# LOWER FARM, NUNEHAM COURTENAY, OXFORDSHIRE SP 539005

REPORT ON THE EVALUATION OF A ROMANO-BRITISH KILN SITE

OXFORD ARCHAEOLOGICAL UNIT
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# Summary

The Oxford Archaeological Unit discovered a substantial Romano-British kiln site in a pasture field at Lower Farm, Nuneham Courtenay, in 1991. Geophysical survey (by the Ancient Monuments Laboratory) and fieldwalking (by OAU) have established that the site is very extensive. The geophysical surveys have identified numerous individual kilns, often in clustered groups, within a complex of enclosures and trackways. Annular features are also present, but the function and date of these is unclear. The fieldwalking established that the surface distribution of Roman pottery continues strongly eastward to (and perhaps beyond) the modern road from Wallingford to Oxford. This report presents a detailed appraisal of the project results, and sets out an outline approach to further work which may be required in order to provide adequate data for the determination of preservation and management strategies.

#### 1 BACKGROUND

#### 1.1 The site

A major Romano-British kiln site was discovered and partly excavated during pipelining works by Thames Water Plc at Lower Farm, Nuneham Courtenay, in 1991. The pipeline easement crossed a field of medieval ridge and furrow which once formed part of Lower Field, one of Nuneham Courtenay's four medieval open fields. The archaeology in the pasture, therefore, had not been damaged by modern deep ploughing. The site is surrounded by arable land, and an earlier find of pottery suggested that the kiln site may extend into the arable. Casual survey in 1992 showed that Roman pottery was present on the field surface in the south-east corner of the survey area at least.

#### 1.2 Previous work

Romano-British pottery was recovered 300 yards east of Lower Farm (Oxfordshire SMR No 1428, SP 53910053) in 1962-3 (Oxoniensia 28, 90). This isolated discovery did not give any suggestion of the scale of the site discovered in 1991, but it lies approximately 130 m east of the excavation, and 60 m east of the boundary between the pasture and arable.

A 200 m-long and up to 4 m-wide trench was archaeologically excavated along the footprint of the pipeline prior to its construction in 1991. The work was directed by G D Keevill of the OAU. Three distinct zones of archaeology could be recognised. The north end of the site appeared to be a settlement area; ditches, pits and postholes were found, and animal bones, pottery, and quernstones were recovered. Three infants had also been buried here. A workshop area lay to the south of the settlement. Features included a stone-lined pit for clay storage, stone drying-racks, and a well. An extremely large pot dump lay immediately to the south of the well, extending for approximately 100 m north-south and at least 15 m east-west; its depth was variable, with a maximum of 1.2 m. Casual surface collection of pottery suggests that the dump extended into the arable field immediately to the east.

The Ancient Monuments Laboratory undertook a geophysical survey of the pasture field on 27 April - 1 May and 5 - 6 August 1992 (AMLab report 57/92). A magnetometer was used to delimit the site and to locate any kilns present. A linear pattern of rectangular enclosures was shown very clearly, with an adjacent road or trackway along its eastern

edge. A number of very strong anomalies are indicative of kilns. A number of ring ditches were detected in the north-east corner of the survey area. Two can be seen clearly, but the third is indistinct. These appear to underlie the ditch system although this cannot be confirmed on geophysical evidence alone. The ridge-and-furrow also showed up very strongly on the plots.

The kiln site produced a wide range of Oxfordshire products (cf Young 1977) from the 2nd to mid-4th centuries. These have been analysed by Paul Booth of the OAU. Some of the products and decorative techniques used are unusual or unique. The pipeline project results (including the geophysical survey) have now been published (Booth *et al* 1993).

## 1.3 Reason for the project

The 1991 and 1992 work was entirely confined within the pasture field, as this had been the area immediately threatened by the pipeline. The importance of the site was clearly such that it was likely to be designated as a Scheduled Ancient Monument at some point in the future. The existing data set was patently inadequate to address the full extent of the kiln field, and therefore inform the Scheduling procedure. Casual observation, the arrangement of the geophysical anomalies, and the previous record of pottery in the arable field suggested that the site extended eastward from the pasture into the arable. The maximum area of the site therefore needed further definition before the area for inclusion in the Scheduled Ancient Monument could be determined.

## 1.4 Research design

### 1.4.1 Aims

The project's explicit aim was to produce further information on the extent of the Roman site to assist in the scheduling process. The limitations of geophysical and surface collection surveys were accepted, in that they would only provide very low-level information on condition and stratigraphic information would not be forthcoming. The data-set would be essentially two-dimensional, but it was felt that this should provide enough information for the immediate purpose of the project.

It was agreed that a summary of the project results would be published in *South Midlands Archaeology* or *Oxoniensia*. The summary would represent a brief addendum to the report of the 1991-2 work. This project report will be deposited with the Oxfordshire SMR, and will therefore be in the public domain in due course.

## 1.4.2 Proposed methodologies

The project was to entail a combination of geophysical, fieldwalking (in two stages) and auger surveys. The programme was designed so that the surveys should provide compatible data, although it was unlikely that the geophysical and fieldwalking surveys could be employed at the same time because of different surface condition requirements. The fieldwalking and augering were to be the responsibility of OAU, while the geophysics would continue to be undertaken by the Ancient Monuments Laboratory's archaeometry section.

AMLab were responsible for determining the detailed strategy for the geophysical survey. The area covered by AMLab was constrained by their very busy schedule and the resultant time available for work Nuneham Courtenay. The fieldwalking was designed to occur in two phases: a preliminary survey of the entire area using 20 m collection units along transects 20 m apart followed if necessary by more intensive collection in 2 m or 5 m squares. The augering was to concentrate on the area east of the pot dump located during the 1991 pipe trench excavation.

## 1.4.3 Variation of fieldwork strategy

The auger survey was abandoned when the tenant farmer raised serious concerns regarding field drains in the survey area. Any breakages would have required replacement, and the likely data return did not appear to justify the risk of a compensation claim.

The 'preliminary' fieldwalking survey yielded an unexpectedly high level of data. The very large assemblage of pottery required much more processing, recording and plotting than had been estimated for in the original project design. OAU and English Heritage therefore agreed that the intensive collection was unnecessary, and that it was more appropriate to divert project resources to a full treatment of the data.

## 1.4.4 Fieldwork timing and methods

Mark Cole and Andy Payne of the AMLab undertook the geophysical survey work during the week 31 October-4 November 1994. The field was under a low crop at the time, but this did not present any obstacle to the survey work. The AMLab undertook their own location survey.

OAU's fieldwalking was undertaken by Andy Parkinson (supervisor), Greg Pugh, Steve Laurie Lynch and Neville Redvers Higgins in October 1995, under the management of Graham D Keevill. The field had been ploughed and a winter crop of grass had just come through, but this did not impair visibility of the soil surface. The transects were surveyed in by Rachel Morse assisted by a technician, using an EDM and Penmap software. The transects were related to a 1:2500 Ordnance Survey site-centred base map.

The fieldwalking was recorded on standard OAU pro-forma sheets. Numbers were assigned to each field in the order that they were walked; field 1 was the large field east of the pasture, field 2 was the small rectangular field north of the pasture, and field 3 lay immediately to the south of field 1. Each transect was given a unique letter code within each field, and collection units were recorded in 20 m blocks within each transect starting from 10 (therefore field 1 D70, field 2 A190 etc). Finds were collected and bagged on site, and were subsequently processed at OAU's Oxford offices.

Collection bias can be assessed because each unit was assigned to and recorded by one person. The distribution plots of Roman pottery (and the other collection data) show that collection rates were quite uniform across the transects in each field, probably because the

The Ancient Monuments Laboratory report uses area numbers, but this was not available when the fieldwalking and subsequent data processing were in progress; area numbers have been retained in the AMLab report reproduced in Section 2, but field numbers are used elsewhere.

concentrations were so substantial as to be unmissable in the south half of field 1 and at the east end of field 3. Equally, however, the very low densities in the north half of field 1 and centre of field 3, and the low-medium densities in field 2 are consistent across all collection units and therefore all collectors. Any significant levels of collection bias in the Roman pottery can therefore be discounted from this study, and the plots can be regarded as a wholly valid reflection of the distribution of surface finds.

Weather conditions were generally fine throughout the fieldwalking survey, with very little rain during the fieldwork. Strongly directional but somewhat hazy sunshine on several mornings made surface visibility awkward, but this was not a major problem and was compensated for by taking slightly longer on the relevant collection units.

The finds were processed by collection unit, and were separated into material categories at this stage. The analytical methodology for the ceramics is summarised in section 3.3. The processed data for the Roman pottery were input into DBaseV, and distribution plots were generated digitally from this database. It was decided that equivalent data for post-medieval pottery and tile were not worth plotting. Finds of other periods were at too low levels to merit plotting.

# 1.5 Archive deposition

The archive for the 1991 excavation has been accessioned by the Ashmolean Museum. They have agreed to accept the archive for the evaluation of the arable fields as well.

# 2 RESULTS: GEOPHYSICAL SURVEY, by Mark Cole<sup>2</sup>

#### 2.1 Summary

This interim report summarises the results of the magnetometer surveys undertaken during 1992-4 by the Ancient Monuments Laboratory at Lower Farm, Nuneham Courtenay, Oxon. An area of nearly 10 ha has now been surveyed and a detailed plan of Roman enclosures, kilns and trackways has been revealed with great clarity. These results, combined with OAU field walking data, clearly indicate that the site has not as yet been fully delimited and that the archaeological activity, which includes prehistoric and medieval components, extends well beyond the eastern edge of the surveyed area. Further survey work, more comprehensive interpretation and publication is anticipated.

#### 2.2 Introduction

Magnetometer survey was first undertaken at Lower Farm during the summer of 1991 (Bartlett 1991). This survey was commissioned following the discovery of large quantities of Roman pottery by OAU during the laying of a Thames Water pipeline. Subsequent investigations by OAU revealed evidence of a substantial industrial site although no actual kilns were found (Booth et al 1993). Only a very limited area was accessible for the magnetometer survey but, although no anomalies likely to represent kilns were located, the results did suggest that a survey of the surrounding area would be profitable.

Due to the potential importance of the site, more extensive magnetometer survey was undertaken by the Ancient Monuments Laboratory (AML) during the summer of 1992 (area A on Fig 1; Cole 1992). The results of this work amply demonstrated the suitability of the underlying Jurassic Cornbrash for magnetometer survey. Not only were a number of Roman kilns, pits and ditches detected, but evidence of both earlier (prehistoric) and later (medieval) features was also located. The clarity of the response was such that integration of the survey results with those from the excavations has offered perhaps the most detailed plan of an Oxfordshire Roman kiln site to date (Keevill & Cole 1995).

Both of the initial magnetometer surveys were conducted within a block of surviving medieval pasture. Given that the site was under consideration for scheduling, a clear priority was that a measure of its full extent be obtained. The results suggested that Roman activity might continue into the arable fields to the east. The survey was extended in November 1994 to investigate the surrounding fields and integrate with the results of OAU's programme of field walking during 1995. Additionally, the survey offered an opportunity to assess any contrast in preservation which might be visible in the data between the pasture and surrounding arable fields. Magnetometer data were collected from three areas (B, C and D on Fig 1; centred on SP 5386 0068, SP 5398 0059 and SP 5391 0040 respectively) each of which overlie the same substrate of Jurassic Cornbrash.

## 2.3 Method

Three separate grids of  $30 \times 30$  m squares were laid out, each oriented so as to best fit the field boundaries of the particular field (see Fig 1). Each square was then surveyed using Geoscan FM36 fluxgate gradiometers. Measurements were recorded at 0.25 m intervals

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along traverses spaced 1 m apart. The resultant data is presented in this report in the form of greyscale and graphical trace plots (see Figs 2-5). Presentation of this data has been enhanced by the application of a local median filter to reduce the intense response to ferrous material (Scollar *et al* 1990).

#### 2.4 Results

A summary plan of all of the AML magnetometer data (which now encompasses an area of just under 10 ha, including the 1992 survey) is presented in Figure 2. It is evident that archaeological activity continues well beyond that mapped by the 1992 survey (area A on Fig 1) and indeed clearly must extend beyond the limits of the 1994 survey area.

The majority of the activity in the 1994 extension of the survey is concentrated within area C, clearly reflecting the pottery distribution mapped by OAU (G Keevill pers comm). A pattern of enclosures can be seen lying either side of a central west-east road or trackway which may be a continuation of the trackway located in 1992 running along the eastern edge of area A. There is also the suggestion of a fork in this trackway at the eastern edge of area C (grid square 13). Other interesting features include a large sub-rectangular (?Iron Age) enclosure (in grid squares 20, 23 & 24) which has an obvious entrance to the east.<sup>3</sup>

A number of additional kiln-like anomalies have been detected (all within area C), apparently focused into as many as six discrete groups. These anomalies all share the same characteristic form and are a similar strength to those identified as kilns in area A and subsequently confirmed by augering (Cole 1992). The response of the magnetometer to ditches is exaggerated in the immediate vicinity of the suspected kilns presumably due to their local in-filling with soil which has been strongly enhanced magnetically as a result of association with the industrial activity. A component of this increased magnetic response may also be due to an accumulation of ceramic debris within the ditches.

Significantly, the response to buried archaeological features can be seen to be of a similar magnitude within area C which has been under prolonged arable cultivation to that in the unploughed pasture field to the west (area A). The response to ridge and furrow in area C is much subdued compared with area A thereby improving the clarity of the response to the underlying features. However, faint traces of ridge and furrow can still be made out to the centre of area C, despite it having been completely levelled by cultivation.

A number of annular and penannular anomalies have also been detected in addition to those already located in area A. The magnetic response to these features varies widely. Two (in area C; grid squares 23 & 27) have produced clearly defined anomalies up to 20 nanotesla (nT) in strength while three others in the southern third of area C are only just discernable at 1-2nT. While all of the ring ditches visible in areas A and C are between 10 and 20 m in diameter, there is a very subtle circular anomaly in area D (squares 2, 3, 6, & 7) which, if complete, would be approximately 30 m in diameter.

The circuit of the more northerly of the two ring ditches located in grid squares 23 and 27 is interrupted to the east suggesting a possible "entrance", an interpretation to which further weight is provided by the more pronounced response to the ditch at the terminals

<sup>&</sup>lt;sup>3</sup> Iron Age pottery forms a small component of the overall pottery assemblage for the site so an attribution to this period is not unfeasible.

to either side. None of the other ring ditches appear to have similar gaps although a number are too indistinct for this to be certain. The visibility of some is further confused by other anomalies relating to a different, presumably later, period. There is evidence of internal features within some of the ring ditches (particularly those in squares 23 and 27). Some caution must be voiced with regard to this interpretation, however, given the multiphased/period activity at the site.

In area B three incomplete sub-circular features have been detected clearly as anomalies up to 8nT in strength. This clarity suggests that, rather than being a partial representation of more complete ring ditches, these anomalies do indeed reflect their true extent. As the open sides of all of these features face eastward, a possible interpretation might be that they represent wind-breaks against the prevailing westerly winds.<sup>4</sup>

Adjacent to the latter, and slightly to the west, well defined, but irregularly shaped areas of magnetic enhancement have been detected. These may well represent the response to shallow quarrying activity, possibly for clay for use in pottery production.

Surprisingly, despite the high degree of detail that has been recorded by the survey, there is no obvious evidence for any buildings or foundations within the entire survey area. Whilst the magnetometer will not necessarily detect the presence of buried walls or foundations, the excellent response afforded by the underlying Jurassic geology does offer the optimum conditions for their detection (see for example the survey of Roman buildings over Jurassic limestone at Kingscote, Gloucs. - Cottrell & Payne 1993). This suggests, therefore, that if there are Roman buildings at the site they may be fairly insubstantial (perhaps timber built<sup>5</sup>) or simply have not been encountered thus far.

The survey has been affected by modern ferrous material in places. This is most obvious where a service pipe cuts southeast-northwest through area C, and the particularly strong disturbance created by the electricity pylon situated just to the east of the pipeline corridor and between areas A, C and D (see Fig 2).

#### 2.5 Conclusion

The naturally high iron oxide content of soils derived from Jurassic limestone has provided ideal conditions for highly informative magnetometer results. A detailed plan of a major Roman kiln site has been revealed in great clarity. The distinct pattern of enclosures and trackways mapped by the initial survey in 1992 can now be seen to be only part of a far more extensive system. Detail of many more kiln sites has been located, revealing an apparent focusing into as many as six discrete groups within area C. A number of further ring ditches of various morphologies have also been mapped, underlining the multi-period nature of the activity at the site. Analysis of these results, combined with those from field walking, indicate that the Roman activity continues well beyond the eastern limit of the survey. Further survey work, allied to more comprehensive interpretation, and publication is anticipated.

Excavations at the Churchill Hospital (Young 1972) revealed a number of "incomplete" buildings which were interpreted as "platforms, working areas and buildings". An interpretation as working areas would certainly fit well with the wind-break interpretation of the anomalies mapped here.

It is perhaps worth noting here that at the nearby site at Barrow Hills, Radley, despite the presence of similarly ideal conditions for magnetic detection, the many post-built structures later revealed by excavation had been completely invisible to the magnetometer (Bartlett forthcoming).

## 3 RESULTS: FIELDWALKING

#### 3.1 General description of the results

The following sections summarise the results of the collection by field. Only the Romano-British distributions are described, as the later material (overwhelmingly post-medieval to Victorian in date) reflects agricultural practice and is not archaeologically significant. Further sections describe the flint and Roman pottery in detail. Figure 6 contains a plot of all Roman pottery, and Figures 7-14 present the distributions of individual ware groups such as mortaria and reduced wares.

## 3.1.1 Field 1 (Area C)

Field 1 has a very shallow gradient running from east to west (ie from the main road down toward the Thames). There is a slight but noticeable break of slope or ridge running north-south roughly through the middle of the field. Nineteen transects were walked, all running from north-east to south-west, with a total of 316 collection units. Three thousand, four hundred and forty four Roman sherds were recovered from the field. A small triangular area in the extreme north-western corner of the field was not surveyed formally, although *ad hoc* observation of the field surface here confirmed the continuation of the very low densities of all finds categories in the northernmost transects.

There are two aspects of the Roman pottery distribution which are immediately striking: firstly the near absence of pottery in the north half of the field, and secondly the intense concentration of material throughout the southern half. Most collection units in the northern transects contained one or no sherds of Roman pottery (the later ceramics reflect this low level). The only exceptions occur close to field 2, but even here the numbers are low (less than 10). The central and southern transects, by contrast, have units which frequently contain 50 and more sherds (the fact that many of these are small does not alter the numerical significance; the highest number, 142 in unit H290, needs no further comment, and nine other units contain between 70 and 100 sherds).

There are some very noticeable "hot spots" within this general concentration, for instance close to the hedge between the pasture field (AMLab's Area A) and the arable, and close to the south-east corner of the field. Equally, however, there are some clear gaps in the distribution, and even occasional collection units with no Roman pottery at all. There seems to be a distinct and general high density close to the pasture field followed by a decrease towards the centre of the transects (except in J-L). The general high density is then re-established at the east end of the transects. There is also a noticeable decrease in sherd numbers close to the southern boundary of the field, again with many units containing no Roman pottery or only one sherd. This correlates well with the evidence from field 3, described below.

There are also some clear trends when one examines the plots of individual ware groups. The numerical dominance of the O class is obvious throughout the southern half of the field, for instance (Fig 12), and the R class is also well represented (Fig 13). Other categories, however, are much less numerous and the Q class is especially restricted (physically as well as by number). It is difficult to assess the significance of these distributions at this stage, but most classes are found throughout the main concentrations.

#### 3.1.2 Field 2 (Area B)

Field 2 is virtually flat, with a fractional gradient from east to west. Nine transects were walked, all running from east to west, with a total of 87 collection units. One hundred and sixteen Roman sherds were recovered.

The distribution of Roman pottery in field 2 does not correlate strongly with that in field 1. Many collection units contain only one sherd or none at all, and the highest number per unit is only 7, but the extremely low density seen in the north half of field 1 is not carried over into field 2. Neither, though, do the high densities noted in the south half of field 1 continue.

Once again the O class dominates the distribution; there are only three examples of two sherds of another ware in any unit, with all others being single occurrences. The W and Q classes are totally absent from the field.

## 3.1.3 Field 3 (Area D)

Field 3 exactly reflects the topography of field 1 in terms of overall gradient, and the ridge through field 1 also continues through field 3. Six transects were walked: four east-northeast to west-south-west transects ran parallel and adjacent to the northern hedge/boundary of the field, and the remaining two ran parallel and adjacent to the eastern hedge/boundary of the field. There were 126 collection units, and 441 Roman sherds were collected. The remainder of this field was walked on a casual basis to assess whether the densities of Roman pottery and other finds noted in the formal transects continued. The extent of the concentration of Roman pottery in the north-east corner of the field was mapped, but otherwise there did not appear to be any further concentrations within the unsurveyed area.

The Roman pot distribution correlates well with the southern half of field 1, although numbers per unit are generally lower. The highest number per unit is 40 (in D450), and only 13 units (including D450) contain ten or more sherds. The numbers are nevertheless significantly higher than in field 2, and the distribution pattern demonstrates a marked concentration in the north-east corner of the field. All but one of the higher unit quantities are to be found here, the single exception being the 13 sherds in unit B10; this is tight in to the north-west corner of the field and does not appear to be significant as there are no other higher numbers associated with it. Otherwise there are very few Roman sherds in the centre of the four long transects, reflecting the diminution in numbers along the south edge of field 1.

The individual ware classes are generally represented at very low levels, with no Q class at all. The dominance of R class in the density at the north-east corner of the field is striking (eg 16 sherds of 20, 37 of 40, and 21 of 25 in units D430, D450 and D470 respectively; see section 3.3 below).

## 3.2 The worked flint, by Philippa Bradley

## 3.2.1 Introduction

A small assemblage of twenty pieces of worked flint and three pieces of burnt unworked

flint was recovered during the fieldwalking. The flint was mostly dark brown in colour, but a few pieces of orange and grey flint were also recovered. The material was abraded and plough-damaged. Cortication was mostly light to medium; only a few pieces were heavily corticated. The burnt unworked flint was generally very heavily calcined. Both hard and soft hammers seem to have been used. The flint is discussed below by field.

## 3.2.2 Field 1 (Area C)

The majority of the flint was recovered from field 1 (11 pieces and one piece of burnt unworked flint). A gun flint was recovered from D/90. It is a relatively small, rectangular example with steep scraper-like retouch. This piece dates to the post-medieval period. The remaining pieces were flakes, including one core rejuvenation flake which removed an unworkable platform edge. One flake was very heavily calcined. The flint was sparsely distributed across the field.

## 3.2.3 Field 2 (Area B)

Three flakes and a small oblique arrowhead (D/70) were recovered from field 2. The oblique arrowhead is quite roughly bifacially retouched. The retouch is mainly confined to the edges of the piece. This type of arrowhead dates to the late Neolithic and associations are frequently with the Durrington Walls and Clacton substyles of Grooved Ware (Green 1984, 33).

#### 3.2.4 Field 3 (Area D)

Field 3 produced a blade, three flakes, a piece of irregular debitage and two burnt unworked flints. One of the flakes was also heavily calcined. Again the material from fields 2 and 3 is very sparsely distributed.

#### 3.2.5 Discussion

The material is of interest given the small quantity of probable Neolithic flint which was recovered from the excavation at Lower Farm in 1991 (Bradley 1993, 131). The assemblage from the fieldwalking is not closely datable, the only diagnostic pieces being the later Neolithic oblique arrowhead and the post-medieval gunflint.

#### 3.3 The ceramic finds, by P M Booth

#### 3.3.1 Introduction

The material collected during the fieldwalking was dominated by Roman pottery, of which about 4000 sherds were recovered. All the finds were examined and recorded by material type. Categories of material present included pottery (a few medieval sherds were present, along with rather more post-medieval material), ceramic building material (almost entirely of post-medieval date, with only a tiny handful of possible Roman pieces) and fired clay (which may have related to kilns or other structures forming part of the Roman pottery production complex). A very small quantity of flint was recovered. Other

finds were of certain or probable post-medieval date and included roof slate, glass, clay pipe, iron objects (mostly nails), a 1936 penny and recent cartridge cases. All the finds were counted and recorded by individual collection units. Detailed quantification of the Roman pottery by collection unit is provided in Appendix 2. Details of the other finds are available in the archive; they provide information on the background distribution of materials (a generalised low-level scatter of material across all the fields), but these data are not significant enough to merit reproduction in the context of this report.

#### 3.3.2 Identification criteria

Many of the ceramic fragments were small and eroded and attribution to period, or indeed distinction between tile and pottery, was not always certain. Resourcing constraints meant that extensive examination of small fragments in an attempt to determine their date and function (eg by detailed fabric analysis) was not possible, nor could it have been justified. For ceramic building material it was presumed that brick and tile in sandy fabrics was likely to be of post-medieval date unless clearly demonstrated otherwise. This assumption seemed to hold good throughout the processing of the finds. It is possible that a few fragments of Roman tile were recorded as post-medieval, but Roman roofing material seems generally to have been absent from the site.

The eroded character of some pieces did sometimes present problems of distinction between pottery and tile, as mentioned above. The problem related particularly to small fragments of oxidised material. Generally when these were not in obviously sandy fabrics it was presumed that they were pottery, usually of Roman date. This presumption was applied consistently throughout the recording. For the pottery itself there were similar problems of identification.

The Roman material was recorded by major ware group. Some of these groups, such as fine (colour-coated) wares and white-slipped wares, depend for their identification largely on the survival of their surfaces. The condition of much of the material, a good deal of which had clearly been turned over repeatedly in the ploughsoil, meant that often such surfaces did not survive at all. Many of the sherds were also discoloured, perhaps in part also a consequence of repeated exposure to agricultural practises such as manuring and application of fertilisers, and this also hampered identification.

Where possible, colour-coated and white-slipped wares were recorded, but there can be little doubt that these ware groups are significantly under-represented in the figures presented below. In the absence of distinctive surfaces, sherds in these wares will have the appearance of oxidised coarse wares and have been subsumed under the heading of Oxidised wares. In a few cases such wares could be identified, even when their surfaces were totally missing, on the basis of the occurrence of diagnostic vessel forms. For present purposes, however, such sherds were not assigned to the specific ware category but were still listed under Oxidised wares. The number of instances of this was relatively small, however, since the small size of many sherds meant that diagnostic rims were scarce. The one category of material where this approach was not followed was mortaria, where oxidised sherds were assigned to a general category (M31/41). As such sherds could always be identified by the presence of trituration grits it was thought reasonable to record them in this way even though attribution to the specific fabric (white- or red-slipped) was not usually possible.

An extreme form of the fabric identification problem was encountered with relation to

some post-medieval pottery. Some oxidised fabrics of this date are superficially very similar to the fairly fine Roman fabrics characteristic of the Oxford region. The post-medieval fabrics in question were usually black glazed, but there were a few clear cases where the glaze had been almost completely eroded away in the same way that the surfaces of Roman material had been removed. In the event of the complete erosion of the glaze, the resulting sherds would have been indistinguishable from Roman material and it is therefore possible that in a few cases they were recorded as such. It was of course not possible to examine each small oxidised sherd with this problem in mind. There was thus a general presumption that such sherds were of Roman date unless demonstrated otherwise.

## 3.3.3 The Roman pottery

Some 4001 Roman sherds were counted. The criteria used to separate this material from tile and other pottery arising from the specific character of this assemblage have been discussed above. The condition of the material was variable. Many sherds, as already indicated, were small, abraded and discoloured. Occasionally, however, small groups of larger, fresh sherds were encountered (usually in the more robust reduced and mortarium fabrics). These indicate that, while much of the pottery recovered had probably been incorporated in the ploughsoil for some considerable time, some fresh material is periodically being disturbed by ploughing and added to that already in the ploughsoil. The pottery was not weighed, so no detailed data are available on the distribution of the larger sherds.

The range of fabrics represented on the site was generally characteristic of the industry as a whole, and certainly comparable in its broad aspects to what is known about production at Lower Farm from the limited excavations of 1991. Most of the range of Oxford products was therefore present, with parchment ware the most notable absentee (as in the excavated assemblage). The breakdown of ware groups between the three fields examined is presented in the following table.

		FIELD	1	FIELD	2	FIELD	3	TOTAL	,
WARE	Description	Nosh	%	Nosh	%	Nosh	%	Nosh	%
F50/51	Oxford colour-coated ware	109	3.2	6	5.2	5	1.1	120	3.0
M22	Oxford white mortaria	158	4.6	4	3.4	6	1.4	168	4.2
M31/41	Oxford oxidised mortaria	134	3.9	6	5.2	9	2.0	149	3.7
W	Oxford white wares	187	5.4			19	4.3	206	5.1
Q	Oxford white-slipped wares	30	0.9					30	0.7
0	Oxford Oxidised wares (etc)	1882	54.6	79	68.1	109	24.7	2070	51.7
R	Oxford Reduced wares	926	26.9	21	18.1	292	66.2	1239	31.0
	Others/miscellaneous	18	0.5			1	0.2	19	0.5
TOTALS		3444	86.1	116	2.9	441	11.0	4001	

Incidence of Roman pottery fabric types by field (note that not all percentages add up to 100% because of rounding up/down of decimal places)

The majority of the pottery was recovered from Field 1. Here, as generally elsewhere, the assemblage was dominated by oxidised wares, though the proportion of these sherds actually consisting of eroded colour-coated wares is unknown and may have been considerable. The tendency of the oxidised fabric to fragment more than other wares means that almost nothing can be said about the range of vessel forms present. The

recognisable fine wares included beakers and bowls of types C45, C51 and ?C81 (Young 1977). Three or four sherds had stamped decoration, usually of rosette or demi-rosette type. There were no examples of name stamps on bowl bases, as found in the 1991 excavations and more recently in evaluation and salvage work at Blackbird Leys, Oxford. It was not usually possible to distinguish possible 2nd colour-coated wares from the generality of this material, but two roughcast sherds survived with fragmentary colour-coat (from N250 and N270 in Field 1) and provide further important evidence for this production at Lower Farm.

Mortaria in all fabrics only amounted to c 8 % of the total sherds, a rather lower proportion than in the excavated sample. Their representation in Field 3 was particularly low. The date range of white mortarium types was probably from the 2nd to the 4th century. Very few complete white slipped mortarium rims survived, but WC7 (Young 1977) was probably the most common type. The principal red colour-coated mortarium type was clearly C97, with C100 very poorly represented, if at all. The distribution of white wares tended to mirror that of mortaria, not surprisingly, since production of white mortaria and other white ware vessels often went hand in hand. The white wares included rouletted body sherds and the occasional rim which indicate the production of butt beakers, as was demonstrated from limited evidence in the 1991 excavation. Little can be said about white-slipped ware, for reasons already discussed, but some flagons were certainly present.

Reduced wares formed a significant, but not dominant, part of the assemblage. There was a notable concentration of reduced wares at the east end of field 3, however, and these wares amounted to two thirds of the total pottery from the field. Where it was possible to judge, this material appeared to be of 2nd century date. Such clear evidence for concentration on one aspect of ceramic repertoire does not often emerge so readily from the fieldwalking data, not surprisingly since in many areas the surface material probably represents several superimposed phases of manufacture in which a wide range of products may have been involved. Reduced wares probably occurred principally as jars, including narrow-mouthed types.

The two most remarkable individual sherds from the site were both in reduced wares. The first of these was an irregular piece in a grey-black sandy fabric, though it is unclear if this was the intended colour of the sherd. Part of a motif with chevrons survived on one surface of this piece. Unfortunately the irregularity of the rest of the sherd (it is not even certain that it was pottery) makes interpretation difficult, but the closest parallels for the 'decoration' are to be found in some mortarium stamps. It is possible that the 'sherd' is a fragment of kiln structure into which a stamped mortarium had been accidentally or deliberately impressed. If so, this represents the first indication of the presence of stamped mortaria on this site.

Less equivocal was a body sherd of a hemispherical bowl in a fairly fine reduced fabric. This had an elaborate decorative scheme, apparently moulded, below a horizontal bead row. The whole is extremely reminiscent of samian ware, though individual motifs could not be matched on superficial inspection. There are no parallels within the Oxford industry. Though part of a probable mould is known from the Littlemore area (Young 1971) the decoration within it is more crudely executed than the present piece. The vessel presumably imitated Drag 37 and must be of 2nd century date. It adds yet another dimension to the range of more or less experimental techniques attempted by the Lower Farm potters at this time.

#### 4 DISCUSSION

The prehistoric component on the site is still very difficult to assess. A small quantity of Iron Age pottery was recovered during the 1991 pipeline excavation, but no prehistoric pottery was identified in the fieldwalking assemblage. This need not be significant given the generally poor survival rate of earlier ceramics in the ploughsoil and the overwhelming dominance of the easily-visible Roman pottery on the field surface. The 1994 geophysical survey reinforced the impression gained in 1992 that there was a prehistoric element underlying the Roman archaeology in the form of annular features; three were apparent in the pasture on the 1992 survey, and a further six can be identified on the 1994 plots (five if field 1/area C, and one in field 3/area D). The large example in field 3/area D may be anomalous and morphologically different, but only excavation could establish the nature of each of the features (it is even conceivable that some of them could be Roman). The sub-square enclosure in field 1/area C has been highlighted by Mark Cole as another possible Iron Age feature. Once again excavation would be needed to establish this.

It is abundantly clear that the Roman site is much more extensive than could have been suspected from the 1991 excavation and 1992 geophysics in the pasture field. The layout seen on the geophysical plots centres around a road or trackway which runs roughly south-north<sup>7</sup> and then turns eastward across the arable. The track appears to fork into two at the eastern edge of the plot. It is tempting to suggest that the southern fork runs to the concentration of reduced wares in the north-eastern corner of field 3 while the main track continues on to the main Roman road between Alchester and Dorchester-on-Thames.

Broadly rectangular enclosures lie to either side of the trackway, and there is substantial regularity in the size and shape of these. The main axes range between 40 m and 60 m, and there only seems to be a single set of enclosures on either side of the track. Admittedly, however, a number of linear anomalies do appear to extend out from the enclosures, perhaps forming field boundaries. There is also a possible sequence within the enclosures, as there are at least three areas where one enclosure appears to overlie another: in the centre of area A, in the centre of area C and at the north-west corner of area C (field 1). The plots may be deceptive in these areas, however, and the enclosures could all be of one phase. Once again excavation would be required to resolve these issues.

The fieldwalking data show that the site continues eastward at least as far as the modern main road in a broadly linear band equating to the trackway and enclosures. There is a diminution in density in the centre of field 1, and this could indicate that there are several discrete (but still extensive) sites linked by the trackways rather than one all-embracing site. The concentration of reduced wares in the north-east corner of field 3 is particularly interesting in this respect, in that the overwhelming dominance of one ware group might suggest a specific site-type here. We cannot yet determine whether this is a specialised kiln area, a settlement or some other type of site, but further work should help to resolve this.

Only 64 sherds (1017 g) within the overall assemblage of <u>c</u>. 14500 sherds (189 kg) or barely 0.5 %.

The relationship with the post-medieval hedge separating the arable from the pasture appears to be entirely coincidental - see Figure 2.

Further kiln anomalies were located in the 1994 geophysical survey, and there now appear to be at least six discrete groups across the site. There may be subtle differences among the groups: there is a distinct linear group in the pasture field, for instance, which contrasts distinctively with the tight clusters seen in field 1/area C. There are also some very strong correlations between the groups of kiln anomalies and the fieldwalking data in field 1/area C. The group in area C squares 12 and 16, for instance, corresponds exactly with unit H290 (142 sherds), with H270 (71 sherds) representing a strong continuation to the north-east. The group at the intersection of squares 14, 15, 18 and 19 corresponds exactly with units G310 and G330 (91 and 81 sherds respectively, with a further 74 in unit G290 immediately to the north-east), while the group straddling squares 30 and 31 corresponds exactly with unit J410 (95 sherds). Somewhat in contrast, the group in square 27 corresponds with unit J370 which only contained 26 sherds. Unit J390, however, contained 78 sherds and lay immediately to the south-west of square 27. There may be some overlap with squares 30 and 31, which lie south-west of unit J390.

We are surely seeing here a direct match between the geophysical and fieldwalking evidence for the location of kiln groups and evidence for plough damage causing "plumes" of pottery to spread along the north-east to south-west axis of cultivation. These plumes can usually be seen to either side of the kiln group. In this context it will be interesting in due course to see the geophysical results from other areas of high and very high sherd numbers. In field 1 these are: units K190, K210 and K230 (32, 51 and 40 sherds); M10 to M170 (29, 49, 77, 45, 49, 53, 35, 30 and 35 sherds); N10 (60 sherds); N 90, N 110 and N130 (49, 72 and 26 sherds); O30 to O110 (28, 50, 23, 33 and 20 sherds); P10 to P110 (32, 71, 49, 34, 28 and 24 sherds); and Q10 to Q90 (29, 29, 47, 47 and 26 sherds). There are also two zones in field 3: units D430, D450 and D470 (20, 40 and 25 sherds), and F430/F450 (30 and 22 sherds).

Buildings - at least stone ones - appear to be conspicuous by their absence at this stage. There was a marked lack of obvious building stones on the field surface despite the ready availability of stone in the natural geology (although there are a few groups of large stones at the field margins, presumably where they have been pulled in the past by the farmer). Roman tile, especially roofing tile, seems to have been absent (but see Paul Booth's report above for a note of caution with regard to identification problems). Mark Cole has also pointed out that no substantial structure appear on the geophysical survey plots despite the excellent response of the geology and soils to the methods used. Further work may identify buildings on the site, but so far the excavation and survey data tend to support the evidence from the Churchill Hospital for various insubstantial structures in timber or possibly stone in some instances (Young 1972, 1973, 1974).

The surveys provide considerable detail about the general nature and layout of the site(s), and clearly demonstrate the potential for a substantial increase in our understanding of the dynamics of a Romano-British kiln site operating at an industrial scale for most of the period of Roman rule. One could examine the internal dynamics and layout of the site(s) in more detail than has been possible on any comparable site, and analyse its position within the associated landscape of tracks, fields, settlements and major network links (ie the Roman road between Alchester and Dorchester-on-Thames, and the river Thames).

At this stage the western and northern limits of the Roman site seems to be fairly well established, although one cannot discount the possibility that field boundaries may continue into these apparent blank areas in the current data bank. Nevertheless the archaeological potential here seems to be low. The situation is somewhat more complicated to the south, because the trackway and enclosures appear to continue beyond

the south-west limit of the geophysical survey (albeit with a greatly decreased magnetic response). The next field to the south-west has not been surveyed, although there was no apparent trace of archaeology here during the watching brief on the Thames water pipeline through the field. The fieldwalking evidence points to a very strong continuation of the Roman site up to and beyond the eastern and south-eastern limits of the current study area.

One should not neglect the medieval component of the site. The ridge and furrow which is so well preserved in the pasture field can still be identified on the geophysical plots from the arable, even though the surface has been ploughed flat here. The strips veer markedly to the left immediately into the pasture field, confirming the apparent evidence for a headland in the pasture. The ridge and furrow would originally have been very extensive indeed, as it lies toward the north-west corner of the former Lower Field, one of Nuneham Courtenay's four medieval open fields.

It is worth reviewing the site's importance in relation to the Secretary of State for National Heritage's Scheduling criteria. This review points out where further work may be necessary to ensure that fully-informed decisions can be reached regarding the future protection and management of the site.

## i period

Lower Farm represents at least one characteristic site type of the Roman period (ceramic production). The situation is less clear for the prehistoric period, and for the site's potential in other areas of the Romano-British period.

## ii rarity

Again it is difficult to assess the rarity value of the potentially prehistoric features because their nature and status is unknown (and indeed their date is not certain anyway).

Numerous Roman kiln sites are known around Oxford's southern and south-eastern fringe, but few of these survive in good condition and the best-known (the Churchill Hospital site) has been developed. The most recently discovered site, at Blackbird Leys, looks likely to be destroyed with a very inadequate record because of the funding situation.

### iii documentation

The documentation potential of the possible prehistoric archaeology cannot be assessed until further data are available.

The 1991 excavation and 1992 geophysical survey at Lower Farm have been published, and the archive has been deposited with the Ashmolean Museum. Therefore there is a very strong level of immediate documentation, quite apart from the existence of other excavated/observed kilns and other Roman sites in the vicinity.

The medieval ridge and furrow and the open fields of Nuneham Courtenay are well documented, most notably in the *Victoria County History* for Oxfordshire.

## iv group value

There is outstanding potential here in the association of presumed prehistoric features (whatever their nature and date), Roman kilns, enclosures, tracks, fields and perhaps settlements within a wider landscape context, and the medieval ridge and furrow.

#### v survival/condition

This is perhaps the most difficult area to assess. The state of preservation is known for a narrow transect through the pasture field, and this can probably be taken as reasonably representative of the field as a whole. This would suggest that the Romano-British archaeology is well preserved (and presumably the same should apply to any prehistoric archaeology excepting truncation from Roman features). The situation in the arable is much less clear-cut. The fieldwalking data and the geophysical evidence clearly demonstrate that the Roman archaeology has suffered considerable plough damage, and this continues with every season of cultivation. It is probably safe to assume that the annular features of probable prehistoric date have suffered similar damage. The actual extent of the physical damage cannot be assessed adequately without intrusive fieldwork, and this seems to be essential as the condition of the archaeology in the arable would surely affect decisions regarding preservation and (especially) management. ploughing would not be precluded under scheduling, for example (although subsoiling would), and a management agreement might provide a more subtle and powerful degree of control.

## vi fragility/vulnerability

The pasture field does not appear to be under any threat of changing landuse (eg ploughing etc) but there is no room for complacency. The existing use (grazing) causes occasional superficial damage but is unlikely to pose a major threat to the site as a whole. The arable fields are much more vulnerable, and every season of cultivation must be further reducing the archaeological survival of this part of the site. The problem, as noted above, is that we do not know the current state of the site below surface level and therefore cannot make an adequate assessment of fragility/vulnerability. There may well be individual features or groups of them (including kilns) which would be vulnerable to a single additional season of ploughing, while any surviving vertical stratigraphy (which was present in the pasture field) is bound to be vulnerable.

#### vii diversity

The site has a strong apparent diversity of monument types and periods, though this requires confirmation. The diversity may be affected differentially in the pasture and arable by the fragility/vulnerability of the archaeology in the two areas.

#### viii potential

The potential is demonstrable throughout the site, but the problems of condition and fragility remain.

#### 5 FUTURE WORK

We feel that sufficient data have been collected in the area covered by fieldwalking and geophysics for decisions to be taken about the next stage of fieldwork aimed towards a full appreciation of the site needed for scheduling and management decisions. AMLab also believe that further geophysical survey work is necessary before the extent of the site can be defined adequately. It should be stressed that this may well involve work on the other side of the main road which forms the eastern boundary of the current study area.

OAU and AMLab feel that further geophysical survey is appropriate in the areas where only fieldwalking has occurred (and where the pot concentrations continue) so far, and discussions have taken place between OAU and the AMLab with this in mind. These areas should also be the subject of trial trenching and test pitting to confirm extent, define condition and fragility, assess period (and especially confirm or otherwise the existence of a prehistoric component) and assess the quality of the remains. The possibility of intrusive fieldwork has been discussed with the County Archaeologist for Oxfordshire, Paul Smith, who is in favour of this approach. The following table summarises a possible approach to further fieldwork, and should be read in conjunction with Figure 15.

Area	Geophysics	Test pits	Trial trenches	Area trenches
A .	Already done	No	Yes, targeted	Yes, one or two 20 x 10 to assess condition and relationship of kilns
В	Yes	Possibly	Yes, especially to define extent but also to assess character etc	Probably not unless geophysics suggests it is necessary
С	Yes	No	Yes - extent and character	No unless geophysics suggests it is necessary
D	No	Yes, 2 m sq on 20 m grid to test extent of pot dump	No	No
E	No	No	Yes, random	No
F	No	No	Possibly	No
G*	Yes	Possibly	At later stage	Unknown

In all areas excavation would be kept to a minimum consistent with achieving the project. aims. Area G will require fieldwalking if this can be arranged. This should perhaps precede geophysics so that the latter can be targeted more efficiently.

The Oxford University Chest (owners of the arable surveyed so far), their land agents (Smith-Woolley) and the tenant farmer have been most cooperative throughout the fieldwork to date, and this should continue during surveys in the arable. There might be some resistance to excavations from the tenant farmer, but sensitive timetabling should resolve this problem. Alternatively compensation might be necessary. The situation east of the main road is less clear. OAU believes that this land is also owned by Oxford

University but we do not know which part, and the agency/tenancy arrangements are not known at this stage.

A project design can be produced for the next stage of work when required.

Graham D Keevill and contributors Oxford Archaeological Unit and English Heritage March 1996

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# APPENDIX 1 LIST OF FLINT ARTEFACTS RECOVERED DURING THE FIELDWALKING

# Summary of flint by field

Collection unit	Quantity and type of artefact
Field 1	
A/250 D/90 D/290 F/170 F/270 H/70 K/70 K/330 L/350 M/310 N/130	1 burnt unworked flint 1 gunflint 2 flakes (inc. one core rejuvenation flake) 1 flake
Field 2	
D/70 E/90 G/190 H/70	1 oblique arrowhead 1 flake 1 flake 1 flake
Field 3	
A/30 A/90 C/110 C/150 C/170 D/370 F/190	1 blade 1 burnt unworked flint 1 flake 1 flake 1 piece irregular debitage 1 burnt unworked flint 1 flake

# APPENDIX 2 LIST OF ROMAN POTTERY RECOVERED DURING THE FIELDWALKING

FIELD NUMBER	TRANSECT	COLLECTION	NUMBERS OF FINDS	POT TYPE
1	Α	10	1	Ó
1	A	30	1	R
1 1	A A	70 130	1 1	O O
1	A	150	1	R
1	A	150	i	R
1	Α	250	1	O
1	A	270	1	F
1	B B	30 70	1 1	0
j	B	90	1	M31
1	В	250	1	F
1	C	70	1	R
1	C C	90 <b>2</b> 30	1 1	0
1	Č	310	1	F
3	C	310	1	R
1	D	70	1	R
1	D D	110 270	1 1	0
1	Ď	290	1	F
1	D	290	3	Ó
1	D	310	2	F
1	D D	310 310	1	M31
1	E E	190	1 1	O M22
1	Ē	230	1	R
1	E	270	1	M31
1	E	270	1	O
1	E E	270 290	1 1	R M31
1	Ē	310	2	M31
1	F	170	1	M22
1	F	230	1	R
1	F F	270 270	3 3	O R
1	F	290	1	M31
1	F	290	9	0
1	F	290	7	R
1 1	F F	310 310	2 3	F50
1	F	310	12	M22 O
1	F	310	9	O R
1	F	330	1	F
1	F	330 330	3 10	M22
1	F	330	11	O R
1	F	330	3 2	w
1	F	350	2	О
1	F G	350 110	3 1	R
1	G	230	1	O F
1	G	230	1	O
1	G	230	1	R F
1	G G	250	2	F
1 1	G	250 250	1 4	M31 O
1	G	250	3	R
1	G	270	1	F
1 1	G G	270 270	2 1	M22
1	G	270	14	M31 O
1	G	270	1	Q
1	G	270	8	Q R
1	G	270	2	W
1	G G	290 290	2 2 2	F M22
1	G	290	1	M31
1	G	290	14	0
1	G	290	1	Q
1	G G	290 290	8 2	Ř W
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FIELD NUMBER	TRANSECT	COLLECTION UNIT	NUMBERS OF FINDS	POT TYPE
1	G	310	3	F
1	G	310	4	M22
1	G	310	1	M31
1	G	310	45	0
1	G G	310 310	5 29	Q R
1	G	310	4	W
1	G	330	3	F
f	G	330	2	M22
3	G	330	3	M31
1	G G	330 330	26 1	0 Q
1	G	330	30	R
1	Ğ	330	16	W
1	G	350	8	O
1	G	350	6	R
1 1	H H	30 50	1	O R
1	H	70	3	O
i	H	170	2	Ö
1	ŀſ	190	2	O
1	Н	210	1	0
1	Н	230	1 8	M31
1 1	H H	230 230	0 1	O Q
1	H	230	2	Ř
1	Н	230	1	W
1	Н	250	1	M22
1	Н	250	1 7	M31
1 1	H H	250 250	7 2	O R
1	H	250	1	W
1	H	270	2	F
1	Н	270	5	M22
1	Н	270	1	M31
1	I-I I-I	270 270	26 1	0 Q
	H	270	30	R
1	H	270	6	W
1	H	290	2	F
1	Н	290	3	M22
1	I-I I-I	290 290	2 56	M31 O
1 1	H	290	1	OTHER
1	Н	290	8	Q
1	Н	290	65	R
1	Н	290	5	W
1	H	310	2	M22
1	H H	310 310	18 3	0
1	H	310	1	Q Q
1	H	310	15	R
1	Н	330	1	M22
1	H	330	1	M31
1 1	I-I I-I	330 330	14 8	O R
1	1-1	350	1	F
1	1-1	350	1	M22
1	Н	350	5	O
1	H	350	2	R
1 1	H H	370 370	1 7	M31 O
1	]-I	370 370		R
1	H	370	2 2 5	R
1	H	390		O
1	Н	390	1	R
1	H H	390 410	3 2	W O
1	rı I	50	1	0
1	Ì	130	1	M31
1	1	150	1	O
1	1	1 <i>7</i> 0	2	O

FIELD NUMBER	TRANSECT	COLLECTION UNIT	NUMBERS OF FINDS	POT TYPE
1	1	190	2	0
1	1	210	1	0
1	ı .	230	1	M31
1 1	[	230 230	5 1	O R
1	1	250 250	1	F
1	·	250	î	M22
1	1	250	14	0
1	1	250	7	R
1 1	1	270 270	1 4	M31 O
1	1	270	2	R
1	I	290	5	O
1	I	290	1	OTHER
1	] ]	290 310	1 8	R O
j	I	310	1	w
i	i	330	1	M22
1	1	330	1	M31
1	l	330	5	0
1 1	I	330 350	7 1	R M31
1	Ţ	350	8	Ö
i	İ	350	1	w
1	1	370	2	M22
1	I	370	6	O
1 1	I 1	390 390	2 9	M31 O
1	[	410	2	F
i	1	410	3	M22
1	l	410	12	M31
1	l	410	20	O
]	I I	410 430	4 2	R F
1	Ī	430	12	r O
i	I	430	1	R
1	J	30	1	M31
1	J	30	1	O
1 1	J	50 90	1 5	0
1	, I	110	7	M22
1	Ĵ	110	2	M31
1	J	110	2	0
1	J	110	1	R F
1 1	j	130 130	1 7	r O
1	,	130	2	R
1	j	150	1	M22
1	J	150	10	Ō
1	J	150 150	4 1	R W
1	}	170	2	M22
1	j	170	13	0
1	Ĵ	170	1	W
1	j	190	5	Ö
1 1	J	190 210	2 1	R M31
1	j	210	2	O
1	j	210	1	R
1	J	210	1	W
1	J T	230	6	OTHER
1 1	J	230 230	1 1	OTHER R
i	j	250	1	M22
1	ĵ	250	8	O
1	J	250	1	OTHER
1 1	J I	250 250	6 6	R R
1	J Ī	250	4	W
i	, J	270	5	0
1	J	270	1	M22
1	j	270	4	R

FIELD NUMBER	TRANSECT		COLLECTION	NUMBERS OF FINE	s i	POT TYPE
1	j	i	290	7		0
1	ĵ	1	290	2		R
1	J		290	1 -		W
1 1	J		310 310	5 2		o r
1	,		330	1		M31
1	j	J	330	4		O
1	J		330	1 5		R O
1 1	J		350 350	1		R
1			350	1		W
1	;		370	2		F
1 1			370 370	1 5		M22 M31
1	:		370	14		O
3			370	4		R
1			390	1		F
1	·		390 390	1 10		M22 M31
1 1			390	34		O
1			390	1		Q
1			390	24		R
1		-	390	7 5		W 5
1 1		J T	410 410	3 3		э M22
1		j I	410	11		M31
1		j	410	46		0
1		j	410	30		R
1		) ]	430 430	1 1		F M22
1		) 	430	3		M31
1		j	430	20		0
1		)	430	1		OTHER
1		J I	430 450	3 2		R M31
1		J	450	11		O
1		j	450	3		W
1		J	470	1		0
1		< <	0	1		M22 O
1		Κ.	0	1 1		R
1	}	K	10	1		F
1	}	K	10	1		M22
1		K	10	10 34		M31 O
1 1		K K	10 10	34 1		Q
1	1	K	10	24		R
1	1	K	10	7		W
1	]	K K	30 30	5 3		O R
1 1	, 1	K K	50	1		F
1	1	K	50	1		M22
1	!	K	50	5		O
1		K	50	1 13		W O
1 1		K K	70 70	2		R
1		K	90	2 2		F
1		K	90	1		M22
1		K	90	1 11		M31 O
1 1		K K	90 90	2		R
3		K	110	1		M31
1		K	110	14		0
1		K	110	3 1		R W
1		K K	110 130	2		F
3		K	130	2		M22
1		K	130	11		О
1		K	130	2 2		R W
1		K K	130 150	3		vv F
1		K	150	2		M22

FIELD NUMBER	TRANSECT	COLLECTION UNIT	NUMBERS OF FINDS	POT TYPE
1	K	150	3	M31
1	K	150	11	О
1	K	150	5	R
1	K K	150 170	1 12	W
1	ĸ	170	5	O R
1	K	170	2	w
1	K	190	1	M31
1	K	190	25	O
1	K	190	4 2	R
1 1	K K	190 210	2	W F
1	K	210	4	M22
I	K	210	23	0
1	K	210	18	R
1	K K	210 230	4	W M22
1	K	230	24	O
1	K	230	10	R
1	K	230	5	W
1	K	250	1	M22
1 1	K K	250 250	1 9	M31
1	K	250 250	1	O Q
1	K	250	4	Ř
1	K	250	2	W
1	K	270	1	M31
1 1	K K	270 270	10 2	O R
1	K	270	2	W
1	K	290	5	ö
1	K	310	4	0
1	K	310	3	R
1	K	330	1 3	M31 O
1	K K	330 370	1	M22
î	K	370	2	R
1	K	390	1	R
1	K	410	2	F
1	K	410	1	M31
1 1	K K	410 430	1 1	R M22
ī	K	430	î	M31
1	K	430	1	R
1	K	450	1	R
1	K	470	1	O
1 1	K K	470 490	1 1	R R
ì	Ĺ	10	1	M31
1	L	10	10	O
1	L	10	1	OTHER
1	L	10	1	R W
1	L L	10 10	1 1	W
1	L	30	8	ö
1	L	30	2	R
1	L	50	4	F
1	L	50 50	1 13	M31
1 1	L L	50 50	13	O R
i	Ĺ	70	1	F
1	L	70	1	M22
1	L	70	3	M31
1	L	70 70	15	O
1 1	L L	70 90	2 2	R F
1	L L	90	6	M22
1	L	90	1	M31
1	L	90	17	0
1	Ļ	90	2	R
· 1	L L	110 110	2 2	M22 M31
1	L	110	4	(CiV)

FIELD NUMBER	TRANSECT	COLLECTION UNIT	NUMBERS OF FINDS	POT TYPE
1	L	110	14	O
1	Ĺ	110	2	Ř
1	L	130	2	M22
1	L	130	10	O
1 1	L L	130 130	2 5	R
1	L	150	5 14	W O
1	Ĺ	150	1	OTHER
1	L	150	3	R
1	L	150	4	W
1	L	170	1	F
3	L	170	}	M31
1	L	170 170	17 1	0
1	L	170	9	Q R
1	Ĺ	170	1	w
1	L	170	1	W
1	L	190	1	M22
1	L	190	7	О
1 1	L L	190	2	W
1	L L	210 210	1 3	M22 O
1	Ĺ	210	2	R
1	Ĺ	210	1	W
1	L	230	2	M31
1	L	230	3	O
1	L	230	2	R
1	L	230	1	W
1 1	 	270 290	1 1	O M31
1	L	290	1	O NIST
1	Ĺ	310	3	ő
1	L	310	2	W
1	L	330	5	O
1	L	350	2 3	M31
1 1	L L	350 350	3 3	O
1	L	350 350	1	R W
î	L	370	1	F
1	L	370	2	ò
1	L	390	1	M22
1	L	390	3	O
1	L	410	1	M22
1 1	L L	410 410	3 1	O R
1	L L	430	2	0
1	Ĺ	430	1	w
1	L	450	1	R
1	L	450	<u> </u>	W
1	L	470	2	O
1	L M	470 10	1 15	R 15
1	M	10	3	F
1	M	10	l	M22
1	M	10	1	M31
1	M	10	2	OTHER
1	М	10	7	R
1 1	M M	30 30	3 2	F M22
1	M	30	1	M31
1	M	30	33	O
1	M	30	10	R
1	M	50	3	F
1	M	50	3	M22
1 1	M M	50 50	5 54	M31
1 1	M M	50 50	54 1	O Q
1	M	50	11	R
1	M	70	6	F
1	M	70	1	M22
1	М	70	2	M31
1	М	70	22	О

FIELD NUMBER	TRANSECT	COLLECTION UNIT	NUMBERS OF FINDS	POT TYPE
1	М	70	1	OTHER
1	M	70	13	R
î	M	90	1	F
1	M	90	6	M22
1	M	90	24	0
1	M	90	16	R
1	M	90	2	W
1	M	110	2	M22
1	М	110	28	O
1	М	110	19	R
1	M	110	4	W
1	M	130	2	F
1	М М	130 130	15 5	O Q
1	M	130	13	R
1	M	150	2	M22
1	M	150	20	O
i	M	150	10	Ř
1	M	150	4	W
1	М	190	2	M22
1	M	190	5	0
1	M	190	5	R
1	М	190	2	W
1	М	210	1	M22
1	М	210	5	O
1	M	210	5	R
1	M	230	2	M22
1	M	230	8 4	O R
1	M M	230 250	3	O
1	M	250 250	1	R
1	M	270	1	M22
1	M	270	1	M31
1	M	270	3	0
1	M	270	5	R
1	M	290	3	0
1	M	290	4	R
1	M	310	1	R
1	M	330	1	R
1	M	330	1	W
1	M	350	1	OTHER
1	M	350	4	R W
1 1	M M	350 370	2 3	R
1	M	390		R
1	M	410	2 2	Ô
i	N	10	7	F
1	N	10	6	M22
1	N	10	2	M31
1	N	10	35	O
1	Ν	10	1	OTHER
1	N	10	8	R
1	N	10	1	W
1	N	30	2 2	F M22
1 1	N	30 30	9	M22 O
1	N N	30	3	R
1	N	50	1	F
1	N	50	1	M22
1	N	50	12	O
i	N	50	3	R
1	N	50	2	W
1	N	70	1	F
1	Ν	70	1	M22
1	Ν	70	1_	M31
1	N	70	15	O
1	N	70 70	1	R
1	N	70	1	W
1	N	90	6 6	F M22
1	N N	90 90	30	M22 O
1	N	90	9	R

FIELD NUMBER	TRANSECT	COLLECTION UNIT	NUMBERS OF FINDS	POT TYPE
1	Ν	90	2	W
1	N	110	2	CERAMIC
1	N	110	3	M22
1	N	110	3	M31
1	N	110	39	0
1	N	110	1	OTHER
1	N	110	1	Q
1	N	110	23	R F
1	N	130	1	г M22
1	N	130 130	1 17	M22 O
1	N	130	1	Q
1	N N	130	2	R
1	N	130	4	W
1	N	150	1	M31
1	N	150	11	O
1	N	150	1	R
i	N	150	1	w
1	N	170	3	Ö
i	N	170	1	R
ï	N	190	3	O
1	N	190	1	R
1	N	210	2	F
1	N	210	3	O
1	N	230	1	M22
1	N	230	2	M31
1	Ν	230	9	O
1	Ν	230	1	W
1	N	250	1	F
1	N	250	4	O
1	N	250	I	R
1	N	270	1	F
1	N	270	1	M22
1	N	310	2	0
1	N	350	1	0
1	O	10	1	M31
1	O	10	6	O
1	0	10	2	R
1	0	30	1	F
1	0	30	2	M22
1	0	30	17	O
1	0	30	8 2	R M22
1	0	50	2 2	M31
1	0 0	50 50	27	O M91
1	0	50	19	R
	0	70	3	M22
1 1	0	70 70	12	0
1		70	8	R
1		70	12	ROM
1		90	2	F
1		90	4	M22
1		90	2	M31
î		90	2	M31
1		90	11	O
1		90	12	R
1		90		W
1		110	2 2	M22
1		110	2	M31
1		110	12	O
1		110	1	OTHER
1	0	110	3	R
1	0	130	2	M22
1	O	130	7	O
1	0	150	1	M22
1	0	150	4	О
1	0	150	2	W
1	0	170	1	О
1		190	5	0
1		210	1	F
1		210	2	O
1	0	210	1	W

FIELD NUMBER	TRANSECT	COLLECTION UNIT	NUMBERS OF FINDS	POT TYPE
1	0	230	2	0
1	O	250	1	Ö
1	O	250	1	R
1	0	270	2	O
1	p	10	1	F
1	p	10	2	M22
1	P	10	21	O
1	P	10	8	R
1	P P	30 30	2 47	M22 O
1	P	30	20	R
1	P	30	2	w
1	P	50	1	M22
1	P	50	25	0
1	P	50	1	OTHER
1	P	50	13	R
1	P	50	9	W
1	P	70	1	F
1	P	70	1	M31
1	Р Р	70 70	21 6	O R
; ]	P	70 70	5	W
1	P	90	2	F
1	þ	90	1	M22
1	Р	90	3	M31
1	Р	90	15	0
1	Р	90	6	R
1	P	90	1	W
1	Р	110	1	F
1	P	110	14	Ö
1	P	110	8	R
1	p	110 130	1 10	W O
1	P P	130	5	R
1	P	130	1	w
1	P	150	6	ö
i	P	150	1	R
1	P	150	2	W
1	P	170	1	F
1	l>	170	1	M22
1	P	170	2	O
1	p	210	1	1
1	P	230	1 4	O M22
}	Q	10 10	13	0
i	Õ	10	8	R
1	Õ	10	4	W
1	Q	10	4	W
1	Q	30	1	M22
1	Q	30	1	M31
1	00000000000000	30	16	O
1	90	30	10	R W
1 1	20	30 50	1	M22
1	Q O	50	34	O
i	ŏ	50	11	Ř
1	Õ	50	1	W
1	Q	70	1	F
1	Q	70	1	M22
1	Q	70	1	M22
1	Q	70	22	0
1	Q	70 70	21	R W
1 1	9	70 90	2 2	w M22
1	90	90 90	14	0
1	õ	90	1	OTHER
1	õ	90	8	R
i	Q	90	1	W
1	Q	110	1	M22
1	~~~~~~~~~~	110	3	O
1	Q	110	7	R
1	Q	110	1	W

FIELD NUMBER	TRANSECT	COLLECTION UNIT	NUMBERS OF FINDS	POT TYPE
1	Q	130	2	0
1	Q	130	7	R
1	Q Q	150	5	О
1	Q	150	4	R
1	999	150	1	W
1	Q	170	l	O
1	Q	170	1	R
1	Q	170	1	W
3	R	10	8	O
1	R	10	5	R
1	R	30	2 3	M22
1 1	R R	30 30	3	O R
1	R	50	1	M31
1	R	50	8	O
1	R	50	4	R
1	R	70	i	M31
1	R	70	10	0
1	R	70	20	R
1	R	90	1	M22
1	R	90	2	0
1	R	90	11	R
1	T	10	2	O
1	T	10	1	R
1	т	10	1	R
2	Α	10	1	0
2	A	30	1	0
2	A	50	3	0
2	A	90	1	F
2	A	110	1	0
2	A	150	1	O M31
2 2	B B	10 10	1 1	O
2	В	50	1	0
2	В	70	1	Ö
2	В	90	1	ŏ
2	В	110	5	Ō
2	B	130	3	o
2	В	150	2	O
2	В	150	1	R
2	C	10	1	M22
2	C	10	2	0
2 2	C	10	2 1	R
	C	50	1	0
2 2 2	C	70	2 2	M22
2	C	70	2	O
2	C	70	1	R O
2 2 2		90 110	2 5 5	U
2	C	110		0
	Č	110	2	R
2 2 2	Č	130	i i	M22
2	č	130	2	0
	č	150	1	F
2 2 2	Ċ	170	4	O
2	C	170	1	R
	D	30	1	F
2 2	D	70	1	R
2	D	90	1	F
2	D	90	1	R
2	D	110	1	0
2	D	130	1	M31
2	D	150	2	0
2 2 2 2 2 2 2 2 2 2 2 2	D	170	1	F
2	D	190	1	0
2	E	30 50	2 1	0 0
2	E E	50 50	2	R
2	E E	90	4	0
2 2	E	110	3	Ö
2	E	130	1	M31
2	Ē	150	1	M31
_	L		-	

FIELD NUMBER	TRANSECT	COLLECTION UNIT	NUMBERS OF FINDS	POT TYPE
2	E	150	2	R
2	E	170	1	R
2	F F	0	0 1	0
2 2	r F	0	1	R
2	F	10	3	R
2	F	30	2	0
2 2	F F	50 50	1 1	O R
2	F	70	2	Ö
2	F	70	1	R
2	F	110	1	O
2 2	F F	130 150	3	0 0
2 2	r F	190	1	ő
2	G	10	1	R
2	G	30	1	F
2 2	G G	30 70	1	O M31
2	G	70	1	R
2	G	90	1	O
2	G	110	1	M31
2 2	G H	190 70	2 2	0 0
2	H	130	2	ő
2	H	150	1	0
2	Н	170	1	O
2	1	50 70	1 1	0 0
2 2	I	110	2	ő
3	A	10	4	O
3	Α	30	3	O
3	A	30	1 1	R M31
3 3	A A	50 50	2	O
3	A	50	1	W
3	Α	70	1	M22
3	A	70 90	1 2	O O
3 3	A A	90	1	W
3	A	110	4	O
3	Α	130	1	M31
3 3	A	150	]	O R
3	A A	150 150	2	W
3	A	170	1	F
3	Α	170	1	M31
3 3	A A	170 190	2	O F
3	A	190	1	Ö
3	A	310		O
3	A	350	1 2 2	0
3 3	A A	370 370	1	O R
3	A	390	2	ô
3	Α	390	1	OTHER
3	A	390	4	R
3 3	A A	410 410	6 11	O R
3	A	410	1	W
3	Α	430	6	R
3	A	450 450	2 4	O R
3	A A	450 470	1	O O
3 3	Α	470	4	R
3	A	510	1	R
3 3 3	A B	530	1	R F
<i>3</i> ૧	B	10 10		r M22
3 3 3	B	10	2 2 5	M31
3	В	10	5	O
3	В	10	2	R

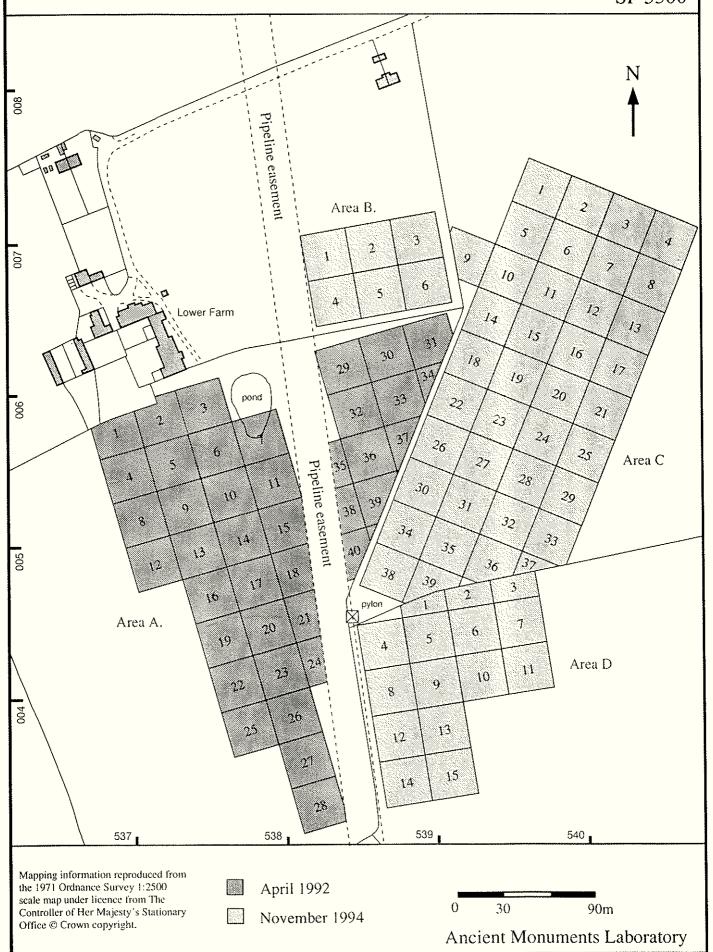
FIELID NUMBER	TRANSECT	COLLECTION UNIT	NUMBERS OF FINDS	POT TYPE
3	В	10	1	W
3	В	30	1	M31
3	В	30	2	О
3	В	30	3	R
3	В	50	1	M22
3	В	50	3	O
3	В	50	2	R\
3	В	70	1	R
3	В	90	ì	O
3	В	170	1	O
3	В	170	1	R
3	C	10	1	M31
3 3	C C	10 50	1 2	0 0
3	C	70	1	ő
3	Č	70	1	w
3	C	90	1	ö
3	D	10	î	R
3	D	30	3	Ö
3	D	30	2	R
3	D	30	1	W
3	D	50	2	O
3	D	50	3	R
3	D	70	1	M22
3	D	70	2	O
3	D	70	2	R
3	D	130	1	О
3	D	130	1	R
3	D	170	2	0
3	D	190	1	R
3	D	230	1	0
3	D	230	1	R F
3	D	290	1	
3	D	290	1 2	R
3 3	D	310 330	1	R O
3	D D	330	1	R
3	D	350	6	R
3	D	350	2	ŵ
3	D	370	7	R
3	D	370	2	W
		410	1	O
3	D	410	8	R
3	D	410	8 3 2	W
3	D	430	2	O
3	D	430	16	R
3	D	430	2 3	W
3	D	450	3	O
3	D	450	37	R
3	D	470	4 21	0
3	D	470	21	R
3	D	510	1 3	O R
3	D E	510 10	1	R
2	E	50	1	Ö
ى ب	Ë	70	1	M22
3	Ë	70	i	0
3	Ē	90	1	Ö
3	Ē	230	ì	0
3	E	230	1	R
3	E	250	1	R
3	E	350	4	R
3	E	370	4 2 5 2 8	О
3	E	370	5	R
3	E	390	2	0
3	E	390	8	R
3	E	410	8	R
3	E	410	1	w
3	E	430	1	0
3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	E	430	6	R
3	E E	430	6	R O
3	Ε	450	1	U

FIELD NUMBER	TRANSECT	COLLECTION UNIT	NUMBERS OF FINDS	POT TYPE
3	E	450	9	R
3	E	470	1	O
3	Ë	470	4	R
3	Е	490	2	R
3	E	510	3	R
3	F	1	1	O
3	F	3	3	R
3	F	10	1	0
3	F	30	1	M31
3	F	50	2	R
3	F	70	1	O
3	F	90	1	O
3	F	130	1	O
3	F	130	1	R
3	F	370	2	R
3	F	390	4	R
3	F	390	4	R
3	F	410	1	O
3	F	410	3	R
3	F	430	8	О
3	F	430	22	R
3	F	450	1	M31
3	F	450	7	O
3	F	450	14	R
3	F	470	11	R
3	F	490	3	R
3	F	510	2	R

FIGURE 1.

LOWER FARM, NUNEHAM COURTENAY, OXON. Location plan of geophysical surveys 1992-4.

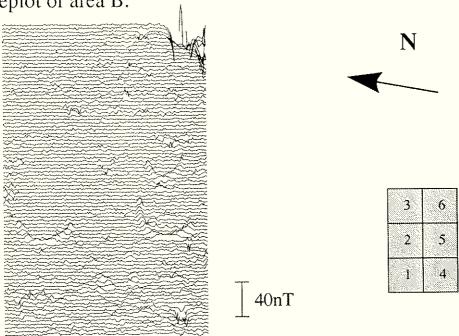
SP 5300



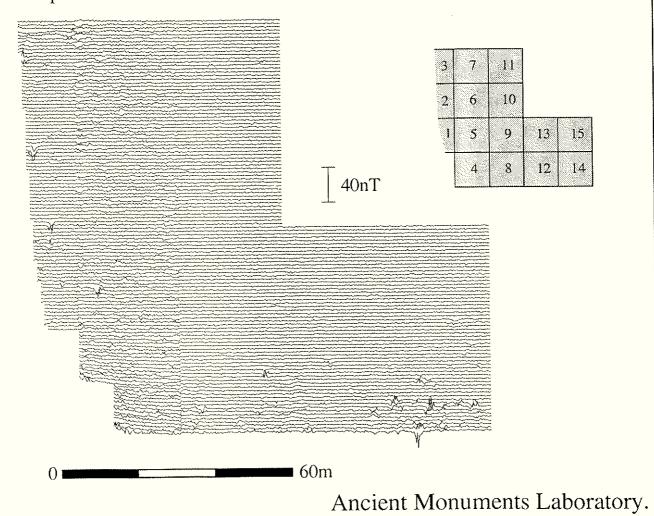
## FIGURE 5.

LOWER FARM, NUNEHAM COURTENAY, OXON. Traceplots of magnetometer data from areas B and D, 1994.

1. Traceplot of area B.



## 2. Traceplot of area D.





sherd 2 - 10 sherds 11 - 20 sherds 21 - 30 sherds 31 - 50 sherds

Greater than 51 sherds

Scale 1:4000

PLOT OF DENSITY OF ALL ROMAN POT



Scale 1:4000

PLOT OF DENSITY OF F50/51 ROMAN POT

SCALE 1:4000



1 sherd

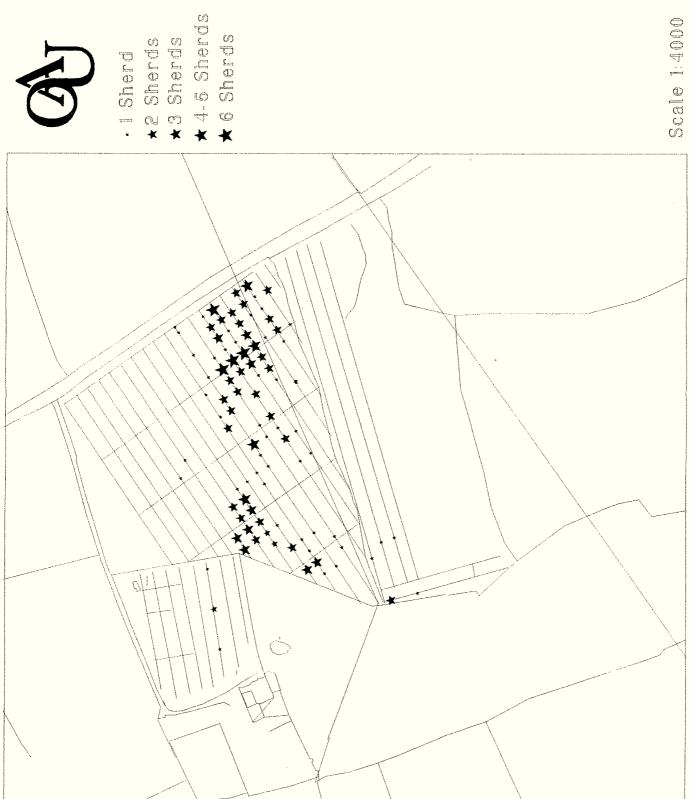
x ≥ sherds

s sherds

4-6 Sherds

6 sherds and above





Scale 1:4000

PLOT OF DENSITY OF M22 ROMAN POT



SCALE 1:4000

PLOT OF DENSITY OF W CLASS ROMAN POT





\* 2-4 SHENDS

TATHER 1

★ 8-10 SHERUS

SCALE 1:4000



21-100 SHERDS ★ 7-10 SHERUS ★ 11-20 SHERUS ★ 21-100 SHERUS 2 SHERDS 3-6 SHERDS 7-10 SHERDS 



PLOT OF DENSITY OF 0 CLASS ROMAN POT

COST HITCO

PLOT OF PENSITY OF R CLASS ROWAN POT

THE STATE OF CHIME RONAL POLICE

Figure 15



## OXFORD ARCHAEOLOGICAL UNIT

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