1										
0020	AHW	GRB1	BDX	1										

CONTEXT	FINDSCODE	FABRIC	PART	COUNT	FORM	DECTEC	DECMOTIF	DECPOS	DECTEC2	DECMOTIF2	DECPOS2	JOINS	CONDITION	COMMENTS
		GRB1	Total	3										
0020	AJJ	GT	BDX	1										
0020	AIX	GT	RIM	1	PA3							AIY		
0020	AIY	GT	RIM	1	PA3							AIX		
		GT	Total	3										
0020	AJM	GT?	SCR	1										
		GT?	Total	1										
0020	AIJ	OBA1	BDX	1										
		OBA1	Total	1										
0020	AHS	P	BDY	1										
0020	AIU	P	BDX	1										
		P	Total	2										
0020	AJO	PQ	SCR	1										
		PQ	Total	1										
0020	AJS	P?	BDX	1										
		P?	Total	1										
0020	AIV	P/AS	BDX	1										
		P/AS	Total	1										
0020	Total sherd count			80										
0029	ABK	BB1	R+B	1	B3	BNH		AO						mid 2nd century
		BB1	Total	1										
0029	ABO	CTB2	BDX	1										
		CTB2	Total	1										
0029	ABN	CTB2?	BDX	1										
		CTB2?	Total	1										

CONTEXT	FINDSCODE	FABRIC	PART	COUNT	FORM	DECTEC	DECMOTIF	DECPOS	DECTEC2	DECMOTIF2	DECPOS2	JOINS	CONDITION	COMMENTS
0029	ABR	FC		1										
		FC	Total	1										
0029	ABQ	GRA2	BDX	1										
0029	ABS	GRA2	BDX	1										
		GRA2	Total	2										
0029	ABP	GRB1	BDX	1										
		GRB1	Total	1										
0029	ABM	OAB1	R+B	1	LA1									
		OAB1	Total	1										
0029	ABL	OAC1	B+B	1	PLN									
		OAC1	Total	1										
0029	Total sherd count			9										
0030	ACN	BSB1	BDX	1										
0030	ACO	BSB1	BDX	1										
0030	ACP	BSB1	BDX	1										
0030	ACQ	BSB1	BDX	1										
0030	AOA	BSB1	BDX	1										
0030	AOE	BSB1	BDX	1										
0030	AGV	BSB1	BDX	1										
0030	AGX	BSB1	BDX	1								AGR	CDPO	
0030	AGR	BSB1	R+B	1	LA88							AGX, AGR	CDPI	CDPO,CDPI
0030	AGS	BSB1	BDX	1								AGT	CDPI	
0030	AGT	BSB1	BDX	1								AGS	CDPI	CDPI, CDPO
0030	AGU	BSB1	BDX	1									CDPI	
0030	AGW	BSB1	BDX	1								AGR	CDPI	CDPI, CDPO
		BSB1	Total	13										
0030	AOD	CTB1	BDX	1										
		CTB1	Total	1										

CONTEXT	FINDSCODE	FABRIC	PART	COUNT	FORM	DECTEC	DECMOTIF	DECPOS	DECTEC2	DECMOTIF2	DECPOS2	JOINS	CONDITION	COMMENTS
0030	ACR	CTB2?	RIM	1	EVT									
		CTB2?	Total	1										
0030	AOC	GT	BDY	1	E									
		GT	Total	1										
0030	AOB	OAB1?	FLG?	1									BR	
		OAB1?	Total	1										
0030	AGY	PMM	BDX	1									CDPI	
		PMM	Total	1										
0030	Total sherd count			18										
0031	ABX	FLA	BDX	1										
		FLA	Total	1										
0031	ABY	FL?	BDX	1									BR?	
		FL?	Total	1										
0031	ABW	GRA	BDX	1										
		GRA	Total	1										
0031	Total sherd count			3										

Total sherd count for site: 388

APPENDIX 2

FLINTWORK

Appendix 2. Flint Catalogue

Find Code	*Cont ext*	*Flint type*	*Category*	*Tool type*	*Comment*	*Lgth*	*Brdth*
AAF	0002	Translucent black/brown	Tool	End scraper			
AAH	0003	Translucent black	Chip				
AAI	0003	Translucent brown	Flake		Thin elongated	2.8	1.7
AAJ	0003	Translucent black/brown	Tool	Wedge			
AAL	0003	Translucent black/brown	Flake frag				
AAM	0003	Grey opaque	Natural				
AAN	0003	Grey speckled	Flake frag				
AAO	0003	Translucent honey	Flake frag				
AAP	0003	Translucent brown	Chip				
AAQ	0003	Grey speckled	Chip				
ABT	0021	Translucent black/brown	Blade		Single-platform core Plain butt	5.4	1.8
ABU	0021	Translucent black/brown	Blade		Single-platform core Plain butt	6.4	2.0
ABV	0021	Translucent black/brown	Blade		Single-platform core ?Facetted butt	6.4	2.8
ACI	0014	Dark grey speckled	Chunk				
ACS	0012/ 0030	Light grey speckled	Used blade /Tool	?Microdentic		5.0	2.0
ALD	0011	Translucent black/brown	Flake		Large plain platform	2.4	1.9
AOH	0004	Translucent honey	Flake frag				
AOI	0028	Grey speckled	Natural				
AOR	SPOIL	Grey speckled	?Tool	?End scraper	On thin flake - damaged		
AOS	SPOIL	Translucent black/brown	Flake			1.0	1.9
AOT	SPOIL	Translucent black/brown	Tool	End and side scraper	Thumbnail size		
AOW	0009	Translucent black/brown	?Tool/core frag		From piece with denticulate edge		

APPENDIX 3

FAUNAL REMAINS

Appendix 3. Catalogue of Faunal Remains

Context 0006

0006 ADK. 1 shaft fragment, 3g, maximum dimension 28mm. Species unidentifiable. Broken/cut; possibly charred.

0006 ADL. 1 shaft fragment, 2g, maximum dimension 21mm. Species unidentifiable. Broken/cut, partially charred.

0006 ADO. 1 fragment, 1 g, maximum dimension 20mm. Species unidentifiable. Broken/cut, partially charred.

0006 AEI. 1 shaft fragment, 3g, maximum dimension 36mm. Species unidentifiable. Broken/cut.

0006 AEJ. 1 shaft fragment, 3g, maximum dimension 21mm. Species unidentifiable. Broken/cut, partially charred.

0006 AEK. 1 shaft fragment, 2g, maximum dimension 23mm. Species unidentifiable. Broken/cut, partially charred.

0006 AEL. 1 fragment, 1g, maximum dimension 18mm. Species unidentifiable. Broken/cut, partially charred.

0006 AEM. 1 fragment, 1g, maximum dimension 14mm. Species unidentifiable. Broken/cut, partially charred.

0006 AEZ. 2 fragments (rib?), 2g, maximum dimension 20mm. Species unidentifiable. Broken.

0006 AFP. 1 M3 tooth fragment, 2g. Sheep (ovis)

0006 AFX. 1 shaft fragment, 1g, maximum dimension 18mm. Species unidentifiable. Broken/cut, partially charred.

0006 AGK. 1 fragment, 2g, maximum dimension 15mm. Species unidentifiable. Broken/cut, partially charred.

0006 AGL. 1 fragment, 1g, maximum dimension 15mm. Species unidentifiable. Broken/cut, partially charred.

0006 AGM. 1 fragment, 1g, maximum dimension 9mm. Species unidentifiable. Broken/cut, partially charred.

0006 AGN. 1 shaft fragment, 1g. maximum dimension 16mm. Species unidentifiable. Broken/cut.

0006 AGO. 1 fragment, 2g, maximum dimension 22mm. Species unidentifiable. Broken/cut, partially charred.

0006 AGP. 1 shaft fragment, 1g, maximum dimension 20mm. Species unidentifiable. Broken/cut, partially charred.

0006 AGQ. 1 shaft fragment, 1g, maximum dimension 11mm. Species unidentifiable. Broken/cut.

Context 0011

0011 AKX. 1 tooth, complete upper M1 (some wear), 12g. Cattle (Bos).

0011 ALJ. 1 tooth, complete upper M3, 26g. Cattle (Bos).

0011 ALK. 1 tooth, partially complete upper M2 (some wear), 16g. Cattle (Bos).

0011 ALL. 1 tooth + 2 other fragments, lower M1/M2 (some wear), 5g. Sheep (ovis).

0011 AMA. 1 tooth fragment, incomplete lower M3, 5g. Cattle (Bos).

0011 AMT. 8 incomplete tooth fragments, 13g. Cattle (Bos).

0011 Spit 2, bulk collection. *c.*10 teeth, incomplete (possibly 1 lower P3), 41g. Cattle (Bos). Extremely fragile and fragmentary; totals are approximations.

Context 0013

0013 AOG. 1 tooth, complete lower M1/M2, 2g. Sheep (ovis).

0013 APA. 1 fragment, 3g, maximum dimension 19mm. Species unidentifiable.

Context 0020

0020 AJY. 4 teeth fragments, 5g. Species unidentifiable. Broken.

0020 Bulk collection. *c.*20 teeth and degraded bone fragments (possibly a lower jaw), 398g. Sheep (ovis). Extremely fragile and fragmentary; totals are approximations. Too fragile to wash; weight includes soil.

APPENDIX 4

THE COLEOPTEROUS FAUNA

Appendix 4. The Coleopterous Fauna

	1 A	2 A	5 A	9 A	10 A
Carabidae					
Carabus spp.		*			*
Clivina fossor (L.)	**	*			
Dyschirius globosus (Hbst.)	*	*			
Trechus quadristriatus (Schrk.) or *T.obtusus* Er.	*				
Bembidion guttula (F.)	*	*	**		
Bembidion spp.		*			
Stomis pumicatus (Panz.)		**			
Pterostichus gracilis (Dej.)		*			
P. madidus (F.)					
Calathus spp.					
Colonidae	*				
Colon spp.					
Haliplidae	*			*	
Haliplus spp.					
Dytiscidae	*	**			
Hygrotus versicolor (Schall.)					
H. spp.		*			
Hydroporus palustris (L.)		*			
Graptodytes granularis (L.)			*		
Stictotarsus duodecimpustulatus (F.)	**				
Potamonectes depressus (F.)	*	*			
Agabus spp.			*		
Colymbetes fuscus (L.)		*			
Acilius spp.					
Gyrinidae					
Gyrinus spp.					
Hydraenidae	*				
Hydraena testacea Curt.	*				*
H. spp.	*	*			
Ochthebius minimus (F.)	***	***	**		**
O. spp.		*	*		
Limnebius spp.		*			
Hydrochus angustatus Germ.	**	**	***	***	
Helophorus spp.					
Hydrophilidae		*		*	
Cercyon (aquatic) spp.	*		*		
Megasterum boletophagum (Marsh.)					*
Cryptopleurum minutum (F.)					

	1 A	2 A	5 A	9 A	10 A
Hydrobius fuscipes (L.)	*	*		*	
Laccobius spp.	*	*			
Enochrus spp.		*			
Histeridae					
Histeridae Gen. & spp. indet.		*			
Orthoperidae					
Orthoperus spp.		*			
Staphylinidae					
Megarthrus spp.	*				
Oxytelus rugosus (F.)	**	*	**	**	*
Platystethus arenarius (Fourcr.)					*
Stenus spp.	*	*	*		
Astenus spp.	**				
Lathrobium spp.	*		*	*	
Xantholinus spp.	*	*			*
Philonthus spp.	*	*			*
Tachinus spp.			*	*	
Astilbus caniculatus	*				
Aleocharinae Gen. & spp. indet.	*		*		
Pselaphidae					
Pselaphidae Gen. & spp. indet.	*				
Elateridae					
Agriotes spp.		*			
Zorochrus dermestoides (Hbst.)	*				
Dropidae					
Dryops spp.		*			
Oulimnius spp.	***	****	**	*	
Heteroceridae					
Heterocerus spp.	*				
Cryptophagidae					
Cryptophagus spp.	*	*			*
Atomaria spp.	**	**	*		*
Lathridiidae					
Lathridius spp.	*				
Corticaria spp.		*			
Coccinellidae					
Coccidula rufa (Hbst.)			*		

	1 A	2 A	5 A	9 A	10 A
Byrrhidae					
Byrrhus pilula (L.)		*			*
Nitidulidae					
Meligethes spp.	*	*			
Scarabaeidae					
Aphodius spp.	**	**	*		***
Chrysomelidae					
Donacia clavipes F.	**	***			
D. crassipes F.		*			
D. impressa Payk.	***				
D. vulgaris Zschach.		**	*		
Plateumaris serricea (L.)	**			*	
Prasocuris phellandrii (L.)	*	*			
Phyllotreta spp.	**	*	*		
Longitarsus spp.	*				
Chaetocnema spp.	*	*			
Curculionidae					
Apion spp.	***	***	***		
Sitona lineatus (L.)	*	*		*	
S. humeralis Steph.	*	*	*		*
S. spp.		**	*		
Bagous spp.		*	*		
Notaris acridulus (L.)		*			
N. spp.	*	*	*		
Alophus triguttatus (F.)		*			
Hypera spp.		*			*
Ceutorynchus spp.	*	*			*
Cidnorhinus quadrimaculatus (L.)		*	*		
Gymnetron labile (Hbst.)		*			

* = 1-2 individuals
** = 2-5 individuals
*** = 5-10 individuals
**** = 10+ individuals

APPENDIX 5

POLLEN

Appendix 5. Pollen

Pollen, as % total pollen. Taxonomic order (Kent 1992)

sample	BH1a	BH2a	BH5a	BH9a	BH10a	0006b
Pinus	-	-	1	2	1	-
Ranunculus-t	-	1	8	+	-	-
Ranunculus Batr t	-	-	-	4	+	-
Ulmus	-	-	-	+	+	-
Cannabaceae	-	-	6	-	1	-
Fagus	-	-	-	2	-	-
Quercus	2	5	5	15	9	-
Betula	1	-	2	-	3	-
Alnus	3	4	1	5	8	-
Corylus	6	8	3	1	10	-
Caryophyllaceae	-	-	-	-	-	+
Chenopodiaceae	1	-	-	-	+	-
Persicaria maculosa-t	-	1	-	-	-	-
Rumex-t	2	-	2	2	+	-
Tilia	-	-	2	-	+	-
Salix	1	-	-	-	-	-
Brassicaceae	-	-	-	-	+	-
Ericales	-	1	3	-	11	-
cf. *Lysimachia vulgaris*	-	-	-	1	-	-
Filipendula	-	1	1	-	+	-
Potentilla	1	-	-	-	-	-
Sanguisorba officinalis	-	1	-	-	+	-
Crataegus	1	-	-	-	-	-
Fabaceae	-	-	-	-	+	-
Linum usitatissimum	-	-	1	-	-	-
Apiaceae	1	-	-	-	-	-
Mentha-t	-	-	-	-	-	-
Plantago lanceolata	9	14	5	4	4	-
Fraxinus	-	-	-	1	-	-
Dipsaceae	-	-	1	-	-	-
Cirsium-t	-	-	-	+	+	-
Centaurea nigra	1	-	1	-	1	-
Lactuceae	7	9	9	2	10	-
Aster-t	1	1	2	2	3	+
Artemisia	1	1	-	-	+	-
Anthemis-t	1	-	2	-	-	-
Alismataceae	-	1	-	-	-	-
Sagittaria	-	1	1	-	-	-
Potamogetonaceae	-	-	3	-	-	-
Cyperaceae	6	8	2	-	9	-
Poaceae	52	35	27	48	23	-
Poaceae $>40\mu$	4	3	5	19	1	-
Secale-type	-	-	1	-	-	-
Sparganium	-	2	-	-	-	-

sample	BH1a	BH2a	BH5a	BH9a	BH10a	0006b
total pollen	141	157	92	91	211	+
spores						
Polypodium	-	1	3	3	1	-
Pteridium	1	-	1	3	1	-

APPENDIX 6
PLANT MACROFOSSILS

Appendix 6. Plant Macrofossils

plant macrofossils, numbers. Taxonomic order, Kent (1992)

sample	BH1a	BH2a	BH5a	BH9a	BH10a	
0006b						
Nuphar lutea (L.) Smith	-	1	-	-	-	-
Caltha palustris L.	1	-	-	-	-	-
Ranunculus arb	1	3	1	1	9	-
Ranunculus subg. *Batrachium*	-	-	2	-	2	-
Urtica dioica L.	1	-	2	-	-	-
Alnus glutinosa (L.) Gaertner	-	-	-	-	1	+
Atriplex sp.	-	-	2	1	-	-
Stellaria media (L.) Villars	-	-	1	-	-	-
Stellaria graminea L. /*palustris* Retz.	1	-	-	-	-	-
Cerastium sp.	-	1	-	-	-	-
Sagina sp.	-	-	-	1	-	-
Persicaria maculosa Gray	-	1	-	-	3	-
Persicaria lapathifolia (L.) Gray	-	-	-	-	12	-
Persicaria hydropiper L.	-	-	-	-	4	-
Polygonum aviculare L.	-	-	3	-	?1	-
cf. *Fallopia convolvulus* (L.) A Love	-	1	-	1	-	-
Rumex conglomeratus Murray	-	-	1	-	-	-
Rumex cf. *hydrolapathum* Hudson	1	-	-	-	-	-
Rumex sp.	2	1	-	1	6	-
Viola sp.	-	-	1	-	-	-
Rorippa cf. *sylvestris* (L.) Besser	-	-	-	-	11	-
cf. *Lysimachia*	1	2	-	-	-	-
Potentilla anserina L.	-	1	-	-	-	-
Aphanes sp.	-	1	-	-	-	-
Epilobium	1	-	-	-	-	-
Oenanthe aquatica (L.) Poiret	11	1	-	-	-	-
Apium inundatum (L.) H.G. Reichb.	6	1	-	-	-	-
cf. *Sium*	6	-	-	-	-	-
Myosotis sp.	-	1	-	-	-	-
Prunella vulgaris L.	-	2	-	-	-	-
Mentha sp.	1	-	-	-	-	-
Plantago major L.	-	-	-	-	29	-

sample	BH1a	BH2a	BH5a	BH9a	BH10a	
Valerianella cf. *rimosa* Bast.	2	-	-	-	-	-
Cirsium cf. *palustre* (L.) Scop.	-	-	-	-	1	-
Lapsana communis L.	1	-	-	-	1	-
Leontodon cf. *saxatilis* Lam.	-	1	-	-	-	-
Sonchus asper (L.) Hill	-	1	-	-	-	-
Taraxacum sp.	-	-	-	1	1	-
Bellis perennis L.	-	-	2	-	1	-
Anthemis cotula L.	-	-	-	-	1	-
Chrysanthemum segetum L.	-	-	1	-	-	-
Senecio sp.	-	3	-	-	2	-
Alismataceae	21	8	-	12	1	-
Sagittaria sagittifolia L.	1	-	1	-	2	-
Juncus sp.	-	-	4	-	52	-
cf. *Schoenoplectus tabernaemontani* C. Gmelin	69	103	-	-	-	-
Carex cf. *acuta* L.	-	7	-	-	-	-
Carex sp.	-	-	1	-	-	-
Glyceria sp.	-	-	2	44	-	-
Poaceae	4	1	2	-	1	-
Sparganium sp.	1	1	-	-	-	-
Chara oogonia	-	-	4	-	-	-
other things						
Coleoptera	+	-	-	-	+	-
fly puparia	-	-	-	-	+	-
Trichoptera	+	+	-	-	-	-
charcoal	-	-	+	-	+	
++						
leaf gall	-	-	+	-	-	-
leaf fragments	-	-	+	-	-	-
vivianite	-	-	-	-	+	-

APPENDIX 7

RADIOCARBON CALIBRATIONS

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

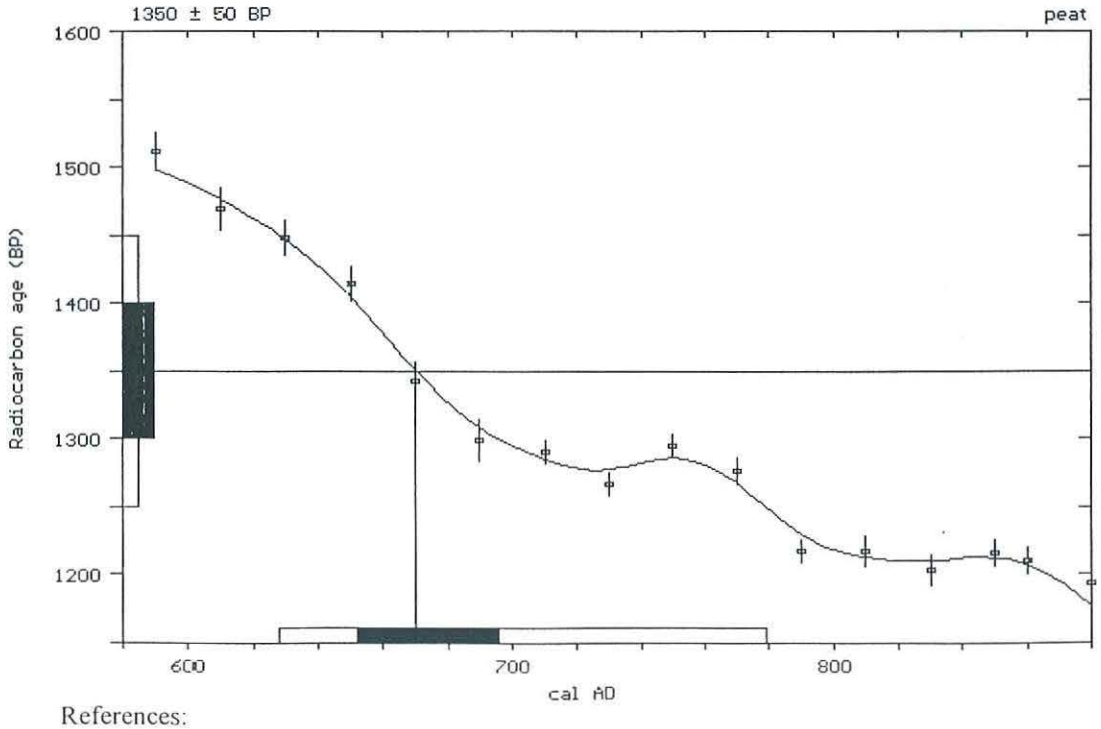
(Variables: est. C13/C12=-25.0:lab. mult=1)

Laboratory Number:	Beta-99235
Conventional radiocarbon age*:	**1350 ± 50 BP**
Calibrated results: (2 sigma, 95% probability)	**cal AD 630 to 780**

* C13/C12 ratio estimated

Intercept data:

Intercept of radiocarbon age with calibration curve:	cal AD 670
1 sigma calibrated results: (68% probability)	cal AD 650 to 695



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A Simplified Approach to Calibrating C14 Dates
Talma, A. S. and Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

Calibration - 1993
Stuiver, M., Long, A., Kra, R. S. and Devine, J. M., 1993, Radiocarbon 35(1)

Beta Analytic Radiocarbon Dating Laboratory

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

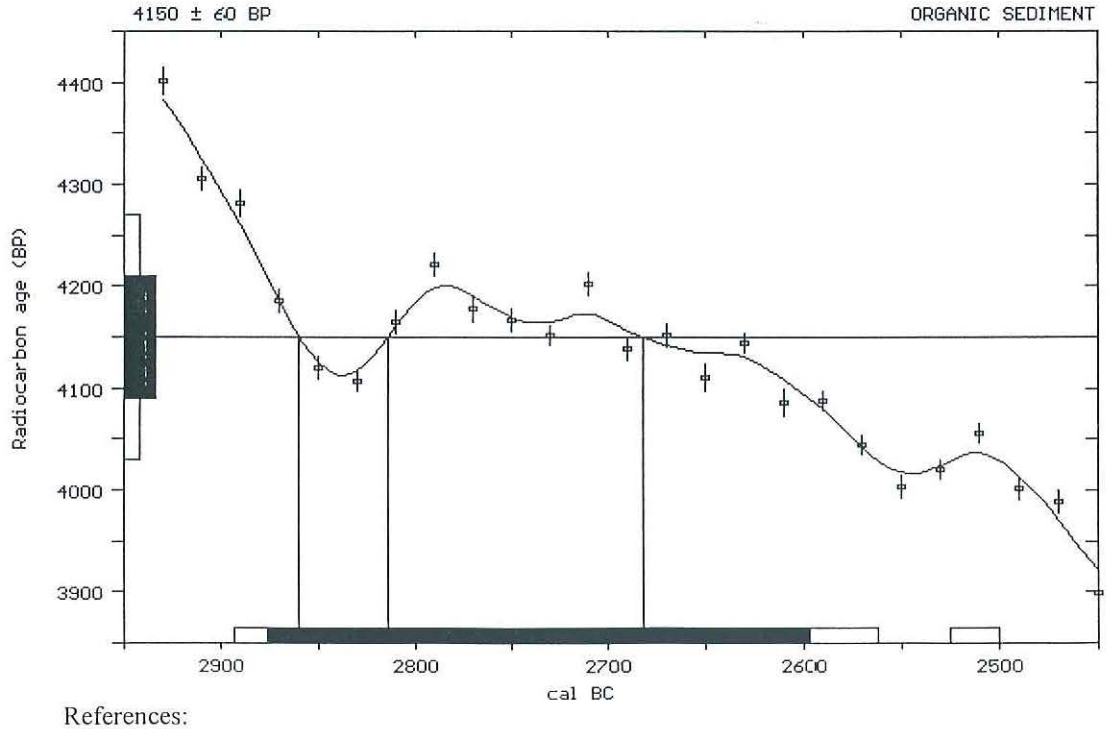
(Variables:estimated C13/C12=-25:lab mult.=1)

Laboratory Number:	Beta-099237
Conventional radiocarbon age*:	**4150 ± 60 BP**
Calibrated results: (2 sigma, 95% probability)	**cal BC 2895 to 2560 and cal BC 2525 to 2500**

* C13/C12 ratio estimated

Intercept data:

Intercepts of radiocarbon age with calibration curve:	cal BC 2860 and cal BC 2815 and cal BC 2680
1 sigma calibrated results: (68% probability)	cal BC 2875 to 2595



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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

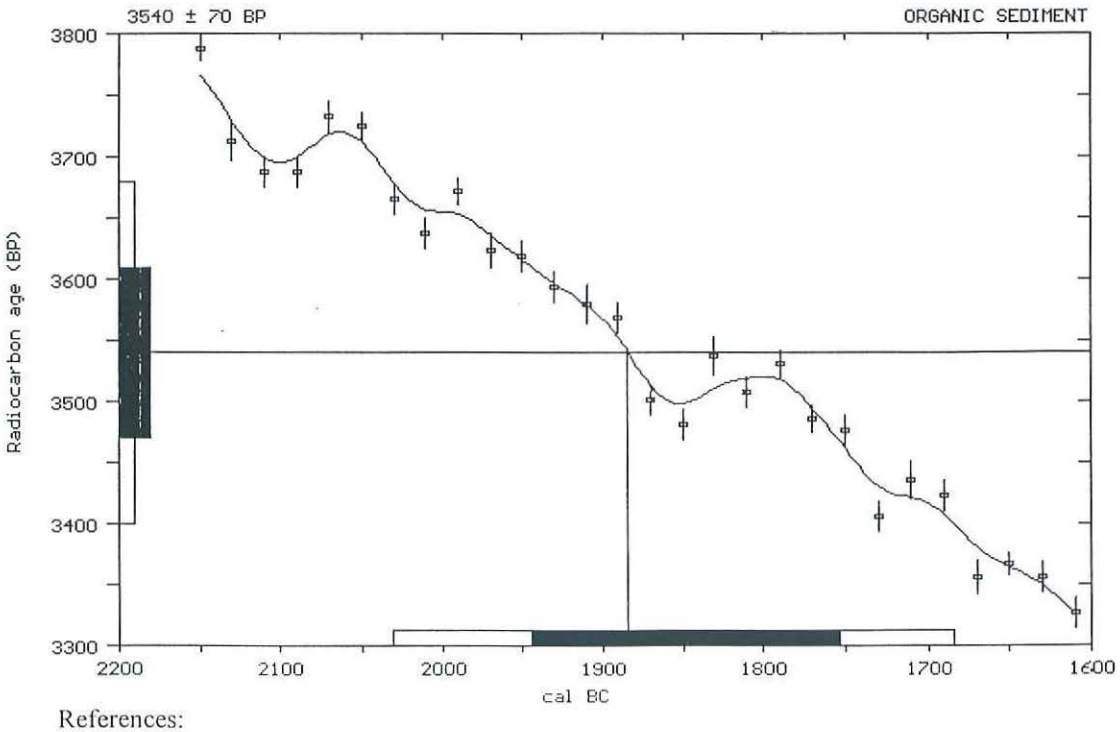
(Variables:estimated C13/C12=-25:lab mult.=1)

Laboratory Number:	Beta-099239
Conventional radiocarbon age*:	**3540 ± 70 BP**
Calibrated results: (2 sigma, 95% probability)	**cal BC 2030 to 1685**

* C13/C12 ratio estimated

Intercept data:

Intercept of radiocarbon age with calibration curve:	cal BC 1885
1 sigma calibrated results: (68% probability)	cal BC 1945 to 1755



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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

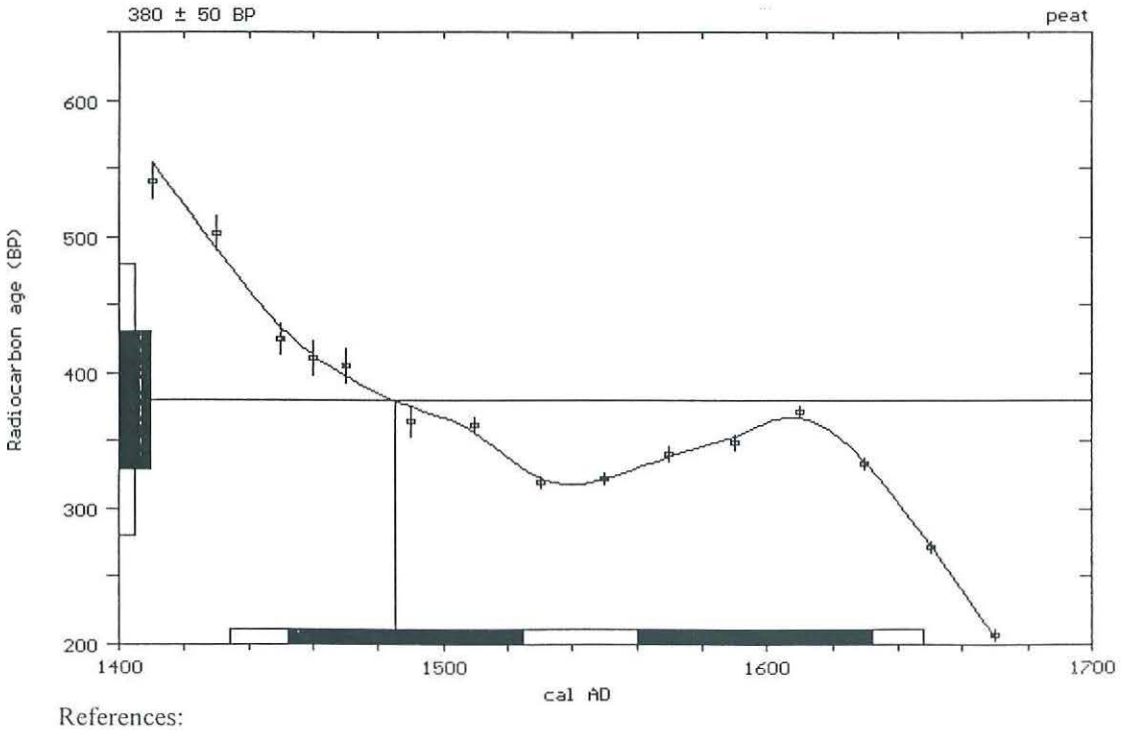
(Variables: est. C13/C12=-25.0:lab. mult=1)

Laboratory Number:	Beta-99238
Conventional radiocarbon age*:	**380 ± 50 BP**
Calibrated results: (2 sigma, 95% probability)	**cal AD 1435 to 1650**

* C13/C12 ratio estimated

Intercept data:

Intercept of radiocarbon age with calibration curve:	cal AD 1485
1 sigma calibrated results: (68% probability)	cal AD 1450 to 1525 and cal AD 1560 to 1630



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