2514

Ancient Monuments Laboratory
Report 41/95

REPORT ON THE GEOPHYSICAL SURVEY AT MORNINGTON HOUSE FARM, GOSBERTON, LINCOLNSHIRE

M Cole

Ancient Monuments Laboratory Report 41/95

REPORT ON THE GEOPHYSICAL SURVEY AT MORNINGTON HOUSE FARM, GOSBERTON, LINCOLNSHIRE

M Cole

Summary

Magnetometer survey was undertaken at Mornington House Farm, Gosberton, Lincs. in response to a request from the Fenland Management Project (FMP). Fieldwalking had discovered a surface scatter of Saxon material, including 8 lava querns, and aerial photography indicated the presence of an enclosure near these finds. The aim of the geophysical survey was to attempt to map any buried archaeological features in advance of a programme of trial trenching by the FMP. The results were disappointing, however, and only very limited evidence of the Saxon activity subsequently revealed by excavation was detected by the magnetometer

Author's address :-

Mr M Cole
ENGLISH HERITAGE
23 Savile Row
London
W1X 1AB

MORNINGTON HOUSE FARM, GOSBERTON, LINCOLNSHIRE.

Report on Geophysical Survey, 1992.

INTRODUCTION

Geophysical survey was undertaken at Mornington House Farm in response to a request from the Fenland Management Project (FMP). Fieldwalking had discovered a surface scatter of Saxon material, including 8 lava querns, and aerial photography indicated the presence of an enclosure near these finds. The latter suggested that the site might be wealthier than some contemporary sites in the locality. The aim of the survey was to attempt to map any buried archaeological features in advance of a programme of trial trenching.

The site is located on a major roddon at a point where it divides into three courses. This silt soil is generally at a higher elevation than the surrounding marine clay. The survey was centred on NGR TF 1745 3175.

Subsequent to the geophysical survey, two trenches were excavated by FMP (see Fig. 1) which confirmed the Saxon origins of the site and revealed numerous pits and ditches as well as the remains of a rectangular post-built structure, presumably a dwelling.

METHOD

A grid of 30m squares was established over the roddon running approximately N-S (see Fig. 1). Each of these squares was then surveyed using a Geoscan FM36 fluxgate gradiometer. Measurements were taken at 0.25m intervals along N-S traverses 1m apart within each 30m square. The resulting data is illustrated in this report using both greyscale and graphical trace plots (see Fig. 2).

A topsoil magnetic susceptibility (MS) survey was also carried out, using a Bartington MS2 meter and field probe. Measurements were made at 10m intervals along the N-S grid lines. During the subsequent FMP excavation, soil samples were retrieved from excavated archaeological features and from the 'natural' soil surrounding them. A number of topsoil samples were also collected from grid square 5 (see Fig. 1). The mass specific MS of these samples were then measured in the laboratory using a Bartington MS1 meter and MS2B bench sensor. The results are presented in Table 1.

RESULTS

Magnetometer Survey

Disappointingly, only a very weak magnetic response was detectable. Indeed, analysis of the frequency distribution of the data (see Fig. 2) shows that approximately 90% of the readings recorded lie within ±1nT. The majority of the readings, therefore, lie close to the sensitivity of the instrument. Despite this, the survey has detected some very weak magnetic variations which may have an archaeological relevance. Of these the most significant are shown in red on figure 2.

Magnetic Susceptibility

The field loop MS survey conducted over the survey area produced consistently low values (< 10 SI $x10^{-8}$ m^3 Kg^{-1}). Indeed the dynamic range of the data collected was so small (all values falling in the range 5 - 10 SI $x10^{-8}$ m^3 Kg^{-1}) that a plot of the data has not been included in this report.

In addition, all of the soil samples retrieved during the excavation produced very low values of MS (8 - 14 SI $x10^{-8}$ m^3 Kg^{-1} - see Table 1). None of the features sampled demonstrated a discernable difference in MS between the soil removed from the archaeological contexts (pits, ditches etc) and the natural substrate into which they were cut. The topsoil samples also displayed similarly low values. This lack of magnetic contrast certainly helps to explain the poor response to the magnetometer.

CONCLUSION

The site has responded only very weakly to the magnetometer and the survey has failed to provide any substantial evidence of the Saxon settlement activity subsequently revealed by excavation. This poor response is demonstrably due to a lack of magnetic contrast between the buried archaeological features and the substrate that they are cut into. This in turn is presumably due to a paucity of iron oxides in the silt soils of the roddon available for magnetic enhancement by anthropogenic activity.

Surveyed by: Mark Cole
Stephen Fear

Dates: 28-30 Sep 1992

Reported by: Mark Cole

3 Aug 1995

Archaeometry Branch
Ancient Monuments Laboratory

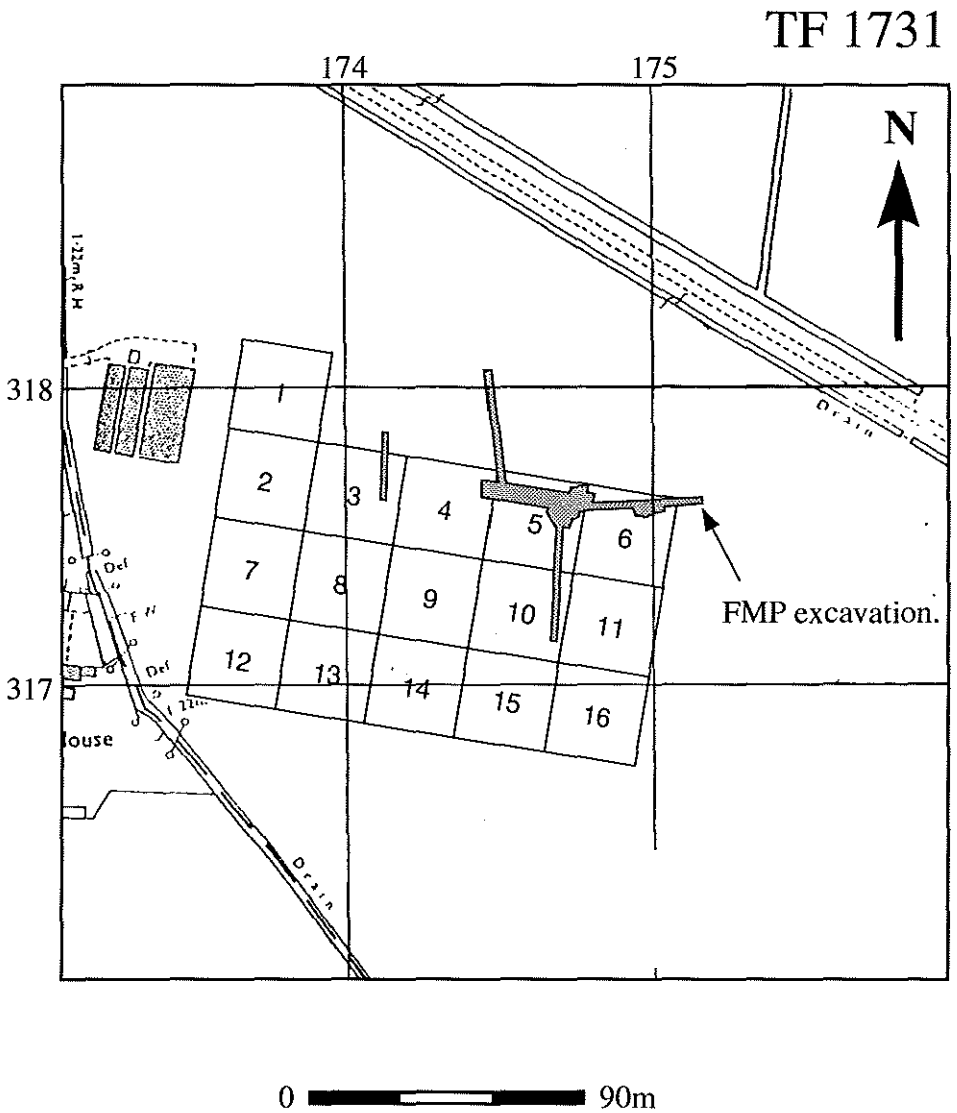
Table 1.

Low frequency mass specific MS of soil samples removed during FMP excavation.

Feature	Context	Magnetic Susceptibility (SI $x10^{-8}$ m^3 kg^{-1})
Pit	Pit fill	10
	Pit fill	8
	Natural (at base)	14
Ditch	Ditch fill	8
	Ditch fill	9
	Ditch fill	10
	Ditch fill	10
	Ditch fill	10
	Natural (at half depth)	10
	Natural (at base)	11
Ditch	Ditch fill	10
	Ditch fill	11
	Ditch fill	10
Topsoil (from grid square 5)	-	14
	-	12
	-	13

Mornington House, Gosberton, Lincs.
Location plan of geophysical survey.

Figure 1.



Ancient Monuments Laboratory.

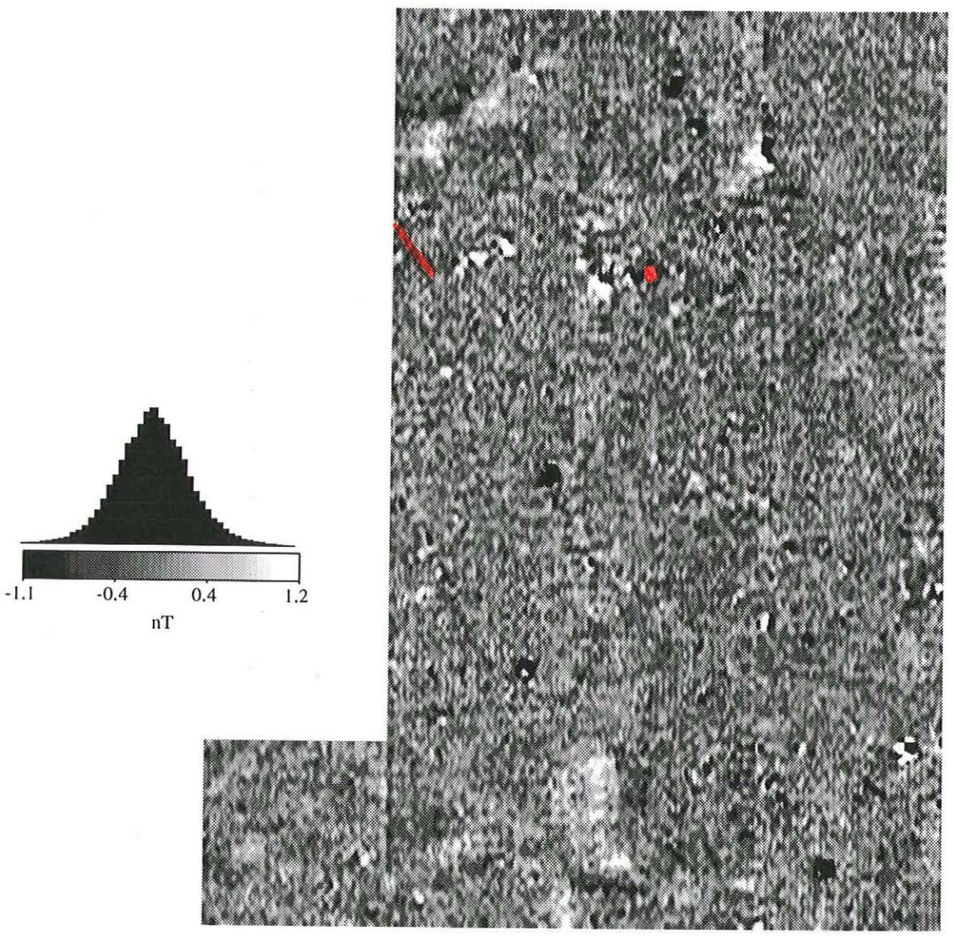
Figure 2.

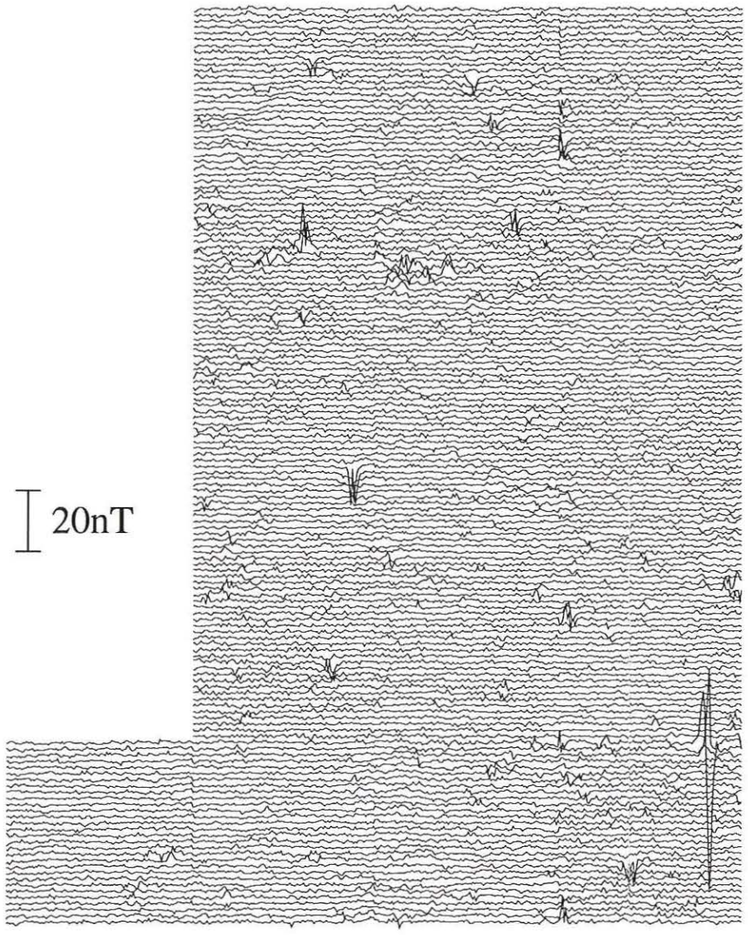
Mornington House Farm, Gosberton, Lincs.
Results of magnetometer survey, September 1992.

1. Greyscale of raw magnetometer data.

N

2. Traceplot of raw magnetometer data.





0 90m

Ancient Monuments Laboratory.