LINDSEY ARCHAEOLOGICAL SERVICES
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Land fronting Mareham Rd, Horncastle
Archaeological Evaluation (Phase 1)
Planning Application S/086/1645/93

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Introduction

Lindsey Archaeological Services was commissioned by the Land and Buildings Consultancy of Lincolnshire County Council to carry out an archaeological evaluation of land in the grounds of Horncastle Residential College, fronting Mareham Road. The proposed development comprises a plot of land approximately 0.42 ha in area and currently an area of lawn.

It has long been known that Horncastle was a major Roman settlement whose origins lie in the Iron Age. Throughout the whole Roman period there was a settlement on the banks of the Rivers Bain and Waring. In the 3-4th centuries AD an area adjacent to the settlement, at the confluence of the two rivers, was fortified. The total area of the Roman settlement extended over 54 ha and reached along the Boston Road, as far as Tennyson Gardens and along the Mareham Road as far as the Residential College. South-east of the Residential College is a rectangular enclosure which was first recorded as a mark in ripening crops in 1948. Recent excavations have established that it dates to the Iron Age. Neolithic worked flint has also been found in the same field. The proposed development area may contain prehistoric or Roman remains. It lies well outside the known medieval settlement and remains of this period are not thought likely to be present.

Method

Techniques available for archaeological evaluation of a site include, fieldwalking, geophysical survey and excavation. The ground conditions were unsuitable for fieldwalking, which involves walking over ploughed land to look for pottery and other artefacts which might indicate previous human occupation. The first phase of evaluation therefore comprised a geophysical survey of the whole area.

Geophysical Survey

It is possible to define areas of human activity by means of magnetic survey. Under favourable conditions areas of interest can be accurately located and targeted for further investigations reducing the necessity for random exploratory trenching. Large areas can be assessed quickly and the method is non-destructive.

Magnetometry measures magnetic anomalies in the soil caused by such activity and although results will vary according to the local geology and soils as well as past and present agricultural practices it can identify buried ditches, pits, hearths, kilns etc.

Results
Report by James Lyall, Landscape Research Centre Ltd

The survey was carried out on March 29th 1994 by James Lyall and Heather Clemence. The survey area totalled 3600 square metres (Fig. 1). The survey was conducted using a Geoscan Research fluxgate gradiometer (model FM36), hereafter referred to as a magnetometer. The area was surveyed in four 30 metre grids using the zig-zag traverse method of survey. Readings were taken every 25cm along the north/south axis and every metre along the east/west axis, giving 3600 readings for every 30m grid.

The data was processed and presented using the computer programs GeoImage (a program dealing with the processing of geophysical data) an Geosys (a program which can display, process and present digitised plans and images).

The magnetometer data is displayed both as a greyscale image (Fig. 2) and as a digitised interpretation (Fig. 3). The anomalies show as areas of lighter and darker grey, which indicate areas of high and low magnetic response. There were strong magnetic signals along the southern edge of the survey, parallel with Mareham Rd. These were caused by the presence of two iron drain covers situated along a linear depression, just north of the hedgeline. There is almost certainly a metal pipe beneath the ground which has affected the readings (and interpretation) at this end of the survey area.

In all seven magnetic anomalies were detected. There were a number of localised anomalies (1-4) of varying magnetic strengths. Anomaly 1 is a strong magnetic anomaly in the north-west corner of Grid 1. Only part of the feature is visible and is therefore difficult to interpret. It may be caused by the presence of metal just outside the survey area. Anomaly 4 in Grids 2 and 4 is typical of the signal given by a lump of buried metal. Anomalies 2 and 3 are of medium magnetic strength, may represent depressions or pits.

The remaining three anomalies are linear anomalies of medium to weak magnetic response. Anomaly 5 runs roughly north/south along the west side of the survey area, terminating at the north end in a strong magnetic signal. Its southern end merged with the signals present along the southern boundary of the survey area and may well continue beyond the limit shown in the digitised plan (Fig. 3).

Anomaly 6 crosses Anomaly 5 at its north end and may merge with Anomaly 7. Anomaly 7 is curvilinear in form which changes direction at its southern end. This change in orientation may be a separate feature but this is not clear from the megnetometer data.

Linear anomalies can be attributed to a number of possible archaeological features such as old field boundaries, field drains and ditches. The weak nature of these magnetic anomalies makes precise archaeological classification impossible. Note that these are the digitised outlines of magnetic signals and need not necessarily equate with the true size of the feature, which may be either larger or smaller than the extent of the magnetic signal.

Magnetic anomalies 2, 3, 5, 6 and 7 may prove to be of archaeological significance. The presence of a drain along the hedge boundary fronting Mareham Rd means that interpretation of this part of the site was not possible. Plans of the results shown as Figs 2 and 3 should allow any archaeological investigation of the area to concentrate on specific areas believed to be significant. The United Kingdom latitudes are such that there can be a distortion of up to 0.5m in position between the megnetic anomalies shown and the position of the actual features themselves.

Conclusion

The results of the geophysical survey show that archaeological remains are present within the survey area which may require further archaeological investigation. Final details of any excavation strategy will be determined in consultation with the County Archaeological Officer.

Naomi Field
April 18th 1994

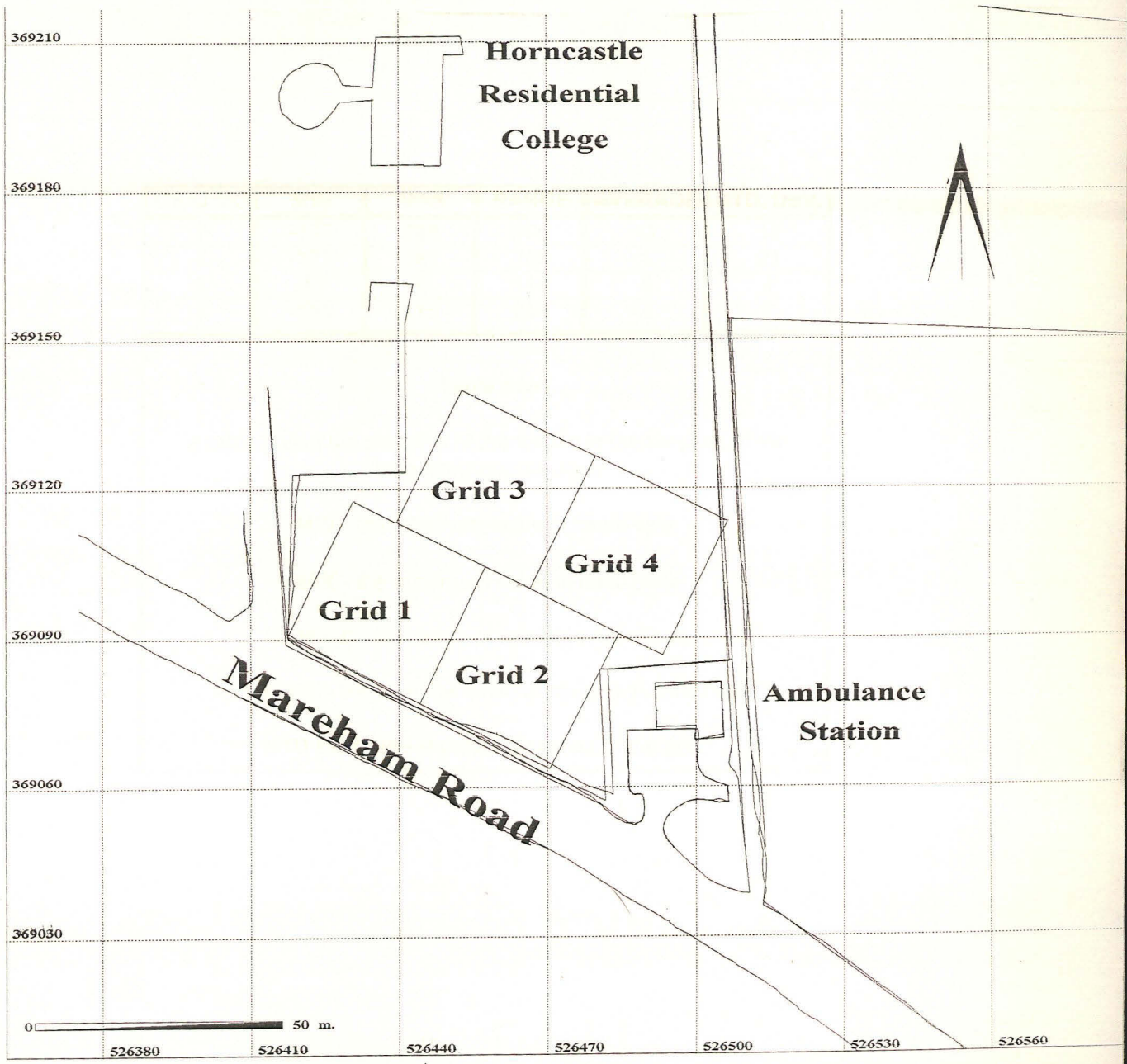

Fig. 1 Site location showing position of geophysical survey grids

GRID NO	MIN	MAX	RANGE	AVERAGE	STD. DEV.
1	-177	228	405	-3	16
2	-377	381	758	1	21
3	-57	62	119	5	4
4	-133	115	248	-1	7

Table one

A table giving the statistics of the values in the six grids of the magnetometer surveys.

MIN - the minimum value in nanoTesla.

MAX - the maximum value in nanoTesla.

RANGE - the range of values in nanoTesla.

AVERAGE - the average value of the grid in nanoTesla.

STD DEV - the standard deviation of the grid.

Plan showing magnetometer data displayed as a greyscale image

Mareham Road

Ambulance Station

36915000
36912000
36909000
36906000
0
2500 cms.
52641000
52644000
52647000
52650000
52653000

Fig. 2 Geophysical survey results showing magnetometer data displayed as a greyscale image. Scale 1:385

Plan giving location of digitised interpretation of magnetic anomalies at Horncastle, Lincolnshire

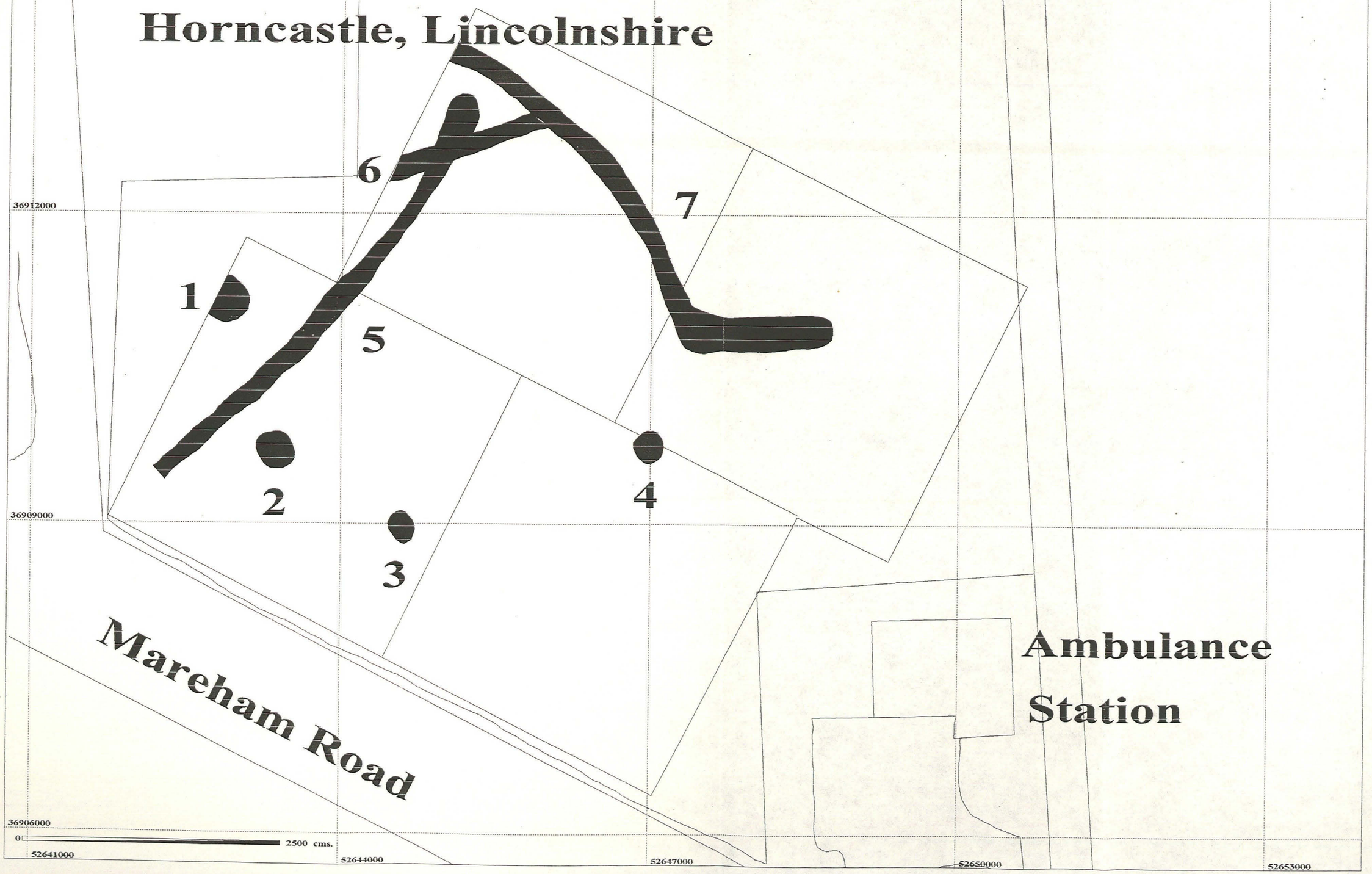

Fig. 3 Digistised interpretation of geophysical survey results