

Archaeological and
Geoarchaeological
Investigations on
Land north of
Jerusalem Drive
Wardy Hill, Coveney
Cambridgeshire



Archaeological
Evaluation Report



January 2013

Client: The Environment Agency

OA East Report No: 1433

OASIS No: oxfordar3-141616

NGR: TL 4656 8278

**Archaeological and Geoarchaeological Investigations on Land north of
Jerusalem Drove, Wardy Hill, Coveney, Cambridgeshire**

Archaeological Evaluation

By Taleyra Fletcher BA MIFA

*With contributions by Carl Champness MSc AIFA , Graeme Clarke BA , Kate Clover MA ,
Rachel Fosberry HNC, Aifa, Peter Masters, Richard Mortimer and Roger Palmer*

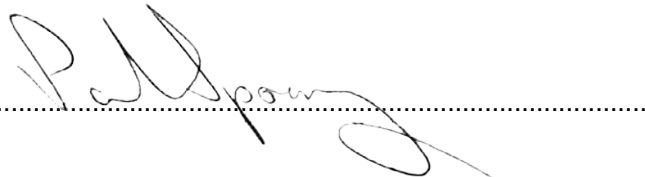
Editor: Dr Paul Spoerry

Illustrators: Stuart Ladd BA MA PIFA and David Brown BA

Report Date: January 2013

Report Number: 1433
Site Name: Land off Jerusalem Drive, Wardy Hill, Coveney, Cambridgeshire
HER Event No: ECB3919
Date of Works: 13th November 2012 – 14th December 2012
Client Name: The Environment Agency
Client Ref: Coveney Ouse Washes
Planning Ref: n/a (pre-planning)
Grid Ref: TL 4656 8278
Site Code: COVOUS12
Finance Code: COVOUS12
Receiving Body: Cambridgeshire County Stores
Accession No: COVOUS12
Prepared by: Taleyna Fletcher
Position: Project Officer
Date: January 2013

Checked by: Paul Spoerry
Position: Regional Manager
Date: January 2013
Signed:



Disclaimer

This document has been prepared for the titled project or named part thereof and should not be relied upon or used for any other project without an independent check being carried out as to its suitability and prior written authority of Oxford Archaeology being obtained. Oxford Archaeology accepts no responsibility or liability for the consequences of this document being used for a purpose other than the purposes for which it was commissioned. Any person/party using or relying on the document for such other purposes agrees and will by such use or reliance be taken to confirm their agreement to indemnify Oxford Archaeology for all loss or damage resulting therefrom. Oxford Archaeology accepts no responsibility or liability for this document to any party other than the person/party by whom it was commissioned.

Oxford Archaeology East,
15 Trafalgar Way,
Bar Hill,
Cambridge,
CB23 8SQ

t: 01223 850500
f: 01223 850599
e: oaeast@thehumanjourney.net
w: <http://thehumanjourney.net/oaeast>

© Oxford Archaeology East 2013
Oxford Archaeology Limited is a Registered Charity No: 285627

Table of Contents

Summary.....	7
1 Introduction.....	8
1.1 Location and scope of work.....	8
1.2 Geology and topography.....	8
1.3 Acknowledgements.....	9
2 Archaeological and Historical Background.....	10
2.1 The Historic Environment Record (HER) including Archaeological Investigations. .	10
2.2 Cartographic Evidence.....	11
2.3 Previous Investigations.....	13
3 Aerial Photographic Survey.....	15
3.1 Introduction.....	15
3.2 Summary.....	15
4 Geophysical Survey.....	17
4.2 Summary.....	17
4.3 Methodology.....	17
4.4 Interpretation and Analysis of Results	18
4.5 Conclusions.....	19
5 Field Walking.....	20
5.1 Introduction.....	20
5.2 Methodology.....	20
5.3 Results.....	20
5.4 Discussion and Conclusions.....	21
6 Archaeological Evaluation Aims and Methodology.....	22
6.1 Aims.....	22
6.2 Methodology.....	22
7 Results of Archaeological Investigations.....	23
7.1 Archaeological Results and Discussion.....	23

7.2 Finds Summary.....	28
7.3 Environmental Summary.....	28
8 Results of Geoarchaeological Investigations.....	29
8.1 Introduction.....	29
8.2 Results.....	29
8.3 Conclusion	31
9 Discussion and Conclusions.....	32
Appendix A. HER Data.....	33
Appendix B. Summary of Evaluation Results.....	40
Field 1.....	40
Field 2.....	41
Field 3.....	42
Field 4.....	43
Field 5.....	44
Appendix C. Environmental Remains.....	45
C.1 Introduction and Methodology.....	45
C.2 Results.....	45
C.3 Discussion.....	45
C.4 Further Work and Method Statement.....	45
Appendix D. Radiocarbon Dating Certificate.....	46
Appendix E. Bibliography.....	48
Historic Maps Consulted.....	49
Appendix F. OASIS Report Form.....	50

List of Figures

Figure 1	Site location with trenches (black) and development area (red)
Figure 2	Site location with HER entries
Figure 3	The Map of the Great Level by Jonas Moore (South-West Part), 1663
Figure 4	The Great Level of the Fens called Bedford Level, by Samuel Wells, 1829
Figure 5	Plan of land subject to the Eau Brink Tax, by JG Lenny, 1833
Figure 6	Tithe Map of Coveney, 1840
Figure 7	Tithe Map of Witcham, 1841
Figure 8	Tithe Map of Ely, 1846
Figure 9	First Edition Ordnance Survey Map (Sheets XXV NW, XXV NE and XXI SE), 6 inches to 1 mile, 1886
Figure 10	1921-28 Edition Ordnance Survey map
Figure 11	Trench Plan showing results of aerial photographic and geophysical surveys
Figure 12	Plot of Field walking results
Figure 13	Plans of Trenches (Fields 1-3) and detail and section of “ring ditch”, Trench 18
Figure 14	North-south cross section of palaeochannel and location of test pits based on observations in BH6 and TP1-11, interpolated between.

List of Tables

Table 1	Catalogue of field-walking finds
Table 2	Results of deposit sampling, Field 1
Table 3	Results of deposit sampling, Field 2
Table 4	Results of deposit sampling, Field 3
Table 5	Results of deposit sampling, Field 4
Table 6	Elevation of Upper Horizon of Geoarchaeological Unit Encountered in Test Pits (m OD)
Table A1	Gazetteer of Monuments
Table A2	Gazetteer of Listed Buildings
Table A3	Gazetteer of fieldwork
Table B1:	Summary of evaluation results, by field

List of Plates

Plate 1	General shot, Trench 2 1 and 2, facing
Plate 2	Natural feature 17, Trench 4, Field 1
Plate 3	Trench 7, Field 1

Plate 4	Ring ditch, Trench 18
Plate 5	Excavated section through ring ditch, 220 , Trench 18
Plate 6	Excavated section through boundary ditch, 236 , Trench 18
Plate 7	Post-medieval ditch 185 , Trench 26
Plate 8	Post-medieval boundary ditch 216 , Trench 21
Plate 9	“Claying ditches” Trench 42
Plate 10	Test pit 8 showing solifluction deposits overlying river gravel
Plate 11	Trench 45 looking north showing solifluction deposits overlying Ampthill Clay

Summary

Between 13th November and 14th December 2012 Oxford Archaeology East conducted an archaeological evaluation on 29ha of land at Wardy Hill in the parish of Coveney in East Cambridgeshire. Prior to evaluation a geophysical and aerial photographic survey were carried out on behalf of the client which had identified potentially surviving archaeological remains. In addition a programme of field walking was also undertaken on one of the five investigated fields which yielded post-medieval ceramics and two early Neolithic flint tools.

The archaeological investigations were carried out as part of the pre-planning process working closely with Cambridgeshire County Council's Historic Environment Team.

The work was commissioned by the Environment Agency as part of a a scheme to create a 200ha wet grassland habitat area in order to meet the ecological requirements for those species negatively affected by deterioration of the Ouse Washes. The works associated with this phase of the project will include the construction of a winter water storage reservoir capable of storing around 0.5million m³ of water together with associated pumping systems, feeder drains, field drains and infield foot drains.

The evaluation consisted of 45 machine excavated trenches across five fields. Most trenches were 100m in length.

Other than post medieval boundary ditches and a possible small ring ditch gully representing what is likely to be a broadly contemporary shelter, similar to a shieling, the archaeological evaluation did not identify any surviving significant remains.

The absence of features which corresponded with the geophysics plot can most likely be attributed to natural magnetic variations in the plough soil. If the anomalies had resulted from shallow archaeological features which were not visible during excavation, then the works would have expected to have encountered more finds during the sampling of the top and sub soil layers.

The absence of artefacts from a sampling of both top and subsoil layers as well as during the field-walking stage would support the suggestion that it is unlikely that there was ever any settlement on or nearby to the site which can probably be attributed its flat, isolated nature within the landscape as well as the wet soil conditions of the low-lying land.

1 INTRODUCTION

1.1 Location and scope of work

- 1.1.1 The site is located in the southern part of the Fenland Basin, on low-lying ground at the north-western edge of the former Isle of Ely. The wider study area (centred on NGR 546592, 282582) comprises a 2km x 0.5km area immediately east of the New Bedford River (Ouse or Hundred Foot Washes) (Figure 1). The area extends 3.5 km in SW–NE and 1.5km in SE-NW direction. The elevation at the site decreases from approximately 1.5m OD in the south to approximately -1m OD in the north. The surrounding villages of Wardy Hill, Mepal, Coveney and Pymoor are situated at a higher elevation than the surrounding fenland. The site is situated within a rural location with land-use surrounding the site predominantly agricultural. The City of Ely is located approximately 9km to the east.
- 1.1.2 The overall Scheme proposes to create a 200ha wet grassland habitat area in order to meet the ecological requirements for those species negatively affected by deterioration of the Ouse Washes; namely breeding black-tailed godwit, snipe and ruff and wintering wigeon. The works associated with this phase of the project will include the construction of a winter water storage reservoir capable of storing around 0.5million m³ of water together with associated pumping systems, feeder drains, field drains and infield foot drains.
- 1.1.3 At the time of the investigation, the site had very recently been acquired by the client. This allowed for unrestricted access and positioning of trenches.
- 1.1.4 This archaeological evaluation was undertaken to inform an environmental statement for development. A specification for the work was prepared by OAEast (Spoerry 2012) submitted to Andy Thomas of Cambridgeshire County Councils Historic Environment Team (CCC HET) for approval prior to the start of the works. Changes to the trenching strategy were made during the investigations, following site meetings with Andy Thomas.
- 1.1.5 The site archive is currently held by OA East and will be deposited with the appropriate county stores in due course.

1.2 Geology and topography

- 1.2.1 The surface geology of the site is predominantly mapped as (Nordelph) peat (BGS sheet 173 1:50,000 scale), although a swathe of alluvium is present associated with the Washes to the east. No post-glacial (Holocene) deposits are mapped on the higher ground to the south of the site where there are outcrops of Jurassic Ampthill Clay and Kimmeridge Clay. It is likely that shallow Holocene peat deposits once extended further into the margins of these areas. Discrete deposits of glacial (Pleistocene) river gravels and peri-glacial deposits are noted skirting the fen edge that are likely to extend beneath the Holocene sequences within the site.
- 1.2.2 The highest point of the site lies at its centre at around 1.10mOD in the middle of Field 2. The site then falls away towards the north where the lowest recorded height was -0.97mOD and a more gradual fall towards Jerusalem Drove to the south where the lowest point by the road was recorded 0.78mOD.

1.3 Acknowledgements

- 1.3.1 The author would like to thank Peter Doktor who commissioned the work on behalf of the Environment Agency. The evaluation was directed by the author, assisted by Robin Webb, Graeme Clarke, Michael Webster, Nick Cox and Stuart Ladd. Thanks are also expressed to Peter Masters (geophysics), Rog Palmer (Aerial Photographic Survey) Carl Champness (Oxford Archaeology South Geoarchaeology) and Dr Steve Boreham (geoarchaeological and geological advice) and to Rachel Fosberry (environmental analysis) and Richard Mortimer (lithics). The author carried out all on site survey and site preparation work, Kate Clover carried out the background research and walk-over survey and the project was managed by Dr Paul Spoerry. Andy Thomas of Cambridgeshire County Council's Historic Environment Team monitored the work. Thanks are also expressed to Nick Richardson of LOC Plant Hire for the excavation and reinstatement of all archaeological trenches.

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

By Kate Clover

2.1 The Historic Environment Record (HER) including Archaeological Investigations

- 2.1.1 The Cambridgeshire Historic Environment Record (HER; held by Cambridgeshire County Council) is the main repository of cultural heritage data for the county. It is a record of all known archaeological monuments, findspots, and archaeological events (evaluations, excavations etc.) within the county as well as designations such as Conservation Areas, Listed Buildings and Scheduled Monuments. In December 2012 all data of known sites and events within the Study Area were requested from the HER based on a 2.5km search area centred on TL 4650 8317. The HER points are shown on Figure 2 and the data is provided in tabular format in Appendix A. HER numbers are preceded by MCB.
- 2.1.2 The HER is not a record of all surviving elements of the historic environment. The information held within it is not complete and does not preclude the subsequent discovery of further elements of the historic environment that are, at present, unknown.

Mesolithic (1000-4000BC) and Neolithic (4000-2000BC)

- 2.1.3 Traces of prehistoric occupation were recovered during the Fenland Survey (Hall 1996, 46). Within 100 metres of the site boundary two Mesolithic flint scatters were identified (Witcham Sites 1 and 2; MCB 9406, 9404). The assemblages included blades, micro-blade cores, core tools, a microlith and fire-cracked flint. Site 2 also produced a scalene triangle and piece of polished Neolithic axe. Site 1 continued into the Neolithic period producing a piece of pottery, bone fragments, as well as worked flint (MCB 9407). A minor scatter of Neolithic flintwork, a few blades and cores, was also found on a sand rise west of Wardy Hill (Coveney Site 5; MCB 12864). The Fenland Survey identified similar Mesolithic and Neolithic artefact scatters including two sites to the north-east at Way Head (Coveney Sites 3 and 4). To the west, on the other side of the Ouse Washes, an artefact scatter was identified lying on the eastern edge of the Chatteris prehistoric complex (MCB 18276). A cropmark of a possible Neolithic long barrow has also been recorded in this area (MCB 18218). Neolithic axes have been recorded to the east and south of the site, at Coveney (MCB7118, 7125 , 13917) and Witcham (MCB 7109, 9365).

Bronze Age (2000 BC-700 BC)

- 2.1.4 Evidence of later prehistoric activity in the form of flint scatters and cut features has been recorded in the higher clays of the western side of the Isle of Ely, largely as a result of more recent investigations caused by commercial development. The evidence suggests low-level usage probably reflecting seasonal visits during the Neolithic and Bronze Age (Evans 2003, 8). Additionally, archaeological investigations have revealed the remains of Neolithic and Early Bronze Age field systems at Block Fen, Chatteris, on the other side of Ouse Washes (MCB 16715, 17892, 17538). A barrow cemetery is located near the fen edge at Block Fen (MCB 11302, 10569, 10592, 14483, 10568, 72976).

Iron Age (700 BC-AD 43)

- 2.1.5 Substantial evidence of Iron Age and Roman occupation was recorded during the Fenland Survey across the northern part of the Isle of Ely, and particularly on the higher ground of the Wardy Hill environs (Hall 1996, fig. 88). This includes the late Iron Age Wardy Hill ringwork (Evans 2003; Coveney Site 1 in Hall 1996; MCB11309), as well as a number of other crop mark sites in the vicinity that may date to the Iron Age or Roman period. As well as cropmarks a number of Roman finds point to Roman occupation in the area including settlement remains near Witcham (MCB 9400).

Anglo-Saxon (AD410-1066)

- 2.1.6 The only evidence of Anglo-Saxon activity recorded within the search area is some metalwork found at near Mepal by a metal detectorist (MCB 16264).

Medieval (1066-1500)

- 2.1.7 During the medieval period the land within the study area was under the ownership of the Prior and Convent of Ely, apart from one area (Witcham Gravel) which was common fen (VCH 1967, 3). Settlement was focussed on the higher ground of Coveney, Witcham and Wardy Hill (as today) and there is no evidence for medieval activity on the development site in this period.

Post-Medieval (1500-1900)

- 2.1.8 Cartographic evidence shows that the study area (including the development site) was open fenland until the 1830s (apart from the extreme south-western corner of the study area). From this point in time drainage enabled the land to be brought from fenland into arable use.
- 2.1.9 Post-medieval wind pumps are depicted on old maps in Witcham and Chatteris but not within the study area (MCB 7075, 7106, 7111). Post-Medieval earthworks are recorded in Coveney village including a windmill mound and fishponds (MCB 7119).
- 2.1.10 Fortrey Hall Mepal, a Listed Building, is a modest 17th century house of part brick and part timber frame construction, which has been used as a farmhouse since at least 1808. It was built by Samuel Fortrey, a London merchant who was a refugee from the Spanish Netherlands. He helped create the Bedford Level, which runs close to the front of Fortrey Hall (MCB 7169).

Modern (1900 to present day)

- 2.1.11 A World War 2 searchlight and pillbox can be found in Wardy Hill (MCB 15194) and further pillboxes and a gun emplacement (now destroyed) were located at Welches Dam (MCB 16474).

2.2 Cartographic Evidence

- 2.2.1 A search was undertaken of all historic manuscript maps and Ordnance Survey (OS) maps including drainage maps held at the Cambridgeshire Archives in Cambridge. The maps available for study ranged in date from the mid 17th century to the present day. A complete list of the maps consulted can be found in the bibliography.

- 2.2.2 The study of maps and associated historical sources helps to clarify the archaeological potential of the site in two ways. Firstly, it suggests aspects of the medieval and later land-use prior to any modern development. Secondly, it pinpoints areas within the site that as a result of development are likely to have become archaeologically sterile.

1663 – Jonas Moore's Map of the Great Level, South-Western Part (Figure 3)

- 2.2.3 The map, which is not very detailed, shows the study area bordered by the New Bedford River to the west. Apart from the New and Old Bedford Rivers, no other drains are shown. The map shows the majority of the study area (including the 27 ha development site) as uncultivated fenland - 'Byall Fen' and 'Hale Fen'. The south-western corner of the study area is shown as divided into fields, the three largest of which are labelled as 'Caw Croft'.

1829- The Great Level of the Fens Called Bedford Level, by Samuel Wells (Figure 4)

- 2.2.4 This map shows very little change from the 1663 map, although it does show other drains, for example the New Grand Drain. This drain forms the north-eastern boundary to the study area and then runs south to form the western boundary of the development site. Apart from the south-western corner, the study area is still uncultivated fenland. To the west of the development site is the label 'Witcham Gravel', suggesting gravel quarrying in this area. This probably corresponds to a higher island of sand (and gravel) above the peat. The driveway which runs parallel to the New Grand Drain is marked on, as is Gravel Drove. At the end of Gravel Drove, near the New Bedford River, is an unmarked building – probably Grand Farm – and another building on the other side of Gravel Drove (see 1886 map, Figure 9). These are the only buildings shown within the study area. The uncoloured land denotes free land and the red land Adventurer's Land.

1833 - Plans of Land Subject to the Eau Brink Tax, by JG Lenny (Figure 5).

- 2.2.5 By the time this map was surveyed the whole of the study area had been taken into cultivation as is shown by the the parcelling up of lands previously in Byall Fen and Hale Fen. New droves had been created (eg Dam Head Drove) to connect the fields to existing droves (Old Ling Drove, Byall Fen Drove, Dam Side Drove, Wardy Hill Drove, Gravel Brick Drove and Cow Croft Drove). Between the fields called Cow Croft (Caw Croft on the 1663 map, Figure 3) and the New Bedford River is a large field called Lockspits. The development site is shown with a similar layout of fields to present day ie one triangular field in the north and a series of long narrow fields to the south. Scattered buildings (unmarked) are shown along some of the droveways and along the New Bedford River.

Tithe Maps (Figures 6 - 8)

- 2.2.6 Three tithe maps were consulted for the study area as this large area of land fell within three parishes historically -Witcham, Ely and Coveney. The development site was within the historic parish of Ely. There are no estate maps for any of these parishes, the most likely reason being that they were owned by the Dean and Chapter of Ely Priory (VCH, 1967, 3, 136 and 172). There are no surviving enclosure maps for any of the three parishes.

- 2.2.7 Tithe Map of Coveney, 1840 (Figure 6): This map of the northern half of the study area shows shows little change from previous maps and it is very similar to the map of seven years earlier (Figure 5).
- 2.2.8 Tithe Map of Witcham, 1841 (Figure 7): This map of the northern half and the southern part of the study area shows shows little change from previous maps and it is very similar to the 1833 map (Figure 5). One noticeable change is that the field named Lockspits has been divided into five fields. Oddly, the northern half of this map covers the same area as the Coveney Tithe Map (Figure 6). In the tithe apportionment the fields are listed as either fen, arable or pasture.
- 2.2.9 Tithe Map of Ely, 1846, (Figure 8): The middle section of the Study Area was formerly in the parish of Ely Byall Fen. This map shows the triangular field at the northern edge of the development site as divided into two fields as well as some further sub-division of the narrow fields to the south.

First Edition Ordnance Survey map (sheets XXV NW, XXV NE and XXI SE), 6 inches to 1 mile (Figure 9), 1886

- 2.2.10 This map shows little change from the mid 19th century tithe maps in terms of field boundaries. However it shows more detail of buildings. Gravel Farm is marked where Witcham Bridge Drove meets the New Bedford River. The area to the east of Gravel Farm is shown as 'the Corkerets'. Several buildings are shown strung out along Witcham Bridge Drove where it forms the southern boundary of the development site. Here the place name 'Jerusalem' appears which gave its name to what is now Jerusalem Drove. Two public houses - the Black House and The Dog and Gun - were located along the New Bedford River as well as a few other, unnamed, buildings along the New Bedford River and Straight Drove. Additionally three drainage pumps are shown next to the droveways.

1921-28 Edition Ordnance Survey map (Figure 10)

- 2.2.11 This map is smaller scale than the 1886 map (X) and thus less detailed. It shows very little change from the 1886 map, the study area being still very sparsely populated.

2.3 Previous Investigations

- 2.3.1 Oxford Archaeology have been involved in previous investigation on the site in 2010 and 2011. The first phase of fieldwork was a watching brief of boreholes and test pits in 2010 which did not record any features or finds of archaeological interest (OA 2011). This was followed by a Geo-Archaeological Survey in 2011 comprising a geophysical (electromagnetic) survey, ground truthed by hand augering (OA 2012; MCB 19629, ECB 3511). The model produced by this survey suggested that in prehistory the site would have been located at the interface of an important wetland ecotonal zone at the edge of the Isle of Ely. Topographically these ecozones are known to have been a focus of activity in the past due to the abundance of wetland resources available for exploitation, as well as the close proximity of dry ground suitable for more permanent settlement. The site therefore was considered to have high potential to contain archaeological features and deposits associated with buried land surfaces.

2.3.2 Other fieldwork has been carried out within the search area by other organisations. A complete list of these fieldwork projects can be found in Appendix A, Table A3.

3 AERIAL PHOTOGRAPHIC SURVEY

An aerial photographic survey was commissioned by OA East to be carried out by Roger Palmer of Air Photo Services (Palmer 2012). This section provides a summary of the results. A plot of the survey results, incorporated with the result of the geophysical survey, are presented in Figure 11.

3.1 Introduction

- 3.1.1 This assessment of aerial photographs was commissioned to examine an area of some 30 hectares (centred TL466825) 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.
- 3.1.2 Photographs were examined in detail for an area extending some 200m beyond the Development Area. This produced a Study Area of almost 1 sq kilometre.

3.2 Summary

Archaeological Features

- 3.2.1 No archaeological features were identified within the Development Area. Just to the south, at TL46408222, is a ring ditch of about 20m diameter which had slight traces of an internal mound in 1959. This may have been eroded by the subsequent 50+ years of arable cultivation. The ring ditch appears to be located on a small area of higher ground on which are other features including a part of a smaller (c. 8m diameter) possible ring ditch and a square ditched feature with sides of 16-17 metres. These features appear to coincide with Hall's site Coveney 5 (1996, 46 and Figure 25) which was of probable Neolithic date. Features of similar shape and size are also recorded some 200 metres to the east (c.TL466821) in what is now a grass field.

Non-Archaeological Features

- 3.2.2 Land divisions have changed little in the Development Area but some earlier boundaries – possibly drainage ditches – have been mapped. Field drains were recorded in two fields on photographs taken in 1989 and may have been a necessary aid to cultivation on the clay soils. Several small areas have been mapped and identified as 'higher ground or sand'. These were visible on some photographs as light-toned (or coloured) spreads of soil and their identification as sand follows Hall's description based on ground observation (1996, 46). These small areas may signal ground that was favoured in the past and one of them (at TL463829) is the location of Hall's site Witcham 2 (1996, Figure 25).
- 3.2.3 Part of what appears to be a roddon has been mapped in the northern half of the Development Area. This identification is based on Digital Globe images taken in 2003 that show a slightly sinuous linear feature which is of lighter coloured soil and seems to have a darker central channel (not mapped here) which is the characteristic appearance of roddons on images taken in winter months. This features does not appear to have been identified in the geoarchaeological survey (Oxford Archaeology 2012), although the presence of a solifluction lobe here may be of significance.

Land use

- 3.2.4 All land within the Development Area has been in arable use on all dates of photography as have most of the surrounding fields. Exceptions are the small fields immediately south of the Development Area which appear to have been used as pasture in most years with small-scale arable use occasionally. One of these fields contains the group of possible ditched features that was most clearly photographed in 1959.
- 3.2.5 Two fields west of the northern apex of the Development Area may have been used as pasture and since the 1940s and later as set aside land. The latter fields are between Hall's sites Witcham 1 and 2 (1996, fig25).

4 GEOPHYSICAL SURVEY

The following has been taken from the Geophysics report compiled by Peter Masters of Cranfield University. For the complete text, including figures, see Masters 2012. The report was written prior to the dissemination of the evaluation results and therefore the results of this survey are discussed in light of these findings in Section 9. The interpretive geophysics results are presented in a combined figure with the aerial photographic survey in Figure 11.

- 4.1.1 Based on the survey results, it was concluded that the site contained some anomalies of archaeological importance. The archaeological potential was therefore deemed to be low to medium and further archaeological investigation was recommended to resolve the nature and date of these more significant anomalies.

4.2 Summary

Prior to the start of the evaluation, gradiometer survey was carried out by Peter Masters of Cranfield University. The methodology for the survey was based upon guidelines set out in the English Heritage document '*Geophysical Survey in Archaeological Field Evaluation*' (English Heritage 2008).

- 4.2.1 An initial pilot survey was carried out covering approximately 3ha in order to determine if the technique would detect underlying archaeological deposits. The pilot survey detected ephemeral remains in Fields 1 and 2.
- 4.2.2 Following the initial pilot survey, additional infill was undertaken where anomalies were detected in Fields 1 and 2. The results in Field 1 indicated faint magnetic traces of ditches some of which formed possible enclosures and hut circles as well as pits. Field 1 also produced a strong magnetic kiln-like anomaly that may signify an area of burning.
- 4.2.3 Field 2 produced some significant anomalies of archaeological character resembling enclosures and ditch-like features as well as some individual pit-type anomalies at the northern end of the field.
- 4.2.4 Fields 3 and 4 revealed no significant archaeological anomalies of archaeological character. In Field 5, a strong rectilinear shaped magnetic anomaly was detected possibly indicating ferrous material such as a piece of farm machinery.

4.3 Methodology

- 4.3.1 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).
- 4.3.2 The use of gradiometry is used to establish the presence/absence of buried magnetic anomalies, which may reflect sub-surface archaeological features.

- 4.3.3 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 30m x 30m grids. The sensitivity of the machine was set to detect magnetic variation in the order of 0.1 nanoTesla.
- 4.3.4 The data was processed using *Archeosurveyor v.2*. The results are plotted as greyscale and trace plot images.
- 4.3.5 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.

4.4 Interpretation and Analysis of Results

- 4.4.1 A fluxgate gradiometer survey was undertaken over the area of investigation covering approximately 9ha total inclusive of the initial pilot survey.
- 4.4.2 Generally, a series of isolated individual anomalies were detected that reflect areas of modern ferrous remains such as brick and tile fragments as well as horse shoes, which lie just below or on the surface of the plough soil.
- 4.4.3 A series of parallel linear anomalies were detected represent land drains.
- 4.4.4 A series of closely spaced parallel linear anomalies detected denote crop lines.

Field 1

- 4.4.5 A number of individual anomalies (Figure 11, red circles) probably denote pits or are more likely to reflect naturally occurring pockets of peat within the clay.
- 4.4.6 A discrete magnetic response located in the central eastern half of the field may reflect some form of industrial activity or burning, probably a kiln as indicated in the trace plot. The magnetic trace is depicted as a typical double peak response. Without further invasive work it is uncertain whether it is contemporary with the other ditch-like anomalies or that it is a natural feature.
- 4.4.7 To the south of anomaly 1, is a polygonal shaped anomaly, possibly indicating the presence of a ditched enclosure. Close by, further fragments of enclosure ditches can be seen in the resultant images (Figure 11).
- 4.4.8 A series of short linear and sub-circular shaped anomalies can be seen across the entire area that may indicate the presence of ditches or they may possibly reflect natural magnetic variations within the plough soil.

Field 2

- 4.4.9 A series of sub-circular shaped anomalies were detected indicating the presence of

possible ring ditches (Figure 11). However, it is possible that these may resolve as magnetic variations in the plough soil or natural geology.

- 4.4.10 In the northern half of the field, a number of curvilinear and rectilinear anomalies were recorded in the resultant plots possibly denoting fragments of ditched enclosures or they may merely reflect plough score marks or trends within the underlying soils.
- 4.4.11 An individual anomaly was detected between the ditched enclosures indicating the presence of a pit or could resolve as a magnetic variation in the underlying peat deposits. Further pit-type anomalies can be seen to the east.
- 4.4.12 Other fragmented anomalies possibly indicate the presence of ditches that may form fragments of enclosures.

Fields 3 and 4

- 4.4.13 No significant anomalies of an archaeological nature were detected in these fields.

Field 5

- 4.4.14 A short transect 30m wide by 150m long covering about 0.5ha was surveyed in Field 5 where a palaeochannel and rodden have been recorded by aerial photographs.
- 4.4.15 At the northern end of the survey area, a strong rectilinear shaped anomaly (Figure 11) was detected. This may denote the presence of a large ferrous anomaly indicating the remains of farm machinery or similar type of material buried in the ground.

4.5 Conclusions

- 4.5.1 The survey has produced some significant anomalies of archaeological character in Fields 1 and 2. Many of these may reflect natural magnetic variations in the plough soil or they may indicate shallow archaeological features not visible to the archaeologist during excavation.
- 4.5.2 Other anomalies relate to land drains, modern ferrous and probably natural features.

5 FIELD WALKING

5.1 Introduction

5.1.1 On 11th November 2012, OA East carried out a programme of field walking in Field 1 (Figure 12). Due to limited access as a result of delayed land transfer at the time of the field walking, only Field 1 was available for investigation. However, as this was the area of most activity identified by the geophysical survey, it was considered to have the greatest potential.

5.2 Methodology

5.2.1 Prior to walking, the field was ploughed and harrowed in 2m wide transects aligned north-south to the present field boundary (Figure 12). Weather conditions were good, with constant warm sunshine and no rain.

5.2.2 Each transect was walked once from south to north. Each find recovered was collected and bagged individually with a unique number and left on the ground marked with a flag. Each find was then located using a GPS and recorded by material type and number. This method was found to be efficient and reliable way of plotting the finds and produced accurate and reliable location data plots

5.3 Results

5.3.1 The results are presented in Figure 12 and briefly described in the table below:

Transect	Context Number	Material Type	Comments
1	130	Pottery	19th century
1	103	Flint	Struck flint "chunk" - undatable
1	104	Pottery	Glazed redware, post-medieval
1	111	Pottery	19th century
1	112	Pottery	19th century
1	113	Flint	Natural, unstruck flint
1	114	Flint	Struck flint - undatable
1	115	Flint	Struck flint - undatable
1	117	Flint	Struck flint - undatable
2	131	Pottery	19th century
2	100	CBM	Brick fragment?
2	101	Flint	Natural, unstruck flint
2	106	Flint	Natural, unstruck flint
2	107	Pottery	19th century
2	108	Pottery	19th century
2	109	CBM	Tile fragment
2	110	Pottery	18th century
2	116	Pottery	Post-medieval

3	126	Pottery	Post-medieval
3	124	Pottery	19th century
3	118	Pottery	19th century
4	125	Flint	Natural, unstruck flint
4	123	Flint	Struck flint - undatable
4	122	Flint	Broken blade – early Neolithic
4	121	Flint	Struck flint - undatable
4	120	Flint	Natural, plough-struck
4	119	Stone	Burnt stone
5	127	Pottery	19th century
5	129	CBM	Brick fragment
7	128	Flint	Blade – early Neolithic

Table 1 : Catalogue of field-walking finds

5.4 Discussion and Conclusions

- 5.4.1 The field walking produced a limited amount of finds. The majority of artefacts recovered are post-medieval and modern pottery and ceramic building material which probably made their way onto the field as part of manuring and muck spreading during the previous two centuries.
- 5.4.2 Most of the flints recovered were either unstruck or undatable blades or other struck fragments, however, two early Neolithic flints were recovered which may indicate activity from that period nearby.

6 ARCHAEOLOGICAL EVALUATION AIMS AND METHODOLOGY

6.1 Aims

- 6.1.1 The objective of this evaluation was to determine as far as reasonably possible the presence/absence, location, nature, extent, date, quality, condition and significance of any surviving archaeological deposits within the development area.

6.2 Methodology

- 6.2.1 Forty-two trenches were excavated between 25m and 100m in length, all on an approximate north-east to south-west and north-west to south-east orientation (Figure 1). An additional three trenches (43-45) were excavated in Field 5 as part of the geoarchaeological investigations (Section 8).
- 6.2.2 Machine excavation was carried out under constant archaeological supervision to the level of undisturbed geology with a tracked 360° excavator using a 2m wide toothless ditching bucket. At this level, a number of post-medieval field drains and natural features were present (Plate 1).
- 6.2.3 Topsoil and subsoil were stored separately and re-instated during back-filling at the end of the evaluation.
- 6.2.4 A programme of bucket sampling was employed throughout the investigation. Ten litre samples of soil were taken for every 10cm of topsoil, peat and subsoil deposits encountered in each trench. These samples were hand-sorted and any artefacts were assigned context numbers and retained for analysis where appropriate. This strategy was employed at either end of every trench. The aim of this was to characterise the artefact contents of the plough-soil and any lower soil horizons.
- 6.2.5 A Leica GPS 1200 system was used by the author to lay out the trenches using ordnance survey co-ordinates, according to a pre-arranged trench plan which was approved by Cambridgeshire County Council's Historic Environment Team prior to the start of the work. The GPS was also used to take levels at the top and base of each end of every trench.
- 6.2.6 All archaeological features and deposits were recorded using OA East's *pro-forma* sheets. Trench locations, plans and sections were recorded at appropriate scales and colour and monochrome photographs were taken of all relevant features and deposits supplemented by digital photographs using an Olympus M760 7.1mega pixel camera.
- 6.2.7 Six samples were taken from features within the evaluated areas in order to assess the quality of preservation of plant remains and their potential to provide useful data as part of further archaeological investigations.
- 6.2.8 Site conditions were favourable, although sub-zero temperatures were recorded on several days, with almost constant sunshine and only a little rain. Wet conditions in the months preceding the evaluation and during the works meant the ground was very wet in some parts of the site and almost all trenches experienced rising ground water levels. Because of this, a strategy of investigation of any potential features immediately following the machine excavation of the trenches was employed.

7 RESULTS OF ARCHAEOLOGICAL INVESTIGATIONS

7.1 Archaeological Results and Discussion

7.1.1 Results are presented in the following sections, by trench. Basic trench information is summarised in Table B1 in Appendix B.

Figure 11 shows the location of all trenches and Figure 13 provides a more detailed plan of Fields 1-3 and the projected continuation of features and selected sections. Features are described in the following sections within each trench.

Field 1

7.1.2 This field was located on the western side of the site and contained Trenches 1-11 (Figures 1, 11 and 13). It was bound to the south by Jerusalem Drove, by an access road to the west and by drainage ditches on the north and eastern sides.

7.1.3 A number of possible archaeological features were identified in Trenches 4, 8, 10 and 11. On investigation all of these were considered to be natural features such as tree throws or a result of root or animal disturbance. One small irregular feature did contain a worked flint. A full description is presented below:

- Tree throw **15** was sub-oval in plan, measuring 0.70m in length and 0.35m wide. It had moderate sloping edges and an irregular, undulating base (Plate 2). It contained a single fill. Fill 14 was a mid greyish brown, clayey silt with occasional small stone inclusions. An undatable translucent black-grey flint flake was recovered from the surface of the feature. It had been struck from a river pebble and had two scars on its dorsal surface. This may be evidence of flint tool production in this area. A 10 litre sample (Sample 1) of this deposit was taken for environmental analysis which was devoid of plant remains other than charcoal fragments (Appendix C).

7.1.4 In an attempt to understand what may have caused the anomalies identified by geophysical survey, Trench 7 was excavated in a series of steps upto a maximum depth of 2m (Plate 3). No geological, archaeological or any other features were encountered which corresponded to the anomalies identified in the geophysics plot (Figure 11).

7.1.5 This field lay at around -0.10mOD at the northern end, gradually rising to approximately 0.90mOD at the south eastern corner of the field. A very small layer of peat between 5-10cm in thickness was recorded, surviving beneath the topsoil in all but Trench 6.

7.1.6 Artefacts recovered from the soil sampling of the topsoil, peat and sub soils are summarised in the table below:

Trench Number	Location found	Context number	Material	Date and Description
5	Topsoil	32	Tile	Fragment of peg tile. Post medieval
8	Topsoil	48	Flint	Side scraper, Late Neolithic. Translucent brown-grey flint with a chalky cortex

Table 2 : Results of deposit sampling, Field 1

Field 2

- 7.1.7 This field was located to the immediate east of Field 2 and contained trenches 12-26 (Figures 1, 11 and 13). It was bound by drainage ditches on all sides and is accessed from Jerusalem Drove to the south.
- 7.1.8 This field lay at around 0.05mOD at the northern end, gradually rising to approximately 1.14mOD at the southern end of the field. A very small layer of peat between 5-10cm in thickness was recorded only in the northern-most Trenches 12 and 13.
- 7.1.9 This field contained a semi-circular/horseshoe shaped ditch within Trench 18. With the consent of Cambridgeshire County Councils Historic Environment Team (CCC HET) an area around this trench was opened up to fully reveal the ditch in plan (Plate 4). It measured approximately 9.5m in diameter and appeared to be open-sided or truncated or constructed against a north-south boundary ditch to east (Figure 13). Despite 100% excavation, no dating evidence was retrieved nor did the environmental soil samples indicate any date or function. There was no evidence of any internal features or a bank. A full description of the ditch is below:
- This ditch/gully was originally excavated in three one metre slots (**230 / 224 / 220**) which were extended in an attempt to better understand the nature and date of the ditch. The ditch had an average width of 0.45m and depth of 0.28m with steep sloping edges and a flat base (Figure 13, Section 53) (Plate 5). It was filled by a dark brown coloured silty clay (229 / 223 / 119) with no obvious inclusions. No dating evidence was recovered from this ditch. A ten litre sample was taken from this deposit (for environmental analysis (fill 223, Sample 16) which was devoid of plant remains other than charcoal fragments (Appendix C).
- 7.1.10 The north-south ditch to the east was investigated in three slots in Trench 18, it was also recorded continuing in Trenches 25, 23, 21, 17 and 12. A sherd of glazed white stoneware pottery as well as a fragment of clay pipe and roof tile were retrieved from the slots dug through this ditch which date it to the 17th-19th century. Cartographic sources also indicate that it was in existence by 1833 (Figure 5). A full description of this ditch is presented below:
- This ditch was excavated in three slots in Trench 18 (**234 / 253 / 236**). It measured approximately 2m wide and 0.30m deep with steep sloping edges and a flat base (Figure 13, Section 56) (Plate 6). It contained a single fill. Fill 233 / 252 / 235 was a soft dark brown silty clay with no obvious inclusion. Fill 235 contained a single sherd of glazed stoneware, dating from the 17th-19th century.
 - This ditch was also investigated in Trench 21 in a single slot (**216**). It was linear in plan and measured 1.75m wide and 0.32m deep with steep sloping edges and a flat base (Plate 8). It contained a single fill. Fill 215 was a loose dark brown silty clay with occasional small stone inclusions. Finds retrieved from this slot included a fragment of tile and part of a clay pipe stem.
- 7.1.11 There was a narrow ditch/gully leading from the boundary ditch in an easterly direction. It is possible that this ditch was associated with the semi-circular gully, or perhaps an unconnected drainage ditch leading into the larger boundary ditch. This was investigated in Trenches 18 and 26 and is described below:
- This ditch was investigated in a single slot within the extended excavation area in Trench 18 (Figure 13). Ditch **255** was linear in plan, measuring 0.68m wide and 0.24m deep with steep sloping edges and a flat base. It contained a single fill. Fill 124 was a loose mid brown sandy silt with no obvious inclusions. No dating evidence was recovered from this deposit.

- 7.1.12 The fact that the semi-circular ditch does not continue beyond the boundary ditch which is firmly dated cartographically and by pottery to the post-medieval period, would suggest that it may be associated with it or even constructed against it, utilising it for drainage. The absence of postholes reinforce the interpretation of a temporary structure, perhaps constructed from turf or peat with a simple drainage gully around it. It is possible that the structure was built on the site during the period immediately following drainage, but prior to its use for cultivation when it may well have been used for pasture. The historic maps indicate this may have been prior to 1833 when the site first appears to have been used for cultivation (Figure 5), compared to the earlier map of 1829 (Figure 4). Potentially it may represent a small shelter for animals, pigsties or sheep shelters. It is also possible that it was a **small hut used by shepherds while tending their flocks and sometimes inhabited overnight. Similar examples, dated to the late medieval period were recorded during investigations at Wicken Fen (Gilmour, in prep). It was noted during this investigation at Wardy Hill, that the “ring ditch” was located on one of the driest parts of the site and was positioned on one of the highest areas which lay at 1.15mOD.**
- 7.1.13 Huts such as this have been widely recorded in the northern parts of England, Wales and Scotland and are known as shielings. Shielings can be found singly or in small groups, usually on marginal agricultural land. They served as temporary, summer accommodation often for people involved in the removal or protection of cattle or sheep, located some distance from the main settlement. English Heritage's studies of shielings have identified nine types by their shape in plan (English Heritage 2011), which includes “one or two-roomed ovoid” which is not dissimilar to the ditch in Trench 18. It is quite possible, as mentioned previously, that it was built utilising the existing drainage ditch and therefore not a complete ovoid. Although most often recorded as dry-stone construction, examples have been discovered using turf (like those at Wicken and possibly on this site), where, as with this example, only the drainage gully survives. Typically, they contain a single entrance, often just a gap in the wall and the doorway usually faces southwards. Although historical documents suggest that the use of shielings was mainly confined to the period up to the 16th century, there is a strong argument for continued use of such temporary shelters, particularly in open areas such as this, exposed to the elements and certainly when the nearest settlement of Wardy Hill is 0.75km away.
- 7.1.14 A second ditch, believed to be another post-medieval boundary ditch by the similar nature of the cut and fill was recorded in Trenches 23 and 26 on a north-east to south-west orientation (Figure 13). This ditch is described below:
- Ditch **185** was excavated in a single 1m slot in Trench 26. It was linear in plan, measuring 1.0m wide and 0.11m deep with gentle sloping edges and a flat base (Plate 7). It contained a single fill. Fill 184 was a loose mid brown sandy silt with no obvious inclusions. No dating evidence was recovered from this deposit.
- 7.1.15 Maps dating to the 19th century (Figures 5, 8 and 9) all indicate that all fields on the site were significantly more sub-divided with a series of parallel ditches on the current alignment. Interestingly Field 5 was subdivided into three areas with east-west orientated boundaries.
- 7.1.16 At the northern end of this field were a series of rectangular pits on a north-west to south-east orientation, these were noted in the northern-most trenches in Field 2 in Trenches 12-15 (Figure 13) and also in the Trenches investigated in Field 5 (Plate 9). These are thought to be post-medieval agricultural features, locally known as claying ditches or marl ditches. The ditches were approximately 2m long and 1.25m wide and

ran in parallel lines about with varying distances apart, in Trench 12 they were noted as being approximately 0.50m apart. Similar ditches/pits were recorded during excavations at Briggs Farm, Thorney near Peterborough in 2008 which are thought to have been dug using a steam plough (Pickstone and Mortimer 2009). The ditches are likely to have been dug to improve the drainage and mineral content of the peaty soil and to reduce soil loss from the windy conditions in the fens.

- 7.1.17 A number of other possible archaeological features were identified in Trenches 26, 22 and 12 which, on excavation, were all considered to be natural or a result of animal or root disturbance.
- 7.1.18 Artefacts recovered from the soil sampling of the topsoil, peat and sub soils are summarised in the table below:

Trench Number	Location found	Context number	Material	Date and Description
22	Topsoil	206	Tile	Fragment of tile. Post medieval
23	Topsoil	194	CBM	Fragments of tile and brick. Post medieval
24	Topsoil	188	CBM	Fragments of brick and tile Post medieval
24	Subsoil	189	Tile	Fragments of buff coloured tile. Post medieval
25	Topsoil	187	CBM	Fragment of brick post medieval
26	Topsoil	186	CBM and Ceramic	Fragments of brick and tile and a sherd of blue and white transfer ware. Post medieval

Table 3 : Results of deposit sampling, Field 2

Field 3

- 7.1.19 This field was located to between Fields 2 and 4 and contained Trenches 27-35 (Figures 1, 11 and 13). It was bound by drainage ditches on all sides and is accessed from Jerusalem Drove to the south.
- 7.1.20 This field contained a small number of possible archaeological features in Trenches 27, 30 and 32. all of which, on excavation were all considered to be natural features or a result of disturbance by tree root or animal burrowing.
- 7.1.21 This field lay at around 0.40mOD at the northern end, gradually rising to approximately 1.65mOD at the south-eastern corner of the field.
- 7.1.22 There was no evidence of any peat surviving within the trenches in this field and only modern field drains were noted. Trenches within this field rapidly filled with rain and groundwater.
- 7.1.23 Artefacts recovered from the soil sampling of the topsoil, peat and sub soils are summarised in the table below:

Trench Number	Location found	Context number	Material	Date and Description
29	Topsoil	209	CBM	Small fragment of brick or tile and lump of plaster. Post medieval
34	Flint	198	Topsoil	Small natural, unstruck flint

Table 4 : Results of deposit sampling, Field 3

Field 4

- 7.1.24 This field was located to the immediate east of Field 3 and contained Trenches 36-38 (Figures 1 and 11). It was bound by drainage ditches on all sides and is accessed from Jerusalem Drove to the south.
- 7.1.25 Trenches 37 and 38 contained a small number of possible archaeological features which, on excavation, were all considered to be natural or a result of animal or root disturbance.
- 7.1.26 This field lay at around 0.70mOD at the northern end, gradually rising to approximately 1.17mOD at the southern end.
- 7.1.27 There was no evidence of any peat surviving within the trenches in this field and only modern field drains were noted. Trenches within this field rapidly filled with rain and groundwater and as a result of months of higher than average rainfall prior to the start of work, there was a considerable amount of standing water on the field surface.
- 7.1.28 Artefacts recovered from the soil sampling of the topsoil, peat and sub soils are summarised in the table below:

Trench Number	Location found	Context number	Material	Date and Description
37	Topsoil	169	Brick	Large fragment of frogged and stamped orange brick. Post medieval

Table 5 : Results of deposit sampling, Field 4

Field 5

- 7.1.29 This field was located at the northern end of the site and contained Trenches 42-45 (Figures 1 and 11). It was bound by drainage ditches on all sides and is accessed from Field 2 to the south and via a track located on the northern end of the site. Given the absence of any significant archaeological features in Fields 1-4, it was agreed with CCC HET that it was no longer necessary to excavate the intended trenches in this field, but instead, excavate one (Trench 42) which is positioned closest to a sand bank/island as identified in the aerial photographic survey, and a second long trench (comprising Trenches 43-45) to better understand the geological deposits identified in previous phases of work in the northern part of the site and their archaeological potential. The results of the geoarchaeological investigations (Trenches 43-45) are presented in Section 8.
- 7.1.30 Trench 42 contained a small number of possible archaeological features which, on excavation, were all considered to be natural or a result of animal or root disturbance.

There were also ceramic field drains and post-medieval agricultural features (claying ditches or marl ditches) as recorded in Trenches 12-15 in Field 2.

- 7.1.31 This field lay at around -0.97mOD at the northern end of Trench 42, gradually rising to approximately -0.40mOD at the southern end of Trench 45. A layer of peat with a maximum thickness of 0.20m was recorded, surviving beneath the topsoil in all trenches within this field.
- 7.1.32 Maps dating to the 19th century (Figures 5, 8 and 9) all indicate that all fields on the site were significantly more sub-divided with a series of parallel ditches on the current alignment. Interestingly Field 5 was subdivided into three areas with east-west orientated boundaries. No evidence of these boundary ditches was recorded during the evaluation.
- 7.1.33 No finds were recovered during the bucket/soil sampling of any of the trenches in Field 5.

7.2 Finds Summary

- 7.2.1 A total of 17 fragments of post-medieval ceramic building material were recovered from the evaluation phase all from topsoil and subsoil sampling. Two sherds of post medieval pottery were also recovered from the top and sub soil sampling and one from a boundary ditch. Two struck flints were found, one in a natural feature in Field 1 and another from the topsoil. A fragment of clay pipe stem was also retrieved from a post-medieval boundary ditch.
- 7.2.2 No faunal remains were encountered during the evaluation.

7.3 Environmental Summary

- 7.3.1 Six samples were taken from features within the evaluated areas of the site in order to assess the quality of preservation of plant remains and their potential to provide useful data as part of further archaeological investigations. All samples (except for the ring ditch in Field 3) were taken from features to establish their validity as being archaeological as opposed to natural features. The results are presented in Appendix C.
- 7.3.2 The samples were devoid of plant remains other than charcoal fragments and modern seeds and rootlets. No further work is recommended

8 RESULTS OF GEOARCHAEOLOGICAL INVESTIGATIONS

By Greame Clarke and Carl Champness

8.1 Introduction

8.1.1 As part of the archaeological evaluation of the Ouse Washes Habitat Creation Scheme, three trenches were opened to better understand the geological features identified in the previous phases of work in the northern part of the site. Trench 43 targeted a palaeochannel sequence identified during the previously evaluation (OA 2011) beneath the northernmost part of the site. Trench 45 targeted a roddon identified from aerial photographs (Palmer 2012) running east to west and to the south of the palaeochannel. Trench 44 was excavated between the two potential watercourses to evaluate the potential for past human activity at their edges. In addition, a series of eleven test pits were dug into the base of the geoarchaeological trenches to further understand the build-up of deposits beneath the site and map the depths and palaeotopography of the underlying Ampthill Clay. The location of each test pit is shown on Figure 11 and the mapped horizons above ordnance datum of each deposit encountered are presented in Figure 14 and Table 6. The information from borehole BH6, from the previous phase of work, is also included to complement these findings.

8.1.2 This section details the interpretations of the sedimentary sequence revealed by the geoarchaeological investigations. These sequences were recorded and interpreted with the assistance of Dr Steve Boreham from the Department of Geography, Cambridge University.

8.2 Results

8.2.1 The results of the evaluation have helped to generation a north-south interpretive cross-section of the deposits beneath the northern part of the site (Figure 14). The palaeochannel deposits have been mapped and correlated between trenches and test pits in order to understand the formation of the sedimentary sequence. The information from borehole BH6, from the previous phase of work, is also included to complement these findings.

	TP1	TP2	TP3	TP4	TP5	TP6	TP7	TP8	TP9	TP10	TP11
Unit I	-	-	-	-	-	-	-	-	-5.15	-4.36	-3.68
Unit II	-	-	-	-5.41	-5.49	-4.22	-4.14	-4.04	-3.95	-	-
Unit III	-	-	-	-	-1.99	-1.52	-1.44	-1.74	-1.65	-1.36	-0.98
Unit IV	-1.51	-1.87	-1.89	-1.91	-	-	-	-	-	-	-
Unit V	-1.01	-1.37	-1.39	-1.41	-1.49	-1.22	-1.14	-1.24	-1.15	-0.86	-0.68

Table 6: Elevation of Upper Horizon of Geoarchaeological Unit Encountered in Test Pits (m OD)

8.2.2 The deposits beneath the site were correlated into five main stratigraphic units:

Unit I: Stiff dark blueish grey clay

8.2.3 This unit represents the underlying solid geology of the Ampthill Clay.

Unit II: Medium dense sand and fine to medium angular and rounded gravel

- 8.2.4 This is a high-energy river gravel deposit that forms the lower part of a palaeochannel sequence cut into the Amphill Clay (see Plate 10). This unit formed at a depth between 4m and 9m below ground (-4.5m to -9.5m OD).
- 8.2.5 The coarse grained character of the deposits suggests accumulation under cold climate peri-glacial conditions during the last glaciation (Devensian) within high-energy braided meltwater streams. Any archaeological remains identified within these deposits are likely to have been significantly reworked by fluvial processes.
- 8.2.6 Preserved wood fragments were recovered from the saturated surface of the gravel in Test Pit 5 where a terrace, 20m wide, in the gravel surface was encountered at an elevation of -5.49m OD. During the previous phase of work borehole BH7 approximately 1.8km to the north-east of the site, encountered a lens of organic silt within the Pleistocene river gravel at an elevation of -4.64m OD (Oxford Archaeology 2011). This was considered to be reworked material relating to fossiliferous temperate stage deposits described immediately to the west of the site (West 2002). The preserved wood fragments probably represent further evidence for temperate stage event deposits being reworked by the palaeochannel.
- 8.2.7 The wood remains were carbon dated (Appendix D) to 44898±610 yrs BP (SUERC-43892) to a period between 60 and 27 ka years ago (Marine Oxygen isotope stage 3) during the last glacial period, which experienced several abrupt climatic warming phases known as Dansgaard-Oeschger events. Registered in Greenland ice core oxygen isotope records, these events are abrupt transitions from cold, stadial climate conditions to mild, interstadial conditions, eventually followed by a return to cold glacial conditions during the glacial maximum (Dansgaard et al.1993).

Unit III: Soft to firm blueish grey silty clay

- 8.2.8 This unit comprises a thick sequence of between 1-2m of structureless silty clay deposits that contain occasional poorly preserved reworked marine bivalves. The nature of this deposits is very similar to the underlying Amphill Clay and the interface between the two deposits could not be established with any certainty. However these deposits continued and were clearly mapped overlying the sandy gravel deposits of the palaeochannel to the north of the site.
- 8.2.9 These deposits are interpreted as a possible solifluction lobe extending 'downhill' from the south, beyond the limits of the trench. The material would have originated as part of the Amphill Clay that forms part of the island of Ely that appears to have eroded down slope under cold climate peri-glacial conditions.
- 8.2.10 Peri-glacial Involution features filled with orange brown sand (potential wind blown deposits) were also identified in the upper surface of this deposit immediately below the weathered zone (see Plate 11). This represents clear evidence for cold climate peri-glacial activity and dates the deposit to the end of the last glaciation.
- 8.2.11 There is a low potential for palaeolithic artefacts to have been reworked and incorporated within these deposits.

Unit IV: Medium dense blueish grey fine to medium sand

- 8.2.12 These deposits represent a later lower-energy phase within the palaeochannel sequence with accumulation of fluvial sand which may mark a shift in the channel's energy during the final phases of the Late Glacial period. A broad interface was identified between this later channel deposit and the solifluction lobe indicating that these deposits may be broadly contemporary events.

- 8.2.13 These deposits have the potential to contain residual early prehistoric artefacts that would have been transported by the river deposits. Only the more robust remains are likely to survive like flint tools which may have various levels of abrasion.

Unit V: Peaty topsoil

- 8.2.14 This unit comprises a well humified and slightly sandy peat deposit, representing the modern ploughsoil. The peaty topsoil was found to be up to 0.5m thick. Evidence of stratification with the peat was present but appeared to be the result of the wet interface with the underlying deposits. No evidence of any buried land surfaces or pre-inundation soils were found to be preserved underneath the ploughsoil. There is therefore no protection from the gradual wastage of the peaty topsoil and any potential archaeological deposits in this part of the site and this was born out by the lack of any archaeological features or artefacts identified across the area.
- 8.2.15 Based on the previous studies, accumulation of the Nordelph peat complex is known to have commenced from the middle Bronze Age, creating the fen island of Ely. The peat formed in a range of shallow wetland environments such as fen carr, sedge fen and reedswamp, where sedimentation was able to keep pace with the rising ground water-levels. These deposits continued to develop up until the 17th century when the fen was progressively being drained. Early prehistoric features may still potentially be preserved underneath the peat however these may equally have been either disturbed or truncated by modern deep ploughing. Only limited evidence remains of this character was observed in the evaluation trenches.

8.3 Conclusion

- 8.3.1 No archaeological features were identified or artefacts recovered from any of the trenches or deposits associated with the palaeochannel sequence. The extent of the river gravels at the base of the sequence were mapped and a terrace was identified which included the presence of preserved wood fragments dating from a potential interstadial (warm) episode during the Devensian Cold Stage. A solifluction lobe was also identified which extended beyond the limits of these trenches to the south, directly overlying the Amphill Clay and partly extending over the river gravel in the palaeochannel. An interface was identified between this material and the sand deposits of the upper part of the palaeochannel indicating these may have been broadly contemporary events.
- 8.3.2 The palaeochannel and solifluction deposits to the north of the site have the potential to contain Middle to Upper Palaeolithic remains, but no artefacts were identified during the evaluation. Based on the dating and evidence of periglacial conditions, the sequence would appear to have accumulated between the Devensian Cold Stage and the Late Glacial period (60 to 12 ka years ago).
- 8.3.3 The Nordelph peat sequence on site has low potential to contain later prehistoric remains due to the wastage of peat in the area and the depth of disturbance from deep ploughing. The sandbar deposits to the west of the site where prehistoric flint scatters were previously discovered during the Fenland Survey do not appear to extend into the site area. The potential roddon targeted by Trench 45 was found not to be present and instead revealed the solifluction lobe.

9 DISCUSSION AND CONCLUSIONS

- 9.1.1 Other than post-medieval boundary ditches and a possible small gully representing what is likely to be a broadly contemporary shelter, the archaeological evaluation did not identify any surviving significant remains.
- 9.1.2 The absence of features which corresponded with the geophysics plot can most likely be attributed to natural magnetic variations in the plough soil. If the anomalies had resulted from shallow archaeological features which were not visible during excavation, then it would be expected to have encountered more finds during the sampling of the top and sub soil layers.
- 9.1.3 The absence of artefacts from both the sampling of top and subsoil layers as well as during the field-walking stage would support the suggestion that it is unlikely that there was ever any settlement on or nearby to the site and given the flat, isolated nature of the site within the landscape as well as the wet soil conditions of the low-lying land, this is of no great surprise. The majority of artefacts recovered from the field walking are post-medieval and modern pottery and ceramic building material which, probably made their way onto the field as part of manuring and muck spreading during the 19th century once the site came into use for cultivation.
- 9.1.4 The Nordelph peat sequence on site has low potential to contain later prehistoric remains due to the wastage of peat in the area and the depth of disturbance from deep ploughing. The sandbar deposits to the west of the site where prehistoric flint scatters were previously discovered during the Fenland Survey do not appear to extend into the site area. The potential roddon identified by the aerial photographic survey which was targeted by Trench 45, was found not to be present and instead revealed the solifluction lobe.
- 9.1.5 No archaeological features were identified or artefacts recovered from any of the trenches or deposits associated with the palaeochannel sequence. The extent of the river gravels at the base of the sequence were mapped and a terrace was identified which included the presence of preserved wood fragments dating from a potential interstadial (warm) episode during the Devensian Cold Stage.



APPENDIX A. HER DATA

Table A1 Gazetteer of Monuments

ID	Type	Name	Evidence	Date
MCB9401	Findspot	Mesolithic object, Witcham (perforated pebble)		Mesolithic (10000 BC to 4001 BC)
MCB9404	Findspot	Mesolithic flint implement, Witcham		Mesolithic (10000 BC to 4001 BC)
MCB9406	Findspot	Flint scatter, Witcham		Mesolithic (10000 BC to 4001 BC)
MCB7110	Findspot	Flint flake, Witcham		Mesolithic (10000 BC to 4001 BC)
MCB19629	Monument	Palaeochannel at Habitat Creation Scheme, Ouse Washes	Sub surface deposit (<i>no evidence of it found during evaluation 2012</i>)	Prehistoric (500000 BC to 42 AD)
MCB7116	Findspot	Flint axe, Wardy Hill		Neolithic (4000 BC to 2201 BC)
MCB9365	Findspot	Axe, Witcham		Neolithic (4000 BC to 2201 BC)
MCB7118	Findspot	Neolithic axe, Coveney		Neolithic (4000 BC to 2201 BC)
MCB7125	Findspot	Neolithic axe, Coveney		Neolithic (4000 BC to 2201 BC)
MCB9407	Findspot	Flint scatter, Witcham		Neolithic (4000 BC to 2201 BC)
MCB12864	Findspot	Neolithic flint scatter, Coveney		Neolithic (4000 BC to 2201 BC)
MCB13917	Findspot	Neolithic axe, Coveney		Neolithic (4000 BC to 2201 BC)

MCB7109	Findspot	Neolithic axe, Witcham	Neolithic (4000 BC to 2201 BC)
MCB4806	Findspot	Neolithic axe find, Block Fen Farm	Neolithic (4000 BC to 2201 BC)
MCB7099	Findspot	Neolithic axehead, Chatteris	Neolithic (4000 BC to 2201 BC)
MCB18218	Monument	Possible long barrow, Chatteris	Neolithic (4000 BC to 2201 BC)
MCB11310	Monument	Burnt flint mound, Block Moor, Wardy Hill	Early Neolithic to Late Bronze Age (4000 BC to 701 BC)
MCB16715	Monument	Prehistoric and undated features, Block Fen	Late Neolithic to Early Bronze Age (3000 BC to 1501 BC)
MCB17892	Monument	Late Neolithic/Bronze Age remains, Block Fen, Chatteris	Late Neolithic to Early Bronze Age (3000 BC to 1501 BC)
MCB11302	Monument	Two ring ditches, artefact scatter, Chatteris	Late Neolithic to Early Bronze Age (3000 BC to 1501 BC)
MCB18276	Findspot	Flint scatter, Mepal Quarry extension	Late Neolithic to Early Bronze Age (3000 BC to 1501 BC)
MCB12797	Findspot	Flint scatter, Block Fen	Late Prehistoric (4000 BC to 42 AD)
MCB2204	Findspot	Polished axe find, Coveney	Bronze Age (2500 BC to 701 BC)
MCB9402	Findspot	Bronze Age axe, Witcham	Bronze Age (2500 BC to 701 BC)
MCB7102	Findspot	Bronze Age urn, Fortrey Hill Farm, Chatteris	Bronze Age (2500 BC to 701 BC)
MCB16735	Findspot	Flint scatter, Witcham	Bronze Age (2500 BC to 701 BC)
MCB10569	Monument	Bronze Age barrow, Chatteris	Bronze Age (2500 BC to 701 BC)
MCB10592	Monument	Bronze Age barrow, Chatteris	Bronze Age (2500 BC to 701 BC)
MCB14483	Monument	Possible barrow, Chatteris	Bronze Age (2500 BC to 701 BC)

MCB10568	Monument	Barrow, cremation, ring ditch, Block Fen barrow	earthwork	Bronze Age (2500 BC to 701 BC)
MCB72976	Monument	Block Fen Barrow Cemetery	cropmark, earthwork, destroyed monument, sub-surface deposit	Bronze Age (2500 BC to 701 BC)
MCB17538	Monument	Undated and modern features, Block Fen	Sub surface deposit	Early Bronze Age to 20th century (2500 BC to 2000 AD)
MCB17413	Monument	Late Bronze Age/ Early Iron Age stake holes, Block Fen	Sub surface deposit	Late Bronze Age to Early Iron Age (1000 BC to 401 BC)
MCB11309	Monument	Wardy Hill Iron Age ringwork	cropmark, sub surface deposit	Iron Age (800 BC to 42 AD)
MCB7121	Findspot	Iron Age pot, Coveney	Find	Iron Age (800 BC to 42 AD)
MCB9400	Monument	Roman settlement site, Witcham	Find	Roman (43 AD to 409 AD)
MCB7281	Findspot	Roman legionary helmet, Witcham	Find	Roman (43 AD to 409 AD)
MCB7098	Monument	Roman settlement, Block Fen Farm	Find	Roman (43 AD to 409 AD)
MCB16264	Findspot	Pottery and metalwork, Mepal	Documentary evidence	Roman to Late Saxon (43 AD to 1065 AD)
MCB11799	Monument	Medieval hermitage, Downham Hythe	cropmark	Medieval (1066 AD to 1539 AD)
MCB11306	Monument	?Deserted medieval settlement, square enclosure, Coveney	earthwork	Medieval (1066 AD to 1539 AD)
MCB7119	Monument	Ridge and furrow, Coveney	Documentary evidence	Medieval to 19th century (1066 AD to 1900 AD)
MCB7112	Monument	Windmill / wind pump, Coveney	extant building	Medieval to Modern (1066 AD to 2050 AD)
MCB12284	Building	Saint Peter-ad-Vincula's Church, Coveney		

MCB7119	Monument	Post-medieval earthworks (bank, fishpond, hollow way, watercourse, windmill mound, Coveney	earthwork	Post Medieval (1540 AD to 1900 AD)
MCB7075	Monument	Wind pump, Chatteris	Documentary evidence	Post Medieval (1540 AD to 1900 AD)
MCB7106	Monument	Wind pump, Welches Dam, Chatteris	Documentary evidence	Post Medieval (1540 AD to 1900 AD)
MCB7111	Monument	Wind pump, Witcham	Documentary evidence	Post Medieval (1540 AD to 1900 AD)
MCB7169	Building	Fortrey Hall	extant building	17th century to 19th century (1601 AD to 1900 AD)
MCB16604	Building	Sutton and Mepal diesel engine house, pumping station	extant building	19th century to 20th century (1840 AD to 1928 AD)
MCB17172	Building	Methodist Church, Coveney	extant building	19th century to Modern (1801 AD to 2050 AD)
MCB16474	Monument	Destroyed pillboxes and gun emplacement, Welches Dam	demolished building	World War II (1939 AD to 1945 AD)
MCB15194	Monument	Searchlight site, pillbox, Wardy Hill, Coveney	structures	Modern (1901 AD to 2050 AD)
MCB11846	Monument	Soilmarks, Witcham	cropmark	Undated
MCB11311	Monument	Ring ditches and enclosures, Coveney	cropmark	Undated
MCB11314	Monument	Sub-rectangular enclosure, Witcham	cropmark	Undated
MCB13038	Monument	Square enclosure and ring ditch, Coveney	cropmark	Undated
MCB11317	Monument	?enclosure, ring ditch, Witcham	cropmark	Undated
MCB11318	Monument	Rectangular enclosure, Mepal	cropmark	Undated

MCB14298	Park/Garden	Park, Fortrey Hall, Chatteris	Documentary evidence	Undated
MCB13039	Monument	Square enclosure, Coveney	cropmark	Undated
MCB11312	Monument	Enclosure complex, Witcham	cropmark	Undated
MCB11304	Monument	Rectangular enclosure, Witcham	cropmark	Undated
MCB15035	Monument	Undated features, Block Fen	Sub surface deposit	Undated

Table A2 Gazetteer of Listed Buildings

ID	Name	Date	Grade	NGR
DCB1131	Stable to rear and West of Mansion Farmhouse, Main Street, Coveney	C18	II	TL 48945 82272
DCB1339	Manor Farmhouse, 2 Main Street, Coveney	C16 core within mainly c.1800 front range.	II	TL 48858 82111
DCB1340	Church of St Peter-Ad-Vincula, Main Street, Coveney	C13-C15. Restored 1896	I	TL 48941 82187
DCB1341	Cottage, 43 Main Street, Coveney	C18	II	TL 48977 82351
DCB1528	Fortrey's Hall, Mepal Fen	Late C17 with C19 century alterations	II	TL 44426 82629
DCB792	Pound and Lockup, Main Street, Coveney	1850	II	TL 48716 81848
DCB793	Cottage, 24 Main Street, Coveney	C18	II	TL 49043 82380
DCB794	Mansion Farmhouse, 41 Main Street, Coveney	Late C16, with late C17 addition	II*	TL 48985 82256

Table A3 Gazetteer of fieldwork

Event ID	Name	Organisation	Date of event	NGR
ECB751	Excavations at Wardy Hill ringwork 1991-1992	Cambridge Archaeological Unit Hertfordshire Archaeological Trust	Autumn 1991- Winter 1992	TL 47800 82028 TL 44491
ECB1892	Excavation at Block Fen, 2003 Further evaluation at Block Fen, Meadlands	Archaeological Solutions	01/09/2003-30/09/2003	83987 TL 44013
ECB2217	(trenches 187-201), Chatteris, 2006 Further evaluation at Block Fen (trenches 2002-5),	Archaeological Solutions	10/02/2006-02/03/2006	83979 TL 43880
ECB2569	2006	Archaeological Solutions	25/09/2006-28/09/2006	83872 TL 43926
ECB2593	Further excavation at Block Fen, 2007 Phase 1 assessment, Block Fen B (Pearson	Archaeological Solutions	01/07/2000 - 30/09/2007	84074 TL 43242
ECB130	Land), Chatteris, 1992	Tempus Reparatum	01/05/1992 - 29/01/1993	83380
ECB1548	Phase 2 assessment, Block Fen B (Pearson Land), 1992	Tempus Reparatum	01/01/1994-05/05/1994	TL 43011 83389
ECB2580	Excavation of area 5, Block Fen B, Chatteris, 2003-5	Archaeological Solutions	01/09/2003-31/10/2005	TL 43421 83360 TL 43672
ECB2623	Excavation of area 5, Block Fen B, Chatteris, 2006 Phase II evaluation at Block Fen (trenches 109-	Archaeological Solutions	01/05/2006-30/06/2006	83761 TL 44242
ECB2049	186), Meadlands, 2005	Archaeological Solutions Hertfordshire Archaeological Trust	April - May 2005	84250 TL 44280
ECB878	Evaluation at Block Fen, Meadlands, 2002	Stratascan	01/02/2002-28/02/2002	84145 TL 44295
ECB524	Geophysical survey at Block Fen, Mepal, 1998	Hertfordshire Archaeological Trust	12/08/1998-15/12/1998	84124 TL 44309
ECB1545	Evaluation at Block Fen, Mepal, 1998	Hertfordshire Archaeological Trust	01/12/1998-31/12/1998	83935



ECB1547	AP assessment at Block Fen, 1992 Phase 2 evaluation at Block Fens, Meadlands,	Air Photo Services (Cambridge)	May 1992	TL 42900 83700
ECB1807	2004 AP assessment, Chatteris to Haddenham water	Archaeological Solutions	August 2004	TL 44432 84581
ECB2987	scheme, 2007 Monitoring of geotechnical boreholes at Ouse	Air Photo Services (Cambridge)	01/12/2007 - 31/12/2007	TL 43025 81857
ECB3511	Washes, Coveney 2011	Oxford Archaeology	01/03/2011 - 31/03/2011	TL 4657 8271 TL441836 and
ECB3137	AP assessment, Mepal quarry, 2009	Air Photo Services (Cambridge)	01/01/2008 - 31/12/2008	TL449843 TL 44968
ECB3163	Fieldwalking at Mepal Quarry Extension, 2008	SLR Consulting	01/01/2009 - 28/02/2009	84377 TL 44968
ECB3229	Geophysical survey, Mepal Quarry, 2009	ArchaeoPhysica	01/04/2009 - 30/05/2009	84279
ECB2225	Geophysical survey, Wardy Hill, 1993	Ancient Monuments Lab	17/05/1993 - 19/05/1993	TL 4771 8194
ECB1544	AP assessment Block Fen, Mepal, 1998	Air Photo Services (Cambridge)	Feb-98	TL 443 840



APPENDIX B. SUMMARY OF EVALUATION RESULTS

Table B1: Summary of evaluation results, by field

Field 1

Trench No.	Length (m)	Orientation	Depth of topsoil (m)			Depth of peat (n/a where not present) (m)			Depth of subsoil (m)			Height of top of trench (mOD)		Height of base of trench (mOD)		Summary of finds recovered from bucket sampling			Summary of trench contents
			N/E	Mid	S/W	N/E	Mid	S/W	N/E	Mid	S/W	N/E	S/W	Top-soil	Peat	Sub-soil			
1	50	Wnw-ese	0.32	-	0.35	0.08	n/a	0.1	0.12	0.11	-0.11	-0.38	-0.76	-	-	-	-	-	No archaeology
2	100	Nne-ssw	0.35	0.25	0.3	0.07	0.22	0.1	0.08	0.08	0.34	-0.35	-0.22	-	-	-	-	-	No archaeology
3	100	Nne-ssw	0.25	0.25	0.28	0.12	0.15	0.15	0.15	0.12	0.23	-0.38	-0.2	-	-	-	-	-	Natural features 29 and 31
4	50	Wnw-ese	0.25	-	0.28	0.05	0.05	0.05	0.05	-	0.27	0.24	-0.08	-	-	-	-	-	Natural feature 15
5	100	Nne-ssw	0.22	0.25	0.3	0.1	0.05	0.09	0.12	0.12	0.37	-0.32	-0.55	-	-	-	-	-	No archaeology
6	100	Wnw-ese	0.28	0.15	0.2	0.06	0.08	0.13	0.21	0.12	0.22	0.22	-0.31	-	-	-	-	-	No archaeology
7	75	Nne-ssw	0.28	0.28	0.28	n/a	0.08	0.12	0.1	0.13	0.65	0.21	0.18	-	-	-	-	-	No archaeology
8	100	Nne-ssw	0.22	0.25	0.25	0.03	0.14	0.05	0.16	0.13	0.61	0.04	-0.05	-	-	-	-	-	Natural features 65, 67, 73, 75, 71 tree bowls 69, 77
9	50	Wnw-ese	0.23	-	0.28	0.11	-	0.09	0.15	-	0.43	-0.07	-0.06	-	-	-	-	-	Natural features 83, 85 90 87 tree bowl 81
10	100	Nne-ssw	0.26	0.24	-	0.1	0.1	-	0.03	0.12	1.04	-0.14	0.58	-	-	-	-	-	Natural features 92, 106, 94, 98; 96, 100, 102, 104

11	100	Wnw-ese	0.26	-	0.2	0.15	-	0.05	0.07	-	n/a	0.92	0.78	0.47	-0.32	-	-	-	Natural features 108, 117, 139 ; modern drain 110, 133 ; tree bowl 148
----	-----	---------	------	---	-----	------	---	------	------	---	-----	------	------	------	-------	---	---	---	---

Field 2

Trench No.	Length (m)	Orientation	Depth of topsoil (m)			Depth of peat (n/a where not present) (m)			Depth of subsoil (m)			Height of top of trench (mOD)		Height of base of trench (mOD)		Summary of finds recovered from bucket sampling			Summary of trench contents
			N/E	Mid	S/W	N/E	Mid	S/W	N/E	Mid	S/W	N/E	S/W	Top- soil	Peat	Sub-soil			
12	100	Wnw-ese	0.34	0.3	0.3	0.04	0.07	0.07	0.09	0.14	0.14	0.39	0.05	-0.06	-0.58	-	-	-	"Claying ditches/pits", post-medieval field boundary (not excavated)
13	100	Nne-ssw	0.28	0.32	0.28	0.08	n/a	n/a	0.14	0.09	0.1	0.15	0.91	-0.48	0.44	-	-	-	"Claying ditches/pits",
14	100	Nne-ssw	0.32	0.32	0.22	n/a	n/a	n/a	0.3	0.2	0.18	0.44	1.01	-0.17	0.68	-	-	-	"Claying ditches/pits",
15	100	Nne-ssw	0.34	0.32	0.25	n/a	n/a	n/a	0.1	0.05	0.04	0.74	1.41	0.28	1.04	-	-	-	"Claying ditches/pits",
16	50	Wnw-ese	0.28	-	0.3	n/a	n/a	n/a	0.17		0.1	1.35	1.07	0.86	0.64	-	-	-	No archaeology
17	100	Wnw-ese	0.29	0.25	0.23	n/a	n/a	n/a	0.19	0.09	0.13	1.35	1.18	0.89	0.67	-	-	-	Post-medieval boundary ditch (not excavated)
18	50, open area extension on eastern	Nne-ssw	0.23	0.3	0.28	n/a	n/a	n/a	0.07	0.06	0.1	1.27	0.98	0.78	0.55	-	-	-	Post-medieval boundary ditch 236/234/253 , "Ring Ditch" 100% excavated 220, 224, 230, 2 x ditches 255 and one unexcavated

	N/E	Mid	S/W	N/E	Mid	S/W	N/E	Mid	S/W	N/E	Mid	S/W	N/E	Mid	S/W	N/E	Mid	S/W	Top-soil	Peat	Sub-soil	
27	0.28	-	0.26	n/a	n/a	n/a	0.2	-	0.2	0.42	0.87	0.32	-0.48	0.32	-	-	-	-	-	-	-	Ditch [193]
28	0.3	0.3	0.28	n/a	n/a	n/a	0.2	0.18	0.15	1.12	0.9	0.33	0.57	0.33	-	-	-	-	-	-	-	No archaeology
29	0.23	0.28	0.32	n/a	n/a	n/a	0.15	0.18	0.12	1.22	1.1	0.62	0.67	0.62	Tile, plaster (209)	-	-	-	-	-	-	No archaeology
30	0.32	0.28	0.33	n/a	n/a	n/a	0.12	0.15	0.15	1.14	1.09	0.59	0.61	0.59	-	-	-	-	-	-	-	No archaeology
31	0.3	0.28	0.3	n/a	n/a	n/a	0.1	0.12	0.12	0.99	1.01	0.59	0.44	0.59	-	-	-	-	-	-	-	No archaeology
32	0.35	0.3	0.3	n/a	n/a	n/a	0.12	0.08	0.1	0.98	1.06	0.12	0.45	0.12	-	-	-	-	-	-	-	Natural feature 153
33	-	-	-	n/a	n/a	n/a	-	-	-	1	0.95	0.64	0.52	0.64	-	-	-	-	-	-	-	No archaeology
34	-	0.2	0.15	n/a	n/a	n/a	-	0.1	0.2	0.86	1.04	0.57	0.4	0.57	Flint (198)	-	-	-	-	-	-	No archaeology
35	0.35	0.25	0.3	n/a	n/a	n/a	0.06	0.09	n/a	1.65	1.15	0.79	1.15	0.79	-	-	-	-	-	-	-	No archaeology

Field 4

Trench No.	Length	Orientation	Depth of topsoil (m)	Depth of peat (n/a where not present) (m)	Depth of subsoil (m)	Height of top of trench (mOD)	Height of base of trench (mOD)	Summary of finds recovered from bucket sampling	Summary of trench contents

		N/E	Mid	S/W	N/E	Mid	S/W	N/E	Mid	S/W	N/E	Mid	S/W	N/E	Mid	S/W	Top-soil	Peat	Sub-soil	
36	100	nnw-sse	0.3	0.26	0.2	n/a	n/a	n/a	0.18	0.05	0.7	1.08	0.75	0.21	0.75	-	-	-	-	No archaeology
37	100	nnw-sse	0.29	0.25	0.25	n/a	n/a	0.1	0.09	0.16	0.96	0.81	0.42	0.44	0.42	Brick (166)	-	-	-	Natural features 155, 157, 163 ; [159, 165, drain 161
38	100	nnw-sse	0.31	0.3	0.34	n/a	n/a	0.1	n/a	n/a	0.8	1.17	0.73	0.3	0.73	-	-	-	-	Natural features 169, 171, 173, 175

Field 5

Trench No.	Length	Orientation	Depth of topsoil (m)			Depth of peat (n/a where not present) (m)			Depth of subsoil (m)			Height of top of trench (mOD)		Height of base of trench (mOD)		Summary of finds recovered from bucket sampling		Summary of trench contents		
			N/E	Mid	S/W	N/E	Mid	S/W	N/E	Mid	S/W	N/E	S/W	N/E	S/W	Top soil	Peat		Sub-soil	
42	100	Nne-ssw	0.39	0.34	0.37	0.2	0.04	0.05	0.17	0.12	0.08	-0.97	-0.75	-1.65	-1.13	-	-	-	-	"Claying ditches/pits"

APPENDIX C. ENVIRONMENTAL REMAINS

By Rachel Fosberry

C.1 Introduction and Methodology

- C.1.1 Six samples were taken from features within the evaluated areas of the site at Coveney, Ouse Washes in order to assess the quality of preservation of plant remains and their potential to provide useful data as part of further archaeological investigations. All samples (except for the ring ditch in Field 3) were taken from features to establish their validity as being archaeological as opposed to natural features.
- C.1.2 One bucket (approximately ten litres) of each of the bulk samples were processed by water flotation (using a modified Siraff three-tank system) for the recovery of charred plant remains, dating evidence and any other artefactual evidence that might be present. The flot was collected in a 0.3mm nylon mesh and the residue was washed through a 0.5mm sieve. Both flot and residue were allowed to air dry. The dried residue was passed through 5mm and 2mm sieves and a magnet was dragged through each resulting fraction prior to sorting for artefacts. The flot was examined under a binocular microscope at x16 magnification.

C.2 Results

- C.2.1 The samples were devoid of plant remains other than charcoal fragments and modern seeds and rootlets.

C.3 Discussion

- C.3.1 All of the samples contain charcoal as evidence of burning. Fragments larger than 1cm may be suitable for radiocarbon dating if required although it must be noted that charcoal can be considerably older than the deposit in which it is found. The following samples contain sufficient charcoal for dating:

Sample 1, fill 14 of pit(?) **15**, Sample 9, fill 132 of ditch(?) **133**, Sample 12, fill 152 of ditch(?) **153** and Sample 16, fill 223 of gully(?) **224**.

C.4 Further Work and Method Statement

If further excavations are planned for this area, it is recommended that a schedule for targeted environmental sampling should be appended to the updated project design.

APPENDIX D. RADIOCARBON DATING CERTIFICATE



Scottish Universities Environmental Research Centre

Director: Professor R M Eilam
 Rankine Avenue, Scottish Enterprise Technology Park,
 East Kilbride, Glasgow G75 0QF, Scotland, UK
 Tel: +44 (0)1355 223332 Fax: +44 (0)1355 228898 www.glasgow.ac.uk/suerc

RADIOCARBON DATING CERTIFICATE
 22 January 2013

Laboratory Code SUERC-43892 (GU29297)
Submitter Oxford Archaeology East
 15 Trafalgar Way
 Bar Hill
 Cambs. CB23 8SQ
Site Reference COVOUS12
Context Reference 243
Material Charcoal
 $\delta^{13}\text{C}$ relative to VPDB -26.6 ‰
Radiocarbon Age BP 44898 \pm 610

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standards, background standards and the random machine error.

The calibrated age ranges are determined using the University of Oxford Radiocarbon Accelerator Unit calibration program OxCal 4.1 (Bronk Ramsey 2009). Terrestrial samples are calibrated using the IntCal09 curve while marine samples are calibrated using the Marine09 curve.

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or Telephone 01355 270136 direct line.

Conventional age and calibration age ranges calculated by :-

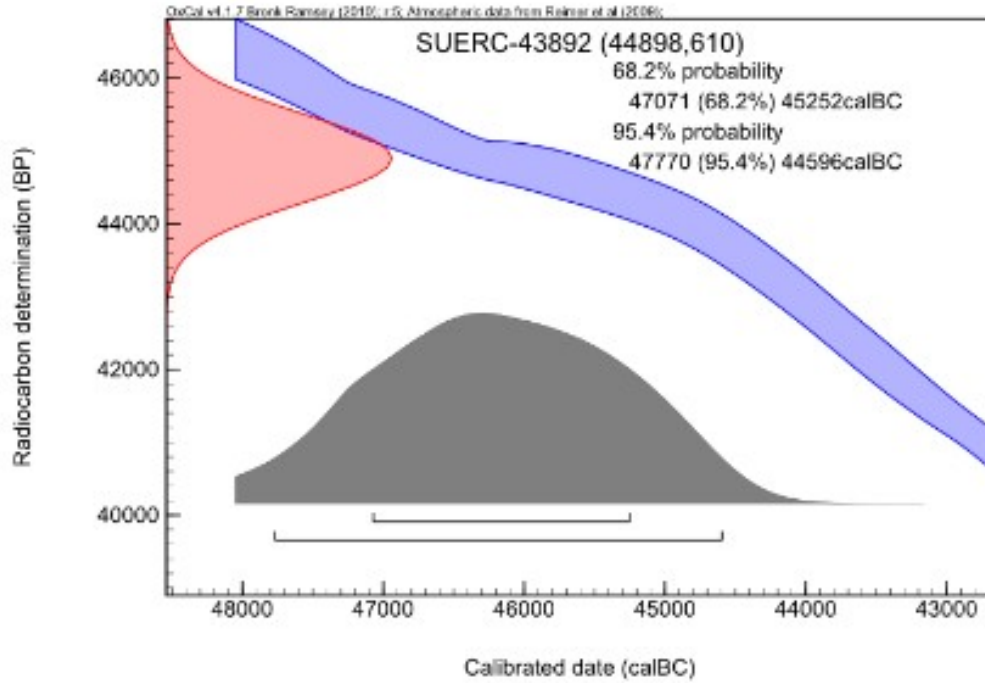
Date :-

Checked and signed off by :-

Date :-



Calibration Plot



APPENDIX E. BIBLIOGRAPHY

- | | | |
|-------------------------|----------------|---|
| Bewley, R. H | 1994 | Prehistoric Settlements. Batsford/English Heritage, London. |
| English Heritage | 2008 | Geophysical Survey in Archaeological Field Evaluation |
| English Heritage | 2011 | Introduction to Heritage Assets : Shielings |
| Evans, C, | 2003 | Power and Island Communities: Excavations at the Wardy Hill Ringwork, Coveney, Ely. EAA 103 |
| Gaffney, C. & Gater, J. | 2003 | Revealing the Buried Past – Geophysics for the Archaeologist, Tempus Publishing |
| Gilmour, N | <i>In prep</i> | Early Neolithic to medieval Archaeology at Dimmock's Cote Quarry, Wicken, Cambridgeshire; Archaeological Investigations from 1992 to 2011 |
| Hall, D.N. | 1996 | The Fenland Project, Number 10: Cambridgeshire Survey, Isle of Ely and Wisbech. East Anglian Archaeol.79. |
| Masters, P. | 2012 | Geophysical Survey of land at Coveney Fens, Cambridgeshire : Cranfield Forensic Institute Report No. 067 |
| Oxford Archaeology | 2012 | Ouse Washes, Habitat Creation Scheme, Coveney, Cambridgeshire: Geoarchaeological Field Survey Report. OA Job No: 5141. |
| Oxford Archaeology | 2012 | Ouse Washes, Habitat Creation Scheme, Coveney, Cambridgeshire, Archaeological Watching Brief Report. Report no 1236 |
| Palmer, RJ, | 2012 | Land at Coveney and Witcham, Cambridgeshire: Aerial Photographic Assessment. Report no: 2012/9, October 2012 |
| Scollar, I. | 2002 | Making things look vertical, in Bewley, R.H. and Rączkowski, W., (ed). Aerial archaeology: developing future practice. |

NATO Science Series, Vol 337, 166-172.

Scollar, I.	2012	http://www.uni-koeln.de/~al001/airdown.html (accessed 3 January 2012)
Scollar, I. and Palmer, R.,q	2008	Using Google Earth Imagery. AARGnews 37, 15-21.
SSEW	1983	Soils of England and Wales: sheet 4: Eastern England (1:250,000). Soil Survey of England and Wales, Harpenden.
Victoria County History	1967	Vol IV: Cambridge and the Isle of Ely

HISTORIC MAPS CONSULTED

All maps consulted were at the Cambridgeshire Archives. Their reference number is stated where known.

Description of map	Date of map	Cambridgeshire Archives Reference
Jonas Moore's Map of the Great Level (South-West Part)	1663	R59.31.40.13
The Great Level of the Fens called Bedford Level by Samuel Wells	1829	
Plans of land subject to the Eau Brink Tax, by JG Lenny	1833	C.29
Tithe Map of Coveney	1840	P51/27/1
Tithe Map of Witcham	1841	
Tithe Map of Ely, Byall Fen	1846	439/P14
Ordnance Survey First Edition Map; 6 inch to one mile	1886	Sheets XXV NE and XXI SE

Ordnance Survey Third Edition Map	1921-28	R 59.31.40.36iii
-----------------------------------	---------	------------------

APPENDIX F. OASIS REPORT FORM

Project Details

OASIS Number	oxfordar3-141616		
Project Name	Archaeological Evaluation on land north of Jerusalem Drive, Wardy Hill, Coveney, Cambs		
Project Dates (fieldwork) Start	13-11-2012	Finish	14-12-2012
Previous Work (by OA East)	Yes	Future Work	Unknown

Project Reference Codes

Site Code	COVOUS12	Planning App. No.	n/a - pre planning
HER No.	ECB3919	Related HER/OASIS No.	ECB3511 / oxfordar3-90100

Type of Project/Techniques Used

Prompt	Planning condition
Development Type	Other

Please select all techniques used:

<input checked="" type="checkbox"/> Aerial Photography - interpretation	<input type="checkbox"/> Grab-Sampling	<input type="checkbox"/> Remote Operated Vehicle Survey
<input checked="" type="checkbox"/> Aerial Photography - new	<input type="checkbox"/> Gravity-Core	<input checked="" type="checkbox"/> Sample Trenches
<input type="checkbox"/> Annotated Sketch	<input type="checkbox"/> Laser Scanning	<input type="checkbox"/> Survey/Recording Of Fabric/Structure
<input type="checkbox"/> Augering	<input type="checkbox"/> Measured Survey	<input checked="" type="checkbox"/> Targeted Trenches
<input type="checkbox"/> Dendrochronological Survey	<input type="checkbox"/> Metal Detectors	<input type="checkbox"/> Test Pits
<input checked="" type="checkbox"/> Documentary Search	<input type="checkbox"/> Phosphate Survey	<input type="checkbox"/> Topographic Survey
<input checked="" type="checkbox"/> Environmental Sampling	<input type="checkbox"/> Photogrammetric Survey	<input type="checkbox"/> Vibro-core
<input checked="" type="checkbox"/> Fieldwalking	<input checked="" type="checkbox"/> Photographic Survey	<input type="checkbox"/> Visual Inspection (Initial Site Visit)
<input checked="" type="checkbox"/> Geophysical Survey	<input type="checkbox"/> Rectified Photography	

Monument Types/Significant Finds & Their Periods

List feature types using the [NMR Monument Type Thesaurus](#) and significant finds using the [MDA Object type Thesaurus](#) together with their respective periods. If no features/finds were found, please state "none".

Monument	Period	Object	Period
Ditch	Uncertain	Pottery	Post Medieval 1540 to 1901
Ditch	Post Medieval 1540 to 1901	Lithics	Neolithic -4k to -2k
Pit	Post Medieval 1540 to 1901		Select period...

Project Location

County	Cambridgeshire	Site Address (including postcode if possible)
District	East Cambridgeshire	Land north of Jerusalem Drive, Wardy Hill, Coveney Cambridgeshire CB6 3NN
Parish	Coveney	
HER	Cambridgeshire	
Study Area	28.9ha	National Grid Reference TL 4656 8278

Project Originators

Organisation	OA EAST
Project Brief Originator	Cambs County Council Historic Environment Team
Project Design Originator	Dr Paul Spoerry
Project Manager	Dr Paul Spoerry
Supervisor	Taleyna Fletcher

Project Archives

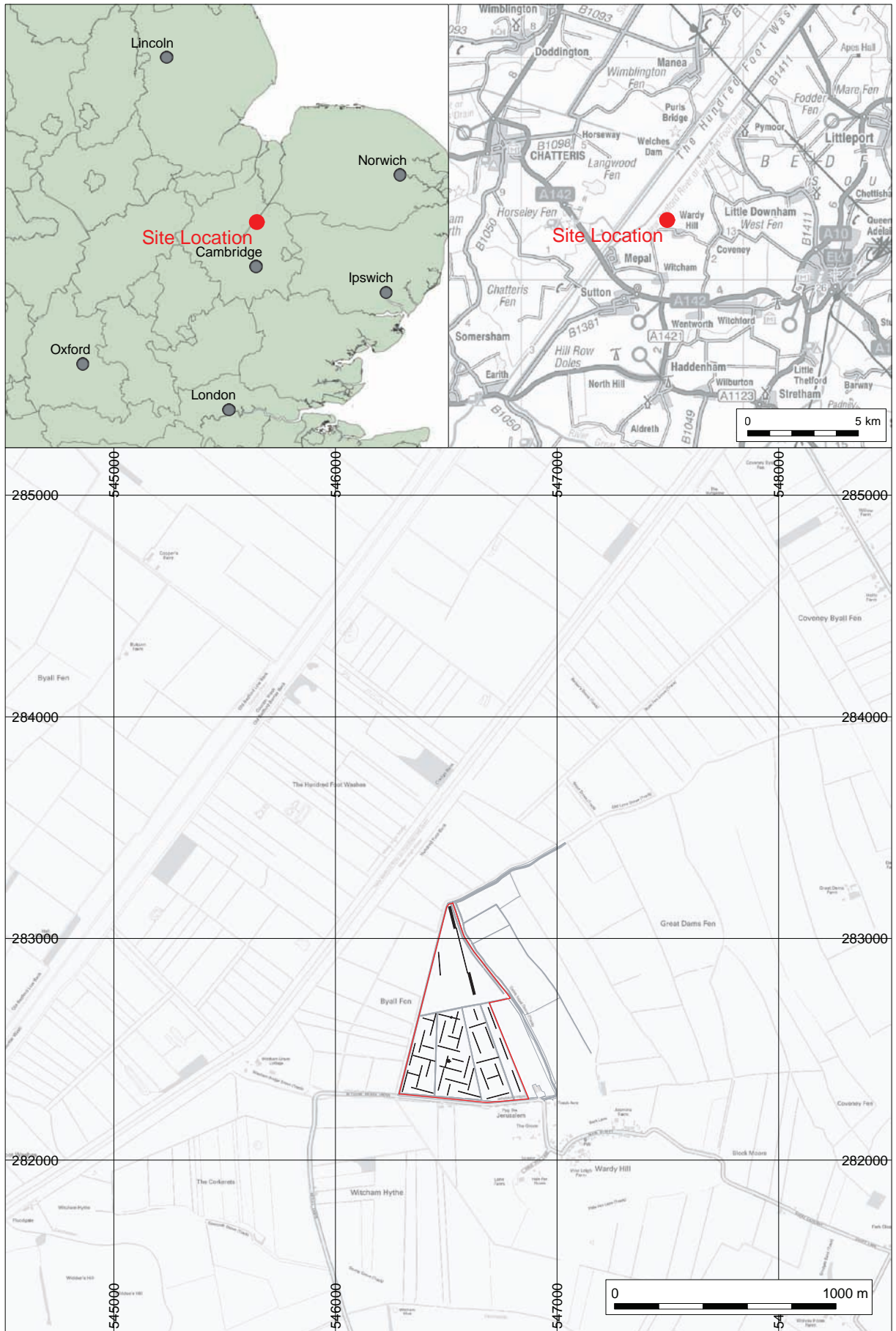
Physical Archive	Digital Archive	Paper Archive
Cambs County Stores	OA East Offices, Bar Hill	Cambs County Stores
COVOUS12	COVOUS12	COVOUS12

Archive Contents/Media

	Physical Contents	Digital Contents	Paper Contents
Animal Bones	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ceramics	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Environmental	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Glass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Human Bones	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Industrial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Metal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stratigraphic		<input type="checkbox"/>	<input type="checkbox"/>
Survey		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Textiles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wood	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worked Bone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worked Stone/Lithic	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Digital Media	Paper Media
<input type="checkbox"/> Database	<input type="checkbox"/> Aerial Photos
<input checked="" type="checkbox"/> GIS	<input checked="" type="checkbox"/> Context Sheet
<input type="checkbox"/> Geophysics	<input checked="" type="checkbox"/> Correspondence
<input checked="" type="checkbox"/> Images	<input type="checkbox"/> Diary
<input checked="" type="checkbox"/> Illustrations	<input checked="" type="checkbox"/> Drawing
<input type="checkbox"/> Moving Image	<input type="checkbox"/> Manuscript
<input type="checkbox"/> Spreadsheets	<input type="checkbox"/> Map
<input checked="" type="checkbox"/> Survey	<input type="checkbox"/> Matrices
<input checked="" type="checkbox"/> Text	<input type="checkbox"/> Microfilm
<input type="checkbox"/> Virtual Reality	<input type="checkbox"/> Micro
	<input checked="" type="checkbox"/> Survey

Notes:



Contains Ordnance Survey data © Crown copyright and database right 2011. All rights reserved. License No.

Figure 1: Site location with trenches (black) and development area (red)

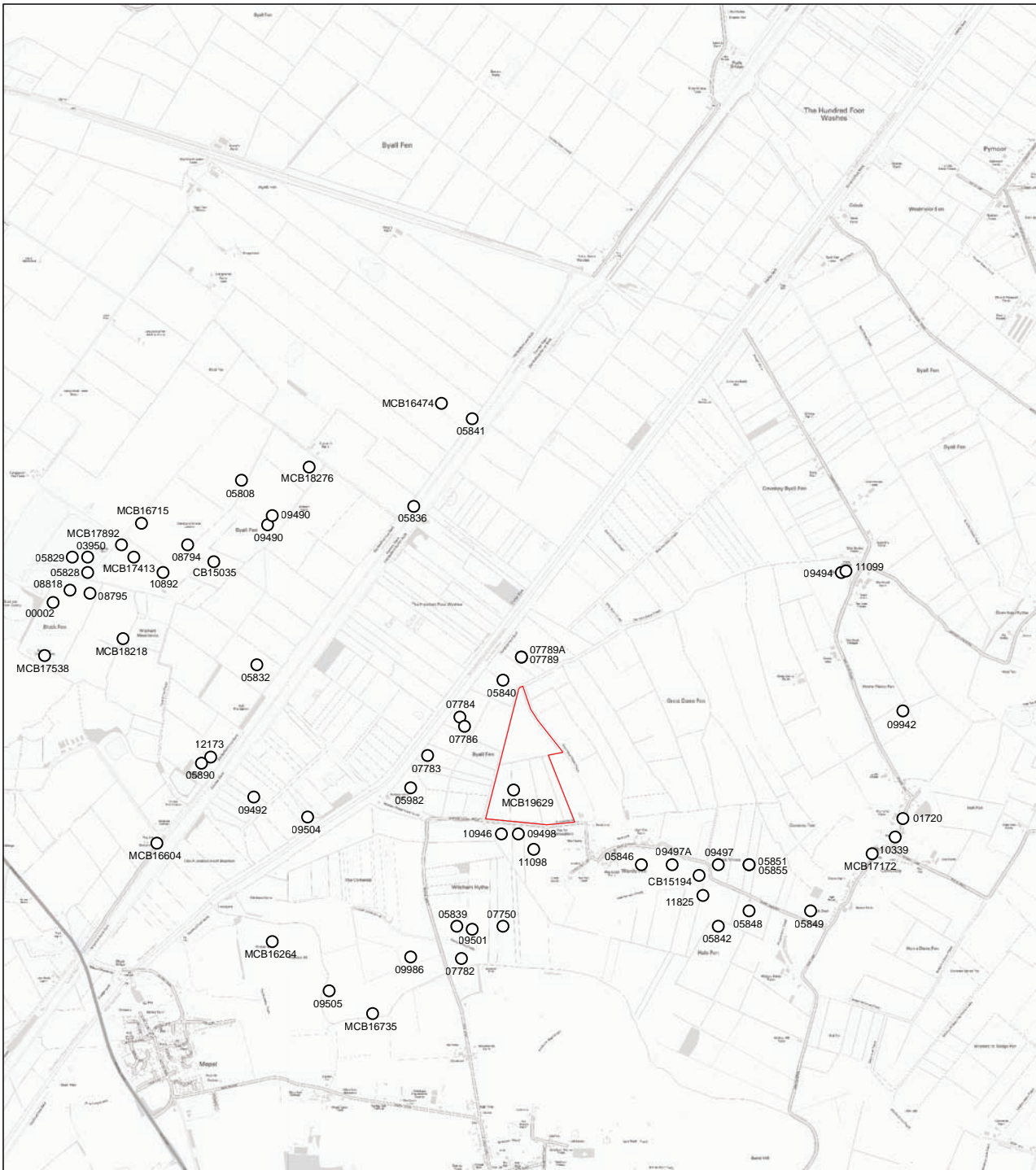


Figure 2: Site location (red) with HER entries



Figure 3: The Map of the Great Levels by Jonas Moore (South-West Part), 1663, showing study area (red)



Figure 5: Plan of land subject of the Eau Brink Tax, by JG Lenny, 1833, showing study area (red)



Figure 6: Tithe Map of Coveney, 1840, showing study area (red)

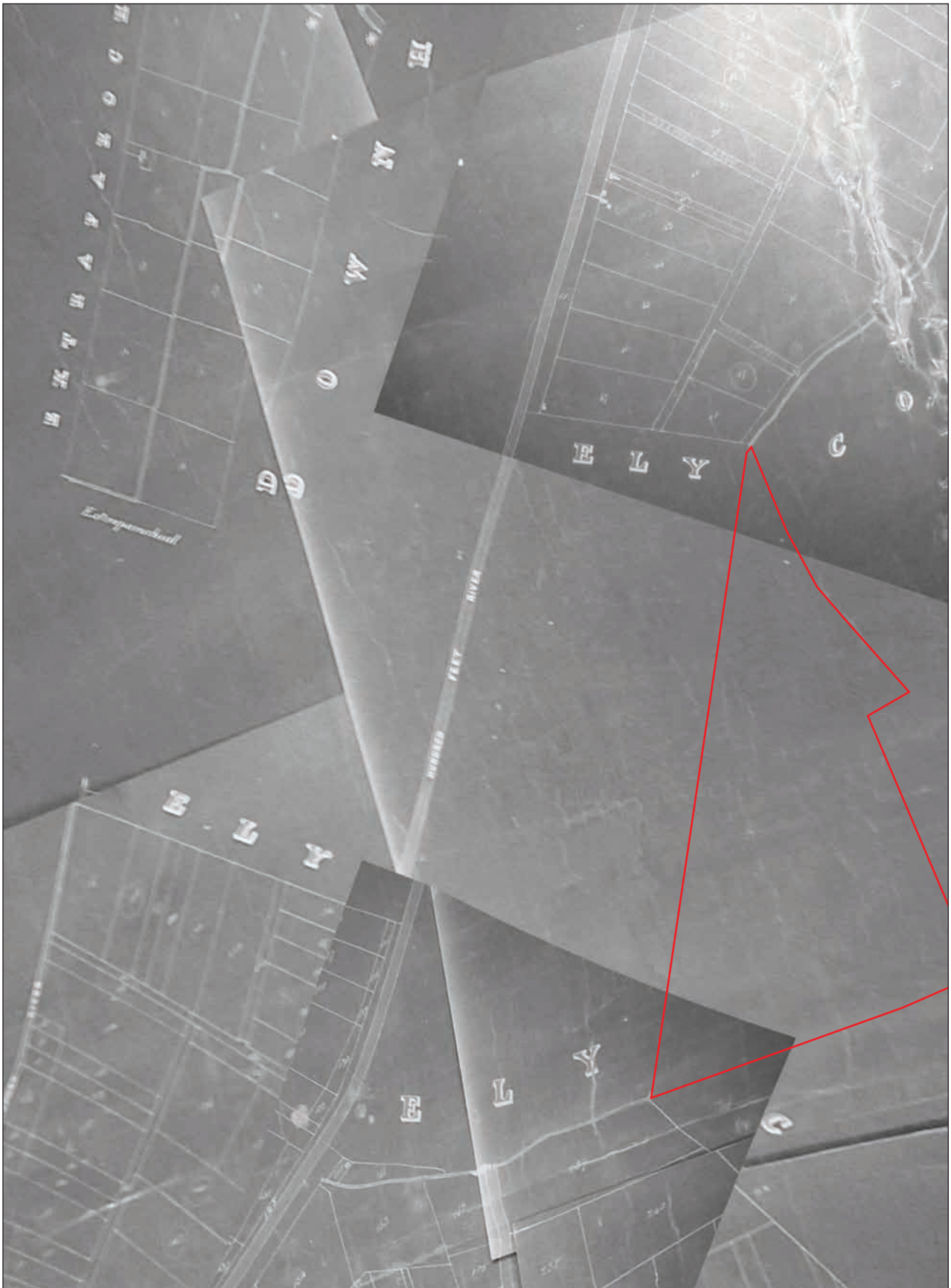


Figure 7: Tithe Map of Witcham, 1841



Figure 8: Tithe map of Ely, 1846, showing study area (red)

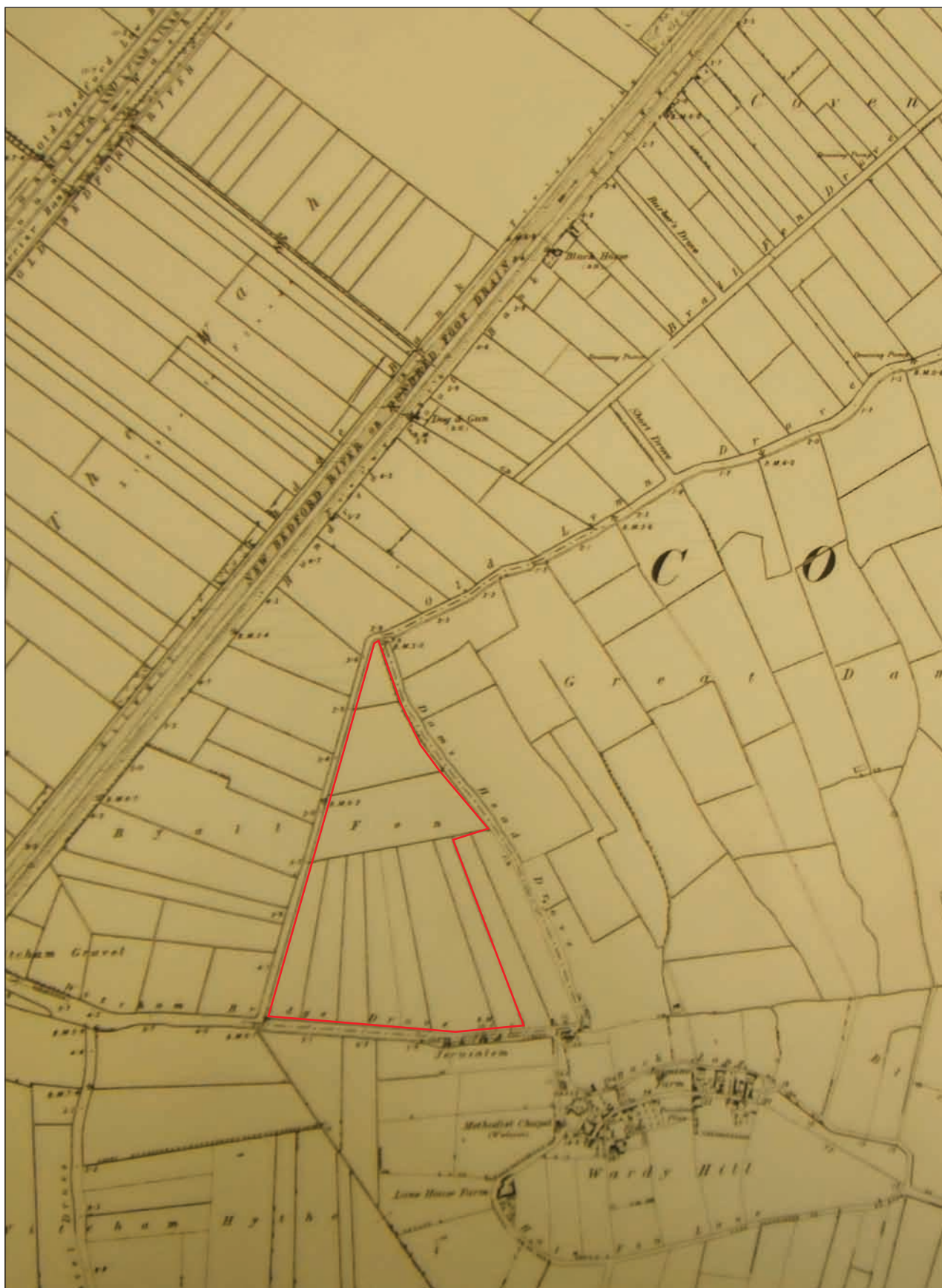


Figure 9: First Edition Ordnance Survey (Sheets XXV NW, XXV NE, XX1 SE), 6 inches to 1 mile, 1886, showing study area (red)



Figure 10: 1921-1928 Edition Ordnance Survey map, showing study area (red)

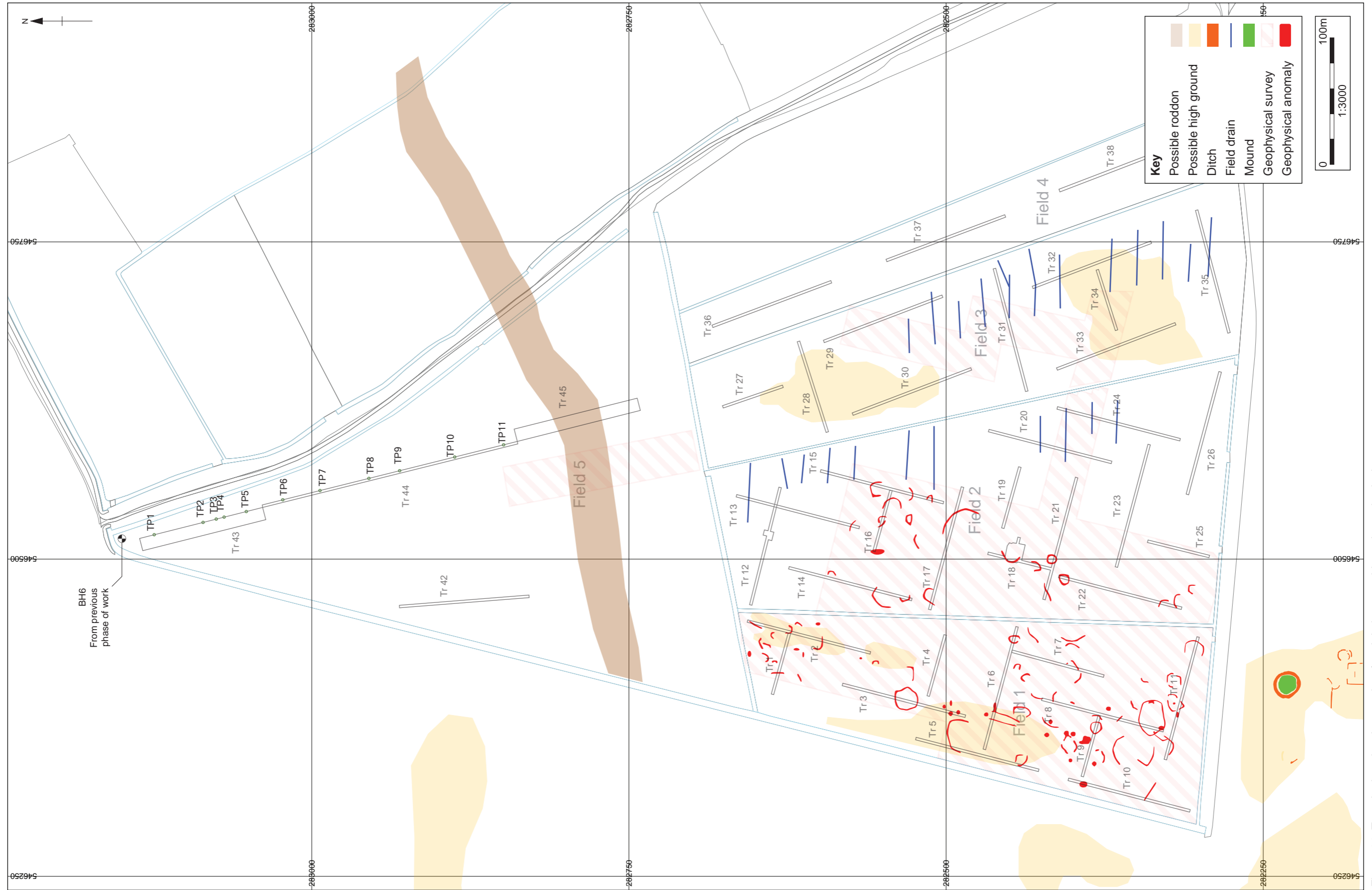


Figure 11: Trench plan showing results of aerial photographic and geophysical surveys

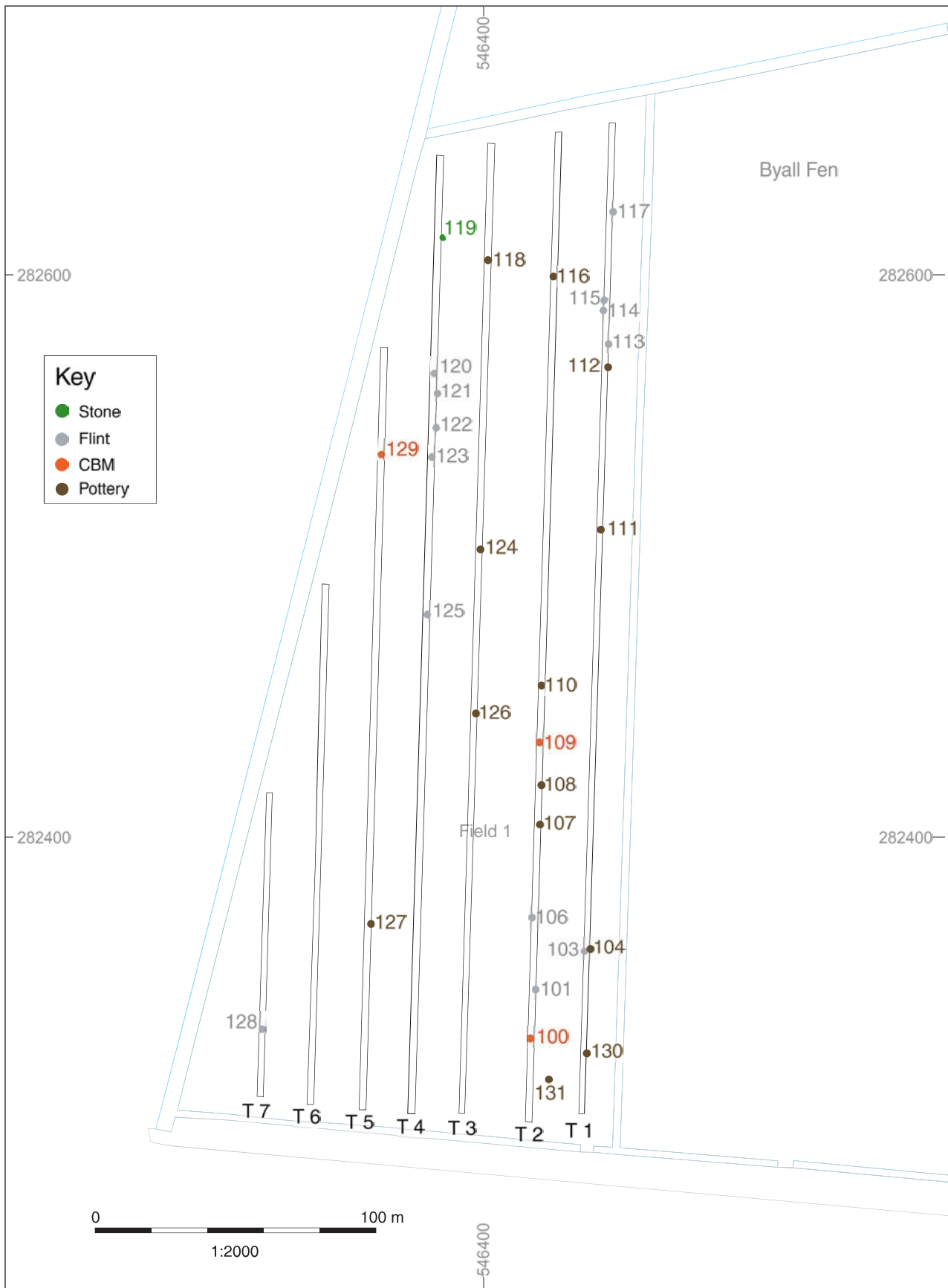


Figure 12: Plot of field walking results

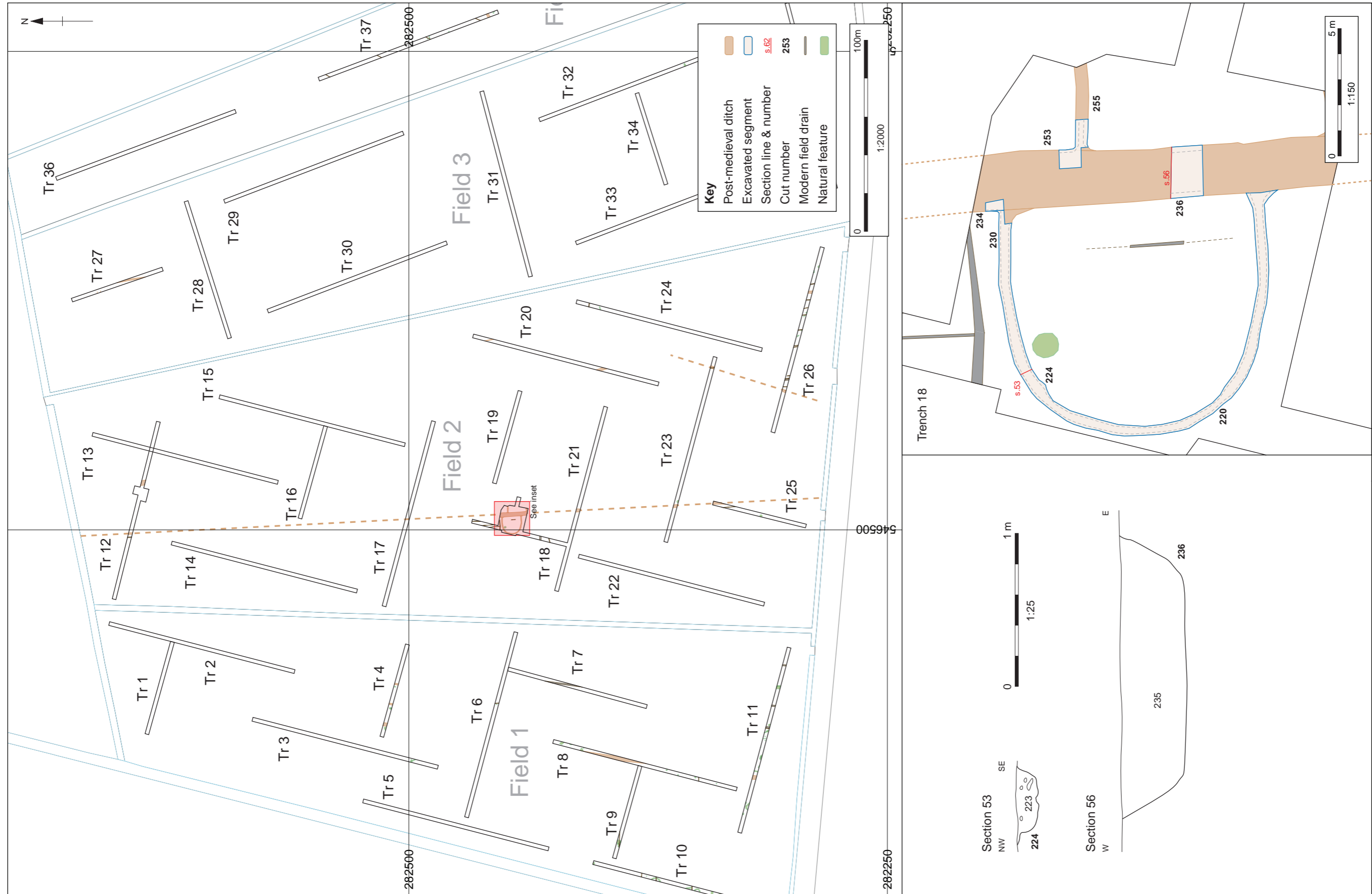


Figure 13: Plan of Trenches (Fields 1-3) and detail and section of "ring ditch", Trench 18

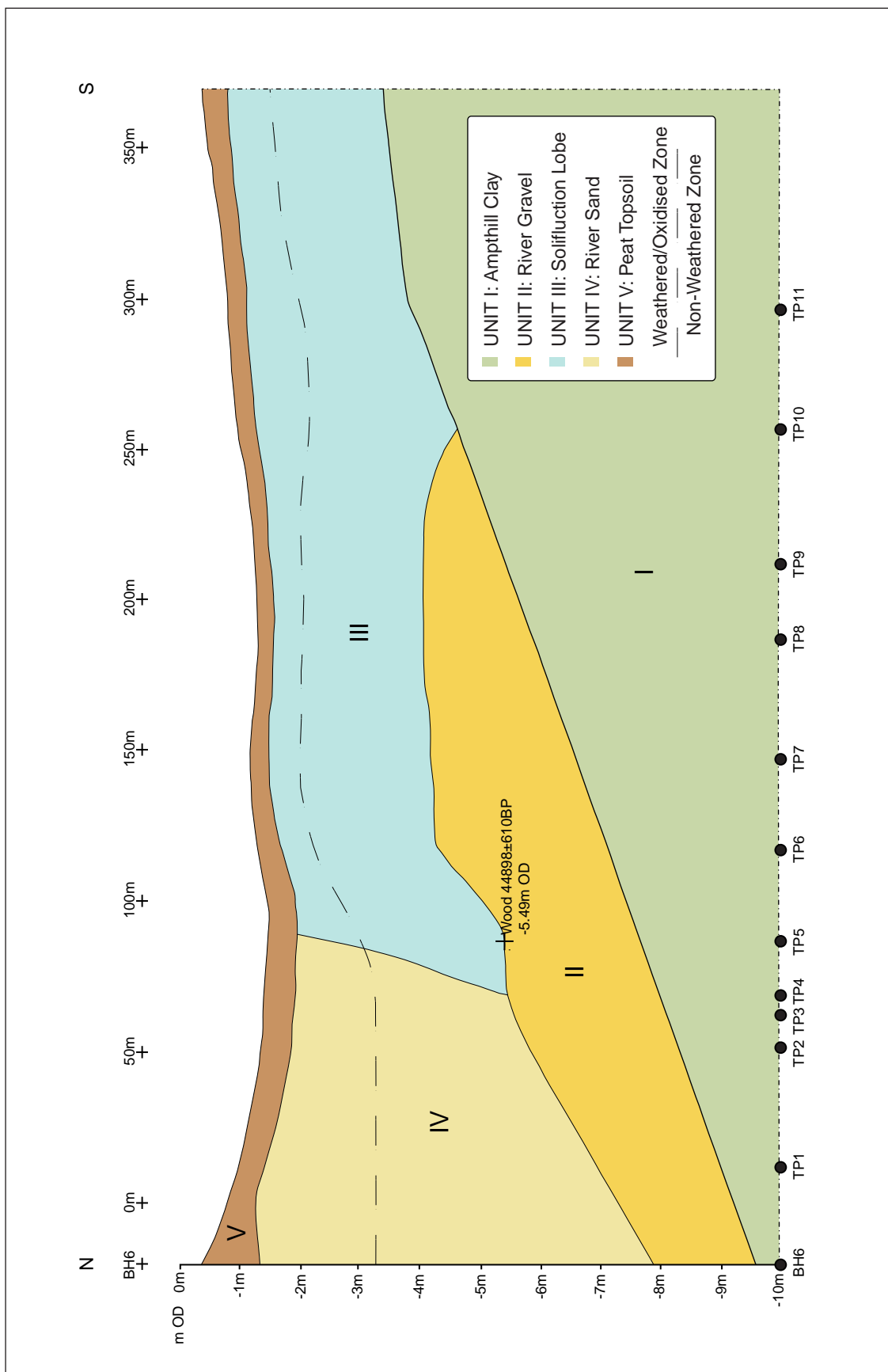


Figure 14: North-south cross section of palaeochannel and location of test pits based on observations in BH6 and TP1-11, interpolated between.



Plate 1: General shot, Trenches 1 and 2, facing west



Plate 2: Natural feature 17, Trench 4, Field 1



Plate 3: Trench 7, Field 1



Plate 4: Ring ditch, Trench 18



Plate 5: Excavated section through ring ditch **220**, Trench 18



Plate 6: Excavated section through boundary ditch **236**, Trench 18



Plate 7: Post-medieval ditch **185**, Trench 26



Plate 8: Post-medieval boundary ditch **216**, Trench 21



Plate 9: "Claying ditches" Trench 42



Plate 10: Test pit 8 showing solifluction deposits overlying river gravel



Plate 11: Trench 45, looking north, showing solifluction deposits over Amphill Clay



**Head Office/Registered Office/
OA South**

Janus House
Osney Mead
Oxford OX2 0ES

t: +44 (0) 1865 263 800
f: +44 (0) 1865 793 496
e: info@oxfordarch.co.uk
w: <http://thehumanjourney.net>

OA North

Mill 3
Moor Lane
Lancaster LA1 1GF

t: +44 (0) 1524 541 000
f: +44 (0) 1524 848 606
e: [oanorth@thehumanjourney.net](mailto: oanorth@thehumanjourney.net)
w: <http://thehumanjourney.net>

OA East

15 Trafalgar Way
Bar Hill
Cambridgeshire
CB23 8SQ

t: +44 (0) 1223 850500
f: +44 (0) 1223 850599
e: [oaeast@thehumanjourney.net](mailto: oaeast@thehumanjourney.net)
w: <http://thehumanjourney.net>



Director: David Jennings, BA MIFA FSA

*Oxford Archaeology Ltd is a
Private Limited Company, N^o: 1618597
and a Registered Charity, N^o: 285627*