

**MOORFIELD ROAD, DUXFORD,  
CAMBRIDGESHIRE**

**ARCHAEOLOGICAL TRIAL  
TRENCH EVALUATION**

**JULY 2012**



**PRE-CONSTRUCT ARCHAEOLOGY  
R11272**

**ARCHAEOLOGICAL EVALUATION AT MOORFIELD ROAD,  
DUXFORD, CAMBRIDGESHIRE**

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**Planning Reference:**

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## **ABSTRACT**

*This document details the results of an archaeological trial trench evaluation at land east of Moorfield Road, Duxford, Cambridgeshire. The work was commissioned by Welch's Group Holdings Limited & Wrenbridge (Moorfield Road) Ltd to assess the archaeological implications of development of land at the site.*

*The work was undertaken from the 12<sup>th</sup> July to the 19<sup>th</sup> July 2012 and comprised twelve archaeological evaluation trenches totalling 540m.*

*A small settlement dateable to the first century AD was present within the south-western corner of the development area. These remains are of likely local archaeological significance.*

*Modern or undated features were present towards the south eastern boundary of the site but these proved to be either naturally formed drainage channels with a modern boundary ditch and are not considered to be of particularly high archaeological significance.*

## **1 INTRODUCTION**

- 1.1 This document details the results of an archaeological trial trench evaluation at land east of Moorfield Road, south of the A505, Duxford, Cambridgeshire.
- 1.2 The site is located at Moorfield Road, Duxford, Cambridgeshire. The site covers an area of 3.85ha (Fig. 1).
- 1.3 The work was commissioned by Welch's Group Holdings Limited & Wrenbridge (Moorfield Road) Ltd to assess the archaeological implications of development of land at the site.
- 1.4 A Written Scheme of Investigation (WSI) was prepared by Mark Hinman (PCA) in response to a Design Brief prepared by Andy Thomas of the Historic Environment Team (HET) of Cambridgeshire County Council (Thomas, A. July 2012).
- 1.5 A programme of non-intrusive survey was conducted prior to the evaluations; comprising aerial photography (Palmer, Appendix 4) and geophysical survey (Masters, Appendix 5).
- 1.6 The local terrain slopes gently from 31.80m AOD in the north-eastern corner of the site to around 24.40m AOD towards the south and west.
- 1.7 The northeast of the site is underlain by sands and gravels, silts and clays of the Lowestoft Formation. Alluvium and River Terrace deposits may encroach onto the east of the site. The rest of the site is underlain by the Holywell Nodular Chalk formation.
- 1.8 The work was carried out between the 12th and 19<sup>th</sup> July 2012 and comprised the excavation and recording of no. 12 x 2m wide archaeological evaluation trenches. In total 540m of trenching was excavated.

## **2 ARCHAEOLOGICAL BACKGROUND**

- 2.1 The site lies towards the north of the village of Duxford and within 40m of the River Cam (Granta) and therefore some potential was thought to exist for the recovery of data relating to prehistoric activity as well as the development of the Saxon, Medieval and Post medieval settlement.
- 2.2 Archaeological remains are known in close vicinity of the proposed development site.
- 2.3 Prehistoric finds have been found in the area and these comprise of lithic remains dating from the Early Mesolithic to Late Bronze Age, which were recovered from fieldwalking of the southern field of Hinxtan Quarry site (HER 10875), a Bronze Age spearhead in Duxford (HER 04093), a Bronze Age inhumation accompanied by a beaker were found by men working a gravel pit close to Whittlesford station (HER 04105).
- 2.4 Further significant remains of prehistoric, Romano-British and early Saxon date were excavated 1 km south of the subject site on land off Hinxtan Road (Lyons *et al* 2011). The Iron Age remains included human and animal burials, a shrine and numerous pits containing selected and placed items and continued in use as a burial ground into the Roman period. In the early part of the Saxon era the site was occupied by a small farmstead and later came under the ownership of the Church of St Peter.
- 2.5 Other Roman finds consist of an iron shackle (HER 04224), metal working finds (HER 04225), a small quantity of Romano-British pottery and animal bones were found during fieldwalking the line of the Hinxtan to Pampisford water pipe. A Roman settlement was excavated in 1991 to the south-east of the evaluation site where a series of enclosures and a ring ditch were uncovered (HER 08822). Immediately to the north of this site, a Roman farmstead and corn

drying kiln were excavated during trial trenching in advance of gravel extraction (HER 09738).

- 2.6 To the east of Duxford airfield and to the west of the site, excavations revealed an extensive Roman-British field system and possible settlement site (HER 09741).
- 2.7 To the south-west of the site immediately to the south of the Volvo premises is a medieval moated site known as Coldham's Moat, Duxford (HER 01007). At the north end of the village is the earthwork remains of Duxford Moated site called Lacey's Manor (HER 01263). The moat is situated in a grass field to the east of the main road at the north end of the village and Duxford Mill. It is rectangular in shape and is surrounded by a shallow wet moat. This is the site of the medieval manor which passed into the hands of Sir Henry Lacy in the 1270's and remained in their possession until 1350. Little is known of its later history.
- 2.8 A further moated site is located to the south-east of St Peter's Church, Duxford. It is a square shaped moat situated on low ground beside the River Cam and is classified as a Scheduled Ancient Monument (Mon. No. 111). The enclosure formerly measured about 60m square with arms 18m wide and 1.6m deep, which fed from the river from the north-east corner. This is the site of Bustlers Manor held by Hardwin de Scalers in 1086, which passed to the Le Goyz family in the 12th century and is likely to have constructed the moat. The manor was sold by 1327 to Sir William le Busteler and soon after became known as Busteler's manor.
- 2.9 Two earthwork remains of medieval fish ponds (HER 10840) are situated a short distance to the north-west of Bustler's manor and it is suggested may be the remains of d'Abernons manor.

- 2.10 To the north-east of the site lies the chapel of the Hospital of St John. The hospital of St John was founded by William de Colville around 1200AD. By 1337 this had closed and the building became a free chapel and later a barn. The small rectangular chapel (Grade II\* listed building and SAM 24432) was rebuilt in the first half of the 14th century. The chapel is a single storey building, measuring approx. 20m east-west and 6.5m north-south, which comprises a chancel and nave.
- 2.11 Immediately to the south of St John's church is College farmhouse and attached barn (HER 04129) and is the property of Causis College, Cambridge and have both have listed status. Close by is the Grade II\* listed timber framed building of the Red Lion Hotel, which dates from 1500 (HER 04131).
- 2.12 Post-Medieval remains of a brick kiln existed in Whittlesford village, which was cleared away in 1870 based on the Inclosure map of 1812. The site of Coldham's Moat, of probable 17th century date, is located to the south west (HER 01007). Archaeological investigations to the immediate north of this feature identified a post medieval garden feature and ditches of Roman date (HER ECB1021).
- 2.13 The results of Air Photo Survey (Palmer, this report) showed that the development area comprises two fields in which land use has been similar on all dates of photography: the west field has been in arable use, the east field grass with woodland. In the 1940s both fields extended north to Station Road West and Moorfield Road on the west ran straight along a course now marked by the west edge of the Development area. The western field had houses and gardens occupying its northern part. When the A505 was constructed it cut the original two fields close to the boundary of the west field gardens leaving the southern part as the present Development Area. Curves were introduced to Moorfield Road so that it would form a staggered junction at the A505.



### **3 ARCHAEOLOGICAL METHODOLOGY**

- 3.1 A total of 12 trenches were laid out in accordance with a Brief for Archaeological Evaluation produced by Andy Thomas of the Cambridgeshire County Council (CCC) Historic Environment Team (HET) following the trench location plan in the Written Scheme of Investigation produced by PCA (Hinman 2012 – see Figure 2). The trench layout was altered in the field, reducing the length of trenches to 540m in total. This was due to the presence of overhead cables which restricted the excavation of sections of Trenches 10 and 11. The site was CAT scanned prior to excavation.
- 3.2 The ground reduction was carried out under archaeological supervision using a 360 excavator fitted with a toothless ditching bucket. Topsoil and subsoil deposits were removed in spits down to the level of the clean natural where potential archaeological features could be observed and recorded.
- 3.3 OD heights and trench locations were recorded using a Leica 1200 GPS rover unit.

## 4 ARCHAEOLOGICAL SEQUENCE

### Trench 1

- 4.1 Trench 1 was 30m long and aligned northwest/southeast. The natural chalk and brown sandy clay was 0.6m below ground level at 24.23 MOD. This was overlain by a 0.32m thick subsoil and 0.28m thick, dark brown topsoil.
- 4.2 Four archaeological features were identified within this trench. A large slightly curvilinear ditch aligned northwest to southeast measuring 1.9m wide and 0.72m deep, contained three fills. Two slots were excavated [34]/[54], comprising identical fill sequences. Upper fill (35)/(55) comprised a mid-grey firm clay with occasional medium stone inclusions. The middle fill (59)/(56) comprised a dark grey clay, while basal fill (62) consisted of a light grey clay. Nine sherds of Late Iron Age/early Roman pottery were recovered from the two slots excavated through this feature; all but one sherd from (55). A small assemblage of burnt clay was also recovered from this feature.
- 4.3 A north-south aligned ditch [32], measuring 15m wide and 0.27m deep was located to the west of the large ditch. The ditch contained a single fill (33); a firm, mid grey sandy clay. Two sherds of Late Iron Age/early Roman pottery were collected, as well as a small quantity of burnt clay.
- 4.4 Ditch [32] was truncated on the south-western edge by a later ditch [60], which was aligned northwest- southeast. It comprised a single dark brown, slightly clay fill (61). One sherd of Late Iron Age/early Roman pottery was recovered along with burnt clay and a fragment of quern stone.
- 4.5 A further ditch [30], aligned north-east south-west was identified and excavated. The ditch measure 2.3m wide and 0.7m deep with three fills. Upper fill (31) was a firm mid-grey sandy clay, with occasional large stone inclusions. 16 sherds of Late Iron Age/early Roman pottery

were collected from this fill. Middle fill (57) was a mid grey sandy clay with frequent small to medium sized stone inclusions. Lower fill (58) consisted of a light mid grey sandy clay.

## **Trench 2**

- 4.6 Trench 2 was aligned northwest-southeast and measured 47.5m in length. The natural chalk and orange-brown sandy clay was encountered at 24.39 MOD. This was overlain by a subsoil layer which measured 0.30m in depth and a 0.31m thick layer of topsoil.
- 4.7 Nine archaeological features were identified, comprising five ditches, all of which were on the same east west alignment, three small pits and a probable tree root bowl.
- 4.8 Cut [36] was a sub-linear feature initially thought to be a linear prior to excavation. When dug however, the feature had irregular sides and base and is indicative of a tree-throw. This feature contained a single fill (37); a loose friable light orangey-brown sand.
- 4.9 Tree-throw [36] was cut by a later ditch [63], aligned east west and measuring 0.6m wide and 0.27m deep. Filled by (64); a mid grey-brown firm sandy clay. Two worked flints were recovered as well as one Late Iron Age/early Roman pottery sherd and a fragment of animal bone.
- 4.10 Ditch [38] on the same alignment as [63] measured 0.9m wide and 0.45m deep which contained a single fill (39); a firm pale grey-brown silty sand. A large assemblage of Late Iron Age/early Roman pottery totalling 108 sherds (667g) was collected.
- 4.11 Ditch [46], aligned east west, measured 0.6m wide and 0.15m deep. It contained a single fill (47) comprising a brown-grey firm silty clay. Four sherds of Late Iron Age/early Roman pottery were recovered along with a small quantity of animal bone.

- 4.12 Ditch [46] a recut of ditch [52], contained a single fill (53). No finds were recovered from this feature.
- 4.13 A final east west aligned ditch [48] was the largest of the ditches, measuring 1.98m wide and 0.91m deep, with four fills. Upper fill (49) was a mid to light brown-grey silty clay. Five sherds of Late Iron Age/early Roman pottery were collected from this fill. Fill (67); a dark grey silty clay, overlay (68), a mid grey silty clay. The basal fill (69) comprised a light grey chalky clay. No further finds were recovered from the ditch.
- 4.14 Three small pits were identified, in close proximity to one another. Pit [40] measured 1m wide and 0.2m deep and contained a firm light grey clayey-silt. No finds were collected. Pit [42] to the south-east of [40] comprised a single fill (43); a firm dark brown silty clay, lacking in any finds. An identical fill (45) was identified in pit [44], immediately to the north-west of pit [42]. This pit contained 21 sherds (148g) of Late Iron Age/early Roman pottery, as well as a small quantity of animal bone and ceramic building material.

### **Trenches 3-10**

- 4.15 Trenches 3-10 contained no archaeological features. The dimensions of these trenches can be found in Appendix 1.

### **Trench 11**

- 4.16 Trench 11 measured 42m in length and was aligned north-west south-east. Due to the presence of overhead power cables, approximately 9m of the trench was unable to be excavated (see Fig 2). Natural chalk and sandy clay was encountered at 24.38 MOD. This was overlain by an orange-brown sandy clay colluvium, varying in depth between 0.4m

and 0.9m, becoming deeper towards the south-east end of the Trench. Topsoil measured 0.2m thick.

- 4.17 A single archaeological feature was encountered in Trench 11. This comprised a small pit [20], with a single fill (21), comprising a firm mid-grey with intermittent patches of dark grey clayey-sand. No finds were present in the fill.

## **Trench 12**

- 4.18 Trench 12 measured 50m long and was aligned west south-west east north-east. Natural chalk and sandy clay was encountered at 23.88 MOD. This was overlain by a 0.34m thick subsoil and 0.26m deep topsoil.
- 4.19 Four features were identified, all of which were aligned north south. Ditch [22] 0.5m wide, was excavated to a depth of 0.80m. Modern glass was recovered from fill (23).
- 4.20 A naturally formed broadly linear drainage gully [24] contained a single fill (25), comprising a dark orange-brown silty clay with concentrations of mineralised iron. No finds were recovered.
- 4.21 A naturally formed broadly linear drainage gully [26] was also excavated. No finds were recovered from the single fill (27); a mid orange-brown sandy clay, with patches of mid grey-brown sandy clay.
- 4.22 Finally, a modern drainage feature [65] at the eastern end of Trench 12, measured 1m wide and 0.2m deep, with steep sides. The fill (66) was a pale grey sandy clay. No finds were collected from this feature.

## 5 THE FINDS

### 5.1 Late Iron Age and Roman Pottery

A fairly sizable assemblage of Late Iron Age/early Roman pottery, totalling 172 sherds and weighing 1325g was recovered from the evaluation. All of the pottery was examined and recorded in accordance with the guidelines laid out by the Study Group for Roman Pottery (Darling 1994).

#### *Assemblage Composition*

The assemblage generally comprised small to medium sized sherds of pottery, although some larger sherd were also recovered. Many of the sherds were noted as being abraded, with surfaces often worn, probably as a result of post-depositional processes. The mean weight of the assemblage was relatively low at 7.7g, which explains why so few diagnostic sherds were recovered. The pottery all dates Late Iron Age/early Roman with a AD0-50 date range given for most of the assemblage.

A limited range of fabrics were identified, all of which comprised coarseware fabrics, with the exception of one possible fineware carinated vessel from context (39). It is likely that most of these vessels were locally made, with sand tempered vessels being the most commonly occurring (95% of the total assemblage). Shell-tempered and grog-tempered sherds were present but in lesser quantities (4% and 1%).

#### Fabric descriptions

G1 – Fine to medium sandy clay matrix with common small, sub-rounded grog

Q1 – Medium sandy clay with occasional poorly sorted sub-rounded quartz grains (up to 1mm)

Q2 – Fine sandy clay, no other inclusions visible

Q3 medium coarse sandy clay with common small quartz inclusions

QC1 – Fine to medium sandy clay matrix with occasional linear calcareous inclusions

Approximately 25% of the assemblage comprised diagnostic sherds, which represented four flagons (mostly body and one handle) and seven jars, including several necked, beaded rim versions.

### *Discussion*

The fabrics and few forms present suggest that the assemblage dates to the Late Iron Age/early Roman period. This is not to say that there is distinct 'Late Iron Age' and 'early Roman' material, but rather that the assemblage dates to the transitional period, with Late Iron Age tradition pottery occurring alongside Romanising wheel-made vessels. A date of AD0-50 is appropriate for much of the assemblage, as even though there are some sherds which might be slightly earlier or slightly later in date, the bulk of the assemblage is within this date range. There is therefore little ceramic evidence to distinguish one feature from another, chronologically, thus suggesting the features in question were likely to have been contemporary with one another.

Context	No.	Wt(g)
31	16	298
33	5	29
37	1	7
39	108	667
45	22	166
47	4	36
49	5	20
51	1	2
55	8	71
56	1	21
61	1	8
<b>TOTAL</b>	<b>172</b>	<b>1325</b>

Table1: All Late Iron Age and early Roman pottery by Context

## 5.2 The animal bones

Kevin Rielly,

### *Introduction*

A concentration of ditches and pits were recovered in the north-western part of the excavation area (Trenches 1 and 2) which has been interpreted as the remains of a settlement dated to the 1st century AD. A total of 17 bones was hand collected from the fills of these features. The bones show a moderate to poor level of preservation, related principally to plant action i.e. root etching. Nevertheless, most of the recovered bones were identifiable to species, no doubt benefitted by the lack of any major fragmentation – most bones were at least 25% complete. The datable artefacts alongside these faunal remains were essentially within the Late Iron Age/Early Roman period and as such, the following description will describe the bones as belonging to a single phase.

Type of deposit	Ditch	Natural hollow	Pit
<b>Species</b>			
Cattle	4		
Equid	1		2
Cattle-size	2		4
Sheep/Goat	2		
Pig		1	
Sheep-size	1		
<b>Grand Total</b>	<b>10</b>	<b>1</b>	<b>6</b>

Table 2: Counts of hand collected animal bone by feature.

### *Description of the faunal assemblage*

Animal bones were found, as previously mentioned, in Trenches 1 and 2, these providing 3 and 14 bones respectively. While most were found within the various ditchfills, there was a single fragment from the natural hollow [36] and a further 6 bones from pit [44], both in Trench 2 (see Table 2). Cattle and cattle-size clearly form the major part of the site



collection, in combination with the other 'large' species, equid, then providing 13 out of 17 bones. It can be assumed that these larger animals may be better represented due to their greater durability concerning the effects of various post depositional taphonomic pressures. Notably a few bones showed dog gnawing, this shown by one sheep/goat and two cattle fragments. The cattle bones feature an axis, 2 mandible fragments and a metatarsus; cattle-size includes a lumbar vertebra; equid a radius and astragalus (both from pit [4] and possibly from the same individual, as well as a tibia; sheep/goat, a humerus and a radius; and pig, a scapula. The cattle and equid bones clearly belonged to adult individuals, with fusion of all late fusing epiphyses including those of the cattle-size vertebra; while the sheep/goat and pig appear to be, at the least, sub-adult. There were relatively few measurements but it is possible to suggest that the cattle, sheep/goat and pig are all from rather small individuals, similar in this respect to the majority of those recovered from Iron Age and Roman deposits in South-East England (comparing for example information from the PCA archive, principally including London sites). In addition the equids represent small ponies, probably not in excess of 11 hands.

### *Conclusions*

The positive attribute of this collection is that it appears to represent the waste from a single relatively well dated phase. This attribute is unfortunately outweighed by the likelihood of a recovery and survival bias favouring the bones of larger animals, as well as the rather small size of the collection. It can be stated that the local inhabitants made use of various domesticate meats and certainly utilised secondary products as wool and dairy products, and probably employed both cattle and equids as work animals. The level of surface damage precludes the survival of butchery cuts and thus it is impossible to gauge whether equids were consumed at this site, although the general evidence, at least from Roman sites in other parts of the country, suggests that hippophagy was rather rare amongst such rural

communities (see for example Holmes and Rielly 1994, 522 and 535 and Rielly in prep).

## **6 AN EVALUATION OF THE CHARRED PLANT MACROFOSSILS AND OTHER REMAINS**

Val Fryer

### *Introduction and method statement*

Evaluation excavations at Duxford, undertaken by Pre-Construct Archaeology (PCA), recorded features forming part of a small, short-lived settlement of probable early Roman (1st century AD) date. Samples for the evaluation of the content and preservation of the plant macrofossil assemblages were taken from pit and ditch fills within trenches 1 and 2, and five were submitted for assessment.

The samples were bulk floated by PCA and the flots were collected in a 300 micron mesh sieve. The dried flots were scanned under a binocular microscope at magnifications up to x 16 and the plant macrofossils and other remains noted are listed in Appendix 7. Nomenclature within the table follows Stace (1997) for the plant macrofossils and Kerney and Cameron (1979) and Macan (1977) for the mollusc shells. All plant remains were charred. Modern roots, seeds and arthropod remains were also recorded along with shells of the burrowing snail *Cecilioides acicula*.

### *Results*

With the exception of sample 5, from a fill within ditch [48], plant macrofossils were exceedingly scarce, comprising occasional very poorly preserved cereal grains and a low density of charcoal/charred wood fragments. In contrast, sample 5, although small (<0.1 litres in volume), contained a moderate density of grains, including specimens of oat (*Avena* sp.), barley (*Hordeum* sp.) and wheat (*Triticum* sp.). Preservation was somewhat variable, with a number of grains being severely puffed and distorted, probably as a result of combustion at

very high temperatures. Seeds of common segetal weeds, including corn gromwell (*Lithospermum arvense*), chickweed (*Stellaria media*) and cornsalad (*Valerianella dentata*), were also recorded along with sedge (*Carex* sp.) and spike-rush (*Eleocharis* sp.) nutlets and seeds of blinks (*Montia fontana*). Charcoal/charred wood fragments and indeterminate inflorescence fragments were also common within the assemblage.

Although specific sieving for molluscan remains was not undertaken, shells of terrestrial and marsh/freshwater species were noted within all five assemblages. Many specimens were extremely well preserved, retaining both delicate surface structures and coloration, and it was considered most likely that these were intrusive within the contexts, being introduced via bioturbation or other forms of soil disturbance. However, a small number of shells, most particularly those of the woodland/shade loving species and the marsh/freshwater species, were abraded and fragmented, probably indicating that they were contemporary with the features from which the samples were taken.

Other remains were scarce, although all assemblages included a small number of black porous and tarry residues, most of which were probably derived from the combustion of organic remains at very high temperatures.

#### *Conclusions and recommendations for further work*

In summary, of the five assemblages studied, that from sample 5 is the most significant as it appears to be derived from a low density deposit of cereal processing and/or storage waste. The inclusion of seeds/fruits of plants commonly found on marginal damp ground is probably significant, as it is a further indication that the introduction of the heavier 'Roman' plough did facilitate an expansion onto soils which had hitherto been inaccessible to agriculture.

Although difficult to interpret as a result of probable modern contamination, the mollusc assemblage from sample 1 (ditch [34/54]) does appear to indicate that this feature was, at some point, wet or seasonally water-filled and possibly partly overgrown. The remaining assemblages contain insufficient material for interpretation, although the few remains recorded could be derived from scattered or wind-dispersed detritus.

If further interventions are planned within this area, it is strongly recommended that additional plant macrofossil samples of approximately 20 – 40 litres in volume are taken from all features associated with the 1st century AD settlement, as these may well provide additional and very valuable data about both early Roman settlement and land utilisation within the south Cambridgeshire region. Of the existing assemblages, that from sample 5 does contain a sufficient density of material for quantification (i.e. 100+ specimens), although this should only be undertaken if corroborative evidence from any additional samples becomes available.

## **7 DISCUSSION**

- 7.1 Archaeological features were identified in Trenches 1, 2, 11 and 12. There were no archaeological deposits identified in Trenches 3 to 10.
- 7.2 Of the remains encountered the features within Trenches 1 and 2 located within the south western corner of the site provided clear evidence for a small, seemingly short lived settlement, dateable to the first century AD.
- 7.3 In the north eastern portion of the development area a small artefactually sterile pit of unknown date was recorded in Trench 11 and a relatively modern boundary ditch was excavated within Trench 12.

From the evidence recovered during the evaluation these features appear to have a relatively low archaeological significance.

- 7.4 No features dateable to the earlier prehistoric periods were noted during the evaluation. The remains recorded and currently being analysed, however, included a scatter of residual lithic material characteristic of both late Mesolithic and earlier Neolithic dates (B Bishop, pers. comm.). The worked flint recovered is consistent with the findings of previous work in the immediate area and accords well with emerging picture of low density, transient occupation and opportunistic exploitation of exposed flint deposits within the Granta, Rhee and Cam valleys.
- 7.5 The discovery of a small settlement of conquest period date (c AD 0-50) within the south western corner of the development area can be considered as locally significant.
- 7.6 The range and variety of the ceramic assemblage is strongly indicative of a dwelling, probably a roundhouse, in the immediate area given the range of table wares recovered. A small animal bone (Faunal) assemblage was also recovered from these same ditches. These remains, which are currently being analysed are in a moderate to good state of preservation and consist primarily of the main domesticates (cow and sheep). Environmental samples were taken during the course of the evaluation and this report will be updated with the results of analysis of this material in due course.
- 7.7 The relative status of the site and its inhabitants compared to other known and contemporary settlement in the vicinity would need to be addressed through excavation.
- 7.8 The River and its immediate environs were clearly important to the inhabitants of the Iron Age and Romano-British periods and the surrounding landscape is populated with a wide range and diversity of

sites of these periods including hill forts, shrines and burial grounds, set within field systems indicative of a richly productive agricultural landscape.

7.9 No features dateable to the earlier Saxon or later periods were noted during the evaluation.

7.10 When considered in the wider context of landscape utilisation and settlement density along the gravel terraces of the Cam valley the lithic material recovered during the evaluation has contributed some slight new evidence to the emerging picture of sporadic, probably seasonal occupation of the area by earlier agricultural communities.

7.11 On the basis of the evaluation results and the results of previous work in the immediate area it is apparent that the remains present will reflect past field systems and rural settlement of Iron Age and Early Romano-British date. The remains present, which are a recognised feature of the archaeology of the Cam Valley and constitute an important part of the broader picture. Those remains, where present, have been impacted upon by later agricultural usage and so have suffered partial truncation by plough damage. On this basis it is suggested that these remains can therefore be characterised as possessing local archaeological significance. Although these remains are an important record of life in Duxford 2000 years ago, they are not so important or well preserved that excavation (sometimes referred to as 'preservation by record') would not be deemed an appropriate approach to investigating the site.

## **8 ACKNOWLEDGEMENTS**

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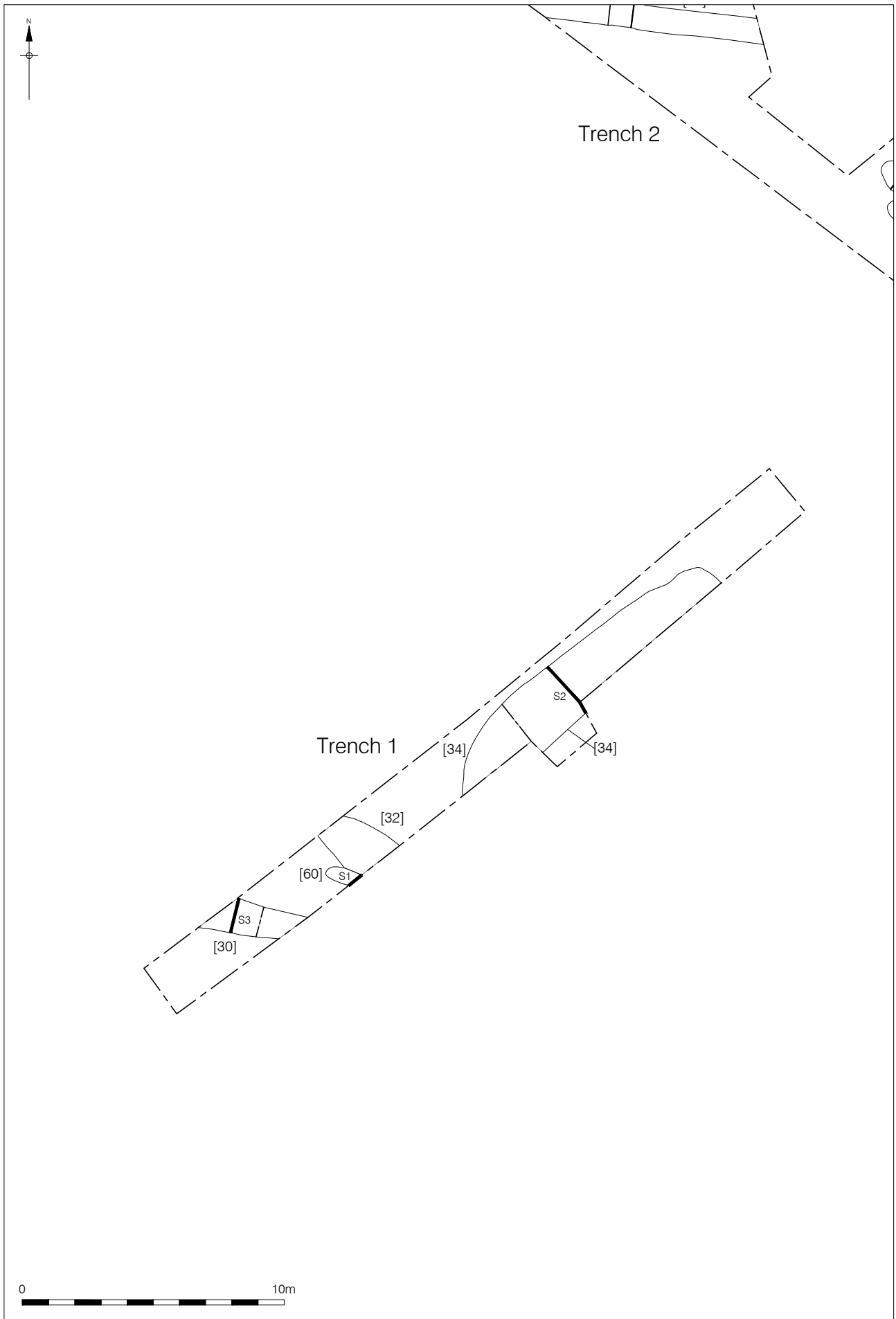
27 July 2012 MR

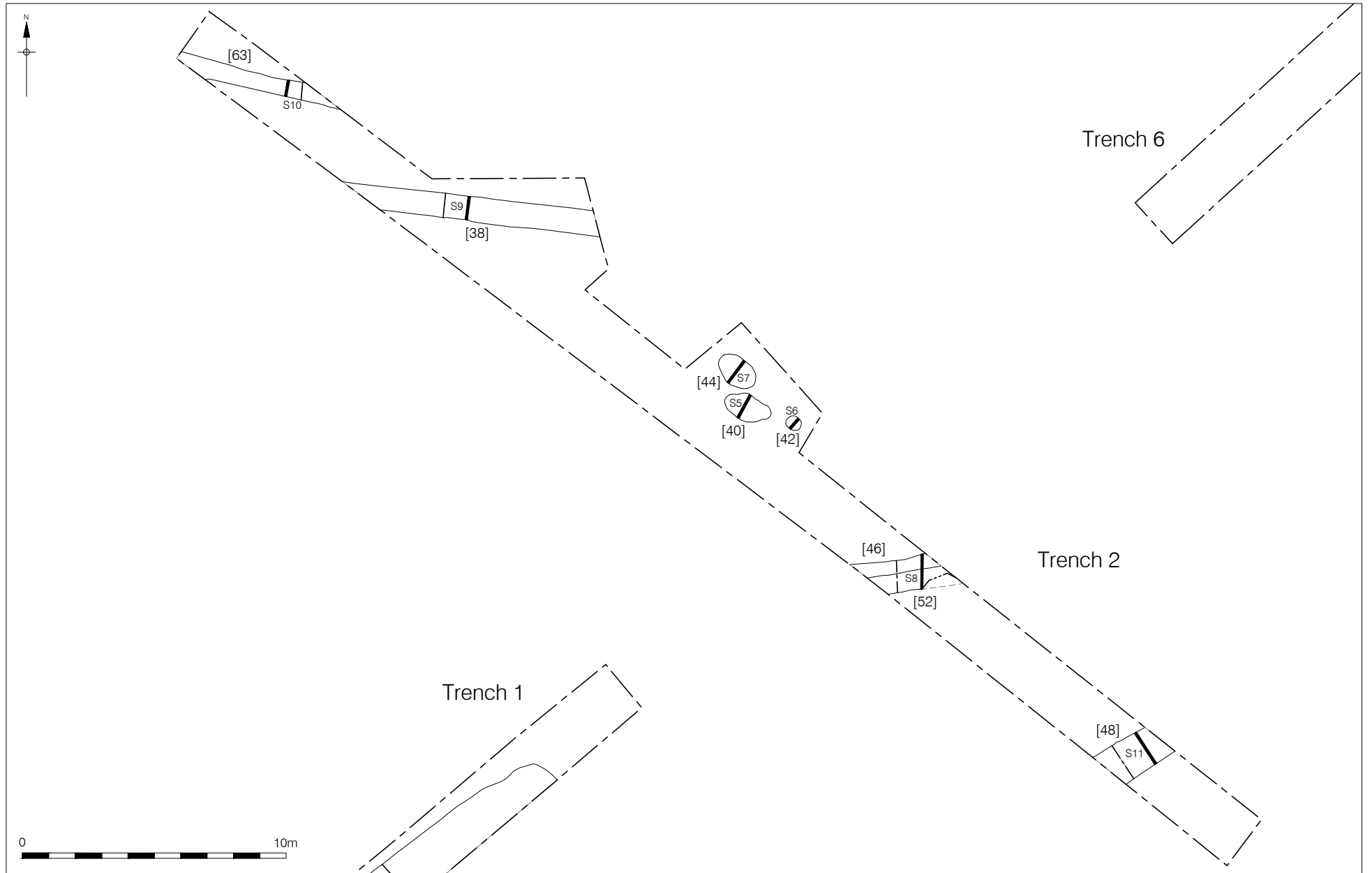
Figure 1  
Site Location  
1:20,000 at A4

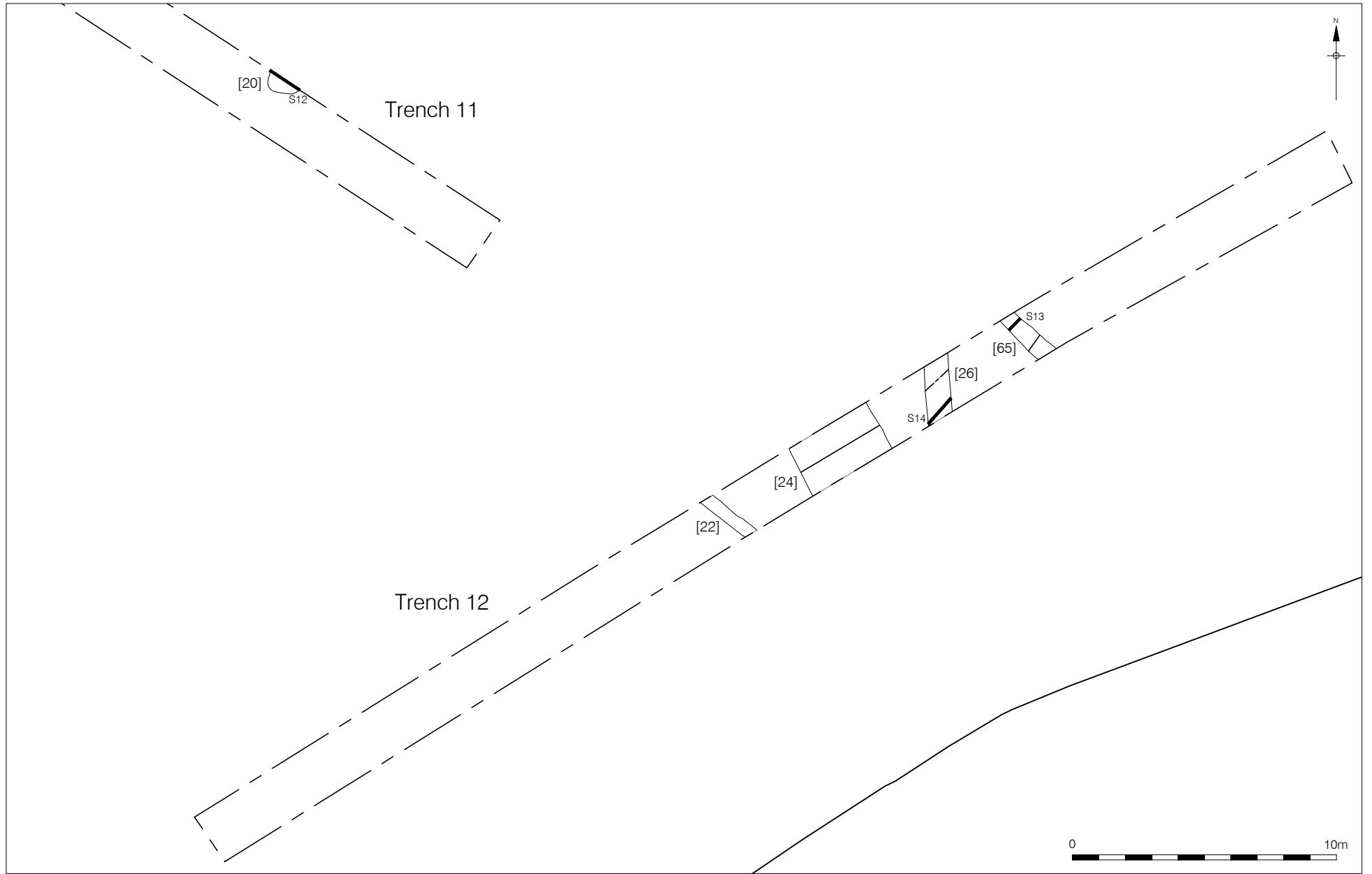


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 27 July 2012 MR

Figure 2  
 Detailed Site and Trench Location  
 1:2'000 at A4







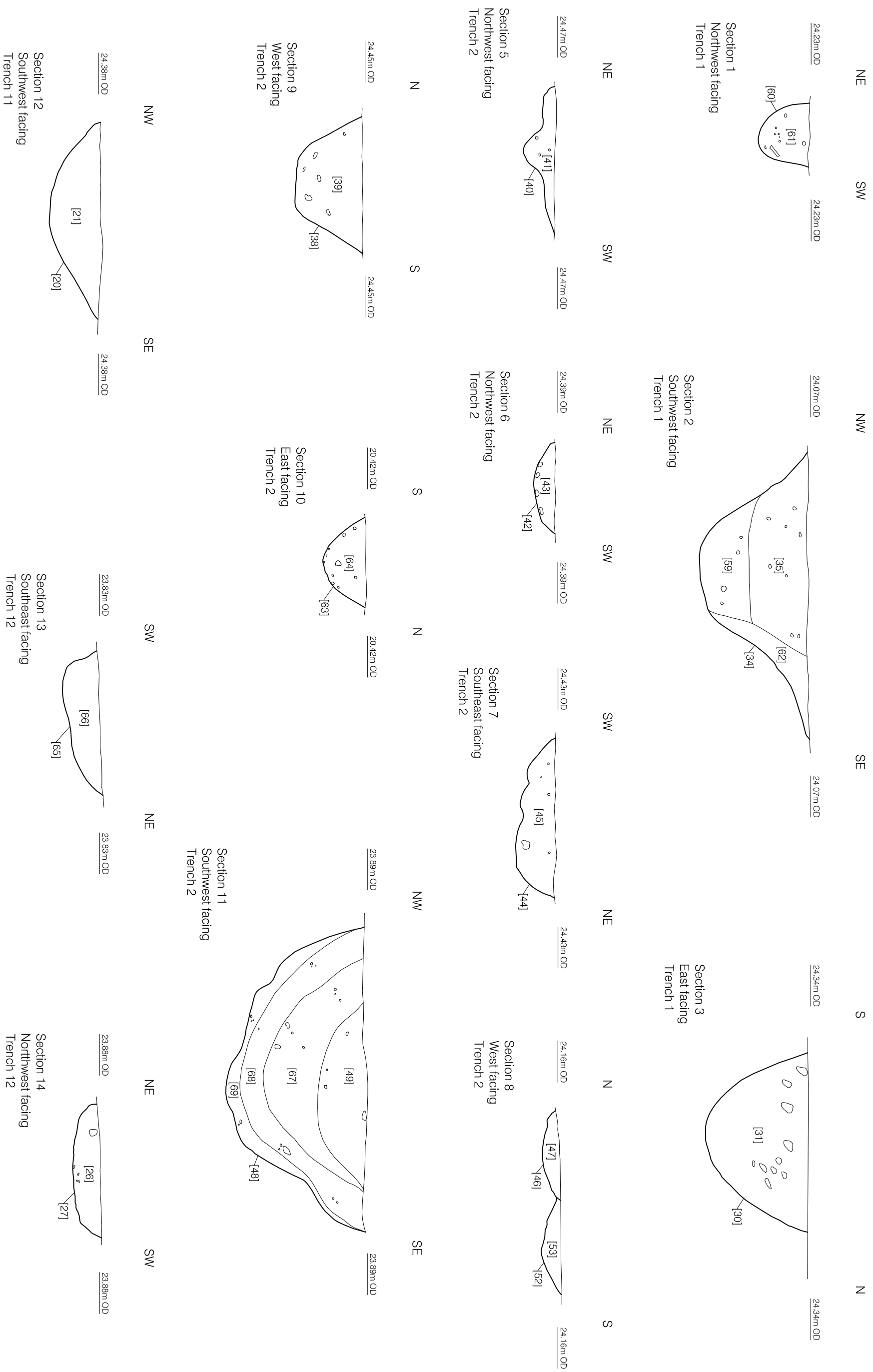


Figure 6  
Sections  
1:25 at A3

**APPENDIX 1: CONTEXT REGISTER**

<b>Context</b>	<b>Cut</b>	<b>Type</b>	<b>Tr.</b>	<b>Comments</b>
1		Trench	1	30m long, NE-SW
2		Trench	2	47.5m long, NW-SE
3		Trench	3	50m long, N-S. No archaeology
4		Trench	4	50m long, EWE-WSW. No archaeology
5		Trench	5	50m long, NE-SW. No archaeology
6		Trench	6	50m long, NE-SW. No archaeology
7		Trench	7	50m long, NW-SE. No archaeology
8		Trench	8	50m long, NE-SW. No archaeology
9		Trench	9	30m long, NE-SW. No archaeology
10		Trench	10	22m long, EWE-WSW. No archaeology
11		Trench	11	42m long, NW-SE
12		Trench	12	50m long. NE-SW
13-19				Not Used
20	20	Cut	11	1.3m diameter, 0.34m deep with a concave base
21	20	Fill	11	Firm, mid grey clayey sand with patches of dark grey clayey sand
22	22	Cut	12	Modern drainage ditch, wide with flat base. N-S
23	22	Fill	12	Modern glass recovered
24	24	Cut	12	Probable linear feature
25	24	Fill	12	Pale orangey brown silty clay
26	26	Cut	12	Linear feature
27	26	Fill	12	Mid orangey brown sandy clay with mid grey-brown patches
28				Not Used
29				Not Used
30	30	Cut	1	Ditch NW-SW. 2.3m wide, 0.7m deep
31	30	Fill	1	Upper fill of ditch. Mid grey sandy clay, firm, with occasional stone inclusions
32	32	Cut	1	Ditch, NE-SW. 1.5m wide and 0.27m deep. Truncated by ditch [60]
33	32	Fill	1	Firm, mid grey sandy clay, with occasional stone inclusions
34	34	Cut	1	Ditch, NW-SW. 1.9m wide, 0.72m deep
35	34	Fill	1	Firm, mid grey clay with occasional stone inclusions
36	36	Cut	2	Natural hollow
37	36	Fill	2	Fill of natural hollow
38	38	Cut	2	Ditch, E-W. 0.9m wide, 0.45m deep.
39	38	Fill	2	Mid firm, pale greyish brown silty sand, with large flint nodules
40	40	Cut	2	Irregular shaped pit, 1m wide and 0.2m deep
41	40	Fill	2	Light grey clayey-silt, with occasional small stone inclusions
42	42	Cut	2	Pit, 0.6m wide, 0.15m deep
43	42	Fill	2	A firm, dark brown silty clay, with occasional stone inclusions

<b>Context</b>	<b>Cut</b>	<b>Type</b>	<b>Tr.</b>	<b>Comments</b>
44	44	Cut	2	Pit, 1.15m wide, with an uneven base and steep sides
45	44	Fill	2	A firm, dark brown silty clay, with occasional stone inclusions
46	46	Cut	2	Ditch, E-W 0.6m wide, 0.15m deep. Aligned parallel with [52]
47	46	Fill	2	Firm, brownish-grey silty clay
48	48	Cut	2	Ditch, N-S, 1.98m wide, 0.98m deep
49	48	Fill	2	Mid to light brown-grey silty clay
50	50	Cut		Not Used
51	50	Fill		Not Used
52	52	Cut	2	Ditch, E-W, parallel with [46]
53	52	Fill	2	Firm, brownish-grey silty clay
54	54	Cut	1	Box section dug through ditch [34]
55	54	Fill	1	Firm, mid grey clay with occasional stone inclusions
56	54	Fill	1	Lower fill of [54]
57	30	Fill	1	Mid grey sandy clay, with frequent medium sized stone inclusions
58	30	Fill	1	Mid/light grey sandy clay, with frequent medium sized stone inclusions
59	34	Fill	1	Dark grey clay
60	60	Cut	1	Ditch cut, truncating [32]
61	60	Fill	1	Dark brown silty clay, with occasional stone inclusions
62	34	Fill	1	Light grey clayey-silt, with occasional small stone inclusions
63	63	Cut	2	Ditch, E-W, 0.6m wide, 0.27m deep
64	63	Fill	2	Mid grey-brown, firm sandy clay
65	65	Cut	12	Linear, NW-SE, 1m wide, 0.2m deep. Near vertical sides and an uneven base
66	65	Fill	12	A pale grey sandy clay
67	48	Fill	2	Dark grey silty clay
68	48	Fill	2	Slight mid-grey silty clay
69	48	Fill	2	Light grey chalky clay



## APPENDIX 2: OASIS FORM

**OASIS ID: preconst1-131001**

### Project details

Project name	An Archaeological Evaluation at Moorfield Road, Duxford, Cambridgeshire
Short description of the project	<p>This document details the results of an archaeological trial trench evaluation at land east of Moorfield Road, Duxford, Cambridgeshire. The work was commissioned by Wrenbridge to assess the archaeological implications of development of land at the site. The work was undertaken from the 12th July to the 19th July 2012 and comprised twelve archaeological evaluation trenches. A series of Late Iron Age/Early Roman ditches were identified, as well as three small pits, which are possibly of the same date. The features are indicative of boundary enclosures within a small, rural settlement.</p>
Project dates	Start: 12-07-2012 End: 19-07-2012
Previous/future work	No / Not known
Type of project	Field evaluation
Site status	Area of Archaeological Importance (AAI)
Current Land use	Cultivated Land 1 - Minimal cultivation
Monument type	DITCHES Late Iron Age
Monument type	PITS Roman
Significant Finds	VESSEL Late Iron Age
Significant Finds	BLADE Uncertain
Methods & techniques	"Aerial Photography - interpretation", "Sample Trenches"
Development type	Rural commercial
Prompt	Direction from Local Planning Authority - PPG16
Position in the planning process	Not known / Not recorded
Project location	
Country	England
Site location	CAMBRIDGESHIRE SOUTH CAMBRIDGESHIRE DUXFORD Moorfield

	Roman, Duxford
Postcode	CB22 4PP
Study area	3.00 Hectares
Site coordinates	TL 4820 4703 52 0 52 06 04 N 000 09 50 E Point
Height OD / Depth	Min: 24.40m Max: 31.80m
Project creators	
Name of Organisation	PCA
Project brief originator	PCA
Project design originator	Mark Hinman
Project director/manager	Mark Hinman
Project supervisor	Jan Janulewicz
Project archives	
Physical Archive recipient	Cambridgeshire County Council Archaeology Store
Physical Contents	"Animal Bones","Ceramics","Environmental","Worked stone/lithics"
Digital Archive recipient	Cambridgeshire County Council Archaeology Store
Digital Contents	"Animal Bones","Ceramics","Worked stone/lithics","other"
Digital Media available	"Database","GIS","Images raster / digital photography","Spreadsheets","Text"
Paper Archive recipient	Cambridgeshire County Council Archaeology Store
Paper Contents	"Animal Bones","Ceramics","Worked stone/lithics","other"
Paper Media available	"Context sheet","Plan","Section"
Project bibliography 1	Grey literature (unpublished document/manuscript)

Publication type

Title An Archaeological Evaluation at Land East of Moorfield Road, Duxford,  
Cambridgeshire

Author(s)/Editor(s) Katie Anderson with Mark Hinman

Date 2012

Issuer or publisher PCA

Place of issue or  
publication Stapleford, Cambridgeshire

Description A4 spiral bound,

Entered by Katie Anderson (kanderson@pca-xconstruct.com)

Entered on 27 July 2012

### APPENDIX 3: FINDS QUANTIFICATION

Site Code	Cut no.	Fill no.	Animal bn	Bn weight	Flint	Daub	CBm/ Tile/ BC	Stone	Other comments
CMRD12	20	21			5				
CMRD12	30	31	1	75g	2		18		
CMRD12	32	33					13		
CMRD12	34	35				1			
CMRD12	36	37	1	12g	2				
CMRD12	38	39	3	19g	6				
CMRD12	44	45	7	99g			14		
CMRD12	46	47	2	21g					
CMRD12	48	49	5	33g			6		BC? or early? Pot
CMRD12	54	55	1	222g			12		
CMRD12	54	56	1	53g			10		
CMRD12	30	57/58					3		
CMRD12	60	61					6	1	Quernstone frag

## **APPENDIX 4: AIR PHOTO REPORT**

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**AIR PHOTO SERVICES**

21 GUNHILD WAY  
CAMBRIDGE  
CB1 8QZ  
PHONE 01223 572063

**WELCH'S TRANSPORT, MOORFIELD ROAD,  
DUXFORD,  
AREA CENTRED TL482470,  
CAMBRIDGESHIRE:**

**AERIAL PHOTOGRAPHIC ASSESSMENT**

**REPORT No: 2012/7**

**JULY 2012**

Commissioned by:

Pre-Construct Archaeology Ltd  
7 Granta Terrace  
Stapleford  
Cambridgeshire  
CB22 5DL

**WELCH'S TRANSPORT, MOORFIELD ROAD, DUXFORD,  
AREA CENTRED TL482470,  
CAMBRIDGESHIRE:  
AERIAL PHOTOGRAPHIC ASSESSMENT**

**SUMMARY**

This assessment of aerial photographs examined an area of some four hectares (centred TL482470) in order to identify and accurately map archaeological, recent and natural features.

No archaeological features were identified within or closely adjacent to the Development Area other than a probable moat to the WSW that was mapped in an earlier assessment of aerial photographs.

An area of activity, probably dating to the Second World War has been identified and indicated.

No original mapping was undertaken but photo interpretation was at 1:2500 level.

**WELCH'S TRANSPORT, MOORFIELD ROAD, DUXFORD,  
AREA CENTRED TL482470,  
CAMBRIDGESHIRE:  
AERIAL PHOTOGRAPHIC ASSESSMENT**

Rog Palmer MA MIFA

INTRODUCTION

This assessment of aerial photographs was commissioned to examine an area of some four hectares (centred TL482470) in order to identify and accurately map archaeological, recent and natural features and thus provide a guide for field evaluation. The level of interpretation and mapping was to be at 1:2500.

ARCHAEOLOGICAL AND NATURAL FEATURES FROM AERIAL PHOTOGRAPHS

In suitable cultivated soils, sub-surface features – including archaeological ditches, banks, pits, walls or foundations – may be recorded from the air in different ways in different seasons. In spring and summer these may show through their effect on crops growing above them. Such indications tend to be at their most visible in ripening cereal crops, 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, which may survive in unploughed grassland, 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.

Grass sometimes shows sub-surface features through the withering of the plants above them. This may occur towards the end of very dry summers and usually indicates the presence of buried walls or foundations. Such dry summers occurred in Britain in 1949, 1959, 1975, 1976, 1984, 1989 and 1990 (Bewley 1994, 25) and more recently in 1995, 1996, 2006, 2010 and 2011. This does not imply that every grass field will reveal its buried remains on these dates as local variations in weather and field management will affect parching. However, it does provide a list of years in which photographs taken from, say, mid July to the end of August may prove informative.

Such effects are not confined only to archaeological features as almost any disturbance of soil and bedrock can produce its own range of shadow, crop and soil differences that may be identified by a photo interpreter. There may, however, remain some features of unknown origin that cannot be classified without specialist knowledge or input from field investigation.



## PHOTO INTERPRETATION AND MAPPING

### *Photographs examined*

The most immediately informative aerial photographs of archaeological subjects tend to be those resulting from observer-directed flights. This activity is usually undertaken by an experienced archaeological observer who will fly at seasons and times of day when optimum results are expected. Oblique photographs, taken using a hand-held camera, are the usual products of such investigation. Although oblique photographs are able to provide a very detailed view, they are biased in providing a record that is mainly of features noticed by the observer, understood, and thought to be of archaeological relevance. To be able to map accurately from these photographs it is necessary that they have been taken from a sufficient height to include surrounding control information.

Vertical photographs cover the whole of Britain and can provide scenes on a series of dates between (usually) 1946-7 and the present. Many of these vertical surveys were not flown at times of year that are best to record the archaeological features sought for this Assessment and may have been taken at inappropriate dates to record crop and soil responses that may be seen above sub-surface features. Vertical photographs are taken by a camera fixed inside an aircraft and with its exposures timed to take a series of overlapping views that can be examined stereoscopically. They are often of relatively small scale and their interpretation requires higher perceptive powers and a more cautious approach than that necessary for examination of obliques. Use of these small-scale images can also lead to errors of location and size when they are rectified or re-scaled to match a larger map scale.

Images in that are viewable in Google Earth comprise, for Britain, a mixture of mosaiced vertical aerial photographs and georectified image tiles from high-resolution satellites. For the purposes of photo interpretation, satellite images of this kind are no different from vertical aerial photographs except that they have a slightly lower degree of resolution. Both are perfectly adequate for recording crop variations and soil differences over many types of levelled archaeological feature and both record the complete landscape rather than those objects noticed by an airborne observer.

Cover searches were obtained from the Cambridge University Collection of Aerial Photographs (CUCAP) and the National Monuments Record: Air Photographs (NMRAP), Swindon. Photographs included those resulting from observer-directed flights and routine vertical surveys. Images current on Google Earth at the time of this work (July 2012) were also examined.

Photographs consulted are listed in the Appendix to this report.

### *Study Area*

Photographs were examined in detail for an area extending one modern field beyond the Development Area.

### ***Photo interpretation and mapping***

Photographs were examined by eye and under slight (2x) magnification, viewing them as stereoscopic pairs when possible.

Images in Google Earth's timeline were viewed at a range of zoomed scales.

Aerial photographs at NMRC, Swindon were examined by Chris Cox (Air Photo Services Ltd) and those at CUCAP and on Google Earth by the author.

No mapping of features has been undertaken for this Assessment.

## COMMENTARY

### ***Soils***

The Soil Survey of England and Wales (SSEW 1983) shows the area to lie on river terrace and chalky drift (soil association 512f: Milton) which is above a larger area of chalky drift and chalk (soil association 511e: SWAFFHAM PRIOR). On some aerial photographs the local chalky drift and chalk shows a mottled appearance that indicates periglacial disturbance and, probably, uneven depths of topsoil. The river terrace and chalky drift is of more uniform appearance and may, therefore, be less likely to indicate the presence of sub-surface archaeological features.

### ***Archaeological features***

No archaeological features were identified within the Development Area, the closest being the probable moat about 200m to the WSW on the west side of Moorfield Road (an earlier AP assessment included this site: Palmer 2004).

### ***Possible Second World War features***

Photographs taken in the 1940s show a series of tracks in the east field that end at a small disturbed area. The tracks have a fresh appearance and may have led to a military feature – perhaps related to Duxford Airfield – although other than some possible huts (identified on the Google Earth '1945' layer) there is no indication of what this may have been. Most of the tracks are north of the modern A505 and the site of the possible huts are now within the small wooded area. By 1948, the possible huts had been removed and the ground appears to have been levelled. The photograph (right) was taken in 1948 and has the approximate route of the A505 superimposed.



An extract from English Heritage (NMR) photograph, RAF/58/55/5353 (9 June 1948).

### *Non-archaeological features*

On the same 1948 photographs in the west field (towards the lower left side of the picture above) is a row of small rectangular features which must be in a cereal crop and may indicate crop trials or test cutting. These do not appear before or after that date and are likely to be associated with farming.

### *Land use*

The Development area comprises two fields in which land use has been similar on all dates of photography: the west field has been in arable use, the east field grass with woodland. In the 1940s both fields extended north to Station Road West and Moorfield Road on the west ran straight along a course now marked by the west edge of the Development area. The western field had houses and gardens occupying its northern part. When the A505 was constructed it cut the original two fields close to the boundary of the west field gardens leaving the southern part as the present Development Area. Curves were introduced to Moorfield Road so that it would form a staggered junction at the A505. The southern and eastern boundaries of the Development Area – the stream and railway respectively – remain unchanged during the dates of photography.

Surrounding fields have been used as pasture (in the 1940s) and later have been in arable use. No archaeological features were identified in those fields.

## REFERENCES

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- Palmer, R., 2004. *Land off Lacey's Way, Duxford, area centred TL47764641, Cambridgeshire: aerial photographic assessment*. Air Photo Services Report 2004/22.
- SSEW, 1983. *Soils of England and Wales: sheet 4: Eastern England (1:250,000)*. Soil Survey of England and Wales, Harpenden.

APPENDIX

*Aerial photographs examined*

*Source: Cambridge University Collection of Aerial Photographs*

Vertical photographs

RC8-CK 125-126	16 November 1977	1:10000
RC8-CK 125-126	16 November 1977	1:10000
RC8-DY 133-134	29 August 1981	1:10000
RC8-DY 182-183	29 August 1981	1:10000
RC8-JO 97-99	2 July 1987	1:10000
RC8-JO 141-142	2 July 1987	1:10000
RC8-knBE 28	12 June 1988	1:10000
RC8-knBL 174	14 June 1988	1:10000

*Source: Google Earth*

Vertical photographs

Geoinformation Group	'1945'
Infoterra & Bluesky	Summer 2000
Geoinformation Group	Summer 2003
Getmapping	Summer 2007
Infoterra & Bluesky	17 October 2008
Getmapping	Summer 2009

Satellite images

DigitalGlobe 14 April 2003
DigitalGlobe 16 October 2003

*Source: National Monuments Record: Air Photographs*

Specialist collection

<i>Photo reference</i>	<i>Film and frame number</i>	<i>Date</i>	<i>NGR</i>
TL 4746 / 3	NMR 2601 / 041	16 APR 1985	TL 478468
TL 4746 / 4	NMR 2601 / 044	16 APR 1985	TL 478468
TL 4746 / 7	NMR 2601 / 042	16 APR 1985	TL 478468
TL 4746 / 8	NMR 2601 / 043	16 APR 1985	TL 478468
TL 4746 / 9	NMR 2601 / 045	16 APR 1985	TL 478468
TL 4746 / 10	NMR 2601 / 046	16 APR 1985	TL 478468

Welch's Transport, Duxford, area centred TL482470, Cambs: Aerial Photographic Assessment

TL 4746 / 11	NMR 2601	/ 047	16 APR 1985	TL 478468
TL 4847 / 1	CCC 11752	/ 1464	Unknown	TL 480470

Vertical collection

<i>Sortie number</i>	<i>Library number</i>	<i>Camera position</i>	<i>Frame number</i>	<i>Centre NGR</i>	<i>Date</i>	<i>Sortie quality</i>	<i>Scale 1:</i>
RAF/106G/UK/1635	423	FS	2409	TL 489 465	09 JUL 1946	AC	10000
RAF/106G/UK/1635	423	FS	2410	TL 483 465	09 JUL 1946	AC	10000
RAF/106G/UK/1635	423	FS	2411	TL 478 465	09 JUL 1946	AC	10000
RAF/106G/UK/1718	463	RS	4124	TL 477 477	06 SEP 1946	AB	9800
RAF/106G/UK/1718	463	RS	4125	TL 485 479	06 SEP 1946	AB	9800
RAF/CPE/UK/1993	612	RS	4084	TL 483 480	13 APR 1947	A	9800
RAF/CPE/UK/1993	612	RS	4085	TL 478 479	13 APR 1947	A	9800
RAF/CPE/UK/2427	776	V	5071	TL 483 473	19 JAN 1948	A	4400
RAF/CPE/UK/2427	776	V	5072	TL 480 473	19 JAN 1948	A	4400
RAF/540/1143	1462	F21	2	TL 491 469	09 JUN 1953	A	10000
RAF/540/1143	1462	F21	3	TL 489 476	09 JUN 1953	A	10000
RAF/540/1143	1462	F21	171	TL 478 478	09 JUN 1953	A	10000
RAF/540/1143	1462	F21	172	TL 478 472	09 JUN 1953	A	10000
RAF/540/1143	1462	F21	173	TL 478 466	09 JUN 1953	A	10000
RAF/82/1428	1743	F22	14	TL 490 465	23 MAY 1956	AC	10000
RAF/82/1428	1743	F22	15	TL 490 471	23 MAY 1956	AC	10000
RAF/58/2041	1750	F21	127	TL 486 462	03 OCT 1956	AB	10000
RAF/58/2041	1750	F21	128	TL 486 470	03 OCT 1956	AB	10000
RAF/58/2041	1750	F21	129	TL 486 477	03 OCT 1956	AB	10000
RAF/58/2041	1750	F22	143	TL 475 479	03 OCT 1956	AB	10000
RAF/58/2041	1750	F22	157	TL 485 466	03 OCT 1956	AB	10000
RAF/58/2041	1750	F22	158	TL 486 473	03 OCT 1956	AB	10000
RAF/58/55	2949	V	5351	TL 475 465	09 JUN 1948	A	7700
RAF/58/55	2949	V	5352	TL 480 465	09 JUN 1948	A	7700
RAF/58/55	2949	V	5353	TL 484 464	09 JUN 1948	A	7700
RAF/58/55	2949	V	5354	TL 488 464	09 JUN 1948	A	7700
RAF/58/118	3014	V	5001	TL 474 467	09 SEP 1948	A	7680
RAF/58/118	3014	V	5002	TL 480 469	09 SEP 1948	A	7680
RAF/58/118	3014	V	5003	TL 487 470	09 SEP 1948	A	7680
RAF/58/314	3092	V	5251	TL 484 461	21 AUG 1949	A	8000
RAF/58/314	3092	V	5324	TL 492 474	21 AUG 1949	A	8000
RAF/58/314	3092	V	5325	TL 487 478	21 AUG 1949	A	8000
RAF/58/796	3525	Vp3	5088	TL 486 468	09 OCT 1951	A	8000
MAL/68038	5152	V	63	TL 478 471	02 JUN 1968	A	11000
MAL/68038	5152	V	64	TL 490 470	02 JUN 1968	A	11000
MAL/69069	5423	V	145	TL 476 473	22 JUL 1969	A	10500
MAL/69069	5423	V	146	TL 486 473	22 JUL 1969	A	10500
MAL/69045	5511	V	6	TL 475 475	13 MAY 1969	A	12000
MAL/69045	5511	V	7	TL 483 481	13 MAY 1969	A	12000

MAL/71019	5771	V	213	TL 479 469	11 APR 1971	A	3000
MAL/71019	5771	V	214	TL 481 470	11 APR 1971	A	3000
OS/52R57	11016	V	14	TL 480 463	07 SEP 1952	A	8000
OS/52R57	11016	V	15	TL 476 468	07 SEP 1952	A	8000
OS/52R57	11016	V	53	TL 476 478	07 SEP 1952	A	8000
OS/52R57	11016	V	54	TL 482 473	07 SEP 1952	A	8000
OS/52R57	11016	V	55	TL 487 469	07 SEP 1952	A	8000
OS/52R57	11016	V	76	TL 489 475	07 SEP 1952	A	8000
OS/74186	12062	V	168	TL 476 472	22 JUL 1974	A	7500
OS/74186	12062	V	169	TL 482 472	22 JUL 1974	A	7500
OS/74186	12062	V	170	TL 488 472	22 JUL 1974	A	7500
OS/95147	14838	V	64	TL 486 468	22 MAY 1995	A	7600
OS/95147	14838	V	65	TL 479 468	22 MAY 1995	A	7600
RAF/58/807	15635	Vp1	5142	TL 474 471	25 OCT 1951	AC	7800
RAF/58/807	15635	Vp1	5143	TL 479 467	25 OCT 1951	AC	7800
RAF/58/807	15635	Vp1	5144	TL 484 463	25 OCT 1951	AC	7800
RAF/58/807	15635	Vp2	5009	TL 485 471	25 OCT 1951	AC	7800
RAF/58/807	15635	Vp2	5010	TL 480 475	25 OCT 1951	AC	7800

***Most informative photographs***

Goggle Earth – Geoinformation 1945  
 RAF/58/55: 5353

## TERMS AND CONDITIONS

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That the original working documents (being interpretation overlays, control information, and digital data files) will remain the property of Air Photo Services and be securely retained by it for a period of three years from the completion date of this assessment after which only the digital files may be retained.

It is requested that a copy of this report be lodged with the relevant Sites and Monuments Record within six months of the completion of the archaeological evaluation.

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## **APPENDIX 5: GEOPHYSICAL SURVEY REPORT**



**GEOPHYSICAL SURVEY OF  
LAND AT DUXFORD,  
CAMBRIDGESHIRE**

TL 4822 4702

Cranfield Forensic Institute Report No. 062

**Peter Masters**

**July 2012**

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FIG. 5: Interpretation of results, scale - 1:1250

## **ABSTRACT**

*A fluxgate gradiometer survey was undertaken on c.4ha of land at Duxford, Cambridgeshire. The work was undertaken in July 2012. The purpose of the survey was to locate the nature and extent of any archaeological remains that may lie within the proposed area of investigation.*

*The survey identified a wide range of magnetic variation, most of which reflects modern ferrous disturbances such as fencing, telegraph poles and ferrous litter (horseshoes, brick, and tile).*

*A series of ephemeral and ill-defined linear and curvilinear were detected, which appear to resemble ditches, although it is more likely that they reflect variations in the underlying geology or soil.*

### **1.0 INTRODUCTION**

A geophysical survey was undertaken on behalf of Pre-Construct Archaeology Ltd on land at Duxford, Cambridgeshire (Fig 1).

The purpose of the survey was to determine the nature and extent of any archaeological deposits that lie within the proposed development area.

The survey methodology described in this report was based upon guidelines set out in the English Heritage document 'Geophysical Survey in Archaeological Field Evaluation' (EH 2008).

### **2.0 LOCATION AND DESCRIPTION**

The information contained within sections 2 and 3 of this report is based on information supplied by Pre-Construct Archaeology Ltd.

The parcel of land at Duxford is situated immediately to the south of the A505 and to the east of and the geophysical survey covers an area approximately 4ha in extent (centred on NGR TL 4822 4702).

The area of investigation covers two fields separated by an existing hedge and is currently under fallow cultivation. Field 1 forms the western half of the survey area and is relatively flat whilst Field 2 forms the eastern half of the area of investigation and gently slopes from the north-east to south-west.

The underlying geology of the site is comprised of Holywell Nodular Chalk Formation across most of the survey area with River Terrace deposits in the north-east corner of the site (Geological Map Data ©NERC 2011). The responses to these types of geologies tend to be variable (EH 2008, 15).

### 3.0 BACKGROUND INFORMATION

Archaeological remains are known in close vicinity of the proposed development site.

Prehistoric finds have been found in the area and these comprise of lithic remains dating from the Early Mesolithic to Late Bronze Age, which were recovered from fieldwalking of the southern field of Hinxton Quarry site (HER 10875), a Bronze Age spearhead in Duxford (HER 04093), a Bronze Age inhumation accompanied by a beaker were found by men working a gravel pit close to Whittlesford station (HER 04105).

Roman finds consist of an iron shackle (HER 04224), metal working finds (HER 04225), a small quantity of Romano-British pottery and animal bones were found during fieldwalking the line of the Hinxton to Pampisford water pipe. A Roman settlement was excavated in 1991 to the south-east of the evaluation site where a series of enclosures and a ring ditch were uncovered (HER 08822). Immediately to the north of this site, a Roman farmstead and corn drying kiln were excavated during trial trenching in advance of gravel extraction (HER 09738).

To the east of Duxford airfield and to the west of the site, excavations revealed an extensive Roman-British field system and possible settlement site (HER 09741).

To the south-west of the site immediately to the south of the Volvo premises is a medieval moated site known as Coldham's Moat, Duxford (HER 01007). At the north end of the village is the earthwork remains of Duxford Moated site called Lacey's Manor (HER 01263). The moat is situated in a grass field to the east of the main road at the north end of the village and Duxford Mill. It is rectangular in shape and is surrounded by a shallow wet moat. This is the site of the medieval manor which passed into the hands of Sir Henry Lacy in the 1270's and remained in their possession until 1350. Little is known of its later history.

A further moated site is located to the south-east of St Peter's Church, Duxford. It is a square shaped moat situated on low ground beside the River Cam and is classified as a Scheduled Ancient Monument (Mon. No. 111). The enclosure formerly measured about 60m square with arms 18m wide and 1.6m deep, which fed from the river from the north-east corner. This is the site of Bustlers Manor held by Hardwin de Scalers in 1086, which passed to the Le Goyz family in the 12<sup>th</sup> century and is likely to have constructed the moat. The manor was sold by 1327 to Sir William le Busteler and soon after became known as Busteler's manor.

Two earthwork remains of medieval fish ponds (HER 10840) are situated a short distance to the north-west of Bustler's manor and it is suggested may be the remains of d'Abernons manor.

To the north-east of the site lies the chapel of the Hospital of St John. The hospital of St John was founded by William de Colville around 1200AD. By 1337 this had closed and the building became a free chapel and later a barn. The small rectangular chapel (Grade II\* listed building and SAM 24432) was rebuilt in the first half of the 1th

century. The chapel is a single storey building, measuring approx. 20m east-west and 6.5m north-south, which comprises a chancel and nave.

Immediately to the south of St John's church is College farmhouse and attached barn (HER 04129) and is the property of Causis College, Cambridge and have both have listed status. Close by is the Grade II\* listed timber framed building of the Red Lion Hotel, which dates from 1500 (HER 04131).

Post-Medieval remains of a brick kiln existed in Whittlesford village, which was cleared away in 1870 based on the Inclosure map of 1812.

## **4.0 METHODOLOGY**

### **Gradiometry**

Gradiometry is a non-intrusive scientific prospecting technique used to determine the presence/absence of some classes of sub-surface archaeological features (eg pits, ditches, kilns, and occasionally stone walls). By scanning the soil surface, geophysicists identify areas of varying magnetic susceptibility and can interpret such variation by presenting data in various graphical formats and identifying images that share morphological affinities with diagnostic archaeological as well as other detectable remains (Clark 1990; Gaffney and Gater 2003).

The use of gradiometry is used to establish the presence/absence of buried magnetic anomalies, which may reflect sub-surface archaeological features.

The area survey was conducted using a Bartington Grad 601 dual fluxgate gradiometer with DL601 data logger set to take 4 readings per metre (a sample interval of 0.25m). The zigzag traverse method of survey was used, with 1m wide traverses across 20m x 20m grids. The sensitivity of the machine was set to detect magnetic variation in the order of 0.1 nanoTesla.

The data was processed using *Archeosurveyor v.2.5.16.0*. The results are plotted as greyscale and trace plot images (Figs. 3 and 4).

The enhanced data was processed by using zero-mean functions to correct the unevenness of the image in order to produce a smoother graphical appearance. It was also processed using an algorithm to remove magnetic spikes, thereby reducing extreme readings caused by stray iron fragments and spurious effects due to the inherent magnetism of soils. The data was also clipped to reduce the distorting effect of extremely high or low readings caused by discrete pieces of ferrous metal.

## **5.0 INTERPRETATION AND ANALYSIS OF RESULTS (Figs. 3, 4, and 5)**

A detailed fluxgate gradiometer survey covering an area of c. 4ha of land on the southern side of the A505, Duxford, Cambridgeshire, revealed no significant archaeological anomalies. The majority appear to reflect modern disturbances or possibly of natural origin.

Generally, a series isolated individual anomalies were detected (Fig. 5, examples circled pink) that reflect areas of modern ferrous litter, which lie just below or on the surface of the ground. A number of these anomalies relate to telegraph poles, post and wire fencing and existing boreholes.

Two large strong dipolar anomalies (Fig 5, 1) resemble signatures typical of industrial activity such as kilns or areas of burning. The magnetic response is, however, more likely to reflect modern ferrous debris such as metal posts or possibly modern farm machinery parts.

A series of ephemeral linear and curvilinear anomalies (Fig 5, green lines) were recorded in the grey scale image. These appear to resemble ditch-like features of unknown origin. However, it is feasible that these are more likely to reflect variations in the natural.

No other significant anomalies of archaeological interest were detected across the entire area of investigation.

## **6.0 CONCLUSIONS**

The survey has identified no significant archaeological anomalies. The majority of the magnetic anomalies present in the resultant images reflect relatively modern disturbances such as a telegraph pole, modern ferrous remains, post and wire fencing along the northern and western field boundaries and derelict farm buildings.

Based on the survey results, it can be concluded that the site possesses limited archaeological potential even though it is in close proximity to known archaeological remains in the surrounding vicinity. Due to the weakly magnetic nature variability of the soils and underlying geology, it is likely that if archaeological remains do exist on this site, they may have been masked by the modern ferrous disturbance or are too weak to be detected by fluxgate gradiometer.

## **7.0 ACKNOWLEDGEMENTS**

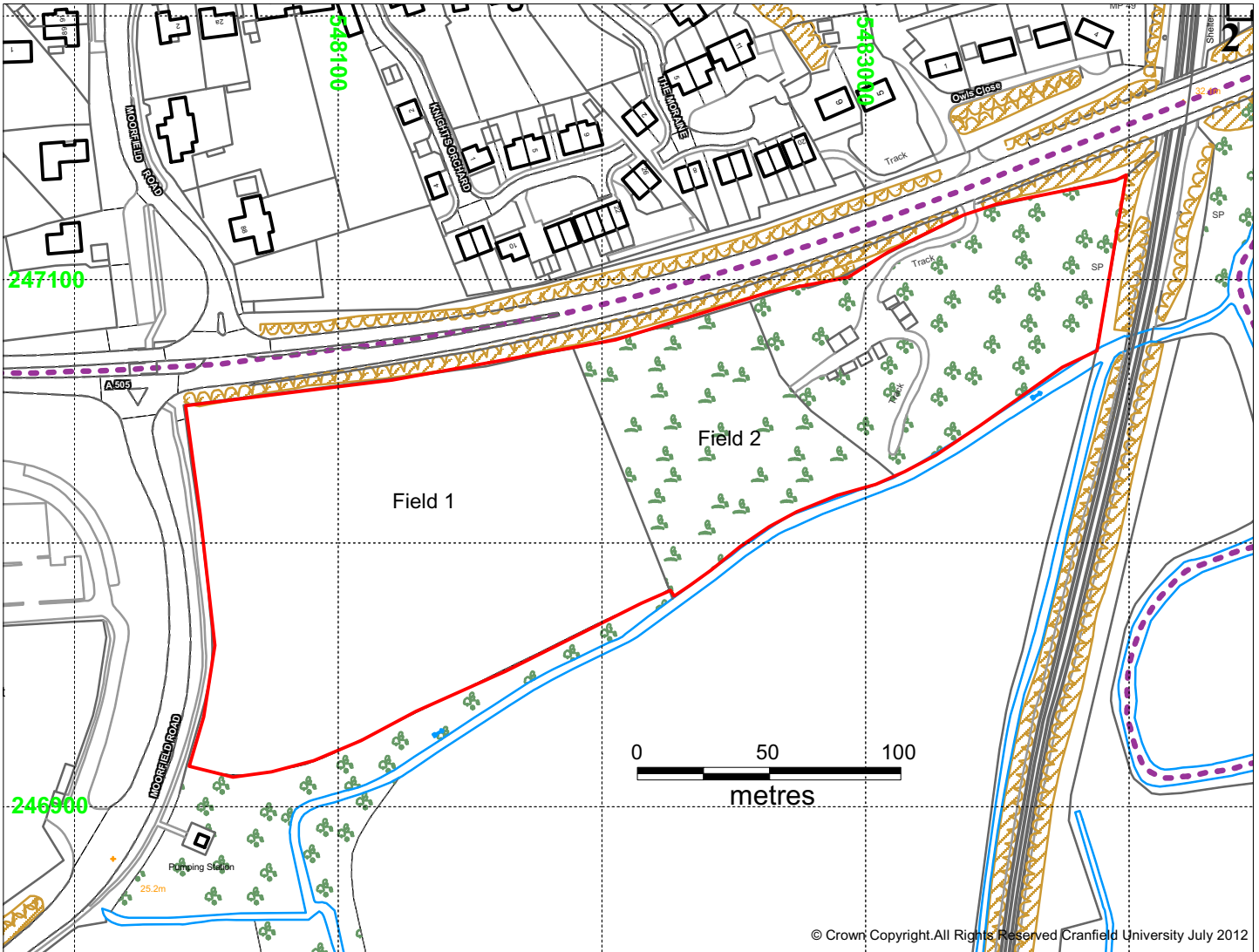
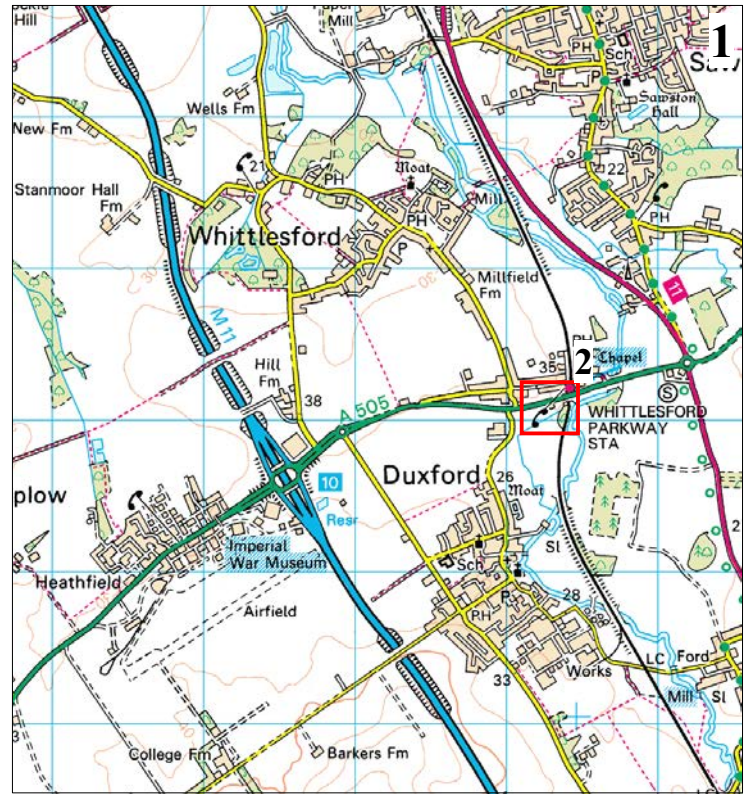
Cranfield University, Centre for Archaeological and Forensic Analysis would like to thank Mark Hinman, Pre-Construct Archaeology Ltd for this commission.

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Clark, A. J. 1990 *Seeing Beneath the Soil* London, Batsford

E.H. 2008 *Geophysical Survey in Archaeological Field Evaluation*. London, English Heritage: Research & Professional Guidelines No.1. 2<sup>nd</sup> Edition

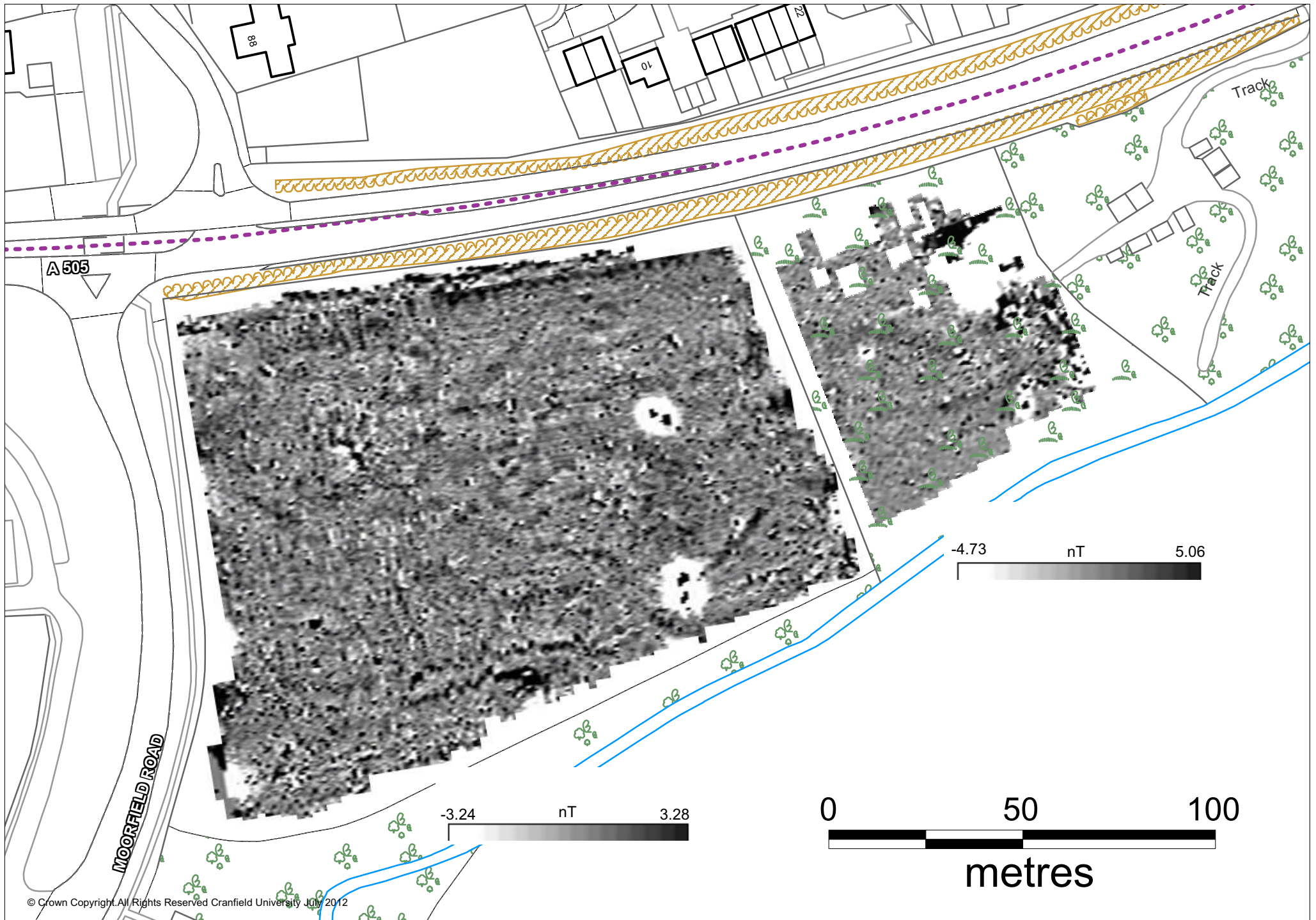
Gaffney, C. 2003 *Revealing the Buried Past – Geophysics for the Archaeologist*, Tempus publishing.



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**Fig. 1 - Location plan.**





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Fig. 2 - Gradiometer results, scale - 1:1250



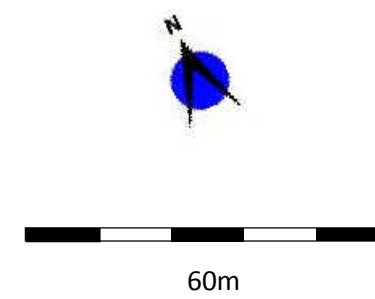
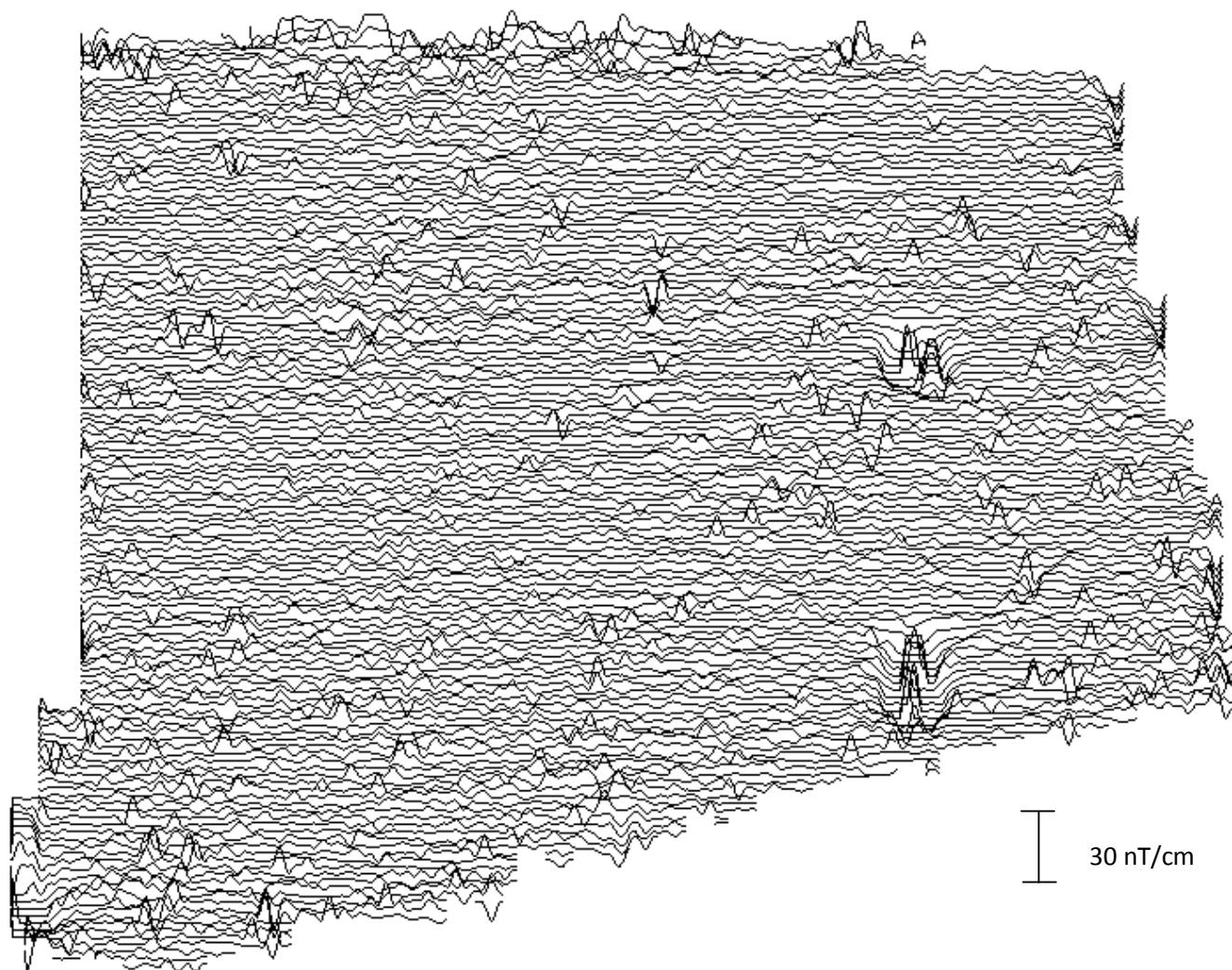
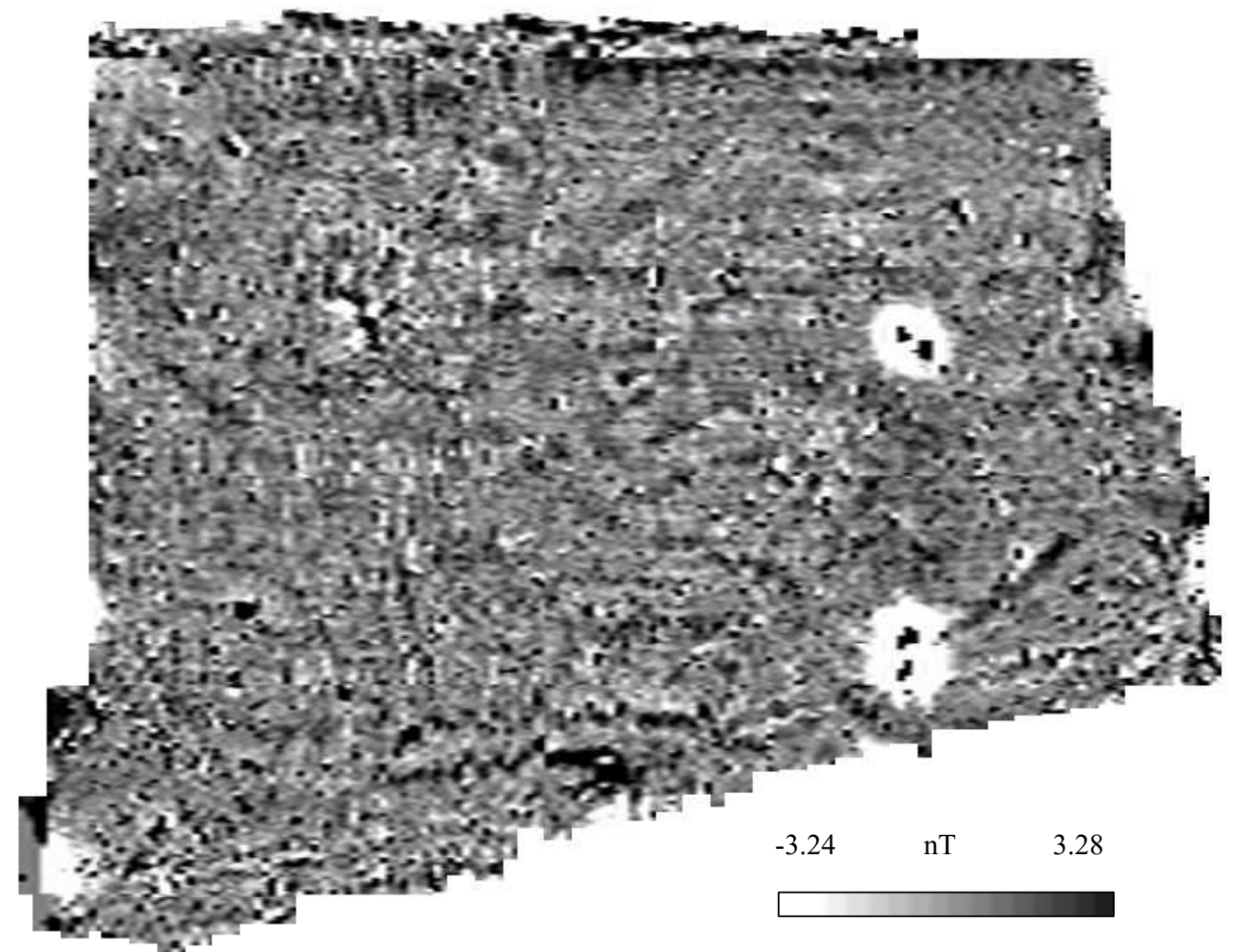
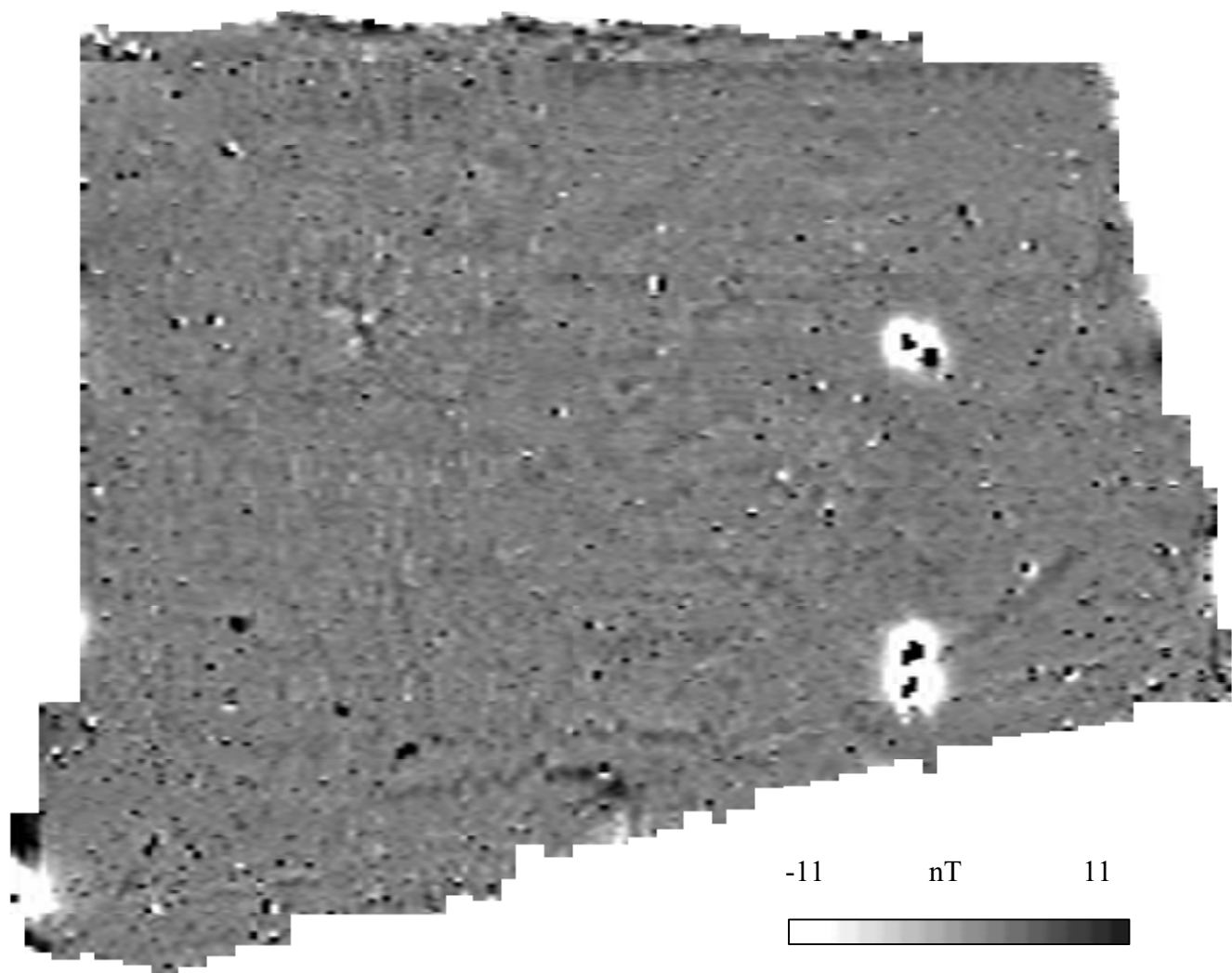
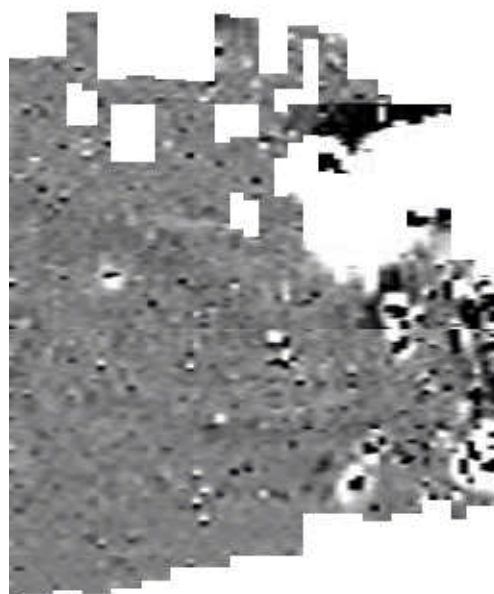
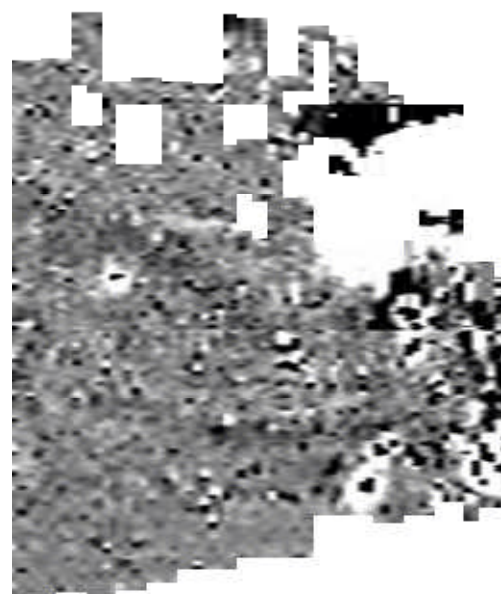


FIG. 3: Gradiometer Survey Field 1 – Grey scale and trace plots of raw data, scale – 1:1250

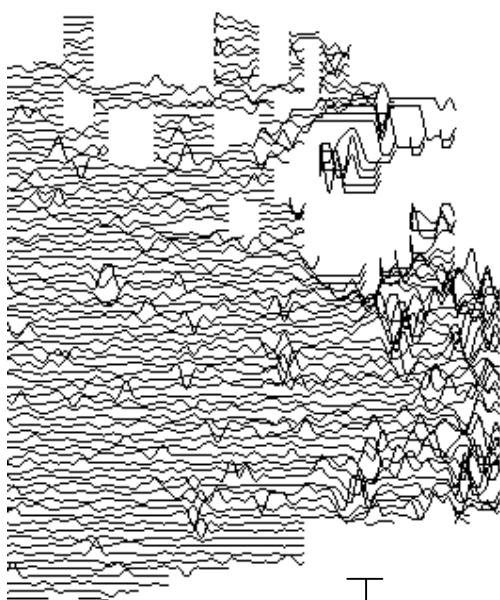




-11      nT      11



-4.73      nT      5.06



30 nT/cm



60m

**FIG. 4: Gradiometer Survey Field 2 – Grey scale and trace plots of raw data, scale – 1:1250**



Fig. 5 - Interpretation of results, scale - 1:1250

**APPENDIX 6: ENVIRONMENTAL QUANTIFICATION**

<b>Sample No.</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Context No.</b>	<b>59</b>	<b>43</b>	<b>41</b>	<b>45</b>	<b>49</b>
<b>Feature No.</b>	<b>34/54</b>	<b>42</b>		<b>44</b>	<b>48</b>
<b>Feature type</b>	<b>Ditch</b>	<b>Pit</b>		<b>Pit</b>	<b>Ditch</b>
<b>Trench No.</b>	<b>1</b>	<b>2</b>		<b>2</b>	<b>2</b>
<b>Cereals</b>					
<i>Avena</i> sp. (grains)					x
(awn frags.)					x
<i>Hordeum</i> sp. (grains)					x
<i>Triticum</i> sp. (grains)	xcf			xcf	x
(glume bases)					x
(rachis internodes)					x
<i>T. aestivum/compactum</i> type (rachis node)			x		
Cereal indet. (grains)	x				xxx
(detached embryos)					x
<b>Herbs</b>					
<i>Atriplex</i> sp.					x
<i>Lithopsermum arvense</i> L.					x
Small Poaceae indet.					x
<i>Scandix pecten-veneris</i> L.					xcf
<i>Stellaria media</i> (L.)Vill					x
<i>Tripleurospermum inodorum</i> (L.)Schultz-Bip					x
<i>Valerianella dentata</i> (L.)Pollich					x
<b>Wetland plants</b>					
<i>Carex</i> sp.					xcf
<i>Eleocharis</i> sp.					xcf
<i>Montia fontana</i> L.					x
<b>Other plant macrofossils</b>					
Charcoal <2mm	x	xx	xx	x	xx
Charcoal >2mm		xx			x
Charcoal >5mm		x			
Indet.inflorescence frags.					xx
Indet.seeds					x
<b>Other remains</b>					
Black porous 'cokey' residues	x	x	x	x	xx
Black tarry material		x	x		x
Small coal frags.				x	

Sample No.	1	2	3	4	5
Context No.	59	43	41	45	49
Feature No.	34/54	42		44	48
Feature type	Ditch	Pit		Pit	Ditch
Trench No.	1	2		2	2
<b>Mollusc shells</b>					
<b>Woodland/shade loving species</b>					
<i>Aegopinella</i> sp.	x				
<i>Carychium</i> sp.	xx			x	x
<i>Discus rotundatus</i>				x	
<i>Oxychilus</i> sp.	x				x
<i>Vitrea</i> sp.	x				
Zonitidae indet.					x
<b>Open Country species</b>					
<i>Candidula intersepta</i>		x	xcf	xcf	
<i>Helicella itala</i>	x	xx	x	x	x
<i>Pupilla muscorum</i>	xxx	x	x	xxx	x
<i>Truncatellina cylindrica</i>	x				
<i>Vallonia</i> sp.	xx	x		xxx	x
<i>V. costata</i>	x	x	x	xx	x
<i>V. pulchella</i>	x			xcf	
<i>Vertigo pygmaea</i>		x	xcf	xcf	x
<b>Catholic species</b>					
<i>Cepaea</i> sp.				x	x
<i>Cochlicopa</i> sp.	xx	x		x	x
<i>Nesovitea hammonis</i>	x				x
<i>Trichia hispida</i> group	xxxx	xx	x	xxxx	x
<b>Marsh/freshwater species</b>					
<i>Anisus leucostoma</i>	xxxx				
<i>Bithynia</i> sp.	x				
<i>Lymnaea</i> sp.	xxx				
<i>L. peregra</i>	xcf				
<i>L. truncatula</i>	x			x	
<i>Succinea</i> sp.	x				x
<b>Sample volume (litres)</b>					
<b>Volume of flot (litres)</b>	<0.1	<0.1	<0.1	<0.1	<0.1
<b>% flot sorted</b>	100%	100%	100%	100%	100%

**Key to Table 1** x = 1 – 10 specimens    xx = 11 – 50 specimens    xxx = 51 – 100 specimens    xxxx = 100+ specimens  
cf = compare

# PCA

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