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LINDSEY ARCHAEOLOGICAL SERVICES
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HORNCASTLE BANOVALLUM GARDENS
Archaeological Evaluation (Phase 2)

TF 2672 6917

EVENT LI2416
SOURCE LI7056
negative

HORNCASTLE BANOVALLUM GARDENS
Archaeological Evaluation (Phase 2)

Introduction
Trial excavations in July 1993 comprised the investigation of 18 machine dug trenches. Ditches were identified in Trench 2 which were thought to be of possible prehistoric date. A further phase of evaluation was proposed by the County Archaeological Officer together with a Watching Brief in Area 1. A geophysical survey was carried out south of the access road to try and identify the line of the ditches. The purpose of the survey was to identifiy the extent of archaeologica remains with a view to carrying out a further series of excavations.

Geophysical Survey
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 1800 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 two 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).

Results
The survey area was bounded to the west by the extant road and on the east by overhead power cables. 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. 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.

This area proved to have a low magnetic response. Only two anomalies were detected, 1 was weak and 2 was very weak. It is possible that the data was adversely affected both by the terrain, which was uneven due to the presence of the excavation trenches and spoil heaps from the evaluation work in July 1993. There was also scrubby vegetation on the surface which made it difficult to maintain the vertical alignment of the magnetometer which is essential for obtaining valid results.

Additionally, the presence of overhead power cables can present a problem for magnetometer surveys, although in this case they were high enough to cicumvent this possibility. It is possible to make out the position of the excavation trenches in the magnetometer survey data but they are not clear, and this more than anything serves to demonstrate the low magnetic susceptibility of this part of the site.

Anomaly 1 is a linear anomaly with a NW/SE orientation. It appears to continue into Trench 3 but this is not clear on the survey data. Anomaly 2was aligned in a NE/SW orientation. These two anomalies were so weak that interpretation is difficult. Anomaly 1 may represent the line of the palaeochannel recorded in the evaluation.

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.

Environmental Samples
Environmental samples were taken from the palaeochannels in Trenches 3 and 10 during the evaluation excavations in 1993 and submitted for preliminary assessment, in accordance with the requirements of the County Archaeological Officer, to the Archaeological Research and Consultancy at the University of Sheffield (ARCUS). The results were disappointing and revealed that there was very limited potential for pollen analysis. The full report is appended.

Conclusion
The results of the geophysical survey suggest that there is minimal archaeological activity in this area of the site and it is unlikely that further excavation will reveal significant archaeological remains.

The palaeochannel present in Trench 3 was picked up by the geophysical survey and is shown on Fig. 3 as anomaly no. 1. A further weak anomaly crossed the same trench.

The gullies identified at the east end of Trench 2 could not be detected by the magnetometer. Unfortunately, those at the west end which were thought to be of archaeological interest could not be traced northwards because the trench spoil was in the way and the area was excluded from the survey. Larger scale excavation of a site to the south of Banovallum Gardens in March 1994 has revealed linear features which look man-made but are in reality of natural origin. Re-examination of the profiles of the features in Trench 2 at Banovallum Gardens in the light of these results suggests that the 'ditches' recorded in the 1993 excavations may also have been natural phenomena.

The results of the pollen analysis have indicated that soil conditions on the site were not suitable for preservation of enviromental data. In conclusion, the more detailed investigations at Banovallum Gardens have shown that the apparent archaeological potential of the site was not realised.

Naomi Field
April 18th 1994

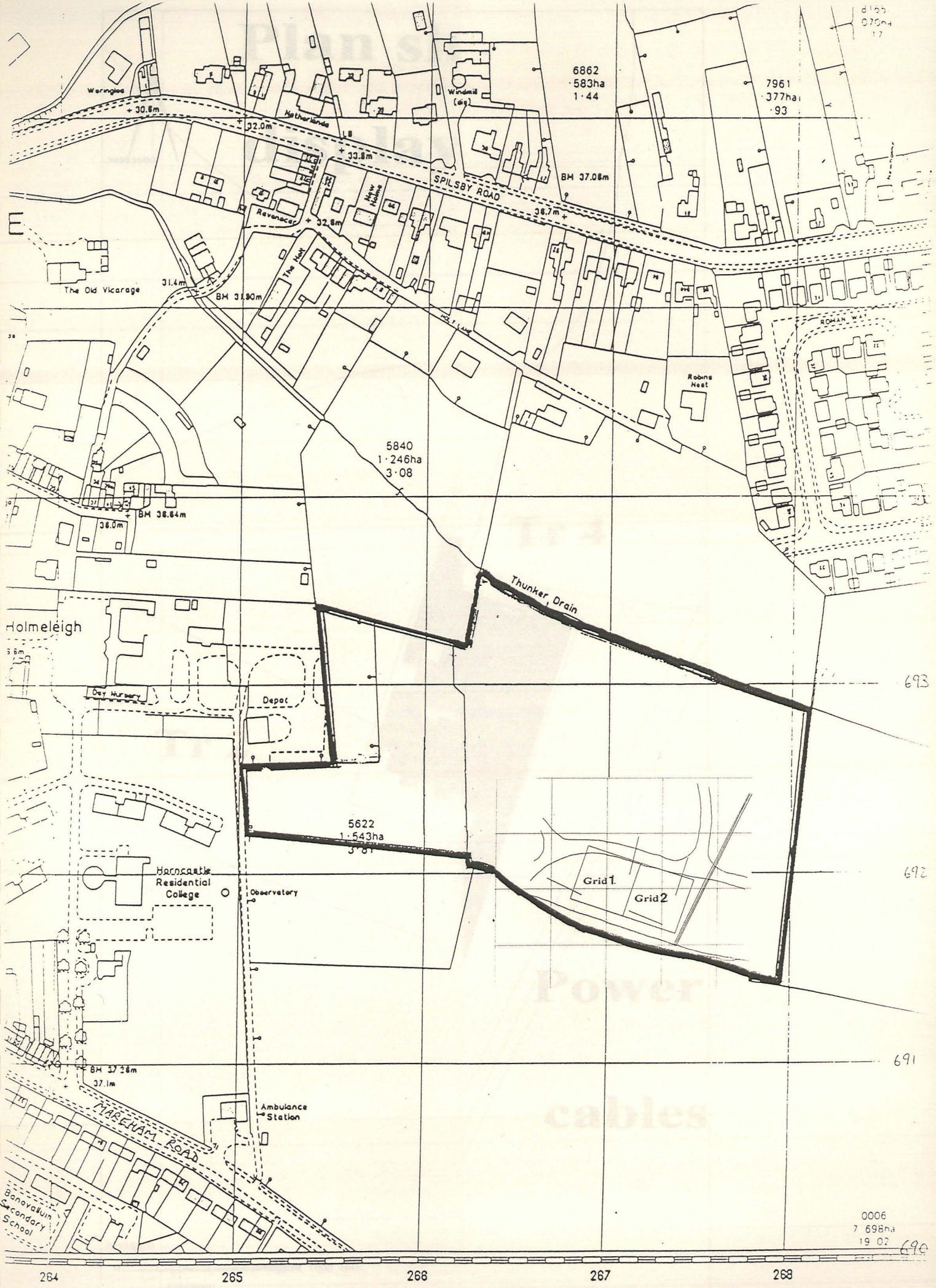
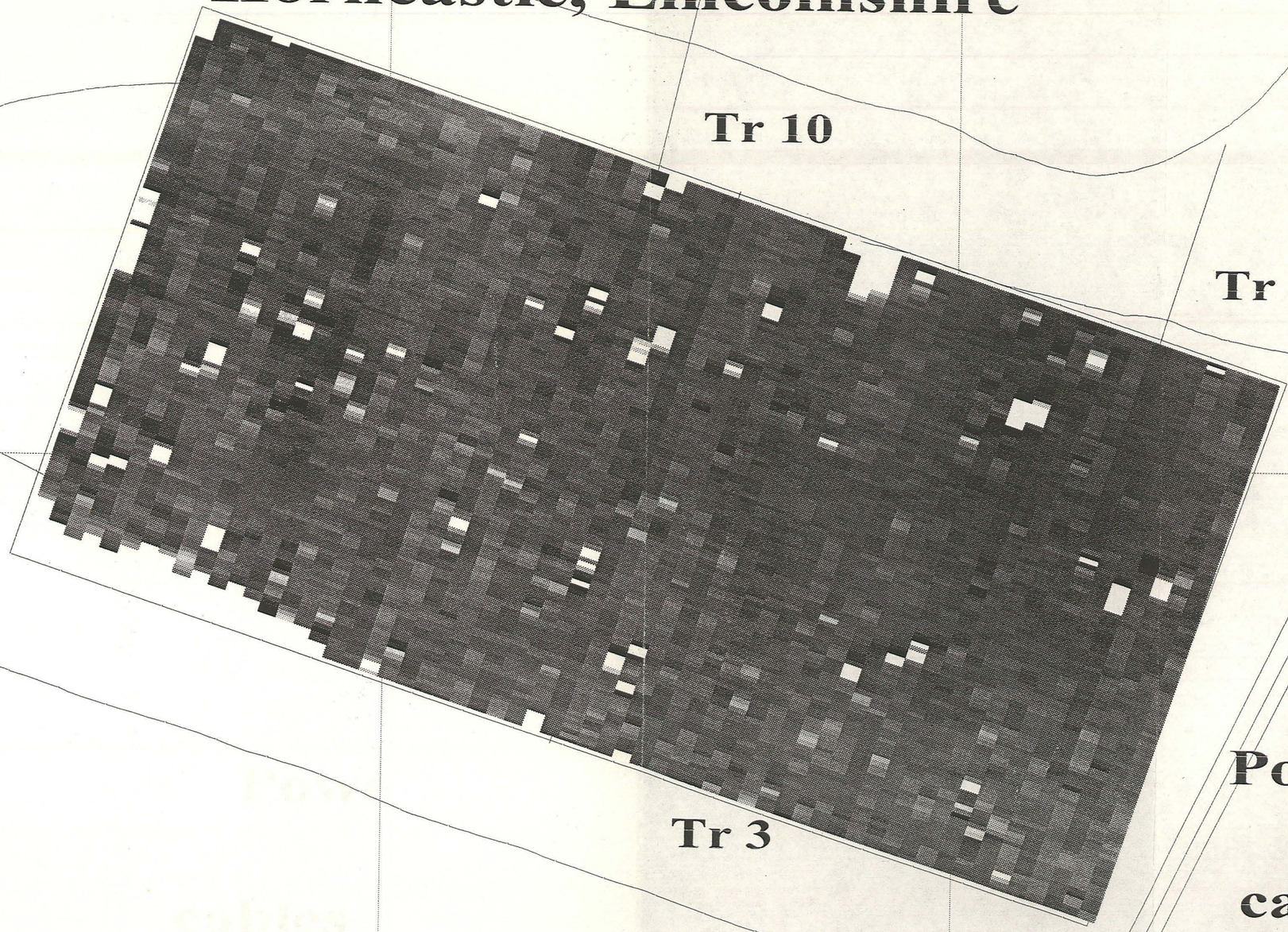


Fig.1 Location of Evaluation Area. Reproduced from Ordnance Survey 1:2500 map, with permission from the Controller of HMSO. Crown Copyright.

Plan showing magnetometer data displayed as a greyscale image from Horncastle, Lincolnshire



Tr 10

Tr 4

Tr 2

Tr 3

Power cables

36921000

36918000

36915000

0 1000 cms.

52668000

52671000

52674000

Fig. 2 Geophysical survey results showing magnetometer data displayed as a greyscale image. Scale 1:256

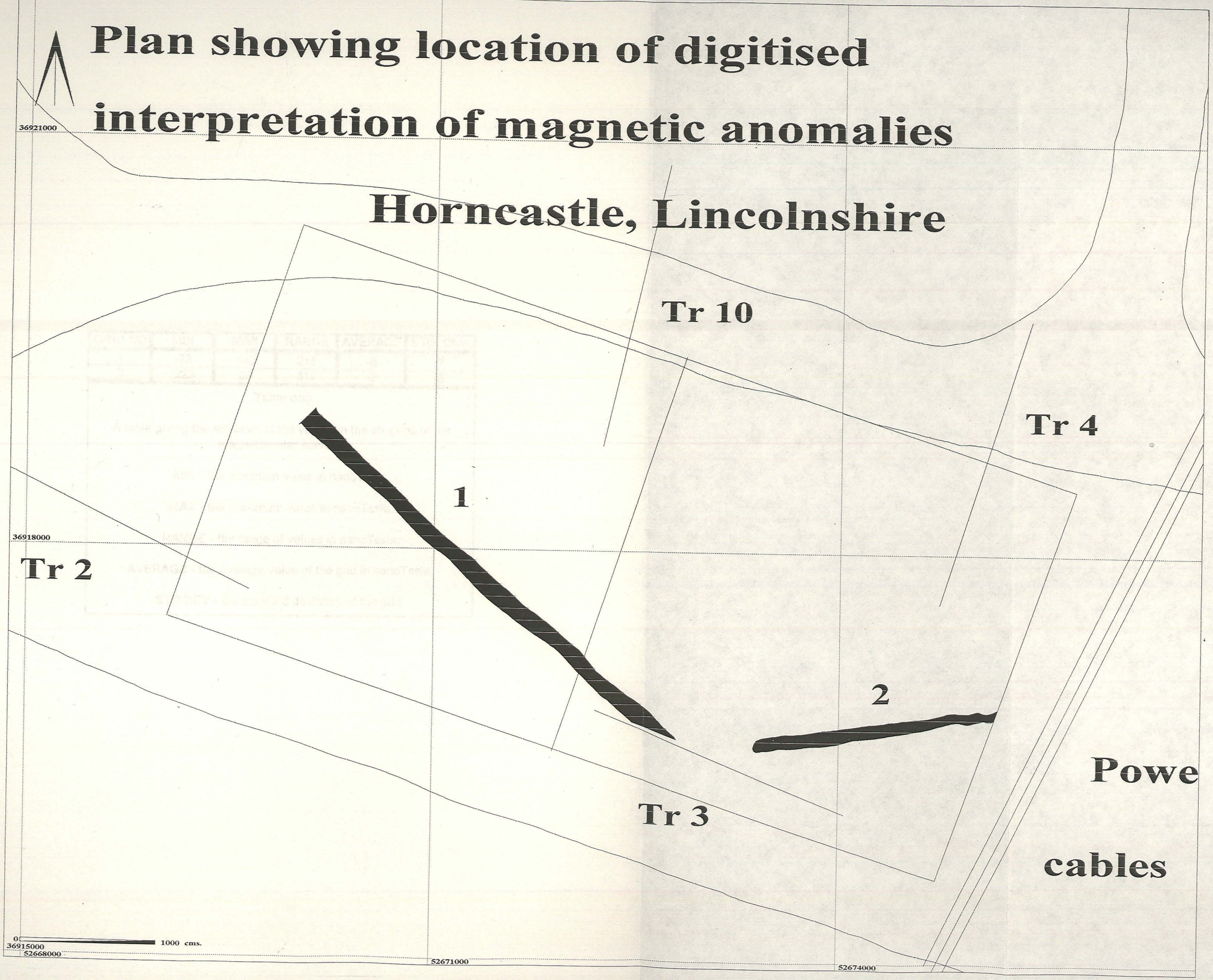


Fig. 3 Digistised interpretation of geophysical survey results

GRID NO	MIN	MAX	RANGE	AVERAGE	STD. DEV.
1	-73	142	215	-6	7
2	-223	89	312	-2	8

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.

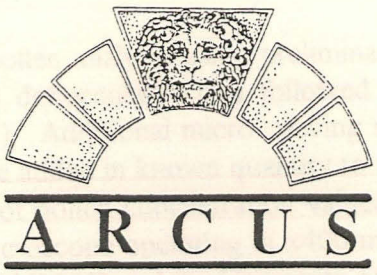
AVERAGE - the average value of the grid in nanoTesla.

STD DEV - the standard deviation of the grid.

PALYNOLOGICAL ASSESSMENT OF SEDIMENT SAMPLES FROM BANOVALLUM GARDENS, HORNCASTLE

ARCUS NO. 151
OCTOBER 1993

REPORT BY:
DR. BARBARA BRAYSHAY



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PALYNOLOGICAL ASSESSMENT OF SEDIMENT SAMPLES FROM BANOVALLUM GARDENS, HORNCASTLE.

1. Summary.

A preliminary palynological assessment of sediments from Ditch cut 5 and Palaeochannel cut 32, Banovallum Gardens, Horncastle indicated that they had very limited potential for further pollen analysis. Samples of the sediments were primarily assessed for presence / absence of pollen, quality of pollen preservation and the diversity of pollen taxa present. The results of the analysis, from both features, showed generally low pollen concentration values and a poor diversity of pollen taxa. The pollen which was present was in a reasonable state of preservation, however there appeared to be a predominance of taxa which are noted for their resistance to decay (species of Compositae, *Tilia, Alnus, Corylus* plus fern spores, Filicales, *Polypodium, Pteridium*). These results indicated that although pollen was present in some of the levels this degree of differential preservation would limit any meaningful interpretation of the results. Further analysis is therefor not recommended.

2. Introduction.

17 sediment samples were received on 30.9.93 from Lindsey Archaeolgical Trust for palynological assessment. A set of 8 sub-samples were selected for the assessment, with the intention of examining as wide a range of sediment types as possible. 4 were selected in sequence from Ditch cut 5 and 4 from Palaeochannel cut 32.

Sample	Context	Sediment type
Ditch cut 5	Fill 7	Organic grey/brown clay, orange mottles + shell fragments.
Ditch cut 5	Fill 8	Grey / brown clay + shell fragments (marl?)
Ditch cut 5	Fill 9	Brown peaty clay + shell
Ditch cut 5	Fill 10	Grey / brown clay, mottles orange + shell fragments.
P/channel cut 32	Fill 37	Brown / grey clay loam + small sub.ang. clast and shell fragments.
P/channel cut 32	Fill 39	Grey / brown silty clay + sand and shell inclusions.
P/channel cut 32	Fill 40	Brown humified peat clay.
P/channel cut 32	Fill 42	Peaty clay + shell fragments.

3. Methods.

The samples were prepared for pollen analysis using preliminary treatments of HCL to remove Calcium carbonate and Lipsol to deflocculate clays followed by standard KOH digestion and acetolysis (Faegri & Iversen 1975). Additional micro- sieving removed fine and coarse residues. *Lycopodium clavatum* spores were added in known quantity to a measured volume of sediment in order to facilitate the calculation of pollen concentration values (Benninghof 1962). Pollen was counted using an Olympus BH microscope operating at x400 magnification. Identifications were made with reference to Moore *et.al* (1991) and the University of Sheffield reference collection.

4. Results.

In order to assess pollen concentration values a count of 200 *Lycopodium clavatum* spores was made from each sample and the pollen grains encountered in this process recorded. Pollen concentration values were found to be less than 1,000 grains per cm2.

The diversity of pollen types recorded ranged from 2-8 taxa.

The results of the analysis indicated that the pollen flora preserved in these sediments was very restricted both in terms of diversity and concentration (abundance). These results suggest that conditions in the ditch and palaeochannel during the period of sediment accumulation were not suitable for pollen preservation. One explanation might be that the sediments were minerogenic and the Calcium carbonate (in the form of shell fragments) may have affected preservation.

Recommendations.

No further palynological analysis is merited by the findings of the above investigation.

Barbara Brayshay 5.10.1993.

References.

Benninghof, W.S. (1962) Calculation of pollen and spore density in sedimentsby addition of exotic pollen in known quantities. *Pollen et Spores* **4**, 332-333.

Faegri, K and Iversen, J. (1975) *Textbook of Pollen Analysis (3rd Ed.)* Blackwell Scientific Publications, Oxford.

Moore, P.D., Webb, J.A. & Collinson, M.E. (1991) *Pollen Analysis* (2nd Ed.) Blackwell Scientific Publications, Oxford.