
**ARCHAEOLOGICAL EVALUATION
AT LITTLEWORTH DROVE,
HECKINGTON,
LINCOLNSHIRE
(HLDA 01)**

Work Undertaken For
Heckington Angling Syndicate

August 2008

Report Compiled by
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Planning Application No: N/31/0839/00
National Grid Reference: TF 1510 4501
City and County Museum Accession No: 2001.7
OASIS Record No: archaeo11-46554

APS Report No. **94/08**

**ARCHAEOLOGICAL
PROJECT
SERVICES**



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1. SUMMARY

An archaeological evaluation was undertaken on land at Littleworth Drove, Heckington, Lincolnshire. The evaluation was undertaken to assess the buried archaeological resource in the advance of the excavation of fishing lakes.

The site lies in an area that has produced a number of Bronze Age (2200-800 BC) axes as well as flints and a fragment of pottery. The course of a Roman (AD42-410) road lies close to the site and finds of the period are known from the vicinity. During the medieval period (AD 1066-1540) the site lay east of a moated manor house. Geophysical survey of the site recorded possible kilns and modern disturbance.

The evaluation identified a sequence of natural, undated, post-medieval and recent deposits. A pit remains undated due to a lack of artefactual material. However, it was earlier than a number of parallel ditches relating to the 18th century enclosure of the parish. Modern clearance cuts were also observed. No finds were retrieved from the investigation.

2. INTRODUCTION

2.1 Definition of an Evaluation

An archaeological evaluation is defined as 'a limited programme of non-intrusive and/or intrusive fieldwork which determines the presence or absence of archaeological features, structures, deposits, artefacts or ecofacts within a specified area or site. If such archaeological remains are present Field Evaluation defines their character and extent, quality and preservation, and it enables an assessment of their worth in a local, regional, national or international context as appropriate' (IFA 1999).

2.2 Planning Background

Archaeological Project Services was commissioned by Heckington Angling Syndicate to undertake a programme of archaeological investigation in advance of groundworks for new fishing lakes at Littleworth Drove, Heckington, Lincolnshire, as detailed in Planning Application N/31/0839/00. The evaluation was undertaken between the 27th December 2000 and the 11th October 2001 in accordance with a specification prepared by Archaeological Project Services (Appendix 1) and approved by the North Kesteven Heritage Officer.

2.3 Topography and Geology

Heckington is located 7km east of Sleaford and 32km southwest of Lincoln, in the administrative district of North Kesteven, Lincolnshire (Fig. 1).

The site lies 1.3km northeast of the centre of Heckington at National Grid Reference TF 1510 4501 (Fig. 2). The site is on the north side of Littleworth Drove at a height of c. 4.5m OD on generally level ground.

Local soils are of the Ruskington Association, typically calcareous brown earths (Hodge *et al.* 1984). These soils overlie a drift geology of Sleaford sand and gravel at the northern part of the site, with river glaciofluvial and till occurring to the south. These seal a solid geology of Jurassic Oxford Clay (BGS 1995).

2.4 Archaeological Setting

The site lies in an area of known archaeological remains dating from the Neolithic to the present day. A stone axe is known from the vicinity. More material has been dated to the Bronze Age and includes bronze axes, flint tools, including an arrowhead and a single fragment of pottery.

During the Romano-British period, the site lay adjacent to a Roman road that connected the small town at Sleaford to a number of tile kilns that lie nearly 2km to the east. A slight earthwork to the west may represent part of its course. Romano-British pottery has also been found in the general vicinity.

The site lies in an area now referred to as Winkhill which is first mentioned in documents of the Knight's Templar dating to 1185. Referred to as *Vincke*, the name is derived from the Old English *wincel* and means 'the nook, the corner of land' (Cameron 1998, 140). The Templars had a farm to the west of the site.

This farm later developed into a manor house which is represented by the earthworks of a moat. The manor house was originally approached from the west and had a gatehouse and hall and was finally demolished in 1780 (Roffe and Healey forthcoming).

A watching brief carried out to the east of the site encountered topsoil and subsoil deposits, though archaeological horizons were not reached (Mills 1999, 2). Geophysical survey of the site identified large areas of probable modern disturbance. Additionally, several distinct signals suggestive of kilns were recorded (Appendix 2).

3. AIMS

The aim of the evaluation was to gather information to establish the presence or absence, extent, condition, character, quality and date of any archaeological deposits in order to enable the North Kesteven Heritage Officer to formulate a policy for the management of archaeological resources present on the site.

4. METHODS

Six trenches were excavated to the surface of the underlying natural geology.

Removal of topsoil and other overburden was undertaken by mechanical excavator using a toothless ditching bucket. The exposed surfaces of the trenches were then cleaned by hand and inspected for archaeological remains.

Each deposit exposed during the evaluation was allocated a unique reference number (context number) with an individual written description. A list of all contexts and their interpretations appears as Appendix 2. A photographic record was also compiled and sections and plans were drawn at a scale of 1:10 and 1:20 respectively. Recording of deposits encountered was undertaken according to standard Archaeological Project Services practice.

The location of the excavated trenches was surveyed in relation to fixed points on boundaries and on existing buildings (Fig. 3).

Following excavation, the records were checked and a stratigraphic matrix produced. Phasing was based on the nature of the deposits and recognisable relationships between them.

5. RESULTS

The results of the archaeological evaluation are discussed in trench order. Archaeological contexts are described below. The numbers in brackets are the context numbers assigned in the field.

Trench 1

The earliest deposit encountered in Trench 1 was a natural layer comprising brownish yellow sand and gravel (105). This

measured in excess of 80mm thick.

Cutting the natural layer was an irregular clearance cut (106). The extent was greater than the size of the trench and was 0.7m deep (Fig. 4, Section 1). This contained three fills, the lowest of bluish grey clay (104) followed by brown silt (103) and then brownish red sand with frequent gravel (102).

Sealing this feature was the current topsoil of greyish brown silt with frequent gravel (101). This was 0.39m thick.

Trench 2

Natural layers comprised yellow sand and gravel (205) that was over 50mm thick.

A large clearance cut was also recorded (206) that was 0.69m deep (Fig. 4, Section 2). Fills comprised yellowish brown silt (202), greyish brown silt with modern refuse and concrete (203) and grey organic silt (204).

A 0.52m thick topsoil of yellowish brown silt with frequent gravel (201) sealed the trench.

Trench 3

A natural layer of yellowish brown clayey sand (302) was overlain by a 0.35m thick (Fig. 4, Section 3) topsoil of brown sandy silt (301).

Trench 4

Natural deposits comprised a layer of yellow gravel (404) that measured in excess of 0.3m thick.

A topsoil of grey sandy silt (403) had developed upon the gravel and was 0.38m thick.

This had in turn been truncated by a clearance cut (402) that had a depth of 0.4m (Fig. 4, Section 8). A single fill of yellow sandy clay and gravel (401) was

recorded.

Sealing all deposits was a topsoil of grey silty sand with frequent gravel (400).

Trench 5

Natural was recorded as brownish yellow sandy gravel (514) that was at least 0.57m thick.

Cut into the natural within the southern part of the trench was an irregular pit (501). This was longer than 1.6m, wider than 1.1m and 0.26m deep (Fig. 5, Section 4). A single fill of brownish grey clayey sand (503) was identified.

This had been cut by a north-south aligned ditch (502) that measured 0.7m wide and 0.13m deep (Fig. 5, Section 4). The ditch contained a fill of grey clay (504).

A second north-south aligned ditch (506) was located in the northern half of the trench. This was 1m wide and 0.34m deep (Fig. 5, Section 5) and also contained a grey clay fill (505).

At the north end of the trench a subsoil of brown sandy clay (510) was identified. This was overlain by a number of dumped deposits comprising clayey sand with frequent gravel (507), brownish grey silty sand (508) and yellowish brown clayey sand (509 and 511).

A second subsoil sealed these deposits and consisted of brown silty clay with frequent gravel (513). This was in turn sealed by a 0.32m thick topsoil of greyish brown clayey silt (512).

Trench 6

A natural layer comprising greyish brown clay and gravel (603) was identified.

Cutting natural in the central part of the trench was an east-west aligned ditch (607). This was 0.88m wide and 0.27m

deep (Fig. 7, Section 10). A fill of greenish brown clay (606) was identified.

Located 4m to the southeast was a pit (605). This measured 0.84m long, 0.66m wide and 0.22m deep (Fig. 7, Section 11). This contained a single fill of brown clay (604).

At the eastern end of the trench was a north-south aligned ditch (602) that was 0.85m wide and 0.29m deep (Fig. 7, Section 12). A single fill of brown clay (601) was recorded.

Sealing all deposits was a subsoil of yellowish brown clayey silt (609) that was 0.26m thick. This was in turn sealed by the topsoil of brown silty clay (608), measuring 0.35m thick.

6. DISCUSSION

Natural deposits vary between sands and gravels with clays and clayey sands also identified. These relate to the underlying drift deposits.

Four ditches are undated within Trenches 5 and 6. The north-south aligned ditches represent small elongated enclosures, examples of which still survive to the east of the site (Russell and Russell 1987, 90). As such, they can be related to the Heckington Enclosure of 1765. The east-west ditch may also be part of the enclosure pattern. A single pit also remains undated.

Large clearance cuts were recorded in Trenches 1, 2 and 4 which were filled with modern detritus. The function of these is not clear as their extent could not be ascertained during the investigation.

Subsoils were apparent where there were no clearance features and indicate that the land had been subjected to an agricultural

regime in the past.

No finds were retrieved during the evaluation.

7. CONCLUSIONS

An archaeological evaluation was undertaken at Littleworth Drove, Heckington, as the site lay in an area of known archaeological remains of the prehistoric, Romano-British and medieval periods.

However, no Romano-British or medieval remains were encountered during the evaluation. Instead, the earliest features recorded dated to the time of the enclosure in the later 18th century and comprise shallow boundary ditches. A pit was also found but remains undated due to a lack of artefactual material. More recent clearance features were located towards the north of the site.

No finds were retrieved from the investigation.

8. ACKNOWLEDGEMENTS

Archaeological Project Services wishes to acknowledge the assistance of Mr P de Fusto of the Heckington Angling Syndicate for commissioning the fieldwork and post-excavation analysis. The work was coordinated by Gary Taylor who edited this report along with Tom Lane. Jo Hambly, the North Kesteven Heritage Officer, kindly permitted access to the parish files and the library maintained by Heritage Lincolnshire.

9. PERSONNEL

Project Coordinator: Gary Taylor
 Site Supervisors: Mark Dymond, Rachael

Hall

Site Staff: Vicky Mellor, Chris Moulis,
Fiona Walker

Photographic reproduction: Sue Unsworth

Illustration: Paul Cope-Faulkner

Post-excavation Analyst: Paul Cope-
Faulkner

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Roffe, D and Healey, RH, forthcoming, *Some Medieval and later Earthworks of South Lincolnshire: the present state of knowledge*

Russell, E and Russell, RC, 1987 *Parliamentary Enclosure and New Lincolnshire Landscapes*

11. ABBREVIATIONS

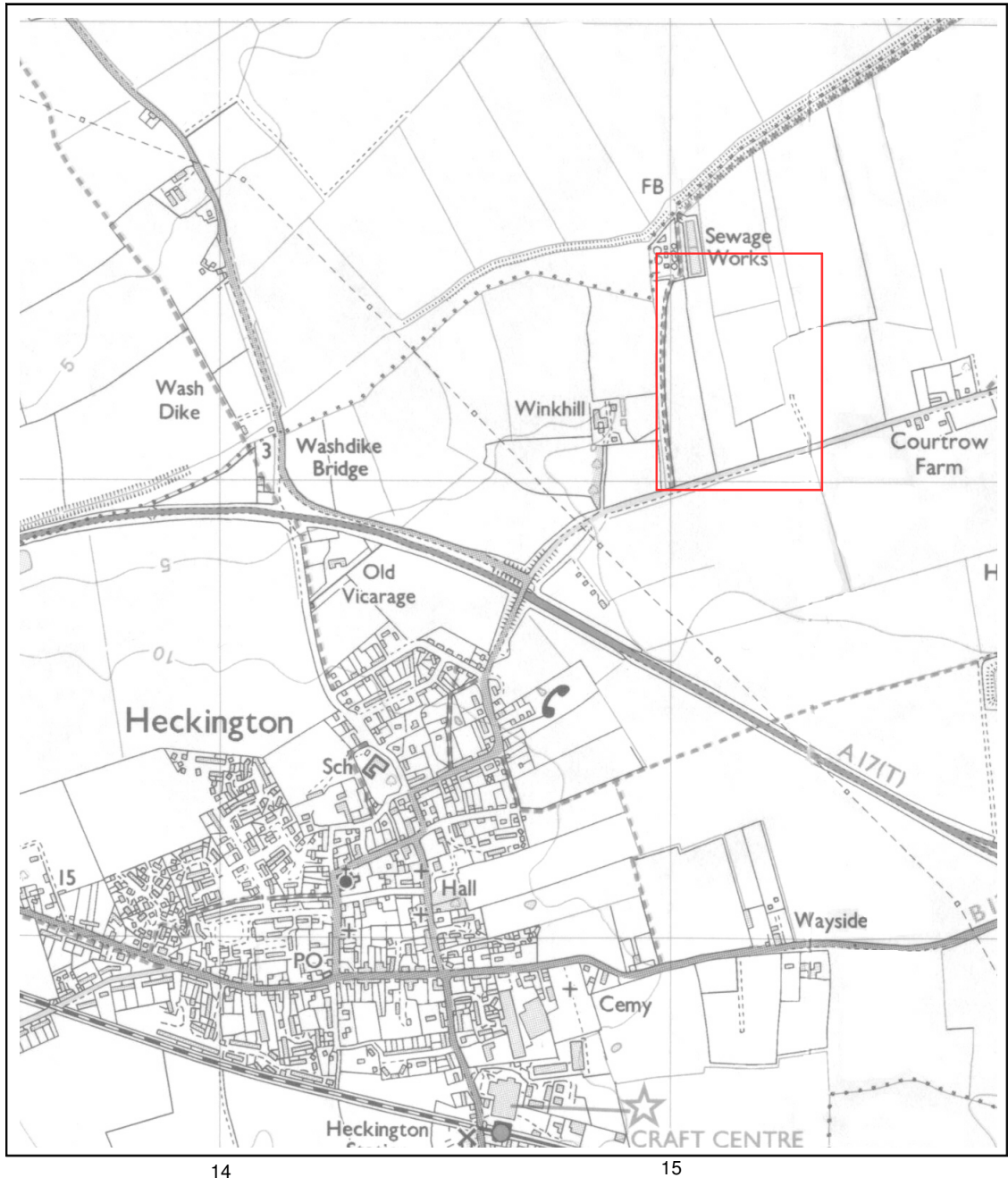
APS Archaeological Project Services

BGS British Geological Survey

IFA Institute of Field Archaeologists



Figure 1 - General location plan



TF



Area detailed in Figure 3

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	Archaeological Project Services	
Project Name: Littleworth Drive, Heckington HLDA01		
Scale 1:15000	Drawn by: PCF	Report No: 94/08

Figure 2 - Site location plan

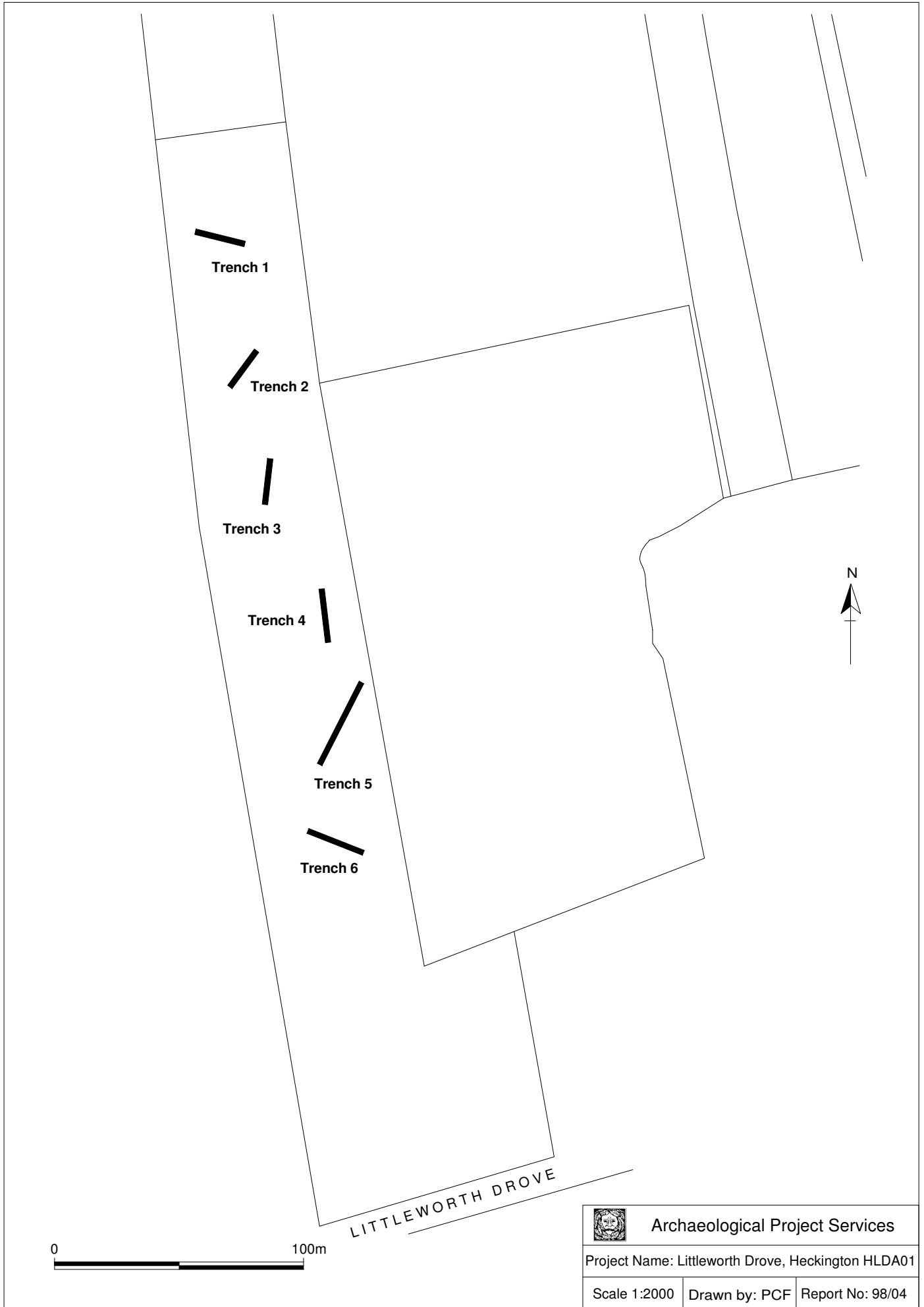
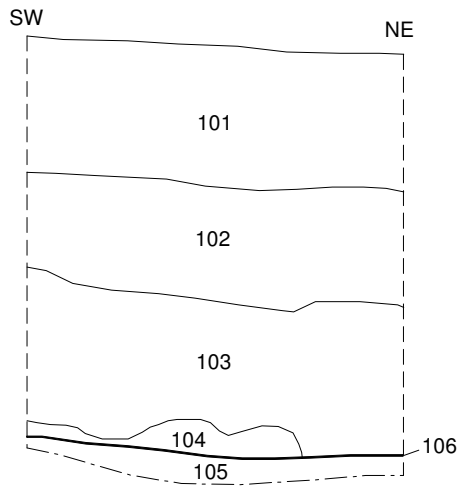
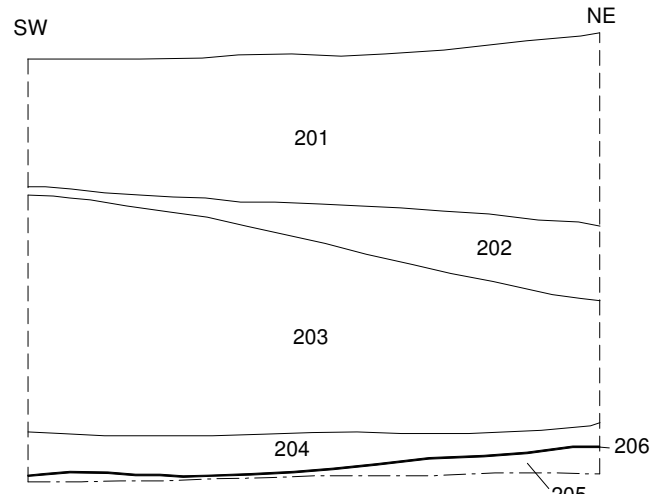


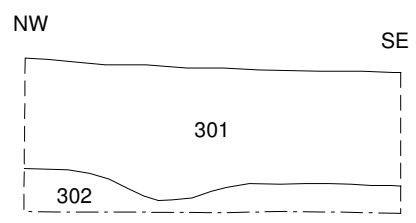
Figure3 - Trench location plan



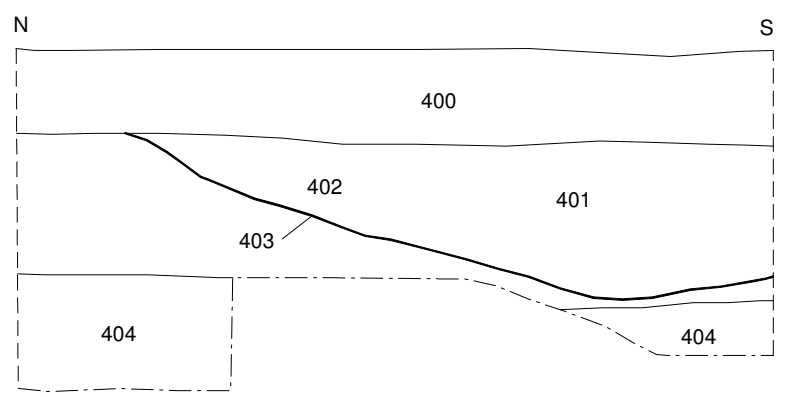
Section 1, Trench 1



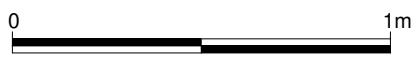
Section 2, Trench 2



Section 3, Trench 3



Section 8, Trench 4




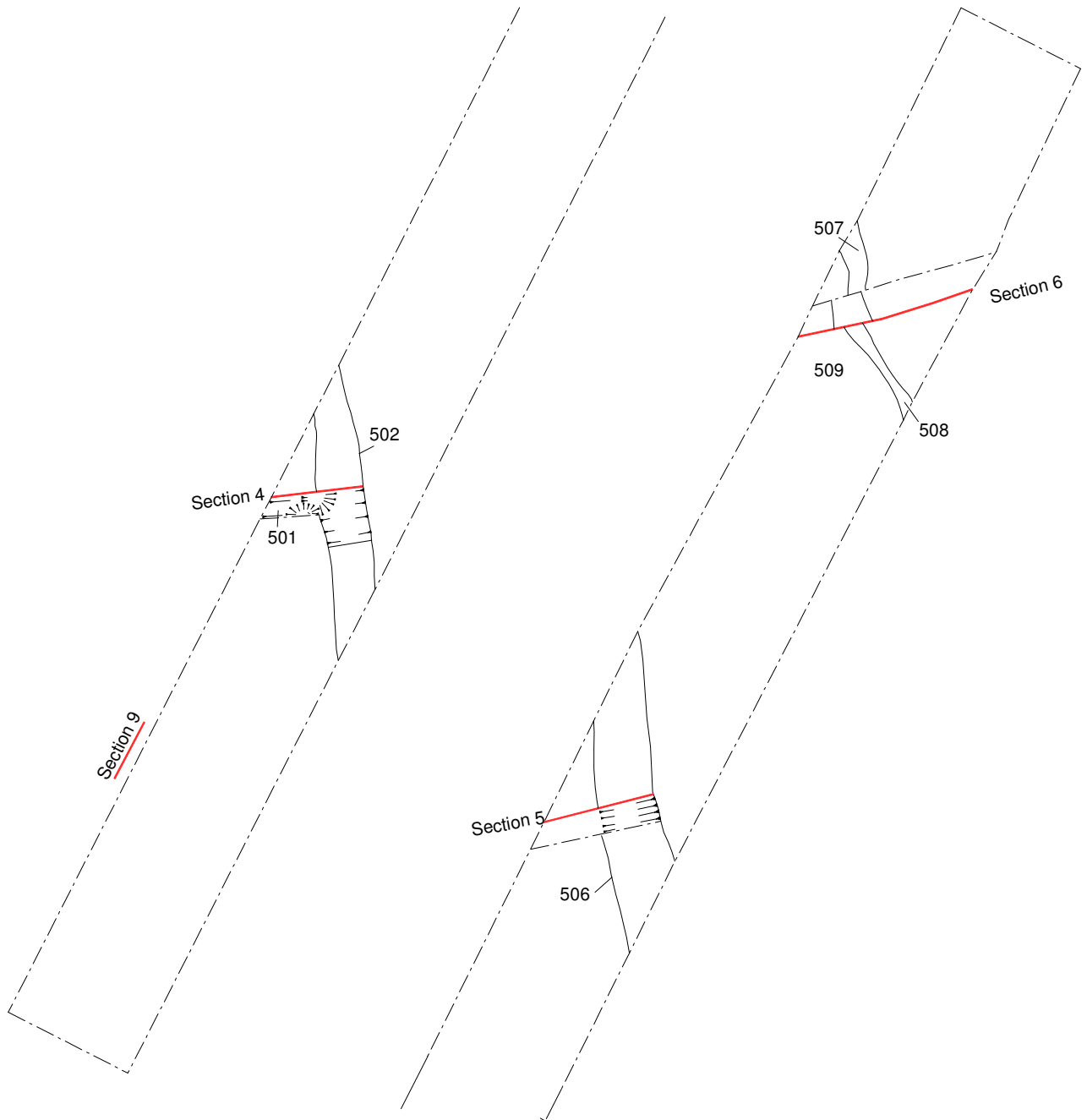
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Project Name: Littleworth Drove, Heckington HLDA01		
Scale 1:20	Drawn by: PCF	Report No: 94/08

Figure 4 - Trenches 1 to 4: Sections



0 5m


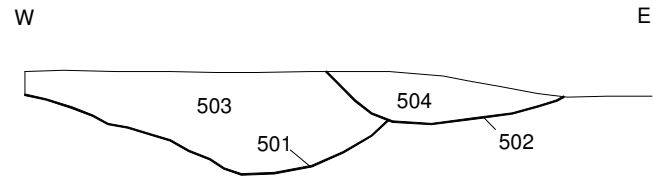
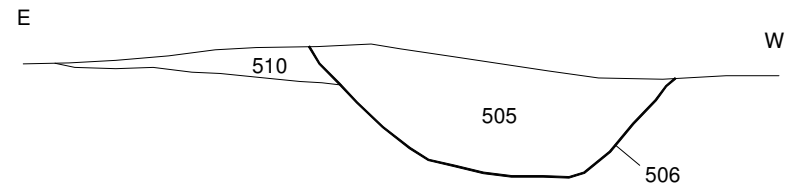
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Scale 1:100	Drawn by: PCF	Report No: 94/08

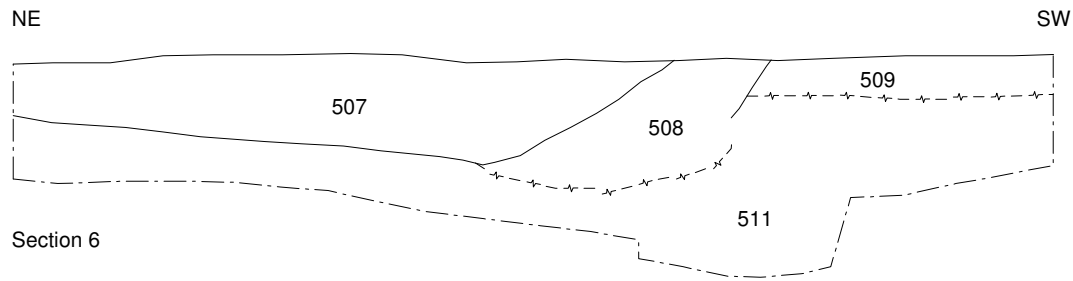
Figure 5 - Trench 5: Plan



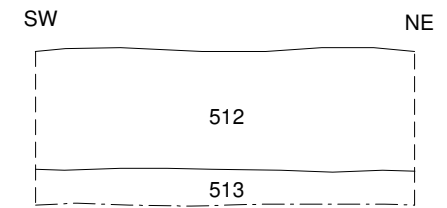
Section 4



Section 5



Section 6



Section 9




		
Archaeological Project Services		
Project Name: Littleworth Drove, Heckington HLDA01		
Scale 1:20	Drawn by: PCF	Report No: 94/08

Figure 6 - Trench 5: Sections

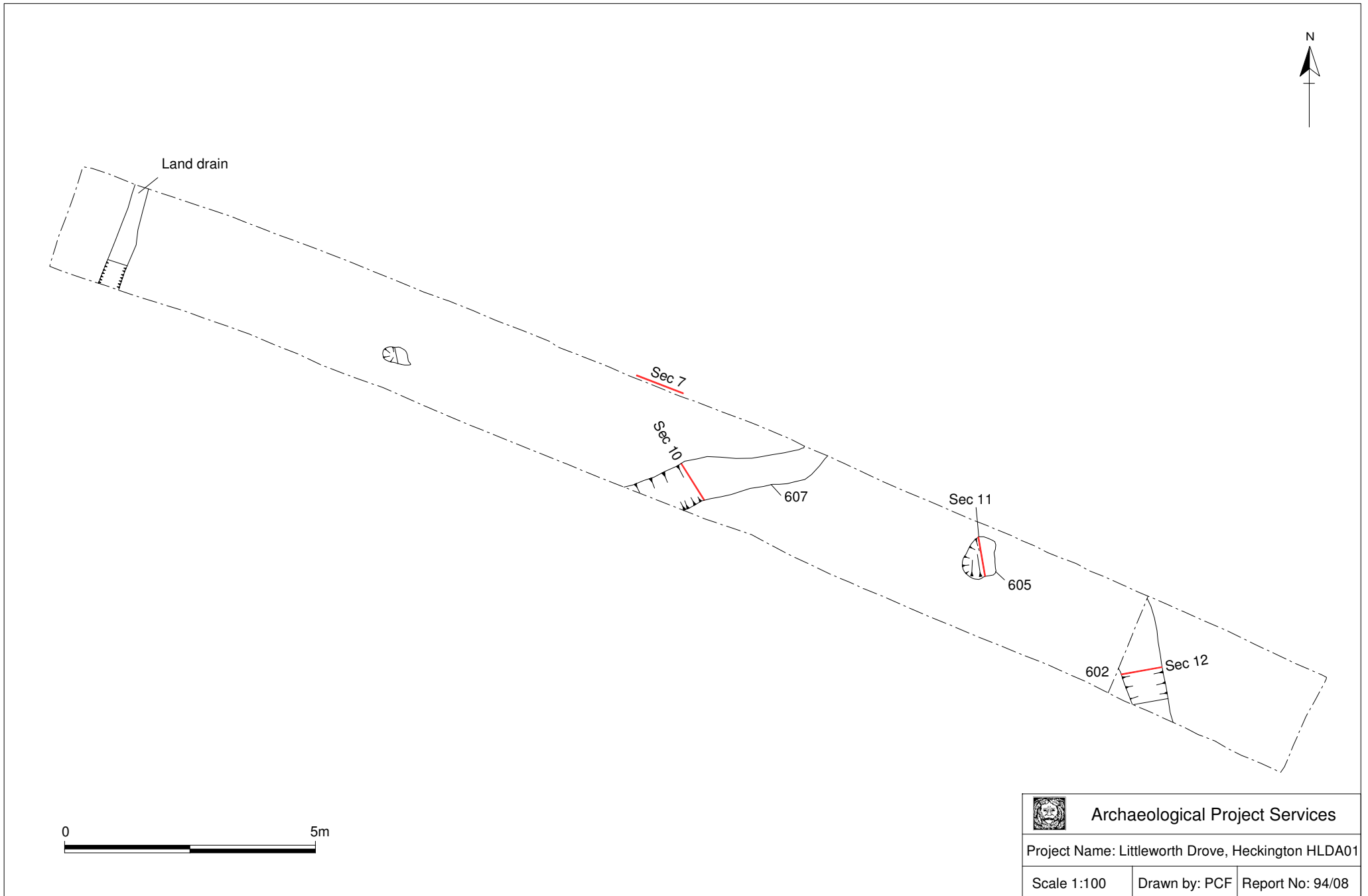
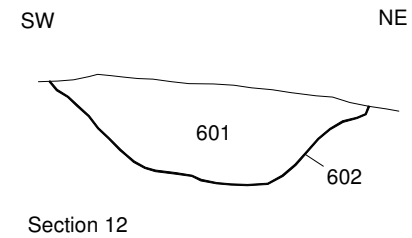
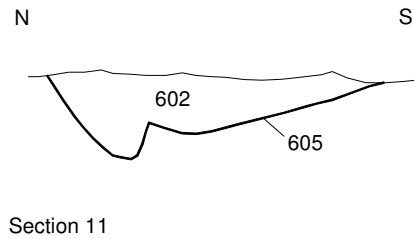
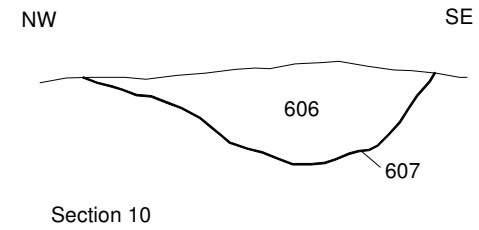
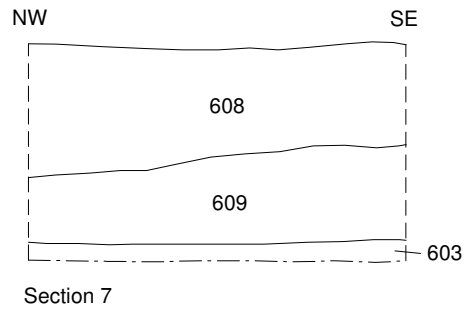


Figure 7 - Trench 6: Plan



Archaeological Project Services

Project Name: Littleworth Drove, Heckington HLDA01

Scale 1:20

Drawn by: PCF

Report No: 94/08

Figure 8 - Trench 6: Sections



Plate 1 – General view of the site, looking south

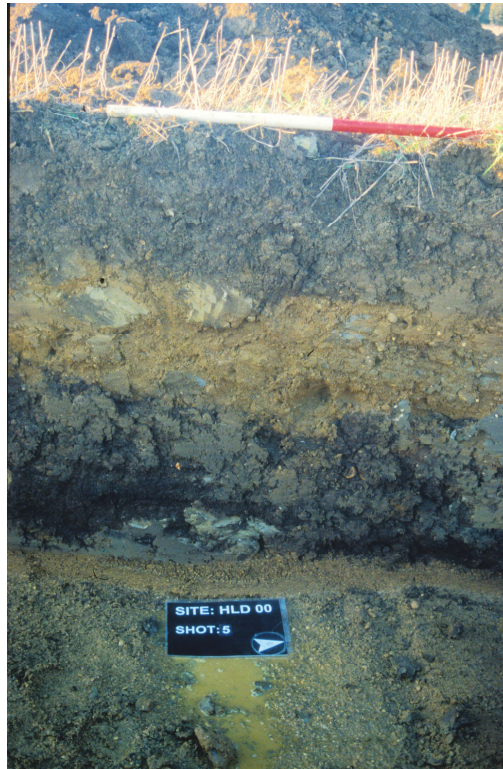


Plate 2 – Trench 1, representative section,
looking west



Plate 3 – Trench 2, looking northeast

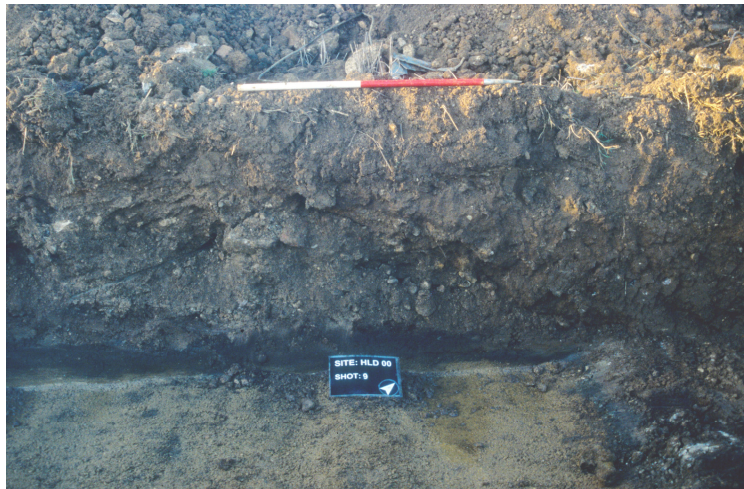


Plate 4 – Trench 2, representative section, looking northwest



Plate 5 – Trench 3, looking west



Plate 6 – Trench 5, Pit (501) and ditch (502), looking north



Plate 7 – Trench 6, Ditch (602), looking north



Plate 8 – Trench 6, pit (605), looking northeast

Appendix 1

LAND AT LITTLEWORTH DROVE, HECKINGTON, LINCOLNSHIRE - SPECIFICATION FOR ARCHAEOLOGICAL EVALUATION

1 SUMMARY

- 1.1 This document comprises a specification for the archaeological field evaluation of land at Littleworth Drove, Heckington, Lincolnshire.*
- 1.2 Prehistoric axes and other tools have been found on and in immediate proximity to the site, as have Roman pottery and tile fragments. A manor and possible moat of medieval or later date is known just to the west. Additionally, there are earthworks in the southern part of the site and to the east which are thought to be medieval quarries. Geophysical survey of the site recorded magnetic disturbances that may be kilns.*
- 1.3 A planning application for the construction of fishing lakes and a nature reserve has been applied for a programme of archaeological trial trenching is required to assist the determination of the application.*
- 1.4 On completion of the fieldwork a report will be prepared detailing the findings of the investigation. The report will consist of a text describing the nature of the archaeological deposits located and will be supported by illustrations and photographs.*

2 INTRODUCTION

- 2.1 This document comprises a specification for the archaeological evaluation of land off Littleworth Drove, Heckington, Lincolnshire, nation grid reference TF 1511 4501.
- 2.2 The document contains the following parts:
 - 2.2.1 Overview
 - 2.2.2 The archaeological and natural setting
 - 2.2.3 Stages of work and methodologies to be used
 - 2.2.4 List of specialists
 - 2.2.5 Programme of works and staffing structure of the project

3 SITE LOCATION

- 3.1 Heckington is located 2km east of Sleaford in the administrative district of North Kesteven. The site is just beyond the northeastern edge of the village, on the north side of Littleworth Drove, at national grid reference TF 1511 4501.
- 3.2 The site is an L-shaped block of land approximately 3.5ha in extent.

4 PLANNING BACKGROUND

- 4.1 The site is the subject of a planning application (N31/0839/00) submitted to North Kesteven District Council for the creation of fishing lakes. An archaeological evaluation is required for the determination of the application. As the first stage of that evaluation process a geophysical survey of the development area was undertaken. That survey indicated the potential for archaeological remains at the site, perhaps kilns. As a result, a programme of trial trenching is now required.

5 SOILS AND TOPOGRAPHY

- 5.1 The site and surrounding area is on a gentle slope down to the northeast and lies at about 5m OD. Soils at the site are Ruskington Association calcareous loamy and clayey soils and Beccles 3 Association fine loamy over clayey soils, both soils developed on sands and gravels (Hodge *et al.* 1984).

6 THE ARCHAEOLOGY

- 6.1 Prehistoric axes, in both stone and bronze, have previously been found on and in immediate proximity to the site. In addition, flint tools of prehistoric date have also been found at, and on land alongside, the site. The quantity of axes, in particular, may suggest the possibility of an otherwise unknown prehistoric cemetery in the area.
- 6.2 Roman pottery and tile has also been found on and just to the west of the site. In addition, just to the west of the investigation area is the site of Winkhill Manor and a possible moat of medieval or later date.
- 6.3 Geophysical survey of the site recorded several magnetic anomalies. While some of those may be caused by dumping or other disturbance, several prominent signals that may be kilns were identified.

7 AIMS AND OBJECTIVES

- 7.1 The aim of the work will be to gather sufficient information for the archaeological curator to be able to formulate a policy for the management of the archaeological resources present on the site.
- 7.2 The objectives of the work will be to:
- 7.2.1 Establish the type of archaeological activity that may be present within the site.
 - 7.2.2 Determine the likely extent of archaeological activity present within the site.
 - 7.2.3 Determine the spatial arrangement of the archaeological features present within the site.
 - 7.2.4 Determine the extent to which the surrounding archaeological features extend into the application area.
 - 7.2.5 Establish the way in which the archaeological features identified fit into the pattern of occupation and land-use in the surrounding landscape.
 - 7.2.6 Determine the date and function of the archaeological features present on the site.

8 LIAISON WITH THE ARCHAEOLOGICAL CURATOR

- 8.1 Prior to the commencement of the trial trenching the arrangement of the interventions (excavations) will be agreed with the archaeological curator to ensure that the proposed scheme of works fulfils their requirements.

9 TRIAL TRENCHING

- 9.1 Reasoning for this technique
- 9.1.1 Trial trenching enables the *in situ* determination of the sequence, date, nature, depth, environmental potential and density of archaeological features present on the site.
 - 9.1.2 The trial trenching will consist of the examination of a 1% sample of the site by the excavation of ten (10) trenches, two measuring 30m x 1.6m and eight measuring 20m x 1.6m, placed to examine several of the geophysical signals and to provide overall coverage of the site. The trenches may be widened and stepped-in should archaeological

deposits extend below 1.2m depth. Augering may be used to determine the depth of the sequence of deposits present.

9.2 General Considerations

- 9.2.1 All work will be undertaken following statutory Health and Safety requirements in operation at the time of the evaluation.
- 9.2.2 The work will be undertaken according to the relevant codes of practice issued by the Institute of Field Archaeologists (IFA). *Archaeological Project Services* is an IFA Registered Archaeological Organisation (No. 21).
- 9.2.3 Any and all artefacts found during the investigation and thought to be 'treasure', as defined by the Treasure Act 1996, will be removed from site to a secure store and promptly reported to the appropriate coroner's office.
- 9.2.4 Excavation of the archaeological features exposed will only be undertaken as far as is required to determine their date, sequence, density and nature. Not all archaeological features exposed will be excavated. However, the evaluation will, as far as is reasonably practicable, determine the level of the natural deposits to ensure that the depth of the archaeological sequence present on the site is established.
- 9.2.5 Open trenches will be marked by hazard tape attached to road irons or similar poles. Subject to the consent of the archaeological curator, and following the appropriate recording, the trenches, particularly those of excessive depth, will be backfilled as soon as possible to minimise any health and safety risks.

9.3 Methodology

- 9.3.1 Removal of the topsoil and any other overburden will be undertaken by mechanical excavator using a toothless ditching bucket. To ensure that the correct amount of material is removed and that no archaeological deposits are damaged, this work will be supervised by Archaeological Project Services. On completion of the removal of the overburden, the nature of the underlying deposits will be assessed by hand excavation before any further mechanical excavation that may be required. Thereafter, the trenches will be cleaned by hand to enable the identification and analysis of the archaeological features exposed.
- 9.3.2 Investigation of the features will be undertaken only as far as required to determine their date, form and function. The work will consist of half- or quarter-sectioning of features as required and, where appropriate, the removal of layers. Should features be located which may be worthy of preservation *in situ*, excavation will be limited to the absolute minimum, (*ie* the minimum disturbance) necessary to interpret the form, function and date of the features.
- 9.3.3 The archaeological features encountered will be recorded on Archaeological Project Services pro-forma context record sheets. The system used is the single context method by which individual archaeological units of stratigraphy are assigned a unique record number and are individually described and drawn.
- 9.3.4 Plans of features will be drawn at a scale of 1:20 and sections at a scale of 1:10. Should individual features merit it, they will be drawn at a larger scale.
- 9.3.5 Throughout the duration of the trial trenching a photographic record consisting of black and white prints (reproduced as contact sheets) and colour slides will be compiled. The photographic record will consist of:
 - 9.3.5.1 the site before the commencement of field operations.
 - 9.3.5.2 the site during work to show specific stages of work, and the layout of the

archaeology within individual trenches.

9.3.5.3 individual features and, where appropriate, their sections.

9.3.5.4 groups of features where their relationship is important.

9.3.5.5 the site on completion of field work

9.3.6 Should human remains be encountered, they will be left *in situ* with excavation being limited to the identification and recording of such remains. If removal of the remains is necessary the appropriate Home Office licences will be obtained and the local environmental health department informed. If relevant, the coroner and the police will be notified.

9.3.7 Finds collected during the fieldwork will be bagged and labelled according to the individual deposit from which they were recovered ready for later washing and analysis.

9.3.8 The spoil generated during the evaluation will be mounded along the edges of the trial trenches with the top soil being kept separate from the other material excavated for subsequent backfilling.

9.3.9 The precise location of the trenches within the site and the location of site recording grid will be established by an EDM survey.

10 ENVIRONMENTAL ASSESSMENT

10.1 If appropriate, during the evaluation specialist advice will be obtained from an environmental archaeologist. The specialist will visit the site and will prepare a report detailing the nature of the environmental material present on the site and its potential for additional analysis should further stages of archaeological work be required. The results of the specialist's assessment will be incorporated into the final report

11 POST-EXCAVATION AND REPORT

11.1 Stage 1

11.1.1 On completion of site operations, the records and schedules produced during the trial trenching will be checked and ordered to ensure that they form a uniform sequence constituting a level II archive. A stratigraphic matrix of the archaeological deposits and features present on the site will be prepared. All photographic material will be catalogued: the colour slides will be labelled and mounted on appropriate hangers and the black and white contact prints will be labelled, in both cases the labelling will refer to schedules identifying the subject/s photographed.

11.1.2 All finds recovered during the trial trenching will be washed, marked, bagged and labelled according to the individual deposit from which they were recovered. Any finds requiring specialist treatment and conservation will be sent to the Conservation Laboratory at the City and County Museum, Lincoln.

11.2 Stage 2

11.2.1 Detailed examination of the stratigraphic matrix to enable the determination of the various phases of activity on the site.

11.2.2 Finds will be sent to specialists for identification and dating.

11.3 Stage 3

11.3.1 On completion of stage 2, a report detailing the findings of the evaluation will be prepared. This will consist of:

- 11.3.1.1 A non-technical summary of the findings of the evaluation.
- 11.3.1.2 A description of the archaeological setting of the site.
- 11.3.1.3 Description of the topography and geology of the evaluation area.
- 11.3.1.4 Description of the methodologies used during the evaluation and discussion of their effectiveness in the light of the findings of the investigation.
- 11.3.1.5A text describing the findings of the evaluation.
- 11.3.1.6 Plans of the trenches showing the archaeological features exposed. If a sequence of archaeological deposits is encountered, separate plans for each phase will be produced.
- 11.3.1.7 Sections of the trenches and archaeological features.
- 11.3.1.8 Interpretation of the archaeological features exposed and their context within the surrounding landscape.
- 11.3.1.9 Specialist reports on the finds from the site.
- 11.3.1.10 Appropriate photographs of the site and specific archaeological features or groups of features.
- 11.3.1.11 A consideration of the significance of the remains found, in local, regional, national and international terms, using recognised evaluation criteria.

12 **ARCHIVE**

- 12.1 The documentation, finds, photographs and other records and materials generated during the evaluation will be sorted and ordered into the format acceptable to the City and County Museum, Lincoln. This sorting will be undertaken according to the document titled *Conditions for the Acceptance of Project Archives* for long term storage and curation.

13 **REPORT DEPOSITION**

- 13.1 Copies of the evaluation report will be sent to: the client, Heckington Angling Syndicate; the North Kesteven Heritage Officer; North Kesteven District Council Planning Department; and the Lincolnshire County Sites and Monuments Record.

14 **PUBLICATION**

- 14.1 A report of the findings of the evaluation will be submitted for inclusion in the journal *Lincolnshire History and Archaeology*. Notes or articles describing the results of the investigation will also be submitted for publication in the appropriate national journals: *Medieval Archaeology* and *Journal of the Medieval Settlement Research Group* for medieval and later remains, and *Britannia* for discoveries of Roman date.

15 **CURATORIAL MONITORING**

- 15.1 Curatorial responsibility for the project lies with North Kesteven Heritage Officer. As much written notice as possible, ideally at least seven days, will be given to the archaeological curator prior to the commencement of the project to enable them to make appropriate monitoring arrangements.

16 **VARIATIONS TO THE PROPOSED SCHEME OF WORKS**

- 16.1 Variations to the scheme of works will only be made following written confirmation from the

archaeological curator.

- 16.2 Should the archaeological curator require any additional investigation beyond the scope of the brief for works, or this specification, then the cost and duration of those supplementary examinations will be negotiated between the client and the contractor.

17 SPECIALISTS TO BE USED DURING THE PROJECT

- 17.1 The following organisations/persons will, in principal and if necessary, be used as subcontractors to provide the relevant specialist work and reports in respect of any objects or material recovered during the investigation that require their expert knowledge and input. Engagement of any particular specialist subcontractor is also dependent on their availability and ability to meet programming requirements.

<u>Task</u>	<u>Body to be undertaking the work</u>
Conservation	Conservation Laboratory, City and County Museum, Lincoln.
Pottery Analysis	Prehistoric: Dr D Knight, Trent and Peak Archaeological Trust Roman: B Precious, independent specialist Anglo-Saxon: J Young, independent specialist Medieval and later: H Healey, independent archaeologist; or G Taylor, APS
Other Artefacts	J Cowgill, independent specialist; or G Taylor, APS
Human Remains Analysis	R Gowland, independent specialist
Animal Remains Analysis	Environmental Archaeology Consultancy; or P Cope-Faulkner, APS
Environmental Analysis	Environmental Archaeology Consultancy
Radiocarbon dating	Beta Analytic Inc., Florida, USA
Dendrochronology dating	University of Sheffield Dendrochronology Laboratory

18 PROGRAMME OF WORKS AND STAFFING LEVELS

- 18.1 Fieldwork is expected to be undertaken by 3-4 staff, a supervisor and 2-3 assistants, and to take eight (8) days.

- 18.2 Post-excavation analysis and report production is expected to take 12 person-days within a notional programme of 15 days. A project officer or supervisor will undertake most of the analysis, with assistance from the finds supervisor and CAD illustrator. Three half-days of specialist time are allotted in the project budget.

18.3 Contingency

18.3.1 Contingencies have been specified in the budget. These include: sampling/analysis of environmental/waterlogged remains; pump; Roman pottery - large quantities (moderate amounts expected and allowed for); Anglo-Saxon pottery (not expected); Medieval pottery- moderate-large quantities (small amounts expected and allowed for); faunal remains -large quantities (moderate amounts expected and allowed for); Conservation and/or Other unexpected remains or artefacts.

18.3.2 Other than the pump, the activation of any contingency requirement will be by the archaeological curator (North Kesteven Heritage Officer), not Archaeological Project Services.

19 INSURANCES

- 19.1 Archaeological Project Services, as part of the Heritage Trust of Lincolnshire, maintains Employers Liability insurance to £10,000,000. Additionally, the company maintains Public and Products Liability insurances, each with indemnity of £5,000,000. Copies of insurance documentation can be supplied on request.

20 COPYRIGHT

- 20.1 Archaeological Project Services shall retain full copyright of any commissioned reports under the *Copyright, Designs and Patents Act 1988* with all rights reserved; excepting that it hereby provides an exclusive licence to the client for the use of such documents by the client in all matters directly relating to the project as described in the Project Specification.
- 20.2 Licence will also be given to the archaeological curators to use the documentary archive for educational, public and research purposes.
- 20.3 In the case of non-satisfactory settlement of account then copyright will remain fully and exclusively with Archaeological Project Services. In these circumstances it will be an infringement under the *Copyright, Designs and Patents Act 1988* for the client to pass any report, partial report, or copy of same, to any third party. Reports submitted in good faith by Archaeological Project Services to any Planning Authority or archaeological curator will be removed from said Planning Authority and/or archaeological curator. The Planning Authority and/or archaeological curator will be notified by Archaeological Project Services that the use of any such information previously supplied constitutes an infringement under the *Copyright, Designs and Patents Act 1988* and may result in legal action.
- 20.4 The author of any report or specialist contribution to a report shall retain intellectual copyright of their work and may make use of their work for educational or research purposes or for further publication.

21 BIBLIOGRAPHY

EAS, 2000 *Littleworth Drove, Heckington Geophysical Survey*

Hodge, CAH, Burton, RGO, Corbett, WM, Evans, R, and Seale, RS, 1984 *Soils and their use in Eastern England*, Soil Survey of England and Wales **13**

Appendix 2

LITTLEWORTH DROVE, HECKINGTON - GEOPHYSICAL SURVEY

NGR - Centred on TF 15084520

Location and Topography

The area surveyed is set at right angles to Littleworth Drove, Heckington, Lincolnshire and is immediately to the west of "The Paddocks". The field was under stubble and was basically flat. The survey took place between 30/10/00 and 31/10/00.

Archaeological Background

The field is the subject of a planning application to excavate a series of fishing ponds. A number of records held by the Sites and Monuments Record relate to this field and the immediate area including finds of bronze and stone axes (Taylor pers. comm.), it was therefore considered necessary to evaluate the archaeological potential of the field prior to development.

Aims of Survey

To evaluate, by scanning and detailed survey the presence of potential archaeological features.

SUMMARY OF RESULTS

Large areas of the field would appear to be highly disturbed, however four large magnetic anomalies were located which may represent the presence of large areas of burning such as kilns. A number of agricultural features were also located.

Survey Results:

Area

A block approximately 260 x 90 m was surveyed (Figure 1). The distribution of the survey area was determined by the results of the magnetic scanning which took place in advance of the survey.

The field was also scanned at approximately 10 m transect separation. This covered an area of approximately 2.5 ha.

Display

The results are displayed as a Grey Scale Image and as an X-Y Trace Plot.

Results:

Scanning:

A number of large, intense, magnetic anomalies were located with values varying randomly between -204.7 and 204.7 nT (figure 4). These concentrated in the northern half of the field, although smaller areas were located in the southern half. The disturbance in Grids 23 and 24 is the result of a caravan parked just off the survey area.

The owner of "The Paddocks" claimed that the northern end of the field was used as a dump for concrete and other construction debris for the Heckington Bypass as well as for the Sewage Works to the north of the survey area. He also claimed that much of the topsoil from this end of the field was spread over the southern half of the field.

Detailed Survey:

Thirty-nine 20 x 20 m grids were investigated, consisting of a single block in the southern half of the field. (Figure 1)

Large areas of ferromagnetic disturbance were noted in the southern half of the survey area which probably relate to modern disturbance in the field and are shown in blue on Figure 4.

Four distinct anomalies were located, however. These all have very strong both positive and negative readings, but unlike the disturbed areas appear to have structured responses. Strong responses such as these may be the result of large metal objects within the plough soil, but the size and form of these anomalies would suggest that they may be structures such as kilns. These anomalies are shown in red on Figure 4.

The slight magnetic disturbance within Grids 17, 18, 19, 31, 32, 35 and 36 may be the result of changes within the underlying geology. A number of slight, parallel anomalies are assumed to be the modern drainage pattern in the field. These are shown in green on Figure 4.

Magnetic Susceptibility

Soil samples were taken from the area of detailed survey in order to assess the magnetic susceptibility of the soils. It was possible to obtain two subsoil sample for comparison .

Sample	Volume susceptibility χ_v	Mass susceptibility χ_m
Grid 1	11.0	11.3
Grid 3	8.0	8.7
Grid 6	10.0	12.2
Grid 8	10.0	12.4
Grid 9	13.0	13.4
Grid 11	6.0	5.9
Grid 13	6.0	6.3
Grid 15	16.0	19.3
Grid 17	11.0	12.5
Grid 19	8.0	7.8
Grid 21	15.0	15.0
Grid 23	9.0	9.2
Grid 25	8.0	10.7
Grid 27	15.0	19.2
Grid 29	13.0	12.9
Grid 31	8.0	10.0
Grid 33	8.0	8.6
Subsoil Grid 7	5.0	4.9
Subsoil Grid 31	4.0	3.9

The susceptibilities as measured are consistently low with little difference between top soil and subsoil values suggesting that conditions are not ideal for magnetic survey.

The slightly higher values for Grids 15 and 27 may suggest a slightly increased human activity level in this mid part of the survey area.

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.

Four distinct anomalies were located which may represent the position of structures such as kilns within the field. The other anomalies defined by the survey would appear to be either modern disturbance or modern agricultural features.

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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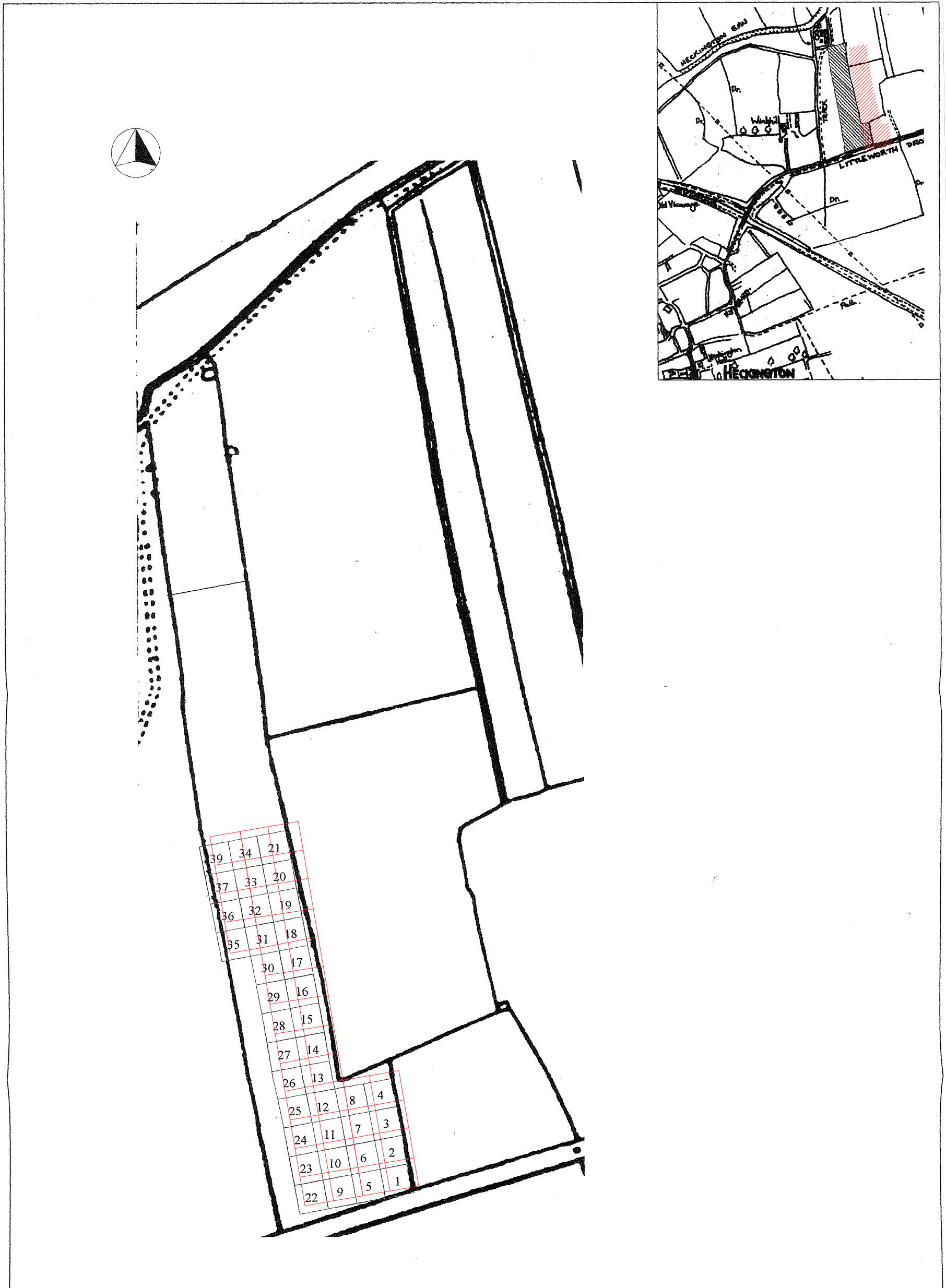


Figure 1: Littleworth Drove, Heckington
 Location
 Scale 1:2500

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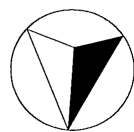
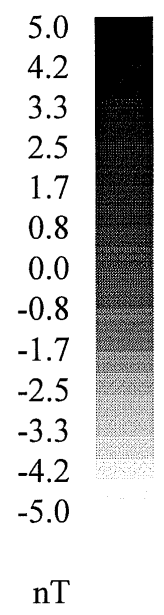


Figure 2: Littleworth Drove, Heckington
Grey Scale Plot
Scale 1:1000

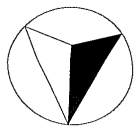
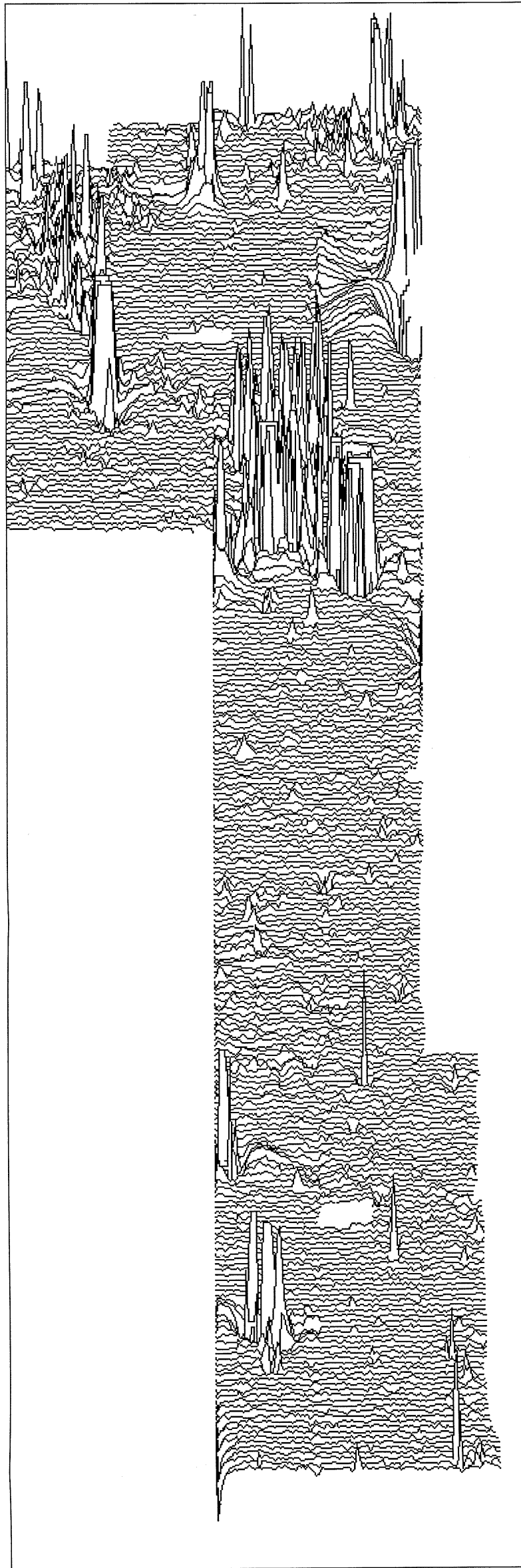


Figure 3: Littleworth Drove, Heckington
X - Y Plot
Scale 1:1000








-  Magnetic Disturbance Located in Scanning
-  Ferromagnetic
-  Probable Archaeological Features
-  Agricultural Features
-  Probable Geological Disturbance

Figure 4: Littleworth Drove Heckington
Interpretation
Scale 1:2500

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Appendix 3

CONTEXT DESCRIPTIONS

Trench 1

No	Description	Interpretation
101	Friable mid greyish brown silt with frequent gravel, 0.39m thick	Topsoil
102	Loose mid brownish red sand with frequent gravel	Fill of (106)
103	Loose dark brown silt	Fill of (106)
104	Firm light bluish grey clay	Fill of (106)
105	Loose mid brownish yellow sand and gravel, >80mm thick	Natural deposit
106	Irregular feature,	Cut

Trench 2

No	Description	Interpretation
201	Friable mid yellowish brown silt with frequent gravel, 0.52m thick	Topsoil
202	Soft light yellowish brown silt, 0.21m thick	Fill of (206)
203	Loose mid greyish brown silt with frequent concrete and modern refuse	Fill of (206)
204	Soft dark grey organic silt	Fill of (206)
205	Loose mid yellow sand and gravel, >50mm thick	Natural deposit
206	Irregular feature,	Cut

Trench 3

No	Description	Interpretation
301	Soft mid to dark brown sandy silt, 0.35m thick	Topsoil
302	Soft light yellowish brown clayey sand, >0.3m thick	Natural deposit

Trench 4

No	Description	Interpretation
400	Loose dark grey silty sand with frequent gravel, 0.24m thick	Topsoil
401	Firm mid brownish yellow sandy clay and gravel	Fill of (402)
402	Feature, >0.24m long by >2.1m wide and 0.4m deep, gradual sides and flat base	Clearance cut
403	Loose dark grey sandy silt, 0.38m thick	Buried soil
404	Loose dark yellow gravel, >0.3m thick	Natural deposit

Trench 5

No	Description	Interpretation
501	Irregular feature, >1.6m long by >1.1m wide and 0.26m deep, gradual sides and rounded base	Pit
502	Linear feature, aligned north-south, >4.3m long by 0.7m wide and 0.13m deep, gradual sides and flat base	Ditch
503	Firm mid brownish grey clayey sand	Fill of (501)
504	Firm to plastic mid grey clay	Fill of (502)
505	Firm to plastic mid grey clay	Fill of (506)

No	Description	Interpretation
506	Linear feature, aligned north-south, >4.4m long by 1m wide and 0.34m deep, steep sides and flat base	Ditch
507	Firm light brown clayey sand with frequent gravel, 0.27m thick	Dumped deposit
508	Firm mid to dark brownish grey silty sand, 0.34m thick	Dumped deposit
509	Firm dark yellowish brown clayey sand	Dumped deposit
510	Firm mid brown sandy clay, 0.1m thick	Subsoil
511	Firm mid brownish yellow clayey sand	Dumped deposit
512	Firm mid greyish brown clayey silt, 0.32m thick	Topsoil
513	Firm light brown silty clay with frequent gravel, 0.1m thick	Subsoil
514	Loose mid brownish yellow sand and gravel, >0.57m thick	Natural deposit

Trench 6

No.	Description	Interpretation
601	Stiff light brown clay	Fill of (602)
602	Linear feature, aligned north-south, 0.85m wide by 0.79m deep, steepish sides and flat base	Ditch
603	Stiff yellowish and greyish brown clay and gravel	Natural deposit
604	Stiff light brown clay	Fill of (605)
605	Oval feature, 0.84m long by 0.66m wide and 0.22m deep. Gradual sides and uneven base	Pit
606	Stiff mid greenish brown clay	Fill of (607)
607	Linear feature, aligned east-west, 0.88m wide by 0.27m deep, steep sides and rounded base	Ditch
608	Firm dark greyish brown silty clay	Topsoil
609	Firm to plastic mid yellowish brown clayey silt, ##m thick	Subsoil

Appendix 4

GLOSSARY

Bronze Age	A period characterised by the introduction of bronze into the country for tools, between 2250 and 800 BC.
Context	An archaeological context represents a distinct archaeological event or process. For example, the action of digging a pit creates a context (the cut) as does the process of its subsequent backfill (the fill). Each context encountered during an archaeological investigation is allocated a unique number by the archaeologist and a record sheet detailing the description and interpretations of the context (the context sheet) is created and placed in the site archive. Context numbers are identified within the report text by brackets, <i>e.g.</i> (004).
Cut	A cut refers to the physical action of digging a posthole, pit, ditch, foundation trench, <i>etc.</i> Once the fills of these features are removed during an archaeological investigation the original 'cut' is therefore exposed and subsequently recorded.
Dumped deposits	These are deposits, often laid down intentionally, that raise a land surface. They may be the result of casual waste disposal or may be deliberate attempts to raise the ground surface.
Fill	Once a feature has been dug it begins to silt up (either slowly or rapidly) or it can be back-filled manually. The soil(s) which become contained by the 'cut' are referred to as its fill(s).
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.
Layer	A layer is a term 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.
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 1 st century AD.
Romano-British	Pertaining to the period dating from AD 43-410 when the Romans occupied Britain.

Appendix 5

THE ARCHIVE

The archive consists of:

42	Context records
1	Photographic record sheet
9	Sheets of scale drawings
1	Stratigraphic matrix

All primary records and finds are currently kept at:

Archaeological Project Services
The Old School
Cameron Street
Heckington
Sleaford
Lincolnshire
NG34 9RW

The ultimate destination of the project archive is:

The Collection
Art and Archaeology in Lincolnshire
Danes Terrace
Lincoln
LN2 1LP

Accession Number: 2001.7

Archaeological Project Services Site Code: HLDA01

The discussion and comments provided in this report are based on the archaeology revealed during the site investigations. Other archaeological finds and features may exist on the development site but away from the areas exposed during the course of this fieldwork. *Archaeological Project Services* cannot confirm that those areas unexposed are free from archaeology nor that any archaeology present there is of a similar character to that revealed during the current investigation.

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