

Archaeological Field Unit

Hinxton Riverside: An Archaeological Desk-Top Study

S Leith BA, MA, AIFA

April 1997

Cambridgeshire County Council

Commissioned By Fuller Peiser

**Hinxton Riverside:
An Archaeological Desk-Top Study**

S Leith BA, MA, AIFA

April 1997

Editor P Spoerry B'Tech, PhD
Illustrator J Cane

With Contribution by Rog Palmer, Air Photo Services

© Archaeological Field Unit
Cambridgeshire County Council
Fulbourn Community Centre
Haggis Gap, Fulbourn
Cambridgeshire CB1 5HD
Tel (01223) 881614
Fax (01223) 880946

SUMMARY

This study examines the archaeological potential of land at Hinxtun Riverside (TL500443), and the potential impact of development proposals. The proposed development area covers c 20 hectares in the parishes of Hinxtun and Ickleton, to the south of the Wellcome Trust Genome Campus at Hinxtun Hall.

The site has great potential for archaeological remains, in particular from the late prehistoric, Roman, and Saxon periods. Evidence for settlement from these periods has been found along the valley of the Cam in close proximity to the study area.

Cropmarks of enclosures, ditches and trackways have been located within the study area. These may indicate areas of settlement.

The Ickniel Way forms the southern boundary of the site, and the area where the route crosses the River Cam has potential for remains of prehistoric to post-medieval date.

TABLE OF CONTENTS

1	Introduction	1
2	Geology and Topography	1
3	The Archaeological and Historic Character of the Study Area	1
	3.1 Early Settlement	1
	3.2 The Icknield Way	3
	3.3 Iron Age	3
	3.4 Roman	3
	3.5 Saxon	4
	3.6 Medieval	5
	3.7 Post-medieval and Modern	5
4	Cartographic Evidence	5
5	Summary of Archaeological Investigations along the Hinxtton Hall to Great Chesterford Pumping Main	7
6	Aerial Photographic Evidence	8
	6.1 Land A	8
	6.2 Land B	8
7	Geophysical Survey	8
8	The Potential Survival of Archaeological Deposits	10
9	The Potential Impact of the Proposed Development	10
10	The Archaeological Potential of the Study Area	10
	Acknowledgements	11
	References	11
	Appendix A: Aerial Photographic Assessment	13

LIST OF FIGURES

Figure 1	Study area showing SMR information	2
Figure 2	1799 OS draft first edition 1" map (sheet 146)	6
Figure 3	Study area showing cropmarks and areas of archaeological potential	9

HINXTON RIVERSIDE: AN ARCHAEOLOGICAL DESK-TOP STUDY

1 INTRODUCTION

- 1.1 This desk-top study was commissioned by Fuller Peiser on behalf of the Wellcome Trust in order to define the archaeological character of land at Hinxton Riverside (TL500443) and to define the potential impact of development proposals.

2 GEOLOGY AND TOPOGRAPHY

- 2.1 Land A lies on the east side of the River Cam, on ground that slopes from the A1301 in the east, down to the river, from 40m above Ordnance Datum to about 30m. Land B is basically flat, at about 30m OD. The topography of the area reflects the underlying geology. The higher ground in Land A is on the Middle Chalk. The lower ground lies on the first and second terrace gravels of the River Cam, overlain in places by alluvium (Figure 1).
- 2.2 Both Land A and B are used at present as arable. A temporary builder's compound, located in the north-east corner of Land A, has recently been removed, and the soil in this area has been ploughed.

3 THE ARCHAEOLOGICAL AND HISTORIC CHARACTER OF THE STUDY AREA (Figure 1)

3.1 Early Settlement

- 3.1.1 Until recent years, the only evidence of prehistoric activity along the Cam near Hinxton Riverside were a few stray finds around Ickleton village. This includes a Neolithic arrowhead found to the north of the village, a Neolithic hand-axe 500m to the south of the village, and a 'working site' 1km to the south. This paucity of finds belies the importance of the Cam gravel terraces to prehistoric activity in the region.
- 3.1.2 Recent large scale excavations at Hinxton Quarry and Hinxton Hall, as well as an archaeological evaluation at Duxford Mill, have provided evidence of intensive prehistoric activity along the Cam valley within the vicinity of the subject site. The evaluation at Duxford Mill revealed a late Mesolithic/early Neolithic group of worked flint within peat deposits on the edge of a palaeochannel (Schlee & Robinson, 1995).
- 3.1.3 High density scatters of later Neolithic worked flint were found during excavations at Hinxton Quarry. A Bronze Age barrow, ploughed out in recent centuries, became a focus for later Bronze Age tool production. This barrow must have been preserved as an upstanding monument during the Roman period as a ditch of the Romano-British field system terminates at the barrow ditch (Evans 1993).

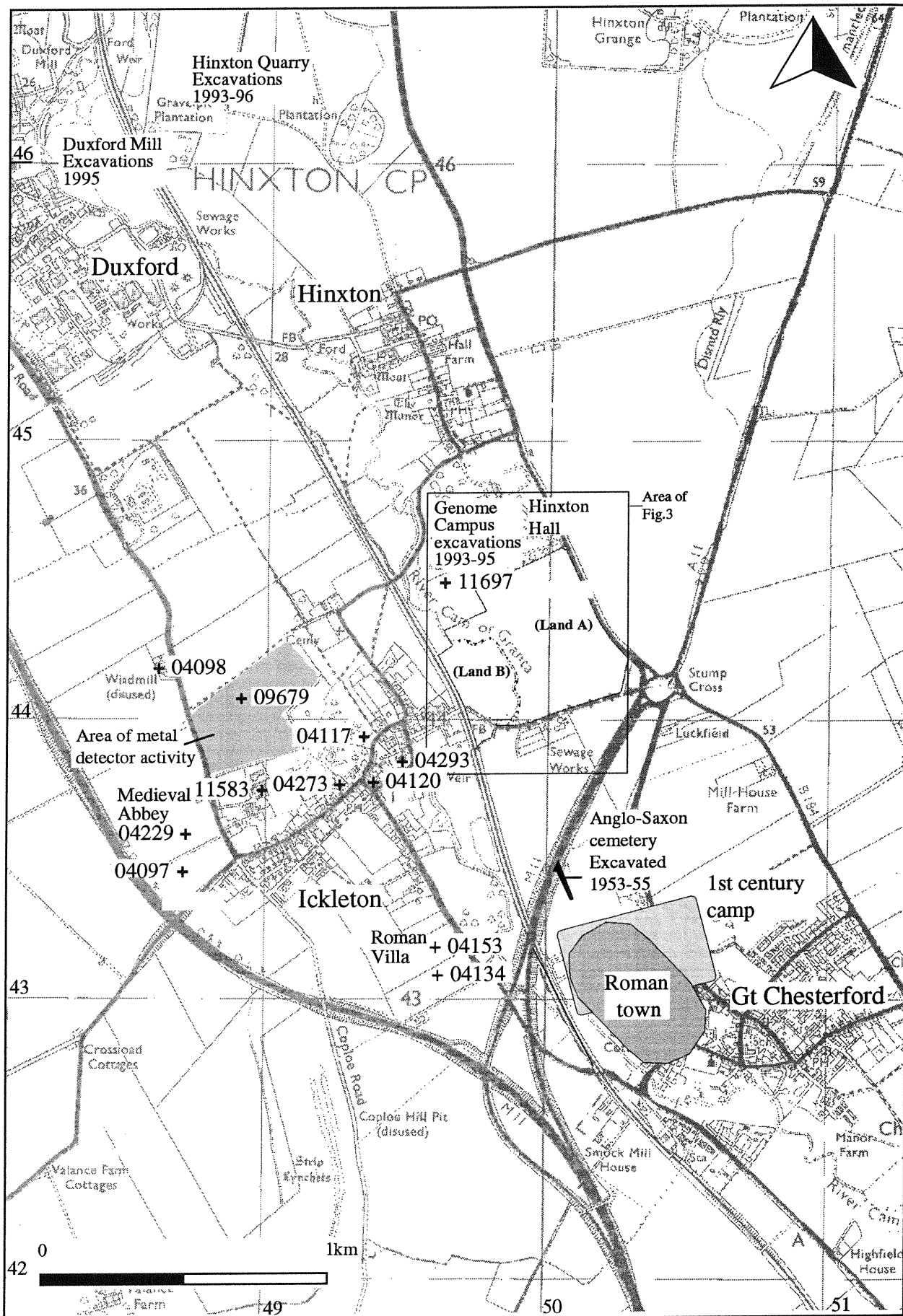


Figure 1 Study area showing SMR information

- 3.1.4 Excavations in the south part of the Hinxtton Hall park, on the site of the Wellcome Trust Genome Campus, revealed two main phases of prehistoric activity. Scatters of late Mesolithic/early Neolithic worked flints suggest maintenance sites for hunting equipment including the manufacture of projectile points. A repeated use of the landscape for hunting and retooling is suggested (Reynolds in Leith & Sperry forthcoming).
- 3.1.5 Cut features of late Neolithic/early Bronze Age date were found clustered around two or more filled-in ponds or hollows. Evidence of tree clearance and associated features and deposits of later Neolithic date were also found.
- 3.1.6 An isolated feature found to the east of the main area of excavation is of particular interest. It was a late Neolithic shaft, 1.95m deep, with upper fills containing sherds of decorated Beaker pottery. It is unlikely that this isolated pit had a domestic purpose, and the placed deposit of decorated pot sherds suggests a ritual purpose to the shaft (Last in Leith & Sperry forthcoming).

3.2 The Ickniel Way

- 3.2.1 The development area is bounded to the south by a road which is generally considered to be part of the Ickniel Way. The Ickniel Way is one of the oldest roads in Britain, dating from the prehistoric period. It was made up of a series of parallel tracks forming a routeway which provided an important link between the northern East Anglian coast and the Thames Valley (Margary 1963, 200).
- 3.2.2 This part of the route probably represents a 'Romanised' length of an Ickniel Way track, and ultimately became the medieval route between Stumps Cross and Ickleton. The point where the Ickniel Way crosses the River Cam lies roughly within the development area. This would have been an important, strategic crossing place from the prehistoric period through to the post-medieval period.

3.3 Iron Age

- 3.3.1 Evidence of Iron Age activity has only recently come to light within the vicinity of the study area. A late Iron Age cremation cemetery has recently been revealed at Hinxtton Quarry (M Alexander, pers comm). A metal detector rally held in 1995 at Abbey Farm, Ickleton, revealed five Iron Age finds in fields to the north of the village. This included two coins, a brooch, and two fragments of horse harness fittings. This type of find may be indicative of settlement (Robinson 1995).
- 3.3.2 Limited excavations within the Roman town of Great Chesterford, to the south of the subject site, have indicated that the town had Iron Age origins. Settlement remains of late Iron Age date, including a house gully and associated features and finds, were found during investigations in 1948 and 1980 (Burnham & Wachter 1990, 138).

3.4 Roman

- 3.4.1 The subject site lies within a landscape which was extensively exploited during the Roman period. The Roman town and fort at Great Chesterford would have been a major influence on the surrounding area. The fort was founded in the first century AD, at a strategic position controlling both the Cam valley and the Ickniel Way (Going 1989, 2).

- 3.4.2 The civilian settlement adjacent to the fort gradually expanded northwards, and by the early to mid fourth century AD was surrounded by defensive walls. The occupation of the town is suggested to continue throughout the fourth century, and survival into the fifth century has been postulated. A Roman cemetery on the north side of the town was reused as a pagan Anglo-Saxon cemetery from the mid/late fifth century to the early seventh century (Burnham & Wachter 1990, 142).
- 3.4.3 A grand Roman villa located to the south of Ickleton was partly excavated in the 19th century. It was an elaborate building of winged corridor type, with baths at the rear and a basilica building nearby (SMR 04153).
- 3.4.4 The development area lies within the hinterland of Great Chesterford, and as such would have been extensively exploited by agriculture to provide for the town. Evidence of Romano-British field systems have been investigated at both Hinxton Quarry and at the New Lake site at Hinxton Hall (Leith 1995a and 1995b). Numerous cropmarks of enclosures in the area may also indicate Romano-British field systems and farmsteads. Cropmarks of two rectilinear enclosures are located within the development area itself, and their morphology suggests a Roman date (see Aerial Photographic Evidence below).
- 3.4.5 Numerous stray finds of Roman date have been made in the village of Ickleton, including a Roman coin (SMR 04117) and 19 finds in the fields to the north of the village during the 1995 metal detector rally. These were mostly coins, but also included three brooches. This concentration of finds corresponds to the location of a cropmark of a rectilinear enclosure, and may indicate a settlement.

3.5 Saxon

- 3.5.1 The early Saxon cemetery to the north of Great Chesterford has been mentioned above. The full extent of the cemetery is not known, but 161 inhumation graves, 33 cremations, two horse graves and two dog burials were excavated in advance of gravel extraction in 1952. It is likely that much of the cemetery had already been destroyed by gravel digging before the rescue excavations took place (Evison 1994).
- 3.5.2 Stray finds of Saxon date were found during the metal detector rally in Ickleton in 1995. This included two early Saxon brooches, a middle Saxon pinhead, and two late Saxon strap-ends.
- 3.5.3 Excavations in the Hinxton Hall park on the site of the Wellcome Trust Genome Campus in 1993-4 revealed a previously unknown Anglo-Saxon settlement (Leith & Spoerry forthcoming). The settlement spanned the seventh to twelfth centuries. The early Saxon settlement consisted of four sunken-featured buildings, two timber 'halls', a possible industrial pit complex, and several other pits. During the middle Saxon period, the main focus of settlement may have shifted out of the excavated area. However, the presence of a few rubbish pits dating to this period suggests that the settlement centre was not far away.
- 3.5.3 During the Late Saxon to Saxo-Norman period (ninth to twelfth centuries) the settlement consisted of a series of timber buildings, with associated wells, ovens, pits and cess pits. During the later part of this period, the settlement was enclosed by a boundary ditch forming a roughly rectilinear enclosure. The settlement continued beyond the southern limit of the excavation, so its full extent is not known. To the north, east, and west the settlement was surrounded by enclosures which were probably used for livestock and arable fields. It is

probable that the Late Saxon settlement represents a small hamlet or farmstead, with domestic buildings and barns or outbuildings.

- 3.5.4 By the late twelfth to thirteenth century, the settlement at Hinxton Hall had been abandoned. It is likely that the settlement had shifted to the site of the present village by this time. This coincides with a general trend of the formalisation of villages around parish churches in the late Saxon to medieval period.

3.6 Medieval

- 3.6.1 The first documentary reference to the village of Ickleton occurs in the 10th century. However, the name is of earlier, Anglo-Saxon origin and probably means *Icel's farm* (Reaney 1943, 95). By the time of the Domesday survey, it was a large village, with 30 villagers, 10 smallholders and two mills (Robinson 1994, 5).
- 3.6.2 The small Benedictine nunnery of St Mary Magdalene was founded c 1163 on the western edge of the village (SMR 04229). The present Abbey Farm occupies its site, and two of the farm buildings contain medieval fabric. Earthwork remains of fishponds and enclosures are still visible (Robinson 1994).
- 3.6.3 The village of Hinxton was well established by the time of the Domesday survey. Its name also had Anglo-Saxon origins, meaning *Hengest's farm* (Reaney 1943, 94). The church existed by 1092, and the present building, built mostly in the fourteenth century, incorporates earlier parts dated to the late twelfth century (Reynolds & Leith, 1993).
- 3.6.4 There is no evidence for any buildings of medieval date within the development area.

3.7 Post-medieval and Modern

- 3.7.1 The parishes of Ickleton and Hinxton were subject of Enclosure Awards, in 1810 and 1833 respectively. Parts of the development area had already been enclosed before this time.
- 3.7.2 The main railway line from London to Cambridge, which forms the western boundary of the development area, was opened in 1845. A branch line from Great Chesterford to Newmarket was opened in 1848, but the section from Great Chesterford to Six Mile Bottom was closed only three years later in 1851 (Elrington 1978, 221). The embankment for this short-lived railway line is visible as an earthwork running across the south-east corner of Land A.
- 3.7.3 The north-east corner of Land A was used from 1994 as a builders' compound during the construction of the Wellcome Trust Genome Campus within the grounds of Hinxton Hall. This has recently been dismantled and the area has been ploughed.

4 CARTOGRAPHIC EVIDENCE

- 4.1 The earliest map available for the vicinity of the study area is the 1799 Ordnance Survey draft first edition 1" map (sheet 146), shown here as Figure 2. This map shows Hinxton High Street continuing south from the village, through the

development area, and continuing south to Great Chesterford. The line of this road is marked as a field boundary on the 1833 Inclosure Map of Hinxton. The road was investigated within the grounds of Hinxton Hall during the archaeological evaluation, however no dating evidence was retrieved. It is possible that the road is of Roman origin, as many of the roads radiating out of Great Chesterford date to the Roman period. It is important to note that the Late Saxon settlement investigated within the Hinxton Hall park was aligned neatly on a coaxial pattern, and that this was parallel to the line of this road.

- 4.2 The 1799 map shows the western part of Land A as enclosed fields. A relict track is shown extending in a straight line from the road at the south end of the development area where it curves towards the present river crossing. This may indicate that another crossing was located slightly further to the south. Part of this relict track runs through Land B.
- 4.3 The Inclosure maps for Ickleton and Hinxton, dating to 1810 and 1833 respectively, show land divided into small fields within the development area. Those in the western part of Land A are indicated as already enclosed at the time of the Award. Part of Land B is labelled as Meadows. This may indicate that this area was liable to floods and was therefore unsuitable for arable.

5 SUMMARY OF ARCHAEOLOGICAL INVESTIGATIONS ALONG THE HINXTON HALL TO GREAT CHESTERFORD PUMPING MAIN

- 5.1 In October and November 1995, the Archaeological Field Unit was commissioned by Anglian Water to carry out an archaeological investigation along the route of a new pumping main. The route of the pipeline went through Land A, from the Genome Campus south to the sewage works, running next to the Cam (Roberts 1996).
- 5.2 An aerial photographic assessment was undertaken as part of this work. This indicated two tracks running roughly north / south, one in the centre of Land A and one next to the river. These tracks both appear on the 1799 map, but may be considerably older. Cropmarks of two rectilinear enclosures, as well as a number of linear ditches, were also revealed (these are discussed further in Aerial Photographic Evidence below).
- 5.3 Two test pits and nine trenches were opened along the pipeline route (Figure 3). Two areas of cobbled surface were revealed next to the river in the vicinity of Trench A. In one case the cobbled surface overlay a dark organic deposit, and immediately above the cobbles was a deposit of burnt material, degraded brick and daub. Both areas of cobbled surface were overlain by, and therefore predate, a thick layer of alluvium. Roman ceramics were also found sealed by the alluvium, and the evidence here, with that at Duxford Mill, supports a post-Roman date for the alluviation.
- 5.4 The cobbled surfaces sloped down towards the river. They could indicate landing places on the river bank.
- 5.5 A redeposited chalk platform and considerable amounts of post-medieval brick, roof tile, and slate were revealed to the south of Trench A, indicating the presence of a demolished building.

6 AERIAL PHOTOGRAPHIC EVIDENCE

An assessment of aerial photographic evidence was undertaken as part of this study by Air Photo Services. The following is a summary of their results, which are presented in total as Appendix A.

6.1 Land A

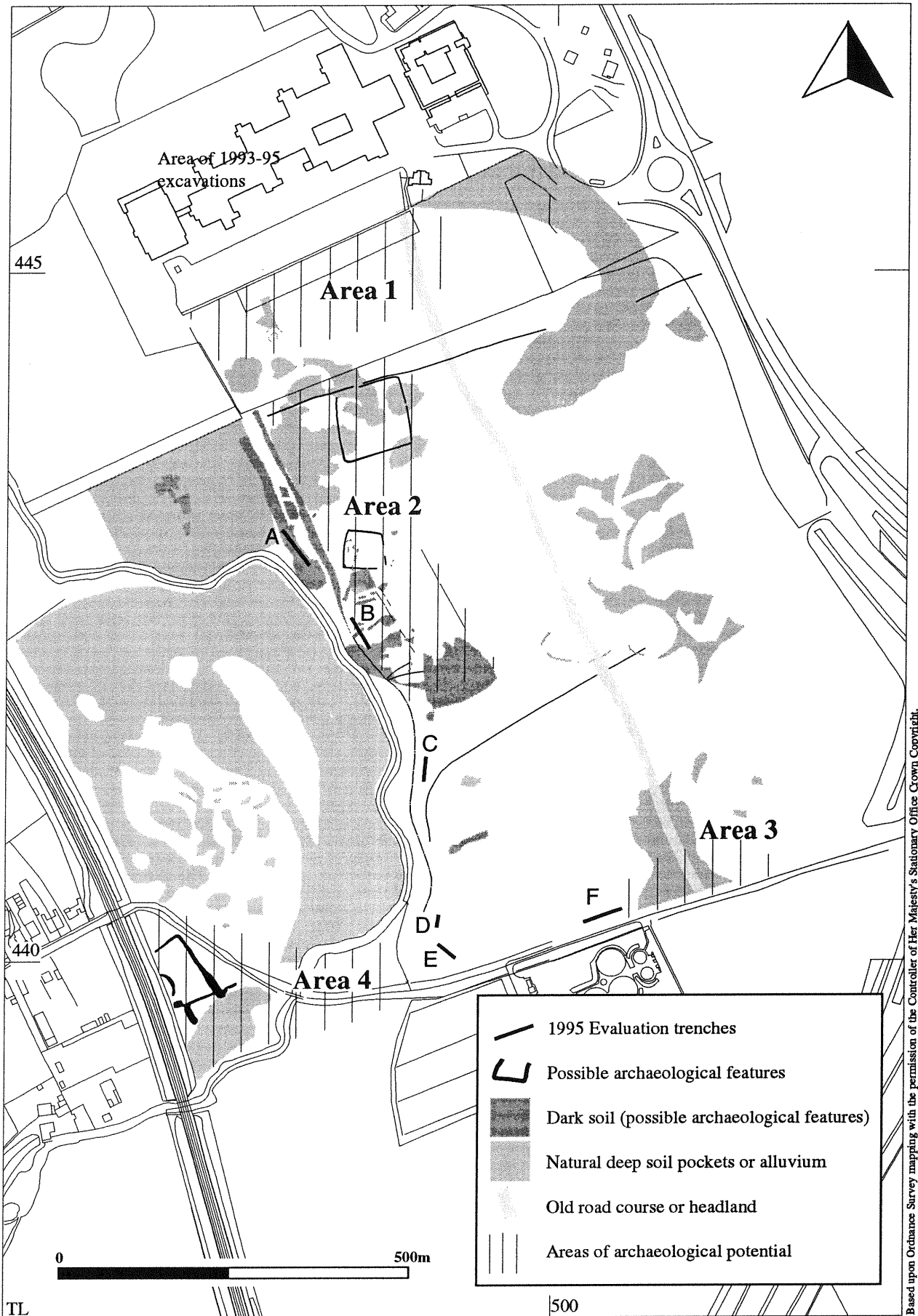
- 6.1.1 The higher ground in the eastern part of Land A shows only natural periglacial deposits on the chalky drift. The cropmarks of archaeological deposits are located in the western half of Land A, closer to the river.
- 6.1.2 Two rectangular enclosures surrounded by ditches are of particular interest. The larger, northern enclosure is associated with a linear ditch, running roughly east / west across the field. Within the smaller enclosure to the south is a group of small rectangular cuts. These may be graves, or they could indicate small hand-cut quarries.
- 6.1.3 Cropmarks of two tracks running north / south across the field correspond to roads indicated on historic maps (see Cartographic Evidence). Their appearance suggests that they may have originally been headlands of medieval fields.
- 6.1.4 Several ditches are located to the south of the enclosures. One of these parallels the river and may indicate a boundary or water controlling structure.
- 6.1.5 Areas of dark soil within the alluvium in the north-western part of Land A may have an archaeological origin.

6.2 Land B

- 6.2.1 Much of the northern field in Land B is covered with alluvium which would mask any archaeological features. An 'island' of higher ground in the centre of the field shows cropmarks of former field boundaries.
- 6.2.2 An area of higher ground in the southern field shows cropmarks of ditches, suggesting a possible enclosure with internal features cut by the railway.

7 GEOPHYSICAL SURVEY

- 7.1 A geophysical survey to map sub-surface anomalies was undertaken by Geophysical Surveys of Bradford as part of this study. However, only Land B could be surveyed at the time of this study because of the height of the crop on Land A.
- 7.2 The preliminary results of the survey of Land B showed a general lack of anomalies of archaeological interest. Some variations in the data were thought to reflect pockets of natural sand and gravel. No anomalies were identified which correspond to the cropmarks visible on aerial photographs, however this may be due to a lack of any magnetically enhanced fills within these features.



Based upon Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationary Office Crown Copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. (Cambridgeshire County Council licence No. LA 07649X 1996)

Figure 3 Study area showing cropmarks and areas of archaeological potential

8 THE POTENTIAL SURVIVAL OF ARCHAEOLOGICAL DEPOSITS

- 8.1 Both Land A and Land B have been used as arable fields for a considerable amount of time. This will no doubt have resulted in some horizontal truncation of archaeological deposits due to ploughing. The impact of ploughing will be greater on the higher ground where the ploughsoil is naturally less thick.
- 8.2 However, the thick layer of alluvium revealed next to the river during the pipeline investigation will have preserved any earlier underlying archaeological deposits from plough disturbance. Aerial photographs indicate alluvium near the river in Land B and in the north-west part of Land A.
- 8.3 The 1848 railway embankment in Land A may have had the effect of preserving any earlier underlying archaeology, providing protection from the deep ploughing of the later 20th century.
- 8.4 The temporary builders' compound in the north-east corner of Land A may have had an impact on underlying archaeological deposits. A layer of Terram matting was laid over the topsoil, and the compound area was built up with hard-core on top of this. This should have protected any archaeology from destruction. However, the weight of the compound buildings and vehicles may have resulted in the compaction of archaeological deposits.

9 THE POTENTIAL IMPACT OF THE PROPOSED DEVELOPMENT

- 9.1 Any excavation below the ploughsoil has the potential to destroy archaeological deposits.
- 9.2 The greatest impact will be within the building zones and the balancing lake where any underlying archaeology will be destroyed.
- 9.3 The proposed car parks and access roads will threaten underlying archaeology if ground disturbance is of a greater depth than the ploughsoil.
- 9.4 The excavation of service and foundation trenches poses a significant threat to any surviving archaeological remains.
- 9.5 Any landscaping which involves the excavation of a greater depth than the ploughsoil poses the same threat. Movement of plant in wet conditions could also damage archaeology.

10 THE ARCHAEOLOGICAL POTENTIAL OF THE STUDY AREA (Figure 3)

- 10.1 The valley of the Cam within the vicinity of the study area has been demonstrated to be the site of settlement from the late prehistoric through to the Roman and Saxon periods. It is therefore highly likely that archaeological remains exist within the study area.

- 10.2 The site's greatest potential lies in the cropmarks of enclosures, ditches, and tracks in Land A and in the south part of Land B. The enclosures may surround areas of settlement, possibly even a cemetery. Their morphology suggests a Romano-British date (Area 2 on Figure 3).
↙ and the west part of Area 4
- 10.3 The tracks may have early origins, particularly the one from Cambridge via Hinxton to Great Chesterford. The junction of this track with the Icknield Way at the south end of Land A is potentially the site of settlement (Area 3 on Figure 3).
- 10.4 The area where the Icknield Way crosses the River Cam has great potential for remains of prehistoric to post-medieval date. The original line of the road crosses Land B, and cropmarks indicate a ditched enclosure in this area (Area 4 on Figure 3).
see 10.2,
- 10.5 In a general sense, the river gravels along the Cam have been shown to be favoured areas for activity and settlement during the prehistoric period. These remains may be sealed by alluvium near the river, as at Duxford Mill, and would therefore not appear as cropmarks on aerial photographs or during geophysical survey.
- 10.6 Roman remains are likely to be encountered within the study area, in particular agricultural field systems. However, the possibility of settlement remains cannot be ruled out at this stage.
- 10.7 Remains of Saxon date, related to those excavated on the site of the Genome Campus, may extend into the northern part of Land A (Area 1 on Figure 3). There is also the possibility of burials related to this settlement.
- 10.8 There are unlikely to be any significant remains of medieval or later date within the study area.

ACKNOWLEDGEMENTS

The author would like to thank Fuller Peiser for commissioning this study on behalf of the Wellcome Trust, Gill Shapland of the County Record Office and Tim Reynolds of the County Sites and Monuments Record for their assistance, Jon Cane for the illustrations, and Paul Sperry for managing the project.

REFERENCES

Burnham, B C & Wachter, J, 1990 *The 'Small Towns' of Roman Britain*, London

Cambridgeshire Sites and Monuments Record

Elrington, C R, 1978 *A History of Cambridgeshire and the Isle of Ely*, VI, The Victoria History of the Counties of England, The University of London Institute of Historical Research, London

Evans, C, 1993 *Archaeological Investigations at Hinxton Quarry, Cambridgeshire*, Cambridge Archaeological Unit

Heawood, R & Robinson, B, forthcoming *All Stumps Cross - Four Wentways*, Cambridgeshire County Council Archaeological Report No. **114**

Evison, V, 1994 *An Anglo-Saxon Cemetery at Great Chesterford, Essex*, CBA Research Report no. **91**

Going, C, 1989 *A Trinovantian town in the Roman period and after: The defences of Great Chesterford reconsidered*, unpublished report

Leith, S, 1993a *An Archaeological Assessment at Hinxtton Hall*, Cambridgeshire County Council Archaeological Report No. **A18**

Leith, S, 1993b *Phase II Archaeological Assessment at Hinxtton Hall*, Cambridgeshire County Council Archaeological Report No. **A25**

Leith, S, 1995a *Archaeological Recording at Hinxtton Hall: The New Lake Site*, Cambridgeshire County Council Archaeological Report No. **A45**

Leith, S, 1995b *Archaeological Recording at Hinxtton Hall: The New Lake Site, Phase II*, Cambridgeshire County Council Archaeological Report No. **A69**

Leith, S & Reynolds, T, 1993 *Hinxtton Hall: An Archaeological Desktop Study*, Cambridgeshire County Council Archaeological Report No. **A10**

Leith, S & Sperry, P, 1995 *An Archaeological Earthwork Survey at Hinxtton Hall*, Cambridgeshire County Council Archaeological Report No. **A55**

Leith, S & Sperry, P, forthcoming *An Anglo-Saxon Settlement at Hinxtton Hall*

Margary, I D, 1973 *Roman Roads in Britain*, Trowbridge

Reaney, P H, 1943 *The Place-names of Cambridgeshire and the Isle of Ely*, EPNS **19**, Cambridge

Roberts, J, 1996 *Archaeology and Alluvium along the Hinxtton Hall to Great Chesterford New Main*, Cambridgeshire County Council Archaeological Report No. **A81**

Robinson, B, 1994 *Abbey Farm, Ickleton, Cambridgeshire: An Archaeological Desktop Study*, Cambridgeshire County Council Archaeological Report No. **A34**

Robinson, B, 1995 *Metal Detector Rally at Abbey Farm, Ickleton, Cambridgeshire*, unpublished report

Schlee, D & Robinson, B, 1995 *An Archaeological Evaluation of Land Adjacent to Duxford Mill, Duxford. Late Mesolithic / Early Neolithic Activity on the Floodplain of the River Cam*, Cambridgeshire County Council Archaeological Report No. **113**

Historic Maps

1799 Ordnance Survey draft first edition 1" map (sheet 146)

1810 Ickleton Enclosure Map (CRO Q/RDc20)

1833 Hinxtton Enclosure Map (CRO Q/RDc47)

**HINXTON 2: LANDS A and B: CENTRED TL499443:
CAMBRIDGESHIRE:
AERIAL PHOTOGRAPHIC ASSESSMENT**

Rog Palmer MA MIFA

INTRODUCTION

This assessment of aerial photographs was commissioned to examine three adjacent modern fields covering a combined area of some 30 hectares (centred TL499443) in order to identify and accurately map archaeological and natural features and thus provide information for field evaluation. Land A is a single field east of the River Cam, Land B comprises two smaller fields on the west bank of the River Cam (see Figure 3). This assessment will update that recently carried out on Land A, centred TL500443 (Palmer 1996). Mapping is at 1:2500.

ARCHAEOLOGICAL AND NATURAL FEATURES FROM AERIAL PHOTOGRAPHS

Sub-surface archaeological features – including ditches, pits, walls or foundations, and banks – may be recorded from the air in different ways in different seasons. In spring and summer features of natural and anthropogenic origin may show through their effect on crops growing above them. Such indications tend to be at their most visible in ripe cereal crops, generally in June or July in this part of Britain, although their appearance cannot accurately be predicted and their absence cannot be taken to imply evidence of archaeological absence. In winter months, when the soil is bare or crop cover is thin (when viewed from above) features may show by virtue of their different soils. Upstanding remains are also best recorded in winter months when vegetation is sparse and the low angle of the sun helps pick out slight differences of height and slope.

The majority of archaeological features mapped for this assessment are the sub-surface remains of former pits and ditches which have been identified as differences in crop growth.

Natural deposits can cause similar differences in crops and appear as startling colour changes in bare winter soils. The most informative photographs examined for this assessment were of fields under crop and thus differences in tone (or colour) or changes in crop growth were sought by the photo interpreter. Photographs taken in the spring, when crop cover is thin, show some of the tonal differences of various deposits. Those in the Hinxton area are typical of the periglacial deposits found on the chalky drift in this part of southern Cambridgeshire (Harris 1990; Palmer 1993; Wilson 1982; 1987). Major elements of these have been mapped where they coincide with archaeological features or to provide examples of the angularity that can occur in this type of natural feature. Smaller patches of deeper soil, or differences in soil content, have not been shown.

Virtually all the information mapped for this assessment has been interpreted from oblique aerial photographs. These, it must be emphasised, are usually taken only when an aerial observer has noticed features thought likely to be archaeological. This high-cost and high-speed activity means that much observation from the air tends to focus on features that are easily recognisable as archaeological or on those producing the most distinct marks. However, the photographs covering the assessment area are the work of experienced aerial observers and, as such, could be expected to provide a good record of features visible on the dates of reconnaissance.

PHOTO INTERPRETATION AND MAPPING

Photographs identified during the previous assessment of Land A were re-examined to study Land B. In addition, the complete area was studied on vertical photographs held by Cambridgeshire Record Office and in the National Library of Air Photographs (NLAP), Swindon. None of these vertical surveys was flown specifically for archaeological purposes.

All photographs consulted are listed in the Appendix to this report.

Photographs were examined by eye and under slight (1.5x) magnification, viewing them as stereoscopic pairs when possible. Vertical photographs were also examined stereoscopically using a 1.5x magnification stereoscope. Interpretations were marked on overlays to individual prints following procedures described by Palmer and Cox (1993). All rectification was computer assisted and carried out using AERIAL 4.2 software (Haigh 1993).

Changes to local field boundaries as well as a general lack of control information in Land A necessitated the addition of additional control points. These were transferred directly from earlier editions of the OS 1:2500 sheets (held by the Cambridge University Library) or, as in the case of the old railway that crossed the south-east angle of the assessment field but had been partly removed before the first edition mapping, by joining sections of its surviving embankments. AERIAL computes values for error of control point match between the photograph and map. Despite the inclusion of transferred and projected control points, all rectifications but one prepared for this assessment returned error values of less than $\pm 2.0\text{m}$. The exception was from a 1:20000 1930s print which was used to map former trees in Land B. For this, AERIAL returned a mean error of less than $\pm 2.2\text{m}$ but included a point error of $\pm 4.5\text{m}$ for the control point at TL4960544229. Consequently, the location of the nearby tree (the most northern) may be approximate. Rectified and plotted output was combined with the OS tiles provided to form the basis of the digital plans that accompany this assessment (Figures 1 and 2).

COMMENTARY

Soils

The fields comprising Land A and Land B are situated on chalky drift and chalk deposits with superimposed alluvial spread adjacent to the river (SSEW 1983).

Archaeology: Land A: Figure 1

Land A is now (usually) a single modern field, centred TL500443. The presence of alluvium can be seen on some of the aerial photographs as a irregular-width band of deep (dark toned) soil. Other, less deep, soil pockets are scattered across the field and most of these probably result from periglacial activity. The clearest of these, which include examples caused by collapsed ice mounds (Wilson 1982, fig 92; 1987,6-8), are in the eastern half of the field and have no bearing on the archaeological features identified within the previously cut evaluation trenches (Roberts 1996). However, the same kind of disturbed ground can also be seen closer to the river – perhaps partly masked by alluvium – where archaeological ditches have been cut through deeper pockets of soil and higher, more chalky, ground. This uneven ground base is typical of periglacial action in this region and should have been present in the evaluation trenches cut in 1995. Possibly the ‘chalk platform’ identified (Judith Roberts, pers comm: 9 January 1996) is part of this natural surface.

This kind of periglacial activity can leave sharp- and straight-edged features that cause crop marks that are recorded on aerial photographs (these are clearest on those taken in April 1974). A different kind of periglacial activity is present in the east and south-east part of Land A. In that area, and in fields to the south and east, are ‘stripes’ resulting from the action of ice (Wilson 1982, fig 94; Harris 1990, 121-124). Some photographs show that the stripes abut, and perhaps slightly fuse with, the mapped deeper soil pockets. These two adjacent types of periglacial activity may be a reflection of different underlying soil types or other topographical characteristics which may become apparent during field investigation.

Other soil pockets have been mapped closer to the river. Many of these have similar angularity to the natural features but show as much darker-toned marks on the photographs. This darkness may be due to alluvial fill or to a higher percentage of organic fill. Some of these features are small rectangular cuts, most likely identifying the locations of ‘recent’ hand-cut quarries. One group of these lies within, or adjacent to, the small rectilinear ditched enclosure at TL49864430. It is possible that these features may be graves, although that is considered to be a less likely explanation (their alignment is north-south) than former quarries. Another group, sometimes photographed with a light-toned surround, is at TL49744434 within a more extensive area of deep soil. These may be former hand-dug quarries although their closeness to the river is uncharacteristic of such features.

Archaeological features mapped from the aerial photographs include two enclosures. Both are ditch-defined and rectilinear in form. The larger, centred at TL49874439, is clearly associated with a linear ditch running (roughly) east to west. This linear ditch cannot convincingly be traced beyond the limits shown in Figure 1 due to masking by modern boundaries or uninformative crops although verticals taken in 1981 hint at its continuation across the field to the east. A smaller enclosure lies some 50m to the south (TL49864430). There are no identifiable links, ditched or otherwise, between the two enclosures and they do not appear to be located within a larger ‘compound’.

East and west of these enclosures are what are assumed to be headlands of medieval fields. The headland on the east has been shown in Figure 1 as a stippled band although it shows on the

photographs as a pair of parallel ditches. This form is unusual for headlands and, while it may have initially been one, it later became a road (identification from OS maps: Roberts 1996, 8). Most probably the side ditches were associated with the construction and definition of this phase of its use. A second possible headland has been recorded to the west as a broader band of dark soil, or possibly as two parallel bands of soil. The width of these makes them somewhat suspect as cut medieval features and they may have been widened more recently, and may link with the river. Any actual junction between feature and river is either masked by alluvium or lies beyond the edge of the photographs. The presence of possible headlands crossing the assessment field serves to remind that medieval farming probably once extended across the area in ridge and furrow form. None of this remains visible on any of the aerial photographs examined.

The linear feature which extends south (at TL49834425) from a broad band of dark soil appears to be a former ditch. The fact that it closely parallels the river suggests that it may remain from a boundary or water controlling structure. A feature of similar appearance crosses Land A in an approximately perpendicular direction from the river. This was noticed on 1969 verticals and is just visible at the edge of one of the 1974 oblique prints. It is of uncertain origin and may indicate an archaeological ditch or the remains of a former boundary.

Near the south-west corner of Land A, at TL49944409, is a small linear spread, almost of dumb-bell shape, of dark soil. This may show the location of former trees although they were not visible on the 1930s prints.

All informative oblique photographs of Land A were targeted on the obvious enclosures noted above. None of those prints show the field much south of northing TL442 and verticals offer only minimal information in that southern part. This cut-off point is indicated in Figure 1.





Land B: Figure 2

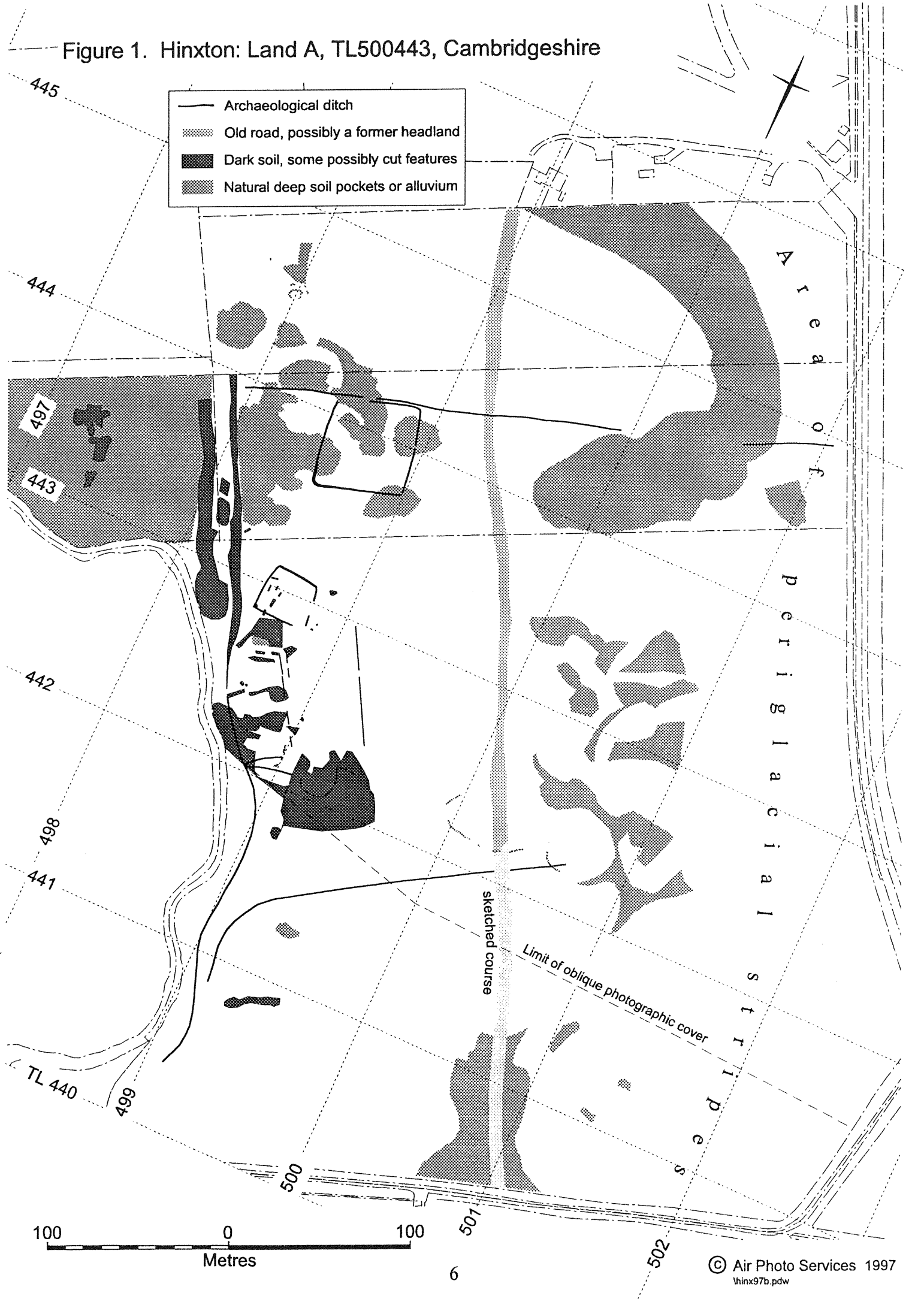
Land B comprises two modern fields separated by a track. An approximate centre for the fields is TL497441. Photographs of both fields are all verticals but for one set of obliques taken in 1976 at a time when crops in the fields were reacting to different depths of soil.

The northern and larger field shows evidence of former boundaries which indicate that before the earliest date of photography it was managed as at least three smaller units although its riverside location suggests that all older use was likely to have been as pasture. The 1930s photographs show this field to have then been grass with a scatter of trees. Other than the evidence for former boundaries, later photographs show only deep soil, most probably alluvium, within which small light-toned patches identify locally higher ground.

The smaller southern field shows a riverside band of alluvium within which stood two trees in the 1930s. Higher ground, being part of an island extending into the north field, contains crop-marked features which probably indicate archaeological ditches. These tend to form three sides of a rectangular feature within which is an arc of ditch. Both are cut by the railway.

Figure 1. Hinxton: Land A, TL500443, Cambridgeshire

-  Archaeological ditch
-  Old road, possibly a former headland
-  Dark soil, some possibly cut features
-  Natural deep soil pockets or alluvium



100 0 100
Metres

Figure 2. Hinxtton: Land B, TL497441, Cambridgeshire



Land use: Figure 3

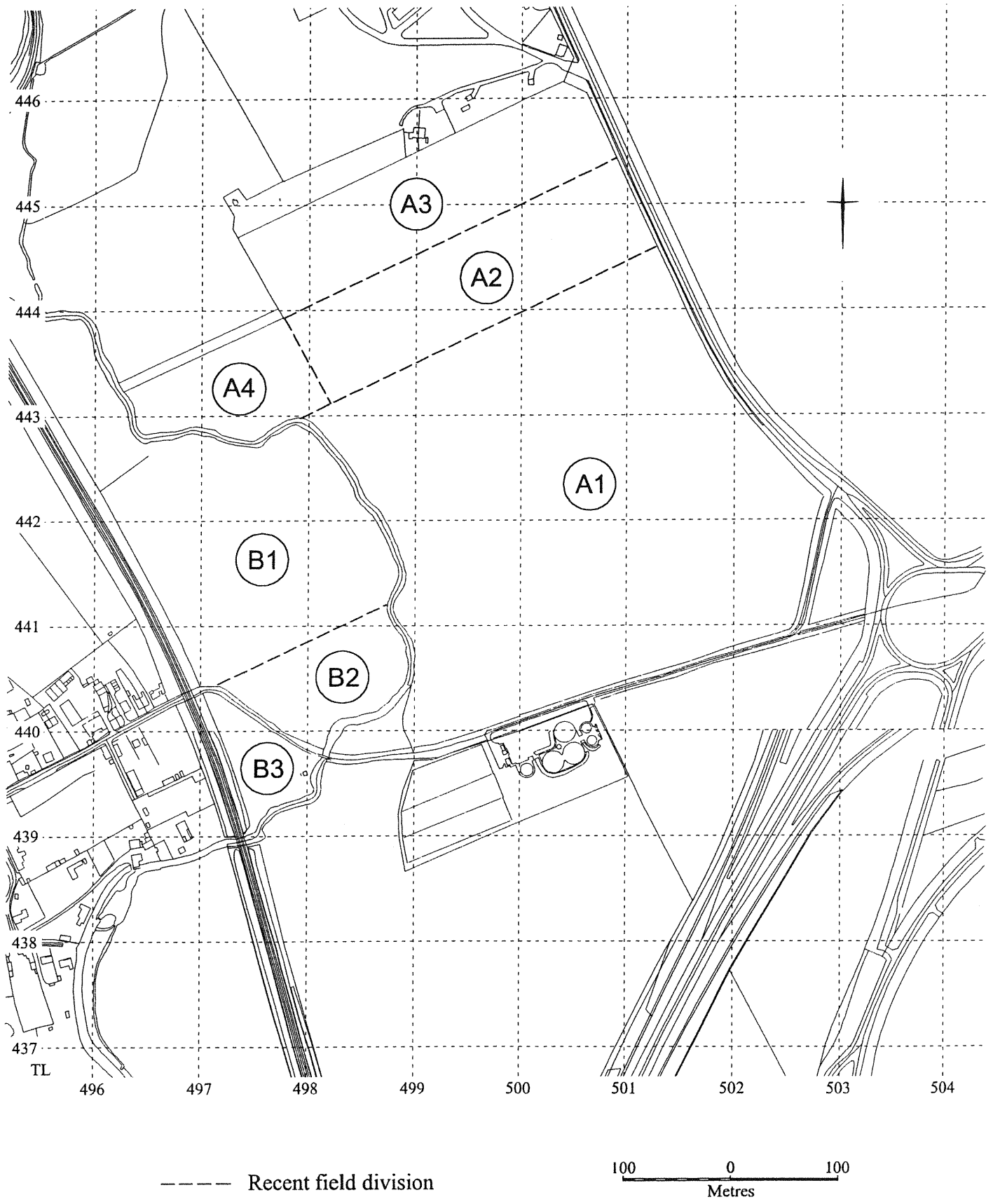
In the years since 1946 there have been changes in the land division within the assessment area. The former division as seven individually managed fields (A1-4 and B1-3) was merged into larger units whose boundaries were dictated by roads, the railway, and the river Cam. However, these larger units did not remain constant, and subsequent management sometimes sub-divided the large areas according to the previous boundaries.

Land use data, together with the dates of photography, may provide an indication of the reliability of the information recorded in each field, although the acquisition of informative photographs is also dependant on many other variable factors. In general terms natural and archaeological features are not likely to be recorded in pasture whereas arable may show crop-marked responses over levelled ditches during summer months. The following table, used in conjunction with Figure 3, shows the land use at the dates of photography.

	<i>A1</i>	<i>A2</i>	<i>A3</i>	<i>A4</i>	<i>B1</i>	<i>B2</i>	<i>B3</i>
<i>1930s</i>	arable	?arable	pasture	pasture	pasture	pasture	pasture
<i>1946</i>	arable	pasture	pasture	pasture	arable	arable	pasture
<i>1947</i>	arable	pasture	pasture	pasture	pasture	pasture	pasture
<i>1948</i>	arable	pasture	pasture	pasture	?arable	arable	pasture
<i>1949</i>	arable	arable	arable	pasture	arable	arable	pasture
<i>1950</i>	pasture	pasture	pasture	pasture	arable	arable	pasture
<i>1951</i>	pasture	pasture	pasture	pasture	arable	arable	arable
<i>1952</i>	pasture	pasture	pasture	pasture	arable	arable	arable
<i>1956</i>	arable	?arable	?arable	pasture	arable	arable	arable
<i>1960</i>	arable	arable	arable	pasture	arable	not seen	not seen
<i>1962</i>	arable	arable	?pasture	pasture	arable	arable	arable
<i>1968</i>	arable				arable		arable
<i>1969</i>	arable				arable		arable
<i>1974</i>	arable				arable	not seen	not seen
<i>1980</i>	arable				arable		arable
<i>1981</i>	arable	arable		arable	arable		arable
<i>1987</i>	arable	arable			arable		arable
<i>1988</i>	arable			arable	arable		arable

Note: The pasture fields A2 and A3 appear to be managed (improved) grass while, before 1968, that in field A4 appears rough and unimproved.

Figure 3. Hinxton: Key map to former land use



REFERENCES

- Haigh, J.G.B., 1993. A new issue of AERIAL – Version 4.20. *AARGnews* 7, 22-25.
- Harris, C., 1990. Periglacial landforms, in Stevens, N (ed), *Natural Landscapes of Britain from the Air*. Cambridge.
- Palmer, R., 1993. *Bourn Bridge (TL5149), Babraham, Cambridgeshire, aerial photographic assessment, Air Photo Services Report R40*. (For Cambridge Archaeological Unit.)
- Palmer, R., 1996. *Hinxton: field centred TL500443: Cambridgeshire, aerial photographic assessment, Air Photo Services Report R84*. (For Cambridgeshire Archaeological Field Unit.)
- Palmer, R. and Cox, C., 1993. *Uses of aerial photography in archaeological evaluations. IFA Technical Paper 12*.
- Roberts, J., 1996. *Archaeology and alluvium along the Hinxton Hall to Great Chesterford new main, CCC Archaeological Report No A81*.
- SSEW, 1983. *Soils of England and Wales: sheet 4: Eastern England (1:250,000)*. Soil Survey of England and Wales, Harpenden.
- Wilson, D.R., 1982. *Air Photo Interpretation for Archaeologists*. London.
- Wilson, D.R., 1987. Reading the palimpsest: landscape studies and air-photography, *Landscape History* 9, 5-26.

APPENDIX

Aerial photographs examined

Source: Cambridge University Collection of Aerial Photographs

Oblique photographs

ABM 34-36	27 June 1960
70H-Q 60-61	26 April 1974

Vertical photographs

RC8-DY 120-122	23 September 1981	1:10000
RC8-DY 129-131	23 September 1981	1:10000
RC8-DY 168-170	29 September 1981	1:10000
RC8-DY 177-179	29 September 1981	1:10000
RC8-JN 171-173	1 July 1987	1:10000
RC8-JO 27-29	2 July 1987	1:10000
RC8-JO 73-74	2 July 1987	1:10000
RC8-JQ 137-139	20 August 1987	1:10000
RC8-KnBL 92, 142	14 June 1988	1:10000

Source: Cambridgeshire Record Office

Vertical photographs

106G/UK/1635: 5402-5405	9 July 1946	1:10000
Fairey: 202525-202527	post-harvest 1949	1:6000
F21.82/RAF/1428: 0051-2	23 May 1956	1:10000
BKS: Run 20: 565726-8	post-harvest 1962	1:10000
MAL/52/69: 181-182	4 June 1969	1:10000

Source: National Library of Air Photographs

Specialist collection

TL4944/2/336-339	11 July 1976	
TL5044/1-3	undated ?1930s	1:20000

Vertical collection

CPE/UK/1917: 3042-3044	9 January 1947	1:9840
58/55: 5264-5266	9 June 1948	1:7700
58/55: 5289-5292	9 June 1948	1:7700
58/314: 5163-5164	21 August 1949	1:8000
58/314: 5247-5249	21 August 1949	1:8000
58/574: 5344-5346	3 October 1950	1:8040
58/796: 5115-5116	9 October 1951	1:8000
58/796: 5123-5125	9 October 1951	1:8000
OS/52R57: 8-11	7 September 1952	1:8000
OS/52R61: 5-8	16 October 1952	1:8000
F21.58/2041: 124-125	3 October 1956	1:10000
F22.58/2041: 123-125	3 October 1956	1:10000
MAL/68038: 17-19	2 June 1968	1:11000
MAL/69030: 53-55	5 April 1969	1:12000
MAL/69069: 100-101	22 July 1969	1:10500
MAL/80040: 263	16 December 1980	1:12000
MAL/80040: 270	16 December 1980	1:12000

Most informative photographs

Land A: CUCAP: 70H-Q60-61

Land B: NLAP: TL4944/2/335-337



Cambridgeshire
County Council

Archaeology

The Archaeological Field Unit
Fulbourn Community Centre
Haggis Gap
Fulbourn
Cambridge CB1 5HD
Tel (01223) 881614
Fax (01223) 880946