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**ARCHAEOLOGICAL
DESK-BASED ASSESSMENT OF LAND
BEHIND THE COUNCIL HOUSES
GREATFORD
LINCOLNSHIRE
(GPE04)**



A P S
ARCHAEOLOGICAL
PROJECT
SERVICES

COPY 2 of 2

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L15894 (geophysics)

INTERVENTION L19968

Quality Control
Desk-Based Assessment of Land Behind
Greatford, Lincolnshire (GPE04)

PRN 33575 medieval

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| Illustration | BEHIND THE COUNCIL HOUSES |
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| Report Prepared by | LINCOLNSHIRE |
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Work Undertaken For
Mr. P. Doust

March 2005

Report Compiled by
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A.P.S. Report No. 195/04

ARCHAEOLOGICAL PROJECT SERVICES



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Desk-Based Assessment of Land Behind The Council Houses
Greatford, Lincolnshire (GPE04)

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2. INTRODUCTION

2.1 Definition of an Archaeological Desk-based Assessment

An archaeological Desk-based Assessment is a form of archaeological assessment which involves a detailed examination of all available archaeological records and other sources of information in order to identify the likely archaeological potential of a site or area. It is a key component of the archaeological assessment process and is often used to inform the design and implementation of archaeological excavations and other fieldwork.

2.2 Planning Background

Archaeological Project Services was commissioned by Mr P. Deane to undertake a desk-based assessment of the

1. SUMMARY

A desk-based assessment was undertaken to determine the archaeological implications of development of land to the rear of the Council Houses, Greatford, Lincolnshire.

The proposed development lies within an area of known prehistoric and Romano-British settlement. In particular, the prehistoric and Romano-British settlements in several nearby fields have been scheduled as Ancient Monuments.

No previous finds are known on the site but there are cropmark sites immediately adjacent, and a pit alignment to the east, which might continue into the development area. Geophysical survey identified a number of linear anomalies which might also represent elements of surrounding field-systems extending into the site.

2. INTRODUCTION

2.1 Definition of an Archaeological Desk-Based Assessment

An archaeological Desk-Based Assessment is defined as 'an assessment of the known or potential archaeological resource within a specified area or site on land, inter-tidal zone or underwater. It consists of a collation of existing written, graphic, photographic and electronic information in order to identify the likely character, extent, quality, and worth of the known or potential archaeological resource in a local, regional, national, or international context as appropriate' (IFA 1999).

2.2 Planning Background

Archaeological Project Services was commissioned by Mr. P. Doust to undertake a desk-based assessment of the

archaeological significance of land behind the Council Houses, Greatford, Lincolnshire. This was in order to provide supporting information to accompany a planning application to convert the north west end of the development area into a wildlife area, including the digging of a large pond.

The desk-based assessment was produced in conjunction with a geophysical survey carried out by *Engineering Archaeological Services Ltd.* The report is included in this assessment as Appendix 1.

2.3 Location, Topography and Geology

The development area comprises a pasture field behind houses known as 'the Council Houses' to the east of the village of Greatford, Lincolnshire, centred at NGR TF 0910 1212. It is bounded on the east, west and north by agricultural land, and on the northeast by an extended garden. To the southeast it abuts the back gardens of the Council Houses.

Greatford is situated 8km northeast of Stamford and 32km southwest of Grantham, in South Kesteven District, Lincolnshire (Fig. 2). The village stands on the West Glen River, due north of the Greatford Cut, and is located at a height of c. 9-11m OD.

Local soils are Badsey 2 Association, composed mainly of fine loamy soils overlying calcareous gravels that formed as part of a river terrace. The terrace deposits were formed as coalescing fans of bedded gravels deposited by rivers debouching from the limestone and clay country to the west onto lower ground. The main component soil series are all formed in relatively stone-free loamy material overlying sands and gravels (Hodge *et al.* 1984, 101). These sands and gravels

overlie Oxford Clays of the upper Jurassic period (Booth 1983, 41).

3. AIMS

The purpose of the desk-based assessment is to obtain information about the known and potential archaeological resource within the vicinity of the proposed development site, in particular the expected survival and quality of any archaeological remains.

4. METHODS

Archaeological and historical data was compiled for a 500m radius, the **Assessment Area**, centred on the proposed development, referred to as the site. This involved examination of a selection of primary and secondary sources, concentrating primarily on aerial photographic evidence and map regression analysis.

These sources included:

- Historical Documents held in the Lincolnshire Archives.
- Enclosure, tithe, parish, and other maps and plans, held in Lincolnshire Archives
- Ordnance Survey maps
- Lincolnshire Sites and Monuments Record
- South Kesteven Parish Files, held by Heritage Lincolnshire
- Aerial photographs
- Archaeological books and journals

Numbers in this report prefixed by 'PRN' are the reference codes used by the Lincolnshire County Council Sites and Monuments Records. Numbers prefixed by 'SK' are the reference codes used by the South Kesteven Planning Archaeologist. In addition to the above, statutory and advisory heritage constraints were identified.

5. RESULTS

5.1 Historical Evidence

Greatford is located in an area of known archaeological remains dating from the prehistoric period to the present day. The underlying gravels are conducive to cropmark formation and extensive areas of these appear south and east of the village. These cropmarks represent enclosures, ring ditches, droveways and hut circles and are likely to range in date from the Late Neolithic to the Romano-British period (Herbert 1996, 5).

Greatford is first mentioned in the Domesday survey of 1086 where it is referred to as *Griteford* and *Greteforde* within the Wapentake of Ness. The name derives from the Old English '*Greot-Ford*', meaning 'gravelly ford' (Cameron 1998, 53). At the time of Domesday the land was held by Robert de Toden, Gilbert de Gand and Godfrey of Cambrai and contained 2 mills, 64 acres of meadow and 20 acres of woodland for pannage (Bennett 1993, 39). The borough town of Stamford lies in close proximity and would have been a significant influence on the development of the parishes during this period.

Manorial records indicate that a hall belonging to John de Mortimer was in existence by AD 1297 in Greatford (Platts 1974, 122). A series of accounts surviving from the Abbot of Crowland's adjacent manors of Langtoft and Baston between

1260 and 1315 AD (*ibid*, 111) provide a valuable insight into the agricultural and pastoral regimes in operation at the time.

St. Thomas a Becket church at Greatford displays a blocked arch and window tracery that can be dated to the 13th century (Pevsner and Harris 1989, 328).

During the 18th century Greatford was held in high esteem for the cure of insanity through the revolutionary treatments of the Rev. Francis Willis M.D. His greatest achievement was the initial cure of George III's madness during its formative stage.

In 1856 Greatford had a population of 205 people, with nearly all the land being the property of the Hon. C.C. Cavendish, the Lord of the manor (White 1856, 877)

5.2 Cartographic Data

A 15th century map of Greatford and Barholm villages (LAO LD 32/2/5/1), depicts the village situated on a significant watercourse. A watermill for the grinding of corn is shown as being central to Greatford during this period.

The area surrounding Greatford is shown to be generally unenclosed on *Armstrong's Map of Lincolnshire 1778* (Fig. 3), but there is some woodland depicted to the west, probably associated with landscaping around the demesne lands of the Elizabethan Greatford Hall and parkland to the south (White 1856, 877). The river West Glen is shown as significant for drainage.

Bryant's *Map of the County of Lincoln 1828* covers the area in more detail (Fig. 4). It shows that there had been a certain amount of development in the village since 1778, but the woodland to the west of the church is still present.

The 1891 Ordnance Survey 1st edition 6 inch map (Fig. 5) shows the area of the development in detail, with the landscape enclosed by this time. The principal site boundaries had been established by this time, but the street frontage remained unoccupied.

A linear area beyond the northeastern edge of the field had been planted with trees by 1903, as shown on the 6 inch map of that date (Fig. 6). Development had also begun along the street frontage by this time. Later development immediately to the southwest has altered the boundaries slightly but otherwise the site has undergone little alteration.

5.3 Aerial Photographic Evidence

Aerial photographs held by the Lincolnshire County Council Sites and Monuments Record and in the files of the South Kesteven Planning Archaeologist were examined for evidence of archaeological remains. Others published in secondary sources were also examined.

A substantial collection of aerial photographs exists for the fields in the vicinity of the development and in the surrounding agricultural landscape. A number cover the site itself. Continuing land-use as pasture means that no cropmarks are visible within the site, but some of those visible in adjacent areas might continue into the development area. Many of these photographs have been plotted as part of the National Mapping Programme (NMP) and form the basis for the cropmarks shown on Figure 2.

Further cropmarks are shown in an aerial photographic assessment for Glen Farm, Greatford (Herbert 1996). Although these were sketch-plotted, and at times at variance with the NMP plot and SMR entries, these do indicate that the area is more densely packed than the NMP

overlays show. However, this report does not show any other features which have a direct bearing on the proposed development.

Table 1. Sites, SMR data and aerial photographic evidence collated on Figure 2

| Map Code | County Sites and Monuments Record (PRN) | Description | South Kesteven C. Arch Files (SK) | Grid Ref. | Period |
|----------|---|---------------------------------|-----------------------------------|-------------------------|-----------------------|
| 1 | 32981 | Cropmark Enclosure | N/A | TF 08721153 | Prehistoric |
| 2 | 32983 | Cropmark Prehistoric Settlement | SK 36.10 | TF 090116 -TF 091118 | Prehistoric (SAM 294) |
| 3 | 32988 | Hollow way south of Greatford | N/A | TF 092117 | Medieval |
| 4 | 33577 | Church of St. Thomas a Becket | N/A | TF 08601195 | Medieval |
| 5 | 35675 | Medieval Pottery Sherd | N/A | TF 08911192 | Medieval |
| 6 | 35910 | Prehistoric pit alignment | N/A | TF 09301217 | Prehistoric |
| 7 | 35911 | Cropmark Enclosure | N/A | TF 09441217 | Prehistoric |
| 8 | 36052 | Old School and Crane Cottage | N/A | TF 0873011885 | Modern |
| 9 | 36053 | Barn and Stables | N/A | TF 0857011918 | Modern |
| 10 | 36056 | The Old House | N/A | TF 0894311943 | Post-medieval |
| 11 | 36057 | Gazebo at Old House | N/A | TF 0896311932 | Modern |
| 12 | 30354 | Cropmarks | SK 36.10 | TF 092117 | Prehistoric (SAM 294) |
| 13 | 32980 | Field System | SK 04.17 | TF 096117 | Cropmark |
| 14 | 32989 | Cropmark of Ring Ditch | N/A | TF 09011209 | Prehistoric |
| 15 | 35674 | Pit | N/A | TF 08911192 | |
| 16 | 35907 | Settlement Cropmark | N/A | TF 08601234 | Prehistoric |
| 17 | 36051 | Vicarage | N/A | TF 0872612216 | Modern |
| 18 | 36058 | Barn and Stables | N/A | TF 0899911925 | Modern |
| 19 | 36059 | Manor House | N/A | TF | Post- |

DESK-BASED ASSESSMENT OF LAND BEHIND THE COUNCIL HOUSES, GREATFORD, LINCOLNSHIRE

| | | | | | |
|----|---------|--|------------------|------------------|------------------------------------|
| | | | | 0897011960 | medieval |
| 20 | 36060 | Gardeners Cottage | N/A | TF 0887911874 | Modern |
| 21 | 36061 | Barn | N/A | TF 0889211856 | Post- medieval |
| 22 | 30054/5 | Cropmarks including Prehistoric and Roman enclosures | SK 36.08 | TF 09801190 | Prehistoric/ Roman (SAM 327) |
| 23 | N/A | Pot, Copper Disk, Tudor Rose ornamental disk find. | SK 36.04 | TF 09151195 | Medieval |
| 24 | N/A | Cropmark | SK 36.06 | TF 089125 | Prehistoric |
| 25 | 30051 | Excavated Cropmark Site | SK 04.9/10/11 | TF 096113 | Roman (SAM 160) |
| 26 | 32979 | Ring Ditches | SK 04.36 | TF 098117 | Prehistoric |
| 27 | N/A | Field Systems | SK 36.15 | TF 095120 | Cropmark |

Immediately to the west of the site is a cropmark interpreted as a ring ditch (SMR 35911, Fig. 2, No. 14).

A pit alignment of probable prehistoric date is visible on aerial photographs heading towards the site from the east (Fig. 2, No. 6). The alignment appears to be a single linear feature, defined by a line of pits, with a maximum visible length of 200m. This is on an alignment that might follow through into the assessment area.

Three areas to the south and east of the site are designated as Scheduled Monuments owing to the density and complexity of the cropmarks representing the remains of prehistoric and Roman period settlement (Fig.2 Nos 2 (two discrete areas), 22, 25).

A ring ditch cropmark within the scheduled area of SAM 327 (Fig. 2, No. 22), 500m to the east of the development area, appears to show evidence for internal pits with an entrance suspected on the northwest edge (RCHM(E) 1960). Due south of the latter feature is a similar ring ditch cropmark (Fig. 2, No. 26).

To the west of the ring ditches are cropmarks of a regular rectangular ditched enclosure aligned north-south (Fig. 2, No. 13). Internal ditch divisions are visible and a possible driveway approaches the entrance near the southeastern corner (RCHM 1960).

Several cropmarks have been recorded south of Glen Farm, 100m to the southwest of the site, including SAM 294, which is divided into two portions (Fig. 2, No. 2).

800m southeast of the site, on land adjacent to the Greatford Cut, cropmarks have been identified forming an irregular pentagonal enclosure with internal subdivisions. Pits and postholes are also visible. This site is scheduled as SAM 160 (Fig. 2, No. 25).

Cropmarks showing ditches, enclosures and probable driveway are also visible 500m to the northwest of the site (Fig. 2, No. 24).

The continuation of occupation into the Roman period is complemented by the presence, 2km to the east of the village, of King Street, which is a major Roman road

and may be a focus for land divisions in the area in the Romano-British period. Rectangular enclosures and linear field boundaries seem to be associated with it although these lie outside the assessment area.

5.4 Archaeological Evidence

There are no records in the SMR of finds from within the site itself.

Geophysical survey carried out on the assessment area (Appendix 1) revealed three linear anomalies, two running west to east and one north to south. These probably represent a system of field boundaries or enclosures of unknown date. There is also clear evidence for ridge and furrow cultivation.

Archaeological evaluation of land to the rear of Manor Farm, Main Street, Greatford (Fig. 2, No. 19) uncovered evidence of an Iron Age ditch and medieval activity (Thomas 2001).

A small excavation recovered the remains of a timber basilica associated with early 4th century pottery (Fig. 2, No. 25) 800m to the south of the area (Simpson 1963, 6).

Medieval finds of pottery and a 16th century Tudor Rose ornamental disk have been recorded immediately south of the site (Fig. 2 No. 23). The village of Greatford has a number of surviving buildings that are possibly medieval in origin. There is also evidence for medieval ridge and furrow cultivation on the assessment site itself, and in the Greatford area (Thomas 2001, 8, Appendix 1).

5.5 Reconnaissance Survey

A reconnaissance survey of the development area was carried out on 21st December 2004 to ascertain whether any additional archaeological evidence was

visible on the ground, or whether any obvious services present could be identified. The conditions for the site visit were good and the whole development area was examined.

The site is currently under pasture but there was substantial evidence of ridge and furrow cultivation present in the field (Plate 1). There was also evidence of some previous ground disturbance due to the recent planting of trees and the digging of a small pond in the south western corner of the field (Plate 2). The hedgerow along the northeastern boundary of the assessment area, which has been shown through cartographic evidence to post-date 1891, is well maintained and forms a boundary with an extended garden (Plate 3). The majority of the area seems to have been relatively undisturbed in recent times (Plate 4).

6. DISCUSSION

Although the only evidence of activity within the development area itself is of ridge and furrow cultivation, the landscape of the assessment area was clearly extensively utilised from the Neolithic to the present. This is most clearly apparent from aerial photographic evidence.

Funerary monuments of probable Bronze Age date seem to be relatively common in the fields surrounding Greatford and elsewhere in the Welland Valley.

There are possible Iron Age square barrows within SAM 294, 600m southwest of the site (Fig. 2 No. 2). These would have parallels with the Arras culture burials seen in the East Riding of Yorkshire that are known to have been prevalent from the 4th to 2nd centuries BC (Darvill 1987, 158).

There is significant evidence for Romano-British settlement in the assessment area (Fig. 2, Nos 22, 25), and other cropmark sites may also date from this period. King Street Roman road is located 2km to the east of the area of investigation and this was the main thoroughfare between Ancaster and Chesterton. Farmsteads in this region in the Romano-British period would thus have found it easy to distribute their produce to market.

Although archaeological evidence of any Anglo-Saxon settlement remains elusive in the assessment area, occasional finds of Anglo-Saxon pottery in the wider area may indicate that there is settlement in the vicinity.

Medieval activity is centred on the village of Greatford itself. On the development site itself ridge and furrow cultivation of the site is clearly visible as earthworks, and this was also revealed on the geophysical survey (Appendix 1). In this area of Welland gravels these form the most common type of crop-mark and define the long narrow cultivation strips of the medieval open field system (Simpson *et al* 1993, 27).

7. CONSTRAINTS

The proposed development does not lie within a Scheduled Ancient Monument protected by the Ancient Monument and Archaeological Areas Act of 1979 (HMSO 1979). However there are three scheduled areas in the vicinity of the development (Fig. 2). The closest part of SAM 294 lies about 100m to the south of the area of investigation, but is not visible from it as it is obscured by existing buildings on Main Street. The nearest point of the area of SAM 327 is situated some 150m to the east, and SAM 160 lies 600m further to the south. The northern part the proposed development area is intervisible with the northernmost corner of SAM 327 but it is

otherwise screened by existing development along the north side of Main Street. The settings of these monuments will not be compromised by the proposed development.

Any archaeological remains within the area of the proposed development are protected through the implementation of PPG16 (DoE 1990).

There are no listed buildings within the site, the closest being within the village of Greatford itself, including Old House and St. Thomas' Parish Church, 150m and 500m to the west respectively (DoE 1987, 43-46).

8. ASSESSMENT OF SIGNIFICANCE

Evidence for prehistoric and Romano-British settlement exists in the vicinity of the site. The presence of a prehistoric pit alignment and enclosure (Fig. 2, Nos 6, 7) in close proximity to the development area is of particular significance as it is possible that associated features may extend onto the site itself.

The general area has a concentration of archaeological remains of all periods. Three Scheduled Monuments are reasonably near to the site. These encompass important cropmark complexes thought to contain remains of activity from Neolithic through to Roman times. This multi-period exploitation of the landscape gives a high group value to the archaeology of this area.

Cartographic evidence suggests that the assessment area was open land during the post-medieval period until the present day. As a consequence, any archaeological deposits present on the site may survive in good condition over most of the area. It is possible however that deposits may have

been damaged by ridge and furrow cultivation.

Report Prepared by: Robert Evans

9. CONCLUSIONS

This desk-based assessment has indicated the assessment area and the wider landscape of the Welland Valley was a focus for prehistoric settlement and funerary activity, and Romano-British settlement. This archaeological landscape is of some significance, and includes three Scheduled Ancient Monuments in the wider settlement area.

The likelihood of the presence of archaeological remains within the development area is therefore moderately high as demonstrated by the geophysics. The fact that the area was generally open ground during the post-medieval period until the present day suggests that any archaeological deposits present on the site may survive in good condition over much of the area, although ridge and furrow would have caused some damage to preserved archaeological remains.

10. ACKNOWLEDGEMENTS

Archaeological Project Services wish to acknowledge the assistance of Mr. Doust who commissioned the work. Mark Williams coordinated the project, and edited this report along with Tom Lane. Thanks are also due to Jenny Young, the Community Archaeologist for South Kesteven District, who permitted examination of the relevant files.

11. PERSONNEL

Project Coordinator: Mark Williams
 Research: Robert Evans
 CAD Illustration: Robert Evans and Rachael Hall, Mark Dymond

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13. ABBREVIATIONS

APS Archaeological Project Services

CUCAP Cambridge University Committee for Aerial Photography

DoE Department of the Environment

HMSO Her Majesty's Stationary Office

IFA Institute of Field Archaeologists

LAO Lincolnshire Archive Office

NMR National Monuments Record

OS Ordnance Survey

RCHM(E) Royal Commission on Ancient and Historical Monuments (England)

SAM Scheduled Ancient Monument

SMR County Sites and Monuments Record Number

SK South Kesteven

ULAS University of Leicester Archaeological Service

Table 2. Aerial Photographs Consulted

| AP Identifier | NMR No. | Description |
|---------------|-------------|-----------------------------------|
| 348289 | TF 01 SE 15 | Cropmark Enclosure |
| 1036329 | TF 01 SE 86 | Medieval Ridge and Furrow |
| 1036326 | TF 01 SE 83 | Linear Features |
| 1036325 | TF 01 SE 82 | Prehistoric/Roman settlement |
| 1036314 | TF 01 SE 71 | Prehistoric/Roman boundary ditch |
| 1036313 | TF 01 SE 70 | Settlement/ trackways/ enclosures |

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| | | |
|---------|--------------|--|
| 1036312 | TF 01 SE 69 | Prehistoric or Roman pit alignment |
| 1036311 | TF 01 SE 68 | Prehistoric/Roman enclosure |
| 1036310 | TF 01 SE 67 | Prehistoric/Roman hut circle |
| 1036307 | TF 01 SE 65 | Prehistoric/Roman Settlement/Trackway |
| 1036349 | TF 01 SE 106 | Prehistoric/Roman settlement/trackway/enclosures |
| 1036343 | TF 01 SE 100 | Prehistoric/Roman pit alignment |
| 1036340 | TF 01 SE 97 | Field System |
| 348258 | TF 01 SE 4 | Roman Farmstead |
| 1036338 | TF 01 SE 95 | Prehistoric/Roman hut circles |
| 1036337 | TF 01 SE 94 | Prehistoric/ Roman enclosure/boundary ditch |
| 1036335 | TF 01 SE 92 | Prehistoric/ Roman enclosure/hut circle |
| 1036334 | TF 01 SE 91 | Medieval Pits |
| 1036333 | TF 01 SE 90 | Post-Medieval extractive pits |
| 1036342 | TF 01 SE 99 | Prehistoric/Roman settlement/trackway/enclosures |
| 1036341 | TF 01 SE 98 | Boundary Ditches |

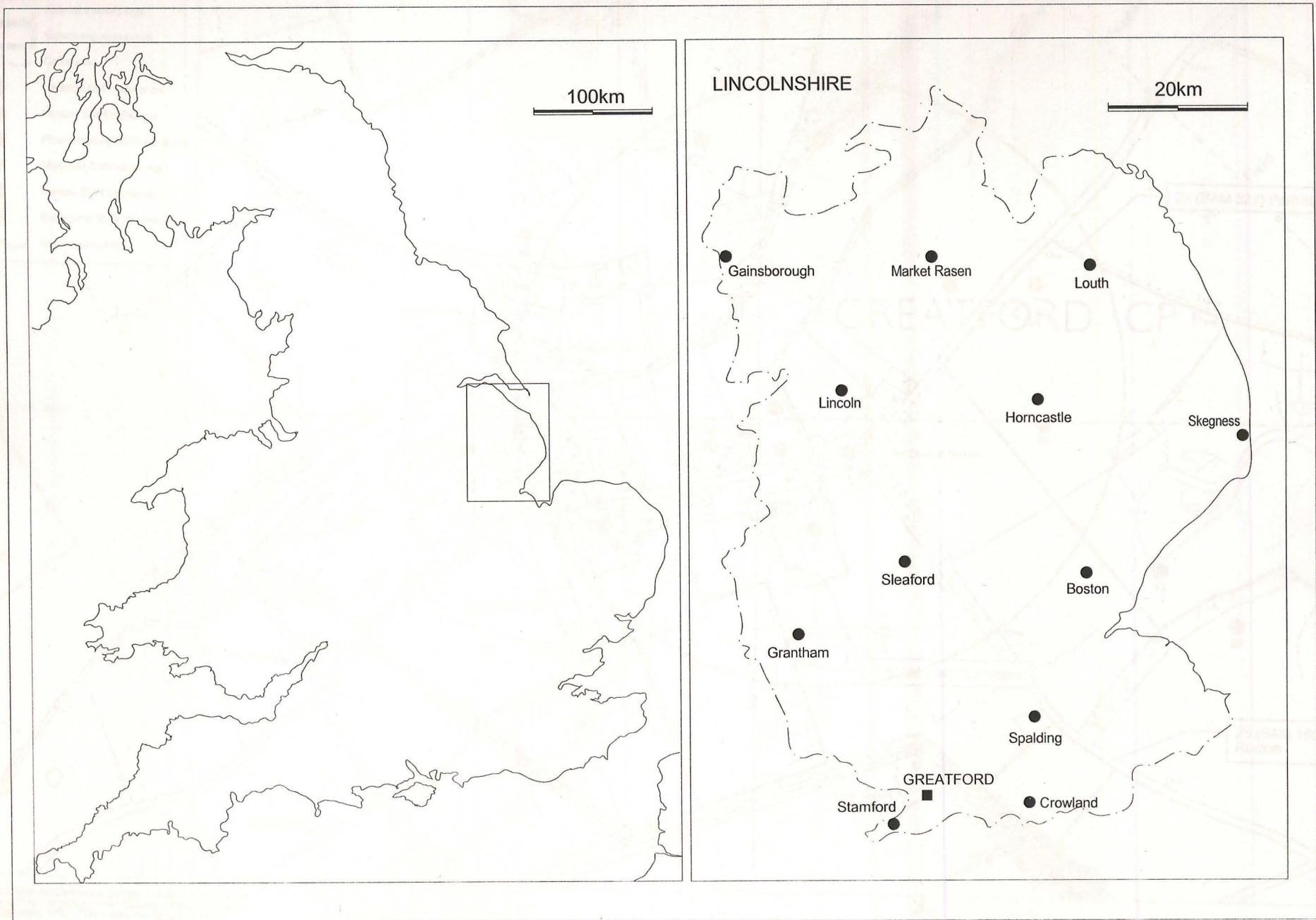


Figure 1: General Location Plan

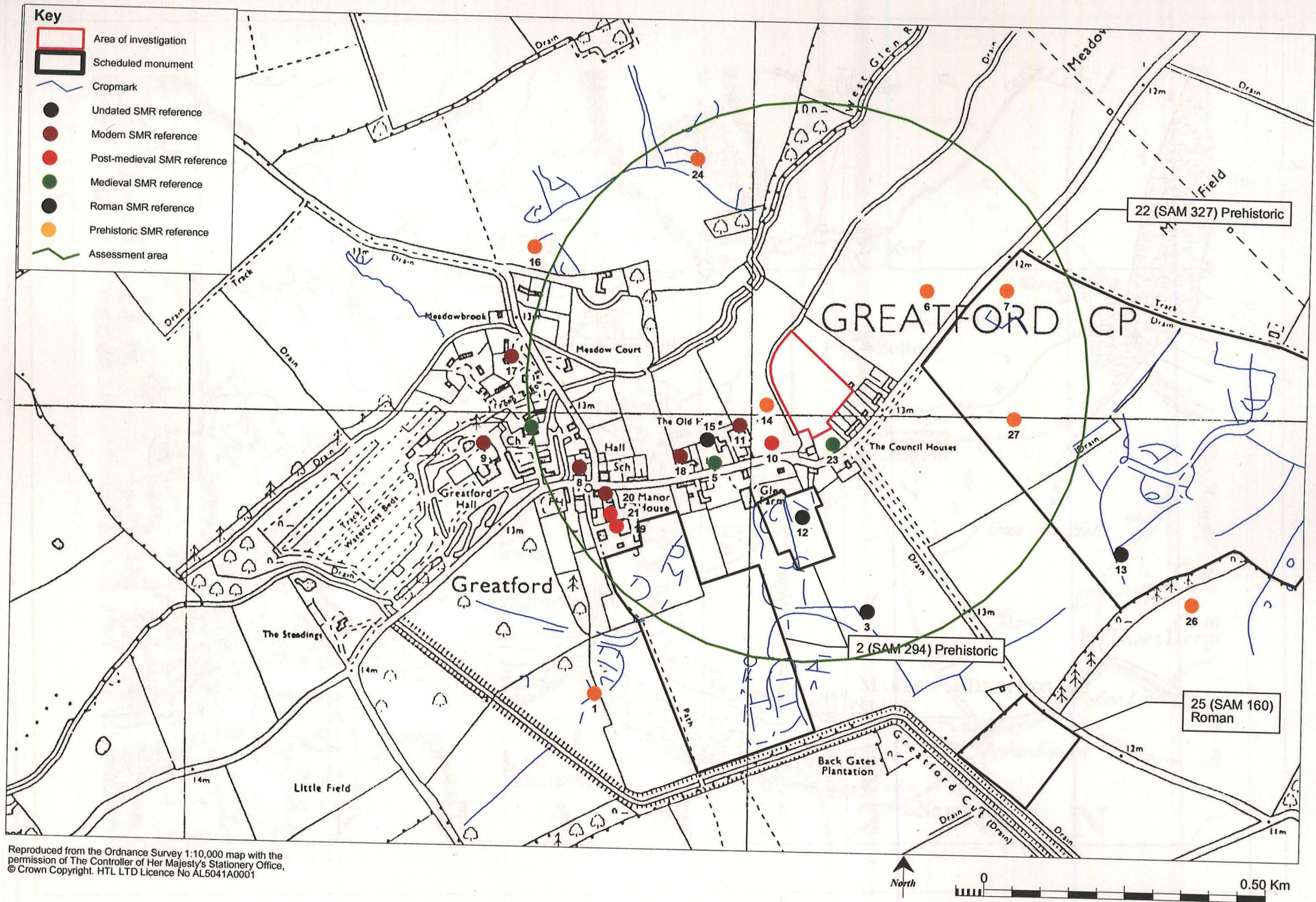


Figure 2 Site location plan and SMR data

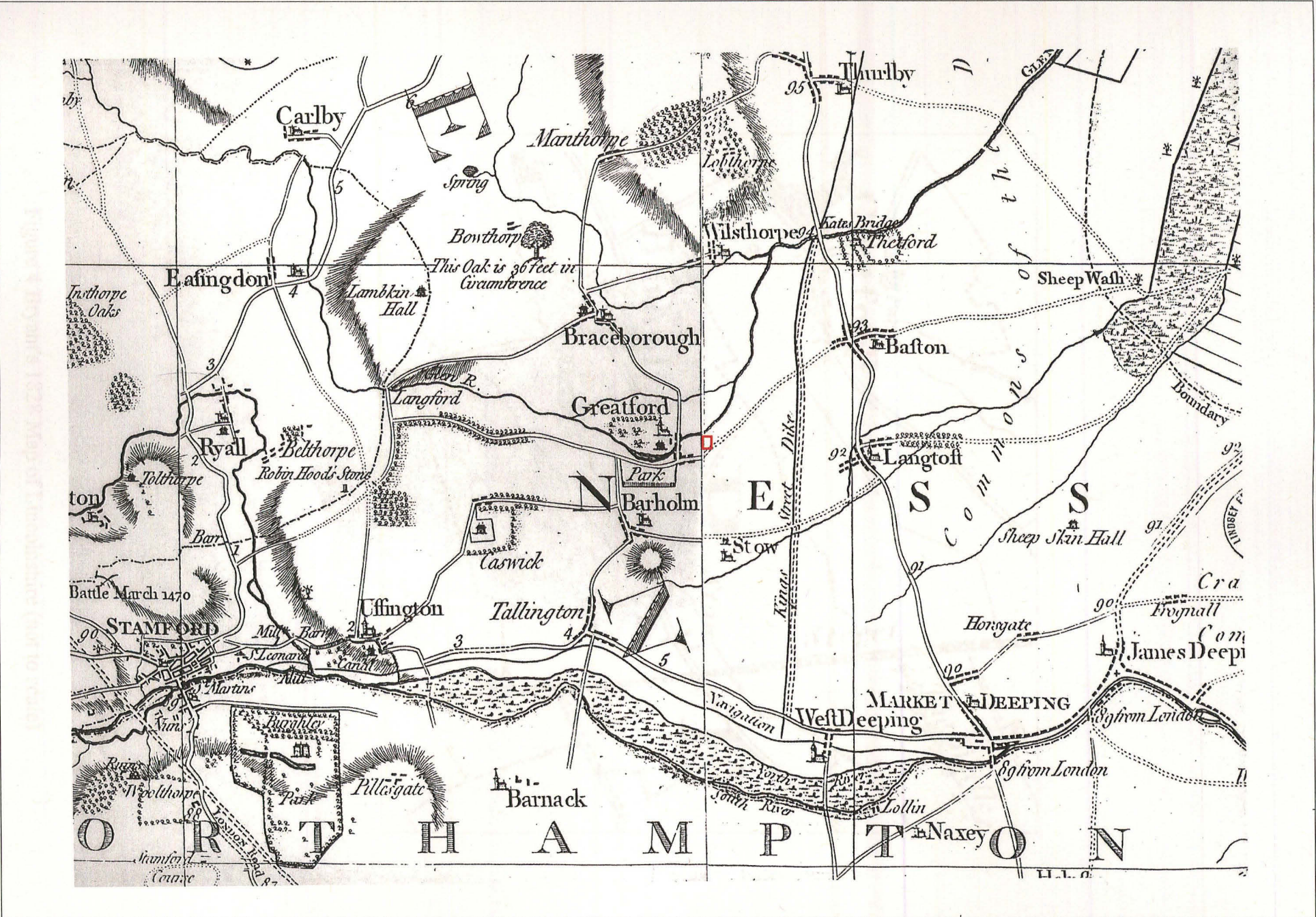


Figure 3 Armstrong's 1778 Map of Lincolnshire (not to scale)

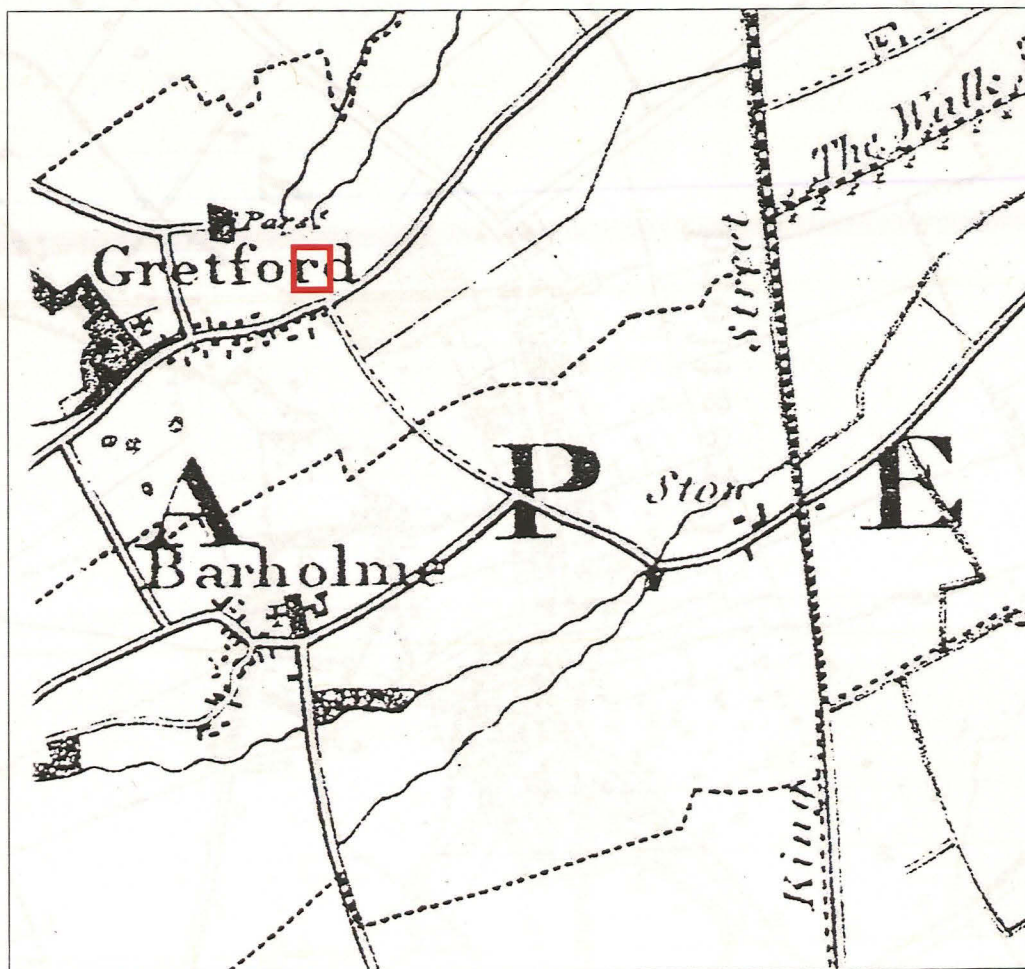


Figure 4 Bryant's 1828 Map of Lincolnshire (not to scale)

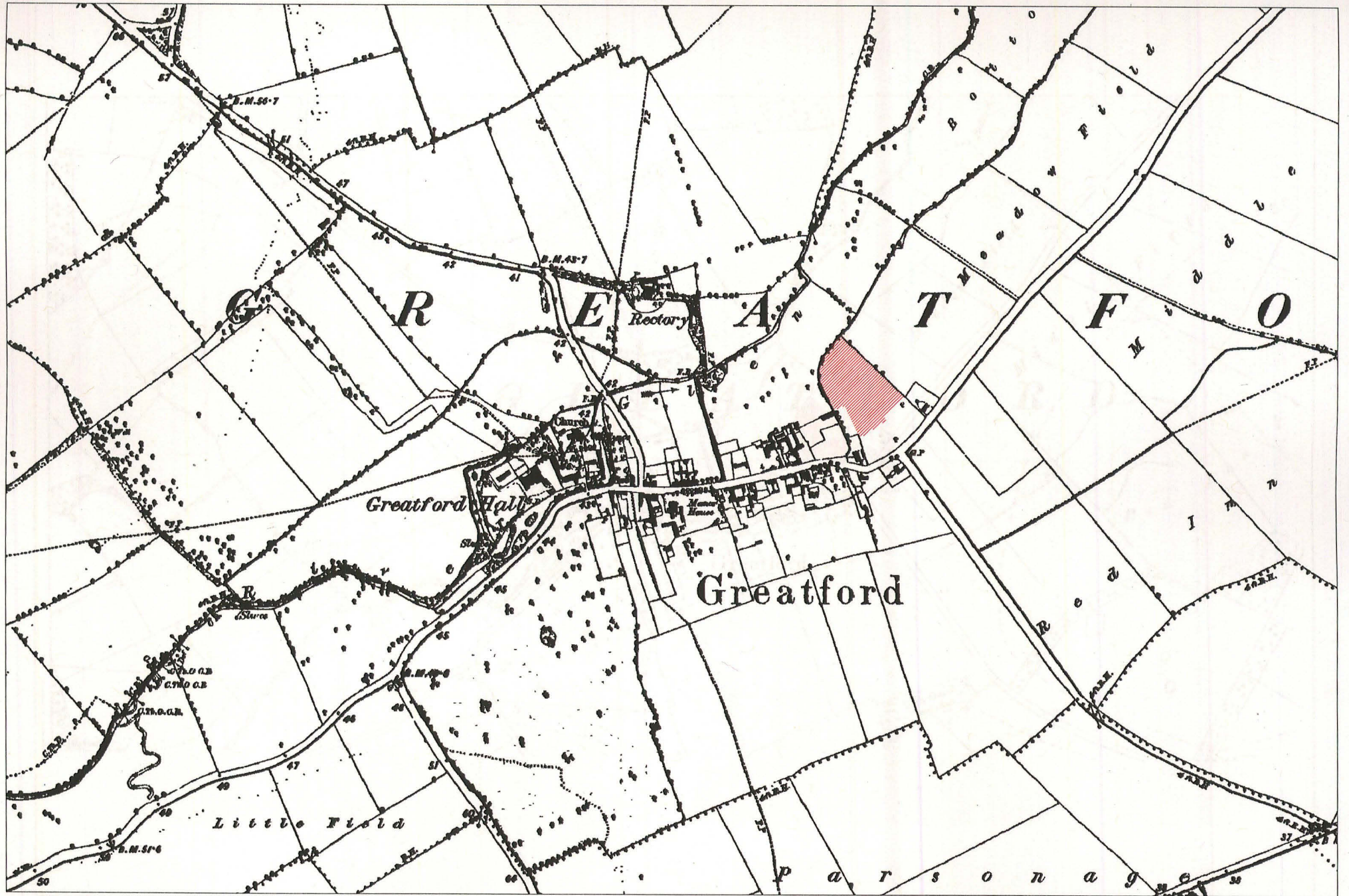


Figure 5 OS 1st Edition 6 inch Map 1891. showing development area.

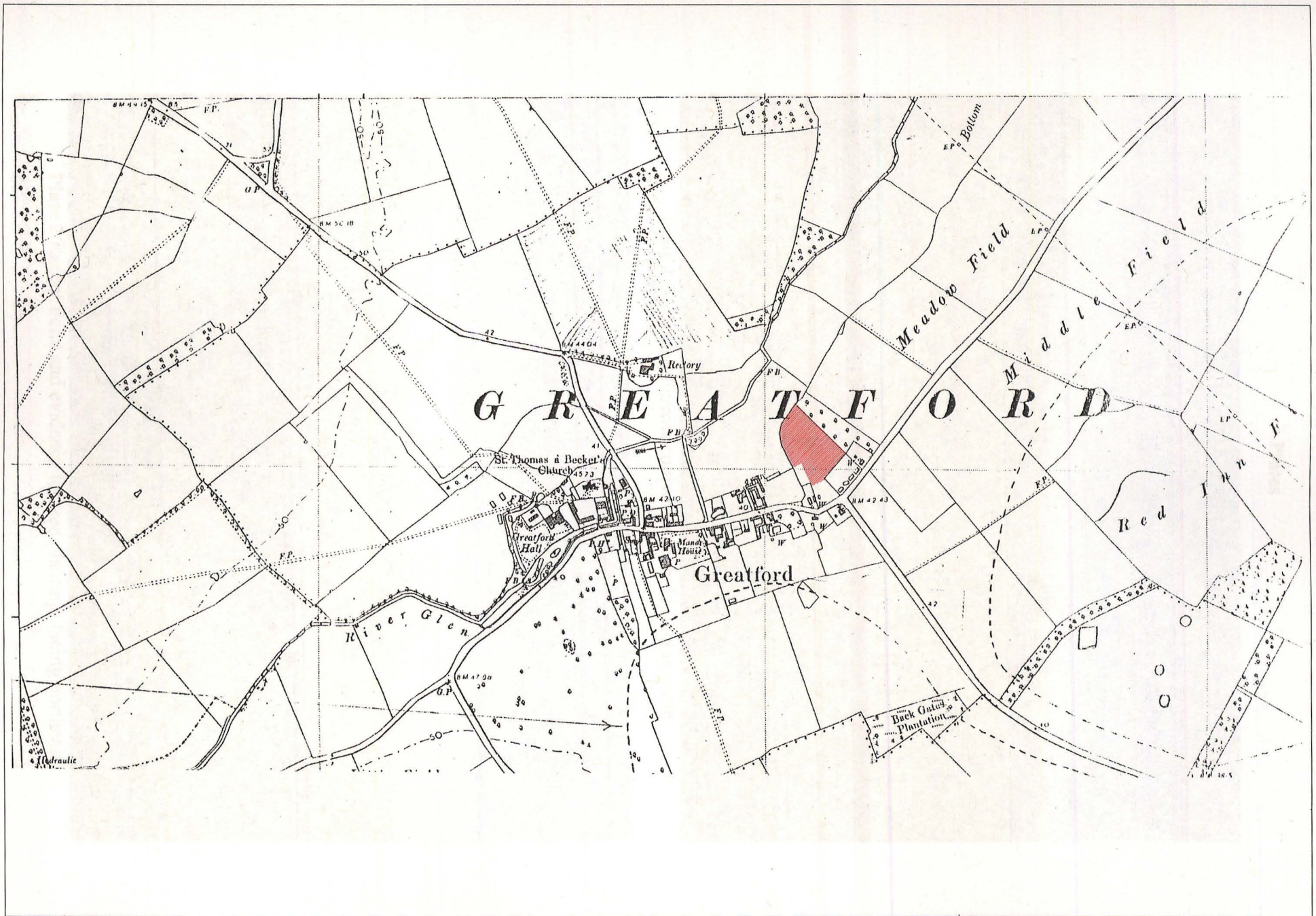


Figure 6 OS 6 inch map 1902-3, showing area under assessment (1:12,500)

Plates



Plate 1 Ridge and Furrow cultivation in field, facing north



Plate 2 Recent Pond and evidence for tree planting, facing northeast



Plate 3 Post 1891 hedgerow, facing southeast



Plate 4 View of field showing Council Houses, facing southeast

Appendix 1

CONTENTS

Introduction:

NGR

Location and Topography

Archaeological Background

Survey Commissioned

by

Archaeological Project Services

Surveyed

by

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*Greatford
Geophysical Survey*

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Greatford, Geophysical Survey -Results:

NGR

Centred on TF 09101 12129

Location and Topography (Figure 1)

The survey area was behind a set of houses known as "The Council Houses" to the east of the village of Greatford, Lincolnshire. Bounded on the south west and north west by agricultural land, on the north east by an extended garden and to the south east by the back gardens of "The Council Houses" the survey area was under pasture at the time of survey. Whilst the field was basically flat, there was evidence of the remains of ridge and furrow running along the field in a north west - south east direction.

Some restriction of the survey area was encountered. Part of the field along the south west side had been converted into a garden and in the south west corner one of the back gardens had been extended into the field, a pond had been dug, modern gardening debris had been dumped and a small tractor had been parked.

Archaeological Background

It is intended to convert the north west end of the field into a wildlife area which will include the digging of a large pond.

Extensive cropmarks assumed to be broadly pre-historic in date have been recorded from the gravels to the south of Greatford which have been interpreted as evidence for settlement enclosures, field boundaries, stockyards, drove ways and burial monuments. The morphology of some of these features would suggest at least some of the features could be Bronze Age in date. Distinctive cropmarks of probable Iron Age square barrows have also been recorded.

The occupation would appear to continue in to the Roman Period with the major Roman road, known as Kings Street, passing to the east of the village. Excavations south of Greatford recorded a series of features which have been interpreted as a tim-

ber bascilica and angular cropmarks in a similar area are typical of small farms and enclosures of the period.

The medieval settlement of the area is documented historically and a distinctive cropmark south of the village has been interpreted as a hollow-way.

Aims of Survey

To gather sufficient information to establish the location and extent of any archaeological features within the development area and, if possible, to characterise the archaeology located.

SUMMARY OF RESULTS

Only a limited number of anomalies of possible archaeological origins were located. These included the magnetic signature of the upstanding ridge and furrow and a possible field boundary system crossing the area of the proposed pond.

Two ferromagnetic anomalies were also recorded which are possibly the result of modern activities.

Methods

The Fluxgate Gradiometer survey was undertaken using parts of twelve 30 x 30 m grid squares laid out as in Figure 2. Readings were taken at 0.5 m intervals along transects 1 m apart. These transects were walked in a zigzag pattern.

The survey was carried out using a Geoscan FM 36 Fluxgate Gradiometer with a ST 1 sample trigger. Grey Scale and X - Y Plots were produced using Geoscan Research "Geoplot" v. 3.00e.

Survey Results:

Area

The field in which the proposed conservation area is to be constructed covers approximately 1.3 Ha. The area available for survey, however covered 0.88 Ha, once the modern disturbance was discounted from the survey area.

Display

The results are displayed as Grey Scale Image and as X-Y Trace Plots. Figures 3 and 4.

Results:

The grey scale plot is dominated by the magnetic signature of the upstanding ridge and furrow in the field. This can be seen as a series of parallel stripes running along the plot (Anomaly A, Figure 5) giving a relatively broad ridge and furrow with a typical width of approximately 18 m.

Two clear linear anomalies were recorded. Anomaly B (Figure 5) runs parallel to the north western end of the field, whilst Anomaly C (Figure 5) forms an "L" shape running from approximately the middle of the north west end of the field. The other end of this anomaly would appear to align on the gateway into the field in the middle of the south west side of the field. Given the lack of any other anomalies in this area of the survey it would seem likely that these anomalies represent previous field divisions.

Two feint linear anomalies (D and E, Figure 5) appear to cross the survey area. These do not appear to follow the alignment of Anomaly C, nor do they appear to relate to the modern field boundaries. Whilst it is possible that these anomalies are archaeological in origins it is also possible that they relate to any modern drainage in the field.

Two ferromagnetic anomalies were also recorded. Anomaly F (Figure 5), is located in a marked hollow in the field which cuts the ridge and furrow at this point. Approximately 7 m in diameter this anomaly would appear to be too large for a single piece of ferrous metal, however it is reported that a previous owner stored cars and car parts in this end of the field (Doust, *pers. comm.*) and this may have given rise to such a strong signal. It is also possible that this anomaly is the response to a high temperature feature such as a kiln, hearth or furnace. The second ferromagnetic anomaly (Anomaly G, Figure 5) is in the north corner of the field and is probably related to modern rubbish.

Magnetic Susceptibility

It was possible to take soil samples in order to assess the magnetic susceptibility of the soils. It was not possible, however, to obtain a subsoil sample for comparison.

| Sample | Volume susceptibility χ_v | Mass susceptibility χ_m |
|--------|--------------------------------|------------------------------|
| Grid 1 | 106 | 126.2 |
| Grid 3 | 142 | 163.2 |
| Grid 5 | 140 | 177.2 |
| Grid 7 | 126 | 150.0 |
| Grid 9 | 187 | 207.8 |

In general, the susceptibilities, as measured, are of moderate to high levels suggesting that the area was suitable for magnetic survey.

There would appear to be a general trend for the magnetic susceptibility to rise to the north and

Greatford, Geophysical Survey - Conclusions:

Conclusions

It is a fundamental axiom of archaeological geophysics that the absence of features in the survey data does not mean that there is no archaeology present in the survey area only that the techniques used have not detected it.

Only a limited number of anomalies with possible archaeological origins were located. Besides the ridge and furrow, which can be seen in the field, only two clear linear anomalies were located which possibly mark the position of old field boundaries. Two further feint linear anomalies are not on a same alignment as the potential old field boundaries and are possibly the result of modern drainage.

One large ferromagnetic anomaly (Anomaly F, Figure 5) may be of archaeological origins, however it may also be the result of a large, buried, fragment of ferrous metal.

Greatford Geophysical Survey – Technical Information:

Techniques of Geophysical Survey:

Magnetometry:

This relies on variations in soil magnetic susceptibility and magnetic remanence which often result from past human activities. Using a Fluxgate Gradiometer these variations can be mapped, or a rapid evaluation of archaeological potential can be made by scanning.

Resistivity:

This relies on variations in the electrical conductivity of the soil and subsoil which in general is related to soil moisture levels. As such, results can be seasonally dependant. Slower than Magnetometry this technique is best suited to locating positive features such as buried walls that give rise to high resistance anomalies.

Resistance Tomography

Builds up a vertical profile or pseudosection through deposits by taking resistivity readings along a transect using a range of different probe spacings

Magnetic Susceptibility:

Variations in soil magnetic susceptibility occur naturally but can be greatly enhanced by human activity. Information on the enhancement of magnetic susceptibility can be used to ascertain the suitability of a site for magnetic survey and for targeting areas of potential archaeological activity when extensive sites need to be investigated. Very large areas can be rapidly evaluated and specific areas identified for detailed survey by gradiometer.

Instrumentation:

- 1. Fluxgate Gradiometer - Geoscan FM36***
- 2. Resistance Meter - Geoscan RM4/DL10***
- 3. Magnetic Susceptibility Meter - Bartington MS2***
- 4. Geopulse Imager 25 - Campus***

Methodology:

For Gradiometer and Resistivity Survey 20m x 20m or 30m x 30m grids are laid out over the survey area. Gradiometer readings are logged at either 0.5m or 1m intervals along traverses 1m apart. Resistance meter readings are logged at 1m intervals. Data is down-loaded to a laptop computer in the field for initial configuration and analysis. Final analysis is carried out back at base.

For scanning transects are laid out at 10m intervals. Any anomalies noticed are where possible traced and recorded on the location plan.

For Magnetic Susceptibility survey a large grid is laid out and readings logged at 20m intervals along traverses 20m apart, data is again configured and analysed on a laptop computer.

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Survey

Figure 1: Greatford
Location
Scale 1:25,000

Reproduced from Explorer 234 1:25,000 scale
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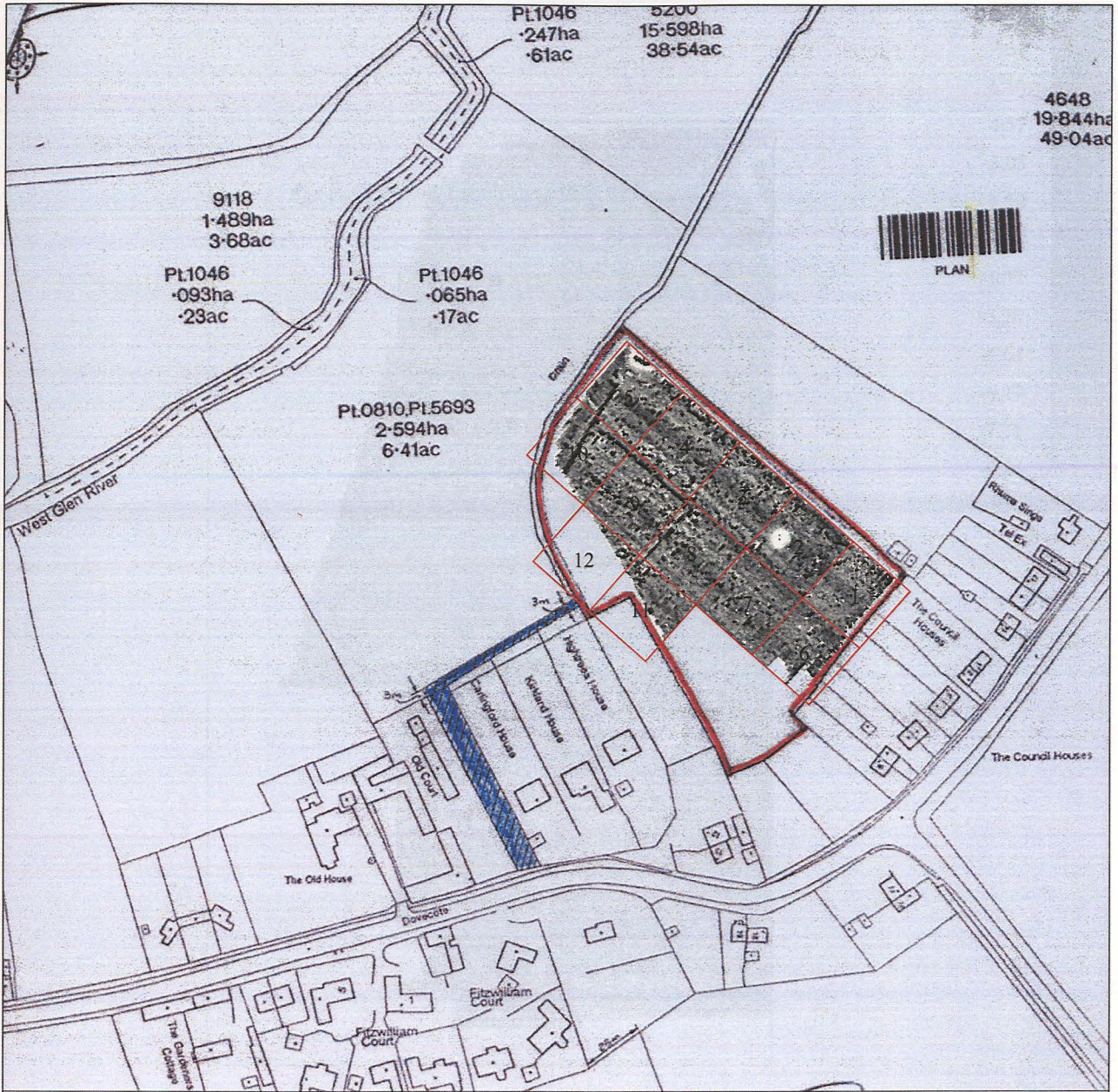
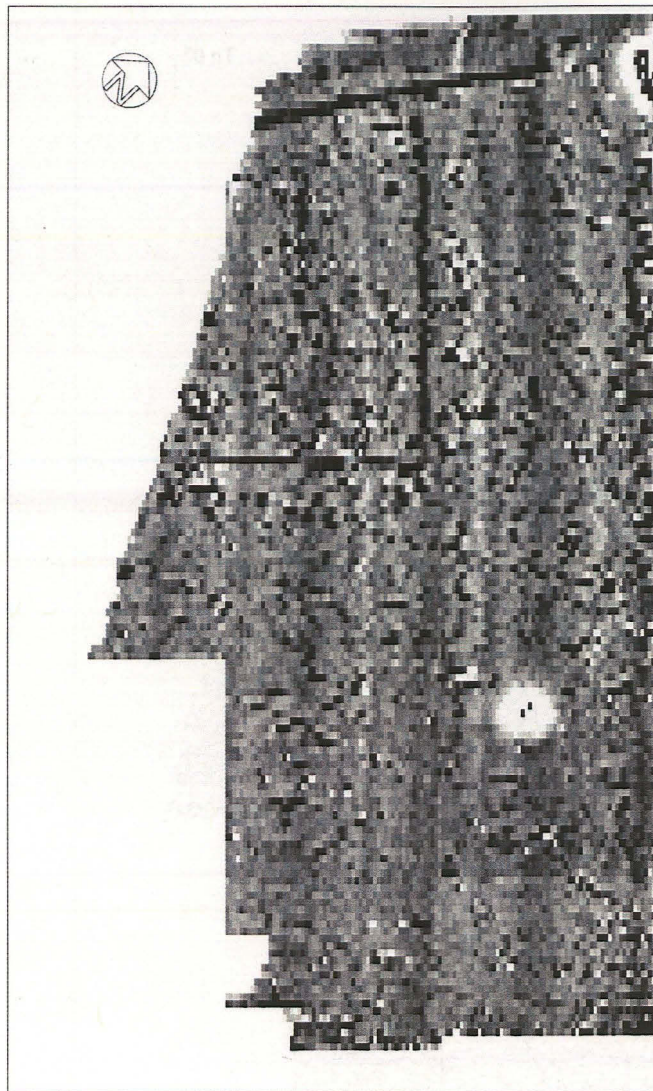


Figure 2: Greatford
Location of the Survey

Scale 1:2500



9.17
7.64
6.10
4.57
3.03
1.50
-0.04
-1.57
-3.10
-4.64
-6.17
-7.71
-9.24
nT



Figure 3: Greatford
Grey Scale Plot

Scale 1:1000



50 nT

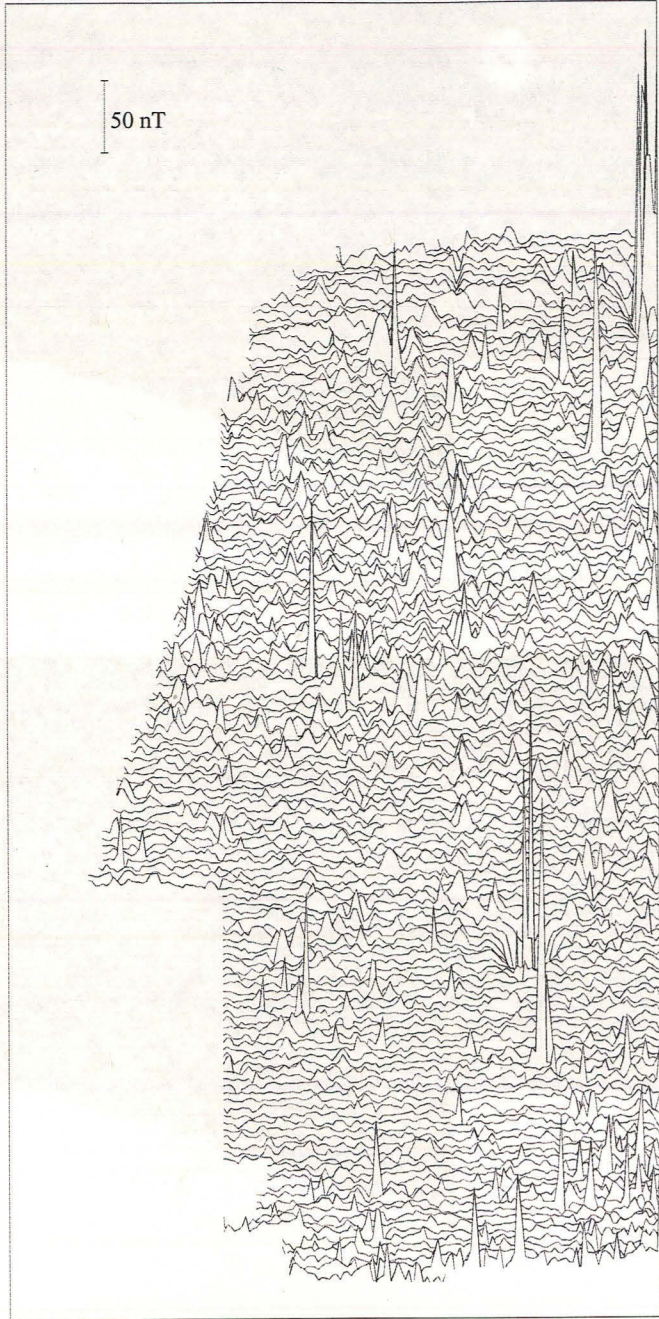
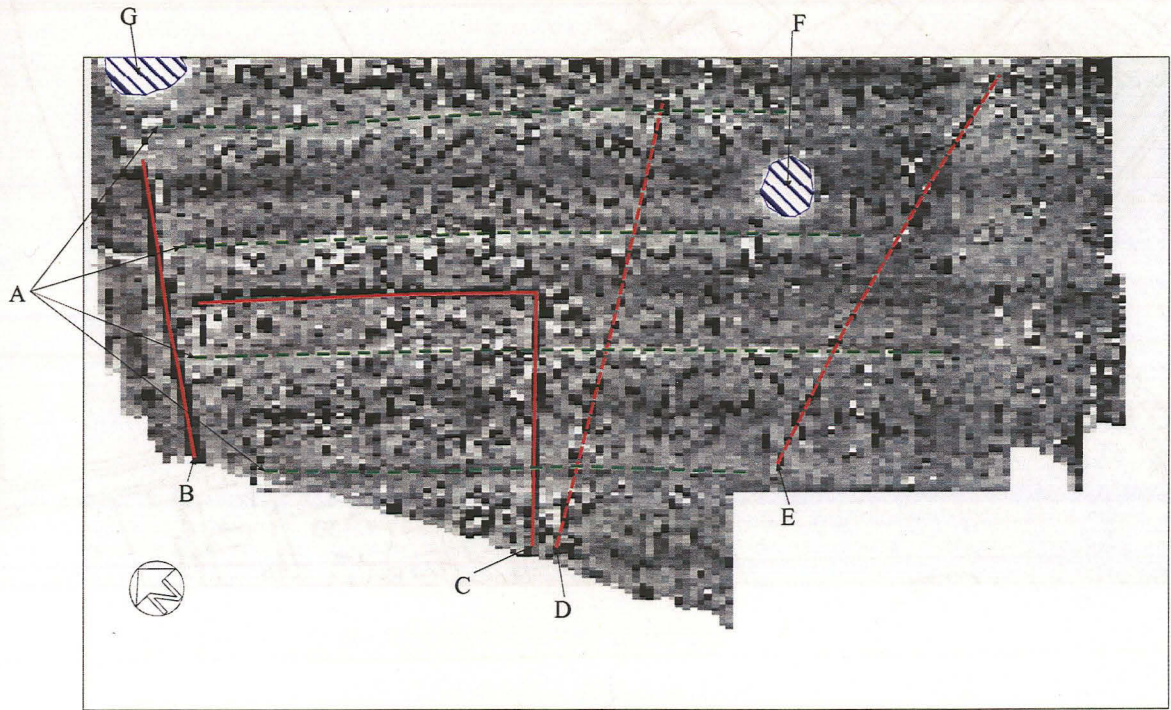
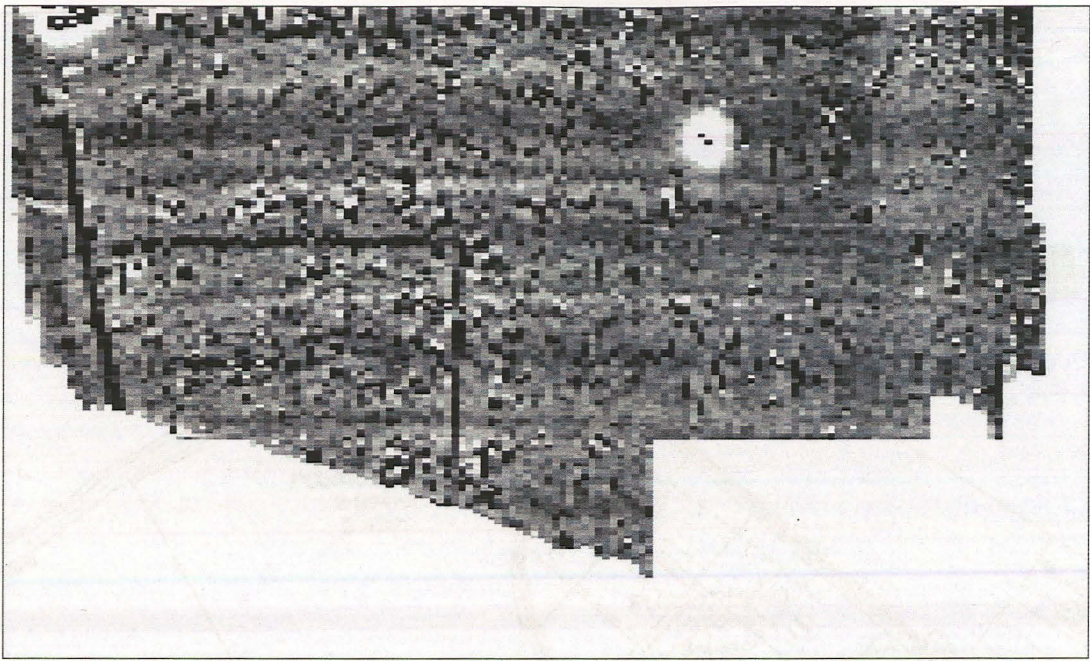


Figure 4: Greatford
X - Y Plot

Scale 1:1000

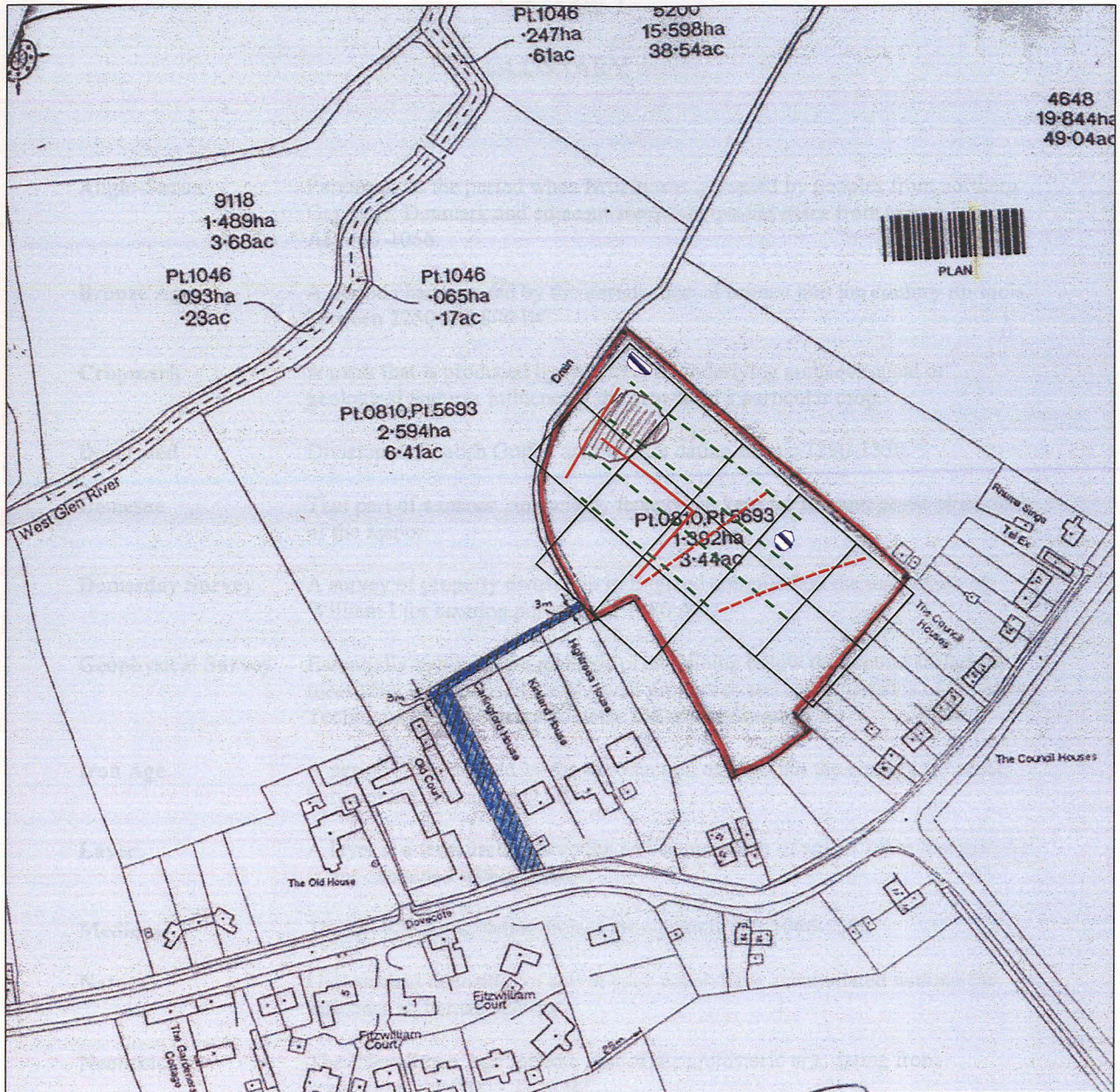


- Archaeology
- - - Possible archaeology

- - - Ridge and furrow
- Ferromagnetic responses

Figure 5: Greatford Interpretation

Scale 1:1000



- Archaeology

- - - Possible archaeology
- - - Ridge and furrow

▨ Ferromagnetic responses

Figure 6: Greatford
Summary

Scale 1:2500

Appendix 2

GLOSSARY

| | |
|---------------------------|---|
| Anglo-Saxon | Pertaining to the period when Britain was occupied by peoples from northern Germany, Denmark and adjacent areas. The period dates from approximately AD 450-1066. |
| Bronze Age | A period characterised by the introduction of bronze into the country for tools, between 2250 and 800 BC. |
| Cropmark | A mark that is produced by the effect of underlying archaeological or geological features influencing the growth of a particular crop. |
| Decorated | Division of English Gothic architecture dating from c.1290-1350. |
| Demesne | That part of a manor not held by tenants but kept for use and profit of the lord of the manor |
| Domesday Survey | A survey of property ownership in England compiled on the instruction of William I for taxation purposes in 1086 AD. |
| Geophysical Survey | Essentially non-invasive methods of examining below the ground surface by measuring deviations in the physical properties and characteristics of the earth. Techniques include magnetometry and resistivity survey. |
| Iron Age | A period characterised by the introduction of Iron into the country for tools, between 800 BC and AD 50. |
| Layer | A layer is a term used to describe an accumulation of soil or other material that is not contained within a cut. |
| Medieval | The Middle Ages, dating from approximately AD 1066-1500. |
| Natural | Undisturbed deposit(s) of soil or rock which have accumulated without the influence of human activity |
| Neolithic | The 'New Stone Age' period, part of the prehistoric era, dating from approximately 4500 - 2250 BC. |
| Old English | The language used by the Saxon (q.v.) occupants of Britain. |
| Post hole | The hole cut to take a timber post, usually in an upright position. The hole may have been dug larger than the post and contain soil or stones to support the post. Alternatively, the posthole may have been formed through the process of driving the post into the ground. |
| Post-medieval | The period following the Middle Ages, dating from approximately AD 1500-1800. |
| Prehistoric | The period of human history prior to the introduction of writing. In Britain the prehistoric period lasts from the first evidence of human occupation about 500,000 BC, until the Roman invasion in the middle of the 1st century AD. |
| Ridge and Furrow | The remains of arable cultivation consisting of raised rounded strips separated by furrows. It is characteristic of open field agriculture. |

Romano-British

Pertaining to the period dating from AD 43-410 when the Romans occupied Britain.

Saxon

Pertaining to the period dating from AD 410-1066 when England was largely settled by tribes from northern Germany