Northamptonshire
County Council

Northamptonshire Archaeology

A geophysical survey on land

at Buckton Fields,

White Hills

Northampton

Northamptonshire

Adrian Butler

24/02/05

Report 05/36

Northamptonshire Archaeology
2 Bolton House
Wootton Hall Park
Northampton NN4 8BE
w. www.northantsarchaeology.co.uk
t. 01604 700493/4
f. 01604 702822
e. sparry@northamptonshire.gov.uk

REGISTERED IFA ORGANISATION

NORTHAMPTONSHIRE ARCHAEOLOGY

NORTHAMPTONSHIRE COUNTY COUNCIL

FEBRUARY 2005

A GEOPHYSICAL SURVEY ON LAND AT BUCKTON FIELDS, WHITE HILLS, NORTHAMPTON NORTHAMPTONSHIRE JULY 2004 - JANUARY 2005

Report 05/36

STAFF

Project Manager	Adrian Butler BSc MA AIFA
Fieldwork	Ian Fisher BSc, James Aaronson BA,
	Adrian Butler & Carol Simmonds BA AAIS
Text and illustrations	Adrian Butler & Ian Fisher

QUALITY CONTROL

	Print name	Date
Checked & Approved by	Adam Yates	25 February 2005

CONTENTS

Figures

A GEOPHYSICAL SURVEY ON LAND AT BUCKTON FIELDS, WHITE HILLS, NORTHAMPTON, NORTHAMPTONSHIRE, JULY 2004 - JANUARY 2005

ABSTRACT

Northamptonshire Archaeology conducted a geophysical survey, on behalf of CPM, on land with an area of approximately 25 ha at Buckton Fields, Northampton. The survey revealed evidence of wide variation in the shallow ironstone geology. A probable late prehistoric or Roman trackway was identified as was a possible rectilinear structure and large ditched enclosure.

1 INTRODUCTION

Northamptonshire Archaeology conducted geophysical survey between July 2004 and January 2005 on an area of land with an area of approximately 25 ha at Buckton Fields, Northampton (NGR SP 741650, Fig 1). The project was hampered by access difficulties and therefore required a number of revisits to the site over several months. The work was undertaken on behalf of Countryside Planning and Management (CPM), hereafter referred to as the client, as part of a archaeological impact assessment for a new housing development. Northamptonshire County Council Historic Environment Team requested geophysical prospection of the area as part of the Brief for Archaeological Evaluation (Northamptonshire Heritage 1999). The aim of the work was to identify the nature of any buried archaeological remains should they exist on the site.

2 TOPOGRAPHY AND GEOLOGY

The Buckton Fields is situated in White Hills on the northern outskirts of Northampton, approximately 6km from the town centre. The site is located to the east of the A5119 Welford Road, which runs north-west out of the town. The survey area was bounded on the south by a housing estate (Fig 1). To the east, beyond hedges, were arable fields and the north Boughton Lane.

The geology of the area comprises Northamptonshire Sand and Ironstone (British Geological Survey Sheet 185, 1980). The site is on a hillside, sloping down to the west. and at the time of survey the field was under arable cultivation (see above). Soils were of the Banbury association (Soil Survey of England and Wales, Sheet 3: Midland & Western England).

3 ARCHAEOLOGICAL BACKGROUND

Previous work around Buckton Fields has shown a variety of likely archaeological remains of different periods. In the southern field due to be surveyed, aerial photography has identified a

probable Iron Age or Roman trackway (SMR 4637/0/1).

4 METHODOLOGY

In line with earlier work on the site (Northamptonshire Heritage 1999), the Client required a two-fold approach of fluxgate gradiometer reconnaissance followed by detailed survey.

Gradiometer Survey

All gradiometer survey was undertaken using Geoscan Research FM36 and FM256 fluxgate gradiometers.

Reconnaissance Survey

Fluxgate gradiometer reconnaissance 'scanning' was carried out by two operators walking parallel traverses 10m apart. The instruments were constantly monitored for magnetic anomalies which exceeded +/-3nT. Such anomalies were tested for shape (i.e. linearity, discreteness) and likelyhood to be surface ferrous waste and then plotted to within 1.0m with differential GPS. The results of the reconnaissance survey can be seen in Figure 2.

Detailed Survey

A total of 90 separate 30m x 30m grid-squares, totalling *c.*8.1ha, were surveyed in detail over 5 areas identified from reconnaissance. Each grid square was traversed at rapid walking pace via zigzag (repeated north-south) traverses spaced at 1m intervals. A sample trigger recorded readings every 0.25m along the traverse. All fieldwork was carried out in accordance with English Heritage and Institute of Field Archaeologists Guidelines (EH 1995 & Gaffney, Gater and Ovendon 2002).

The data were analysed using Geoplot 3.00p software. Low (negative) magnetism is shown as white and high (positive) magnetism as black in the resultant greyscale plots. The 'Zero Mean Traverse' algorithm was used in order to remove the variation between adjacent traverses. The data was adjusted to remove occasional data stagger along traverses. No other processing functions were employed. The processed data is presented here in the form of greyscale and interpretive plots (Figs 3 and 4 respectively) and are referred to directly in the following Results section. Raw data are presented for reference as 'stacked trace plots' for each area in Figures 5-9.

5 SURVEY RESULTS

Reconnaissance Survey

Gradiometer scanning progressed across all available fields (Fig.2). Numerous discrete anomalies

were detected above the local magnetic background level. Five blocks of detailed survey were targetted to encompass the testing of these anomalies.

Detailed Survey

Area A

A zone of particularly extreme magnetic values was detected varying over an area approximately 25m in diameter. This is thought either to reflect local geological differentiation, or more likely a backfilled quarry. Positive linear anomalies located in Area A may be a result of agricultural practices or a reflection of shallow geological striations.

Area B

Weak positive linear anomalies were detected orientated towards the north-east, roughly parallel with the field boundaries of Area B. Resulting, the interpretation of these features are similar to those in Area A and are probably either agricultural or geological in source.

Area C

A linear positive anomalies located parallel to the northern field boundaries is believed to derive from former boundaries along that line. Broad, weakly positive anomalies orientated east-north-east through survey area may represent shallow jointing in the ironstone geology.

Area D

Twin parallel positive anomalies detected curving through the south of the survey area are likely to represent a Late Prehistoric or Roman trackway. Definition of these anomalies was lost towards the west of the area where, in the south-west corner, a set of rectilinear positive magnetic anomalies were identified, possibly indicating structural remains. Much of the survey of Area D has a 'textured' appearance when presented in greyscale plot, to the extent even that a number of pit-like anomalies are visible but have not been highlighted. It is believed that there is a generally uneven magnetic background to the site, especially in the south-eastern sector and the normally bland ironstone contains erratic magnetised boulders which have been detected. A set of highly magnetic anomalies adjacent to the southern boundary of the Area may also be a source of geological variation.

Area E

Survey in Area E revealed a rectangular ditched enclosure measuring approximately 80m x 50m,

orientated north-south. Weak positive magnetic striations thought to represent agricultural lines were detected east-west across the enclosure which was also juxtaposed with a further source of magnetic anomalies from geological variation or quarrying such as in Areas A and D. Other lengths of probable ditch orientated approximately north-east were located in the eastern half of the survey area. Three discrete highly magnetic anomalies are thought likely to reflect the remains of contemporary bonfires upon which ferrous objects have been incinerated, a practice observed in the adjacent field during fieldwork. Two similar anomalies are probably of the same nature. An 'L-shaped' ditch was detected in the west of the area.

The west of Area E was dominated by a massive zone of magnetic disturbance. Although similar to other zones discovered throughout the survey it was noted how 'smooth' these long frequency anomalies appear, suggesting that they derive from a deep-seated source. Also, were this to be a backfilled quarry, one would expect more ferrous debris in the data. Therefore the south-west of Area E would seem likely to reflect a region of geological change too small to be picked up on the large-scale mapping available.

6 CONCLUSION

Geophysical survey at Buckton Fields has revealed a magnetic landscape dominated by its geological substrate. Magnetic anomalies likely to represent jointing in the underlying ironstone have been identified across the majority of Areas surveyed. The uneven magnetic background presented by the local conditions have made the differentiation between natural and archaeological anomalies extremely difficult. A large geological anomaly of a different aspect was identified in the south-west of the site and it would seem prudent that it be characterised more completely as part of the further site investigation.

Archaeological features were detected in the southern two Areas, D and E. These describe a long trackway coming from the east of the site, traces of which were lost before part of an apparent rectilinear structure was detected. Further to the west large ditched enclosure was located together with other ditches including one L-shape that could be part of a further enclosure.

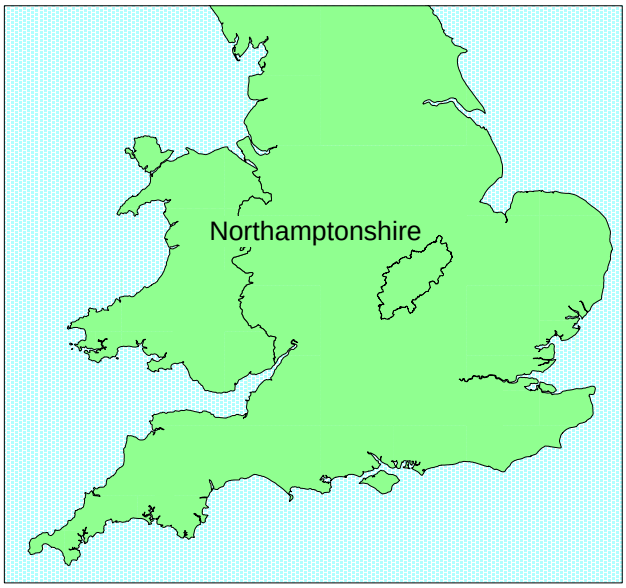
BIBLIOGRAPHY

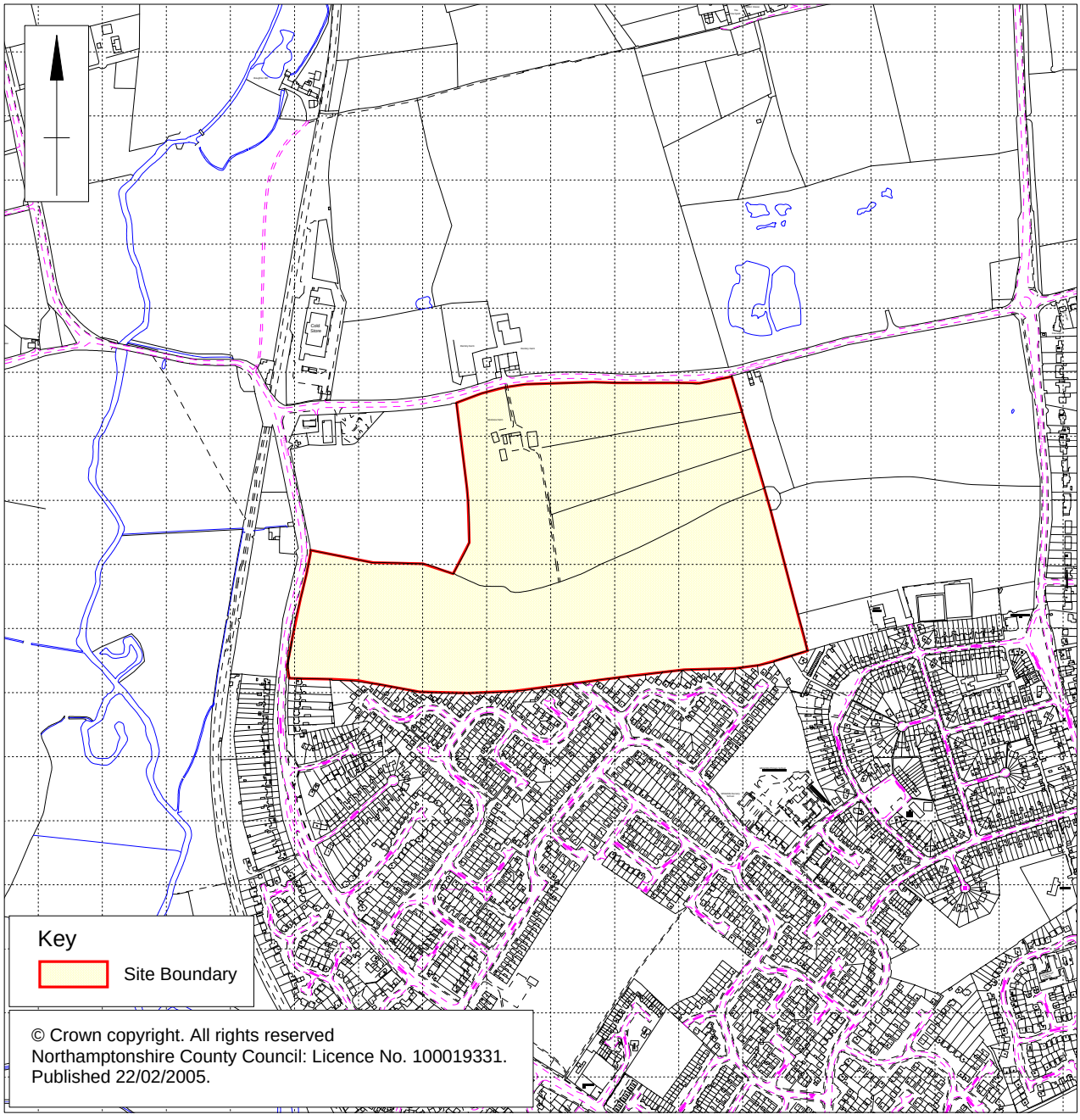
English Heritage 1995 *Geophysical Survey in Archaeological Field Evaluation*, Research and Professional Services Guideline, **1**

Gaffney, C, Gater, J, and Ovendon, S, 2002 *The Use of Geophysical Techniques in Archaeological Evaluations*, Institute of Field Archaeologists Technical Paper, **6**

Northamptonshire Heritage 1999 *Land at Buckton Fields, White Hills, Northampton. Brief for Archaeological Evaluation.*

Northamptonshire Archaeology
A service of Northamptonshire County Council 24 February 2005

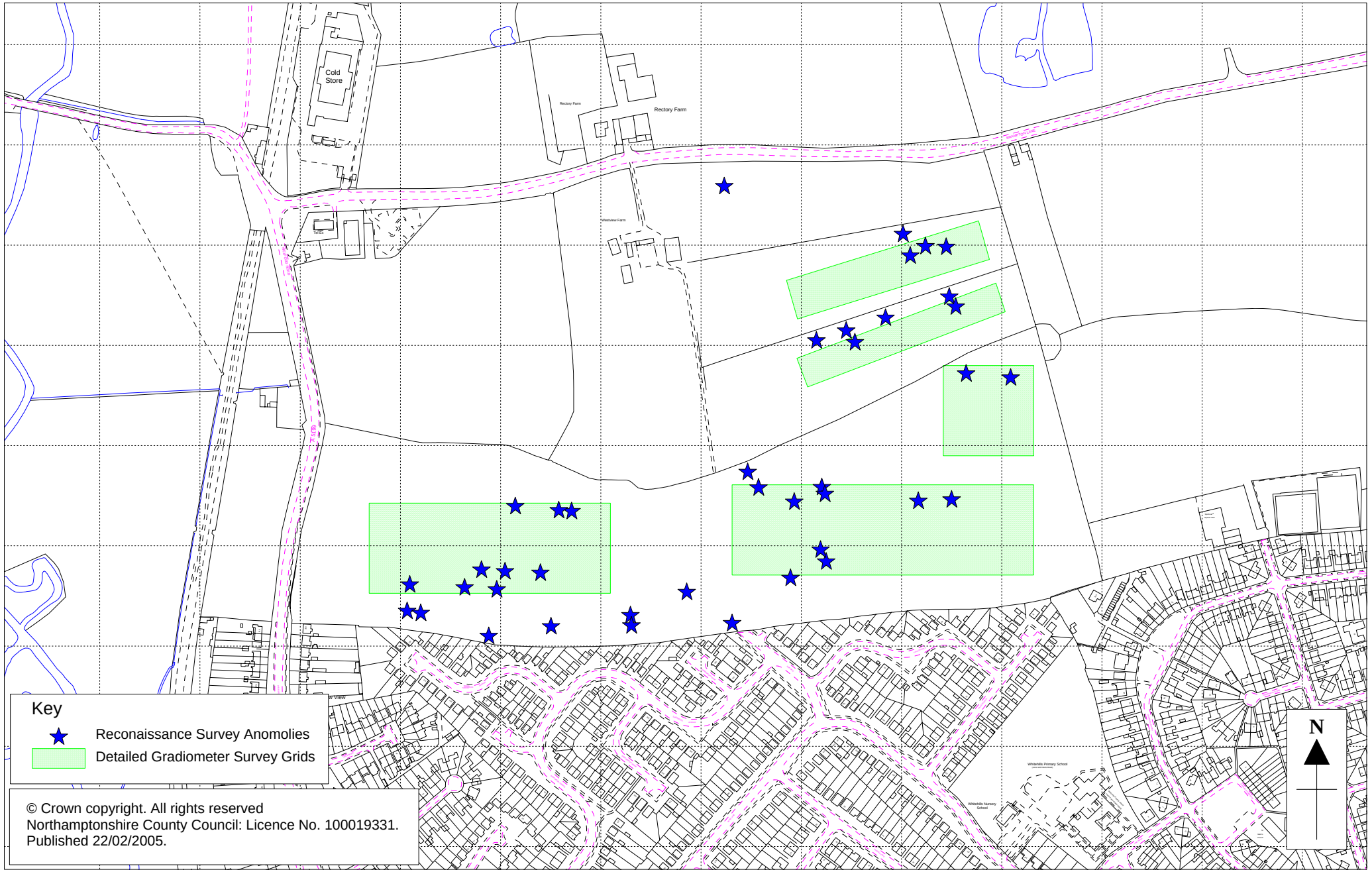




Scale = 1:10000

Figure 1

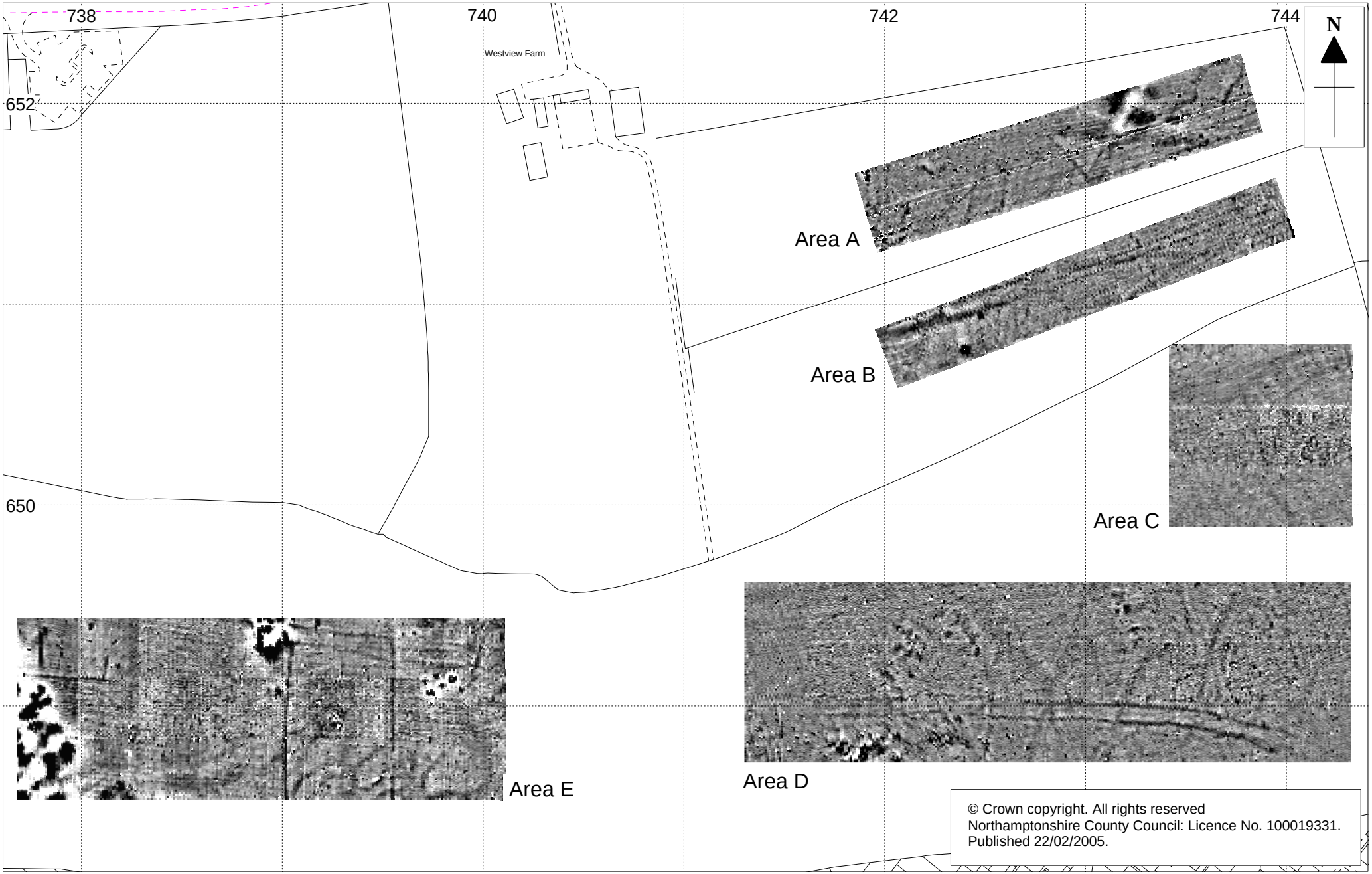
Scale 1:5000



© Crown copyright. All rights reserved
Northamptonshire County Council: Licence No. 100019331.
Published 22/02/2005.

Figure 2 Reconaissance Survey Anomolies with Detailed Gradiometer Survey Grids

Scale 1:2500



© Crown copyright. All rights reserved
Northamptonshire County Council: Licence No. 100019331.
Published 22/02/2005.

Figure 3 Detailed Gradiometer Survey Results
-3 / +3nT (white/black)

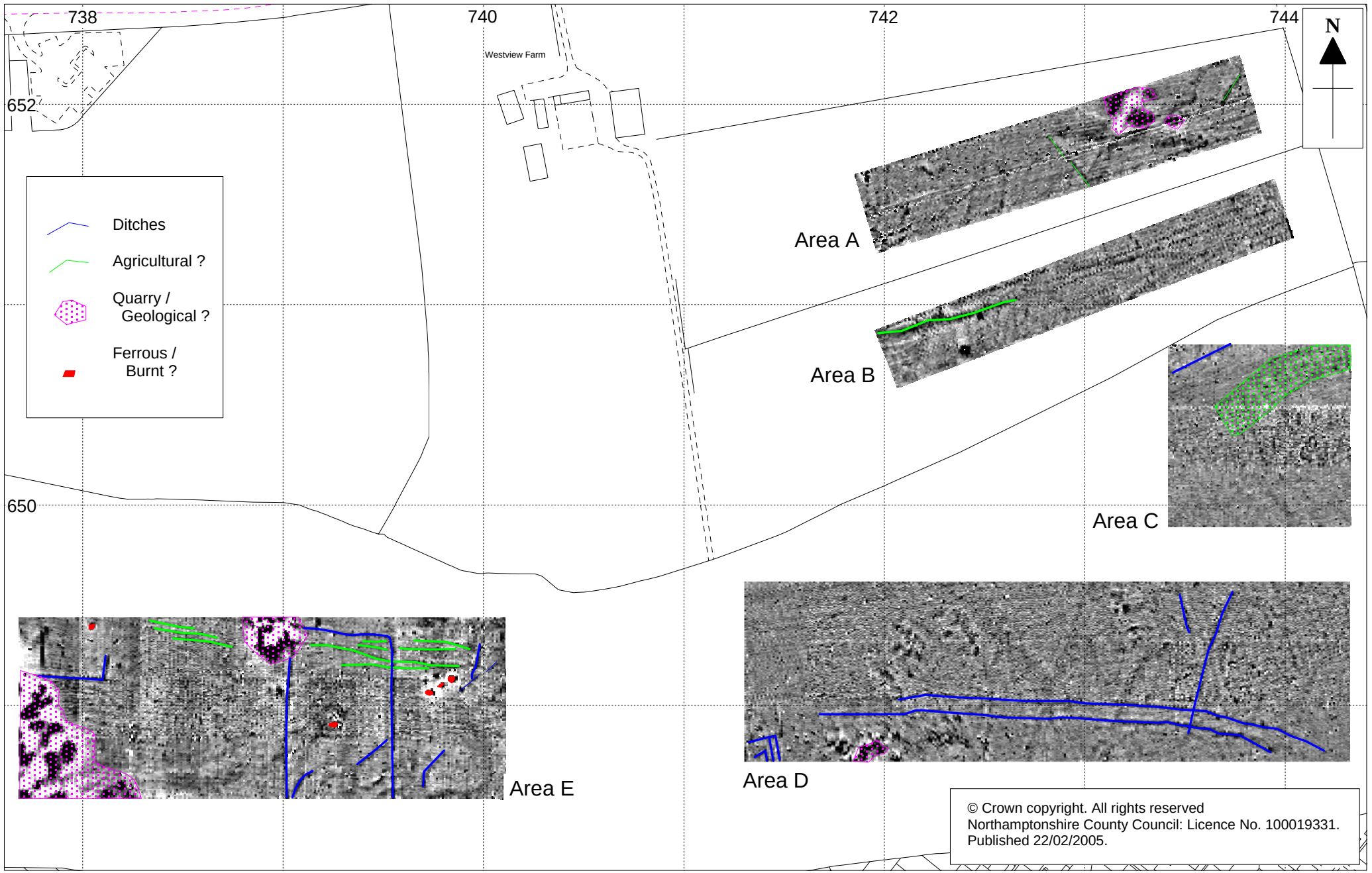


Figure 4 Detailed Gradiometer Survey Results with Interpretation

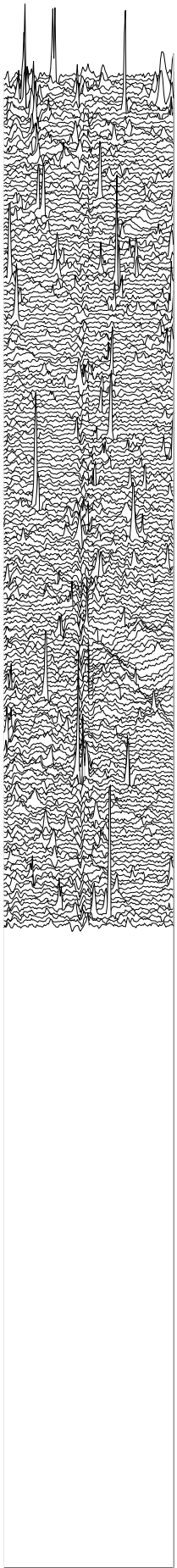
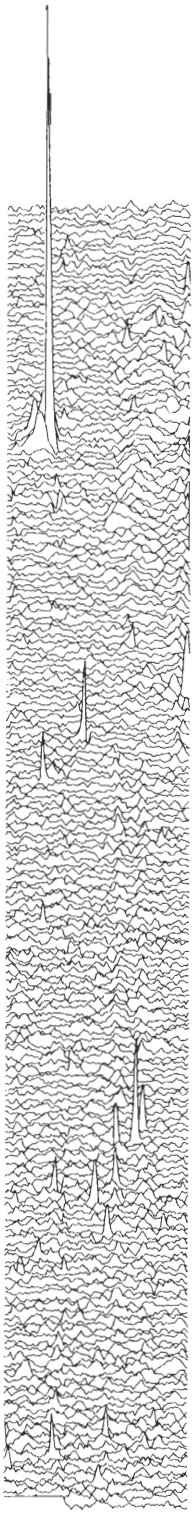


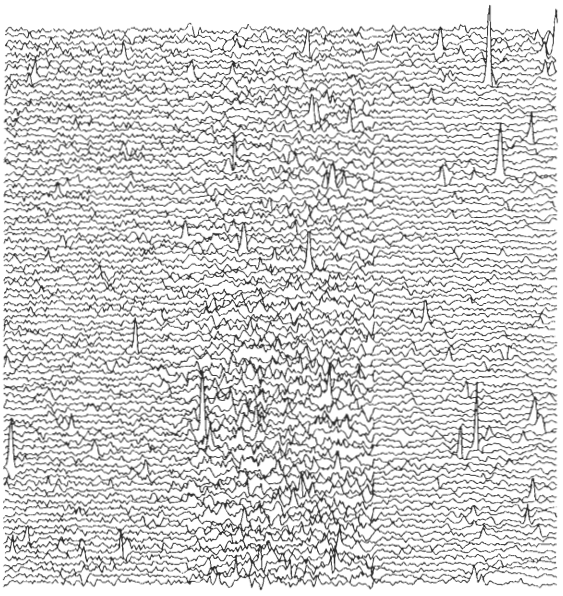
Figure 5: Area A Stacked Trace Plot 1:1500



40.00nT/cm

60m

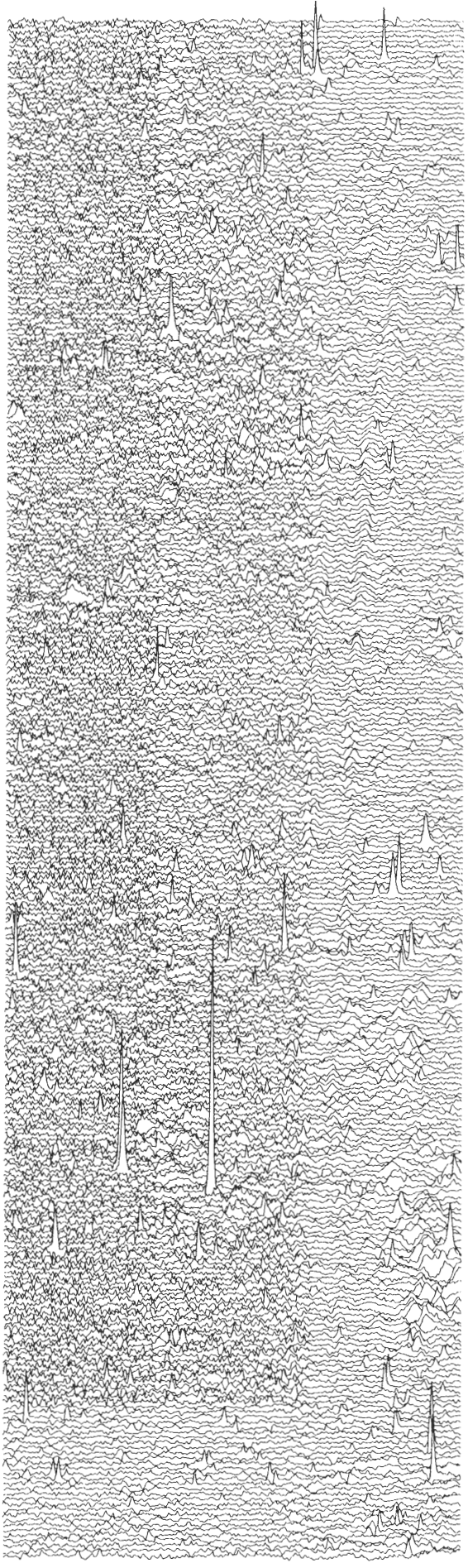
Figure 6: Area B Stacked Trace Plot 1:1500



40nT/cm

60m

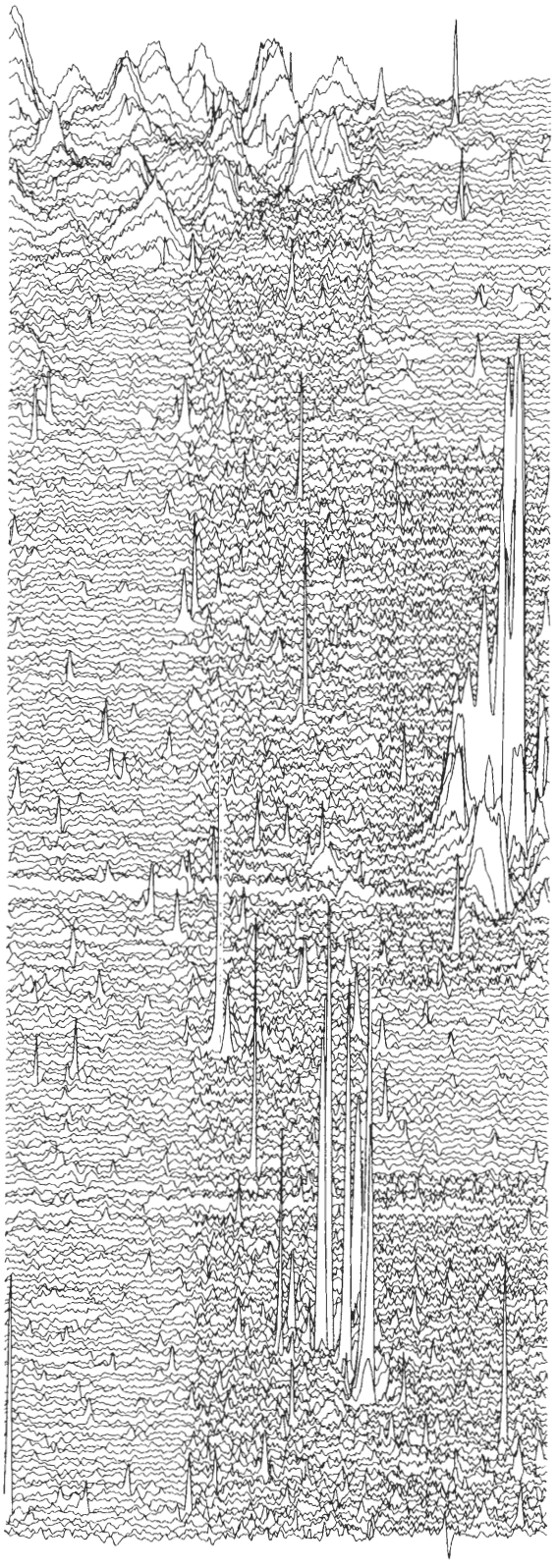
Figure 7: Area C Stacked Trace Plot 1:1500



40.00nT/cm

60m

Figure 8: Area D Stacked Trace Plot 1:1500



40.00nT/cm

60m

Figure 9: Area E Stacked Trace Plot 1:1500