



GARTON SLACK, YORKS

MAGNETOMETER SURVEY 1975

A small trial survey to test the feasibility of using magnetic detection to find the total extent of a barrow cemetery currently under excavation was carried out on 24 July, 1975.

NATURE OF THE SITE

The survey covered a strip of ground at the W side of the field S of Wetwang Grange around grid ref. SE 946 601. The site lies in a dry gravel-filled valley in the Wolds chalk which has been quarried steadily from the E. Numerous barrows have been found and archaeological work continues. The area surveyed was undisturbed except for the trackbed of the former railway but a large part of the field had been stripped for excavation ahead of the quarry face, exposing a dense cluster of graves and barrow ditches. Most of these were in the S half of the field and the pattern seems likely to continue through the survey area to the W.

The location of the site is shown on the enclosed section of 6" map and the grid of survey squares is marked on the 1 : 750 plan in relation to two of the excavator's survey points labelled X and Z.

SURVEY METHOD

Traverses 1m apart were made across the squares marked on the plan using the fluxgate gradiometer. This gives a continuous signal which is plotted automatically and two copies of the resulting chart are enclosed. On one of these some possibly significant magnetic anomalies are outlined in red and the other is included for comparison.

Vertical displacements in individual traverses represent local variations in magnetic field intensity plotted at a scale of 20 gamma/cm (100,000 gamma = 1 oersted). There are random fluctuations in the traverses of 1 - 2 mm which represent a background instrument and soil noise level of 2 - 4 gammas.

FINDINGS

1. MAGNETOMETER CHART

The anomalies marked are all weak and seldom exceed 5 gammas. They are distinguished from the background noise by their continuity between traverses but do not form any clear archaeological pattern.

The features visible in the cleared area were mostly small square Iron Age barrows with central graves and very slight outer ditches, but among them there was a larger earlier round barrow.

There is nothing in the survey which suggests a square barrow except perhaps the very faint disturbance in square 6 but if the anomalies marked in square 3 are significant they might represent something on the scale of the round barrow. Detection is improved where the depth of topsoil is least and it could be seen from the scraped section that the depth was about 15cm in squares 3 and 4 compared with 50cm where the ground rises to the S of the old railway.



The sharp narrow peaks in the traces are caused by pieces of iron, most of which must be modern although the response of any cart burial that happened to be present might be similar.

2. SCANNING

Comparative readings were taken over the exposed features by scanning with the magnetometer without the recording system. The small ditches were found to be quite undetectable and only the largest graves gave any response (less than 2 gamma). The effective depth of the remains may have been reduced by the scraping but the results do suggest that detection of similar features through topsoil is unlikely.

There was no indication of iron in the graves although small corroded pieces such as those excavated at a depth of about 1m may not be detectable.

3. SUSCEPTIBILITY TESTS

The difficult nature of the site was confirmed by measurements of the magnetic susceptibility of a number of soil samples. The reading for the topsoil was 7×10^{-5} emu/gm. This is low but surveying might be possible given suitable features. Unfortunately the ditch and grave fill each gave very low readings of less than 3×10^{-5} emu/gm and seem to derive more from the almost non-magnetic subsoil than the topsoil. The contrast in susceptibility between the fill and the natural subsoil on which magnetic surveying depends is therefore slight.

CONCLUSION

Magnetic surveys of burial sites rarely provide good results and this site illustrates the problems. Unlike occupation sites where human activities, particularly burning, give a selective enhancement of the magnetic susceptibility, the fill of graves is usually sterile. It is often still possible to locate substantial earthworks but in this case the potential is limited by the small size of many of the features, for example the square barrow ditches which extend only inches into the subsoil, and the low natural susceptibility of the chalk soil.

The physical similarity of the fill and natural would also inhibit resistivity surveying, which in any case is unsuitable for work over such large areas.

At least some the anomalies outlined on the chart are probably of archaeological origin, but only the most substantial features, and those with the thinner soil cover, are likely to have been detected; and some could be solifluction channels.

Extended surveying, either in the manner described here or by the more cursory method of magnetic scanning, would probably pick out the more substantial features in the area, including chariot burials, but it would be unlikely to produce a complete and balanced picture of the distribution of remains..



Similar results were obtained and conclusions reached by Lither, when he surveyed the Roman necropolis cemetery at Arras (Ant.J. A.I, pp 58-9).

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Wetwang Grange

fence

15m



GARTON SLACK

- x = grid markers
- z =
- a x = 3.2 m.
- b x = 29.8 m.
- b z = 37.1 m.
- c z = 27.5 m.

6

7

5

4

3

2

1

hedge

a

○ x

b

○ z

c

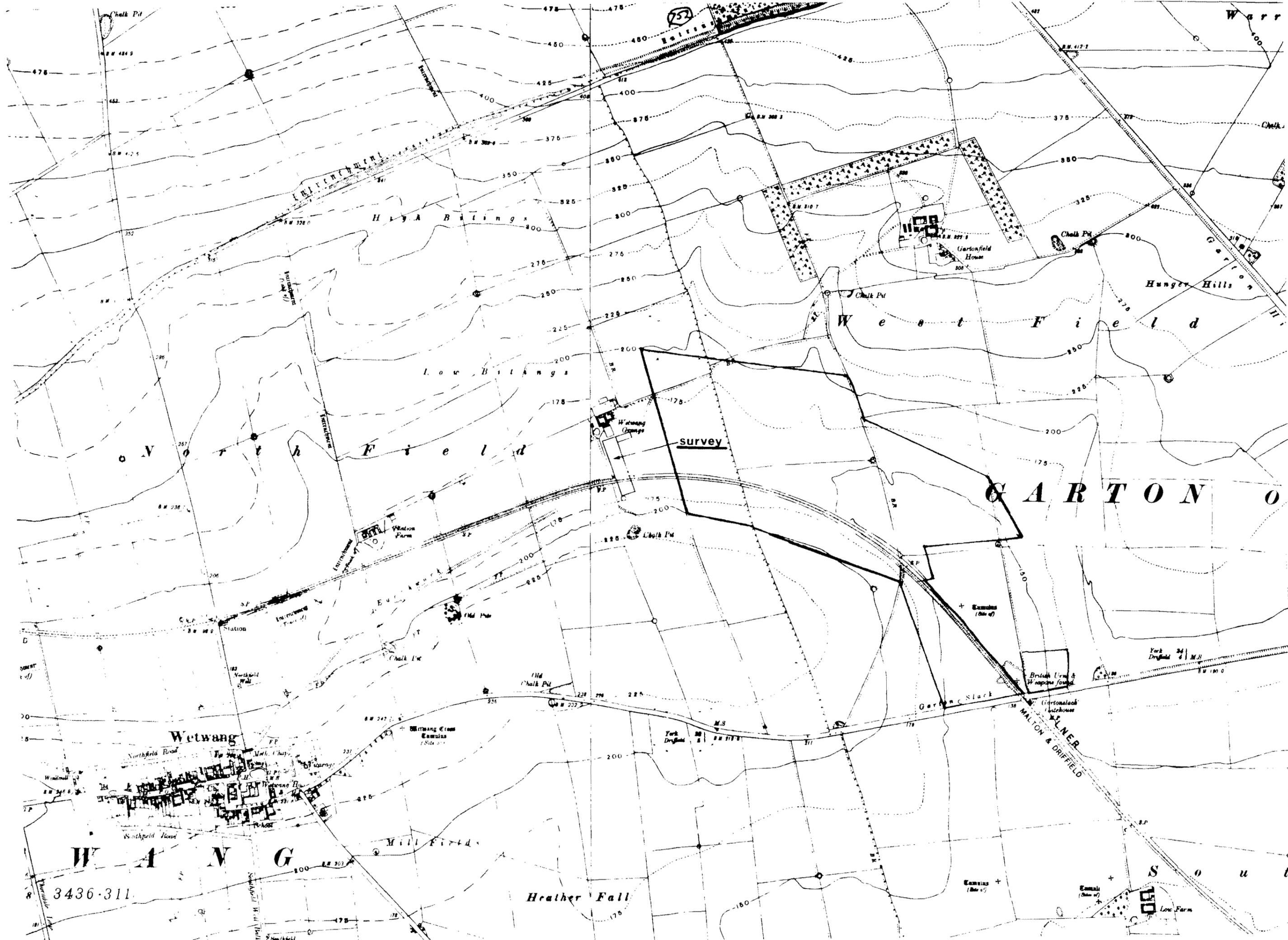
RAILWAY

DISTURBANCE

20m

limit of standing crop

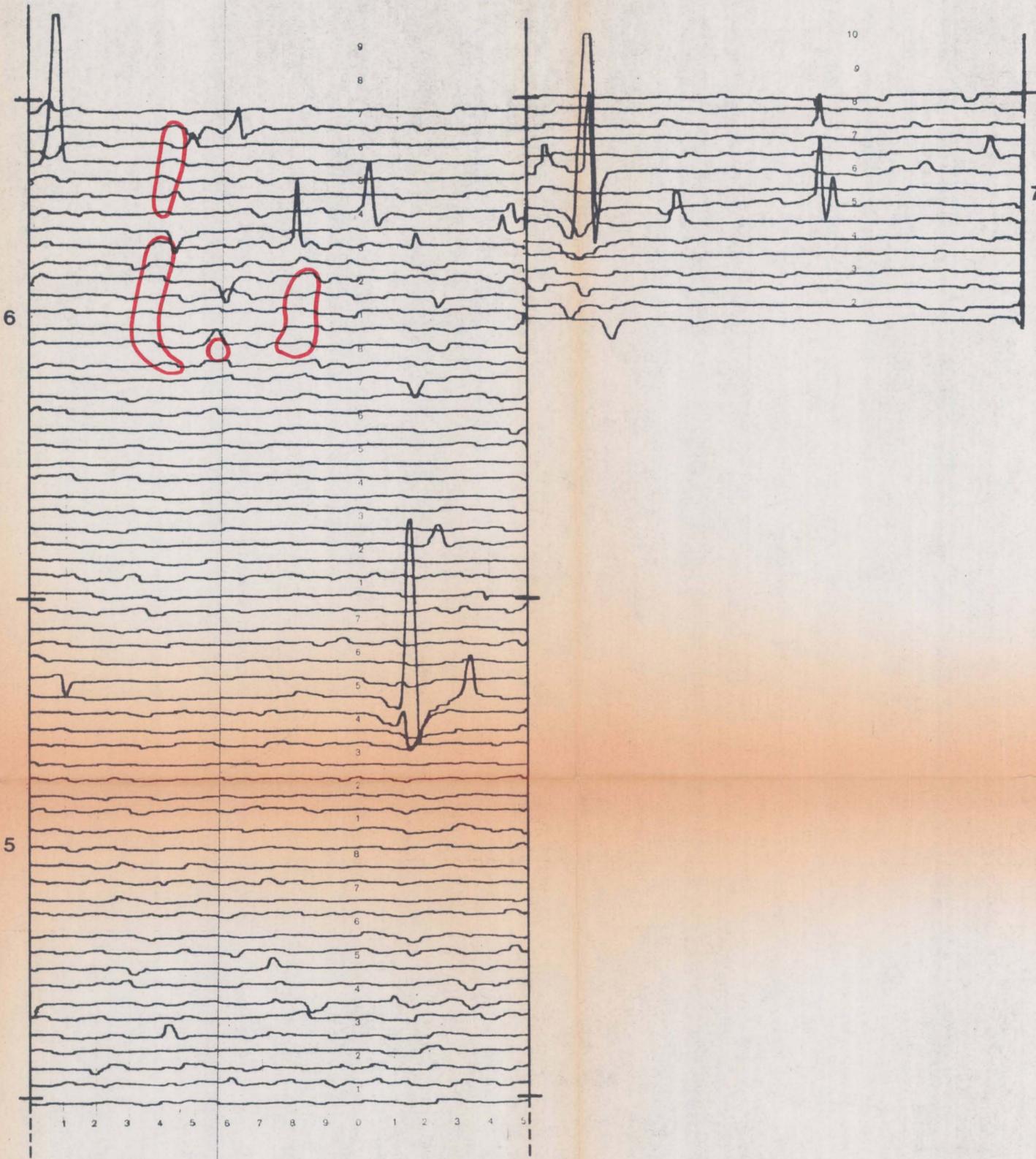
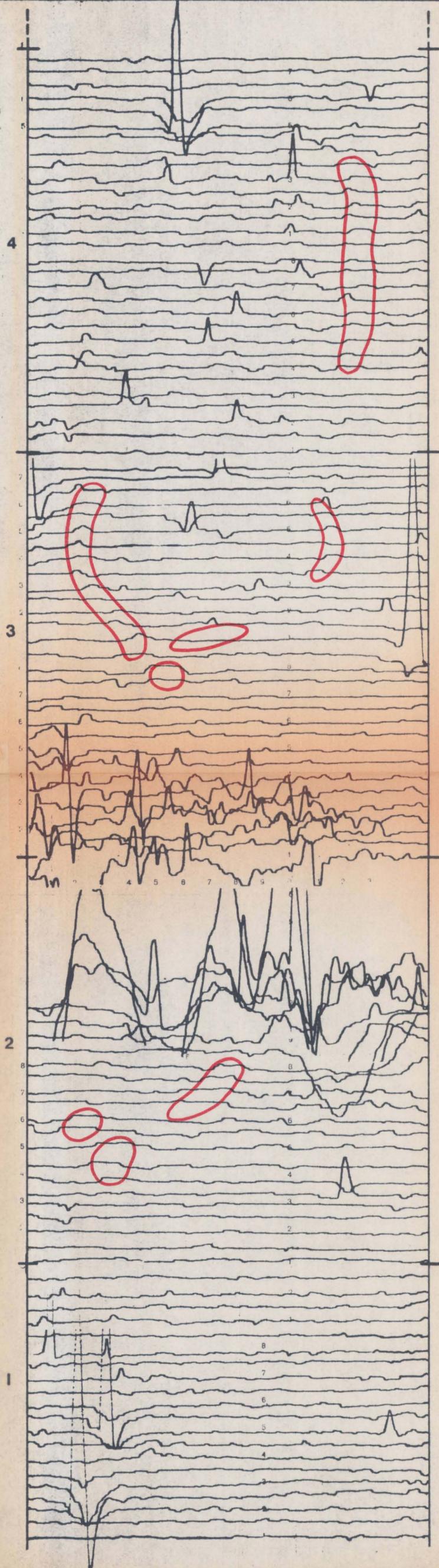
Sketch plan, showing magnetometer
survey grid
1 : 750



3436-311

Heather Fall

Loc. Farm



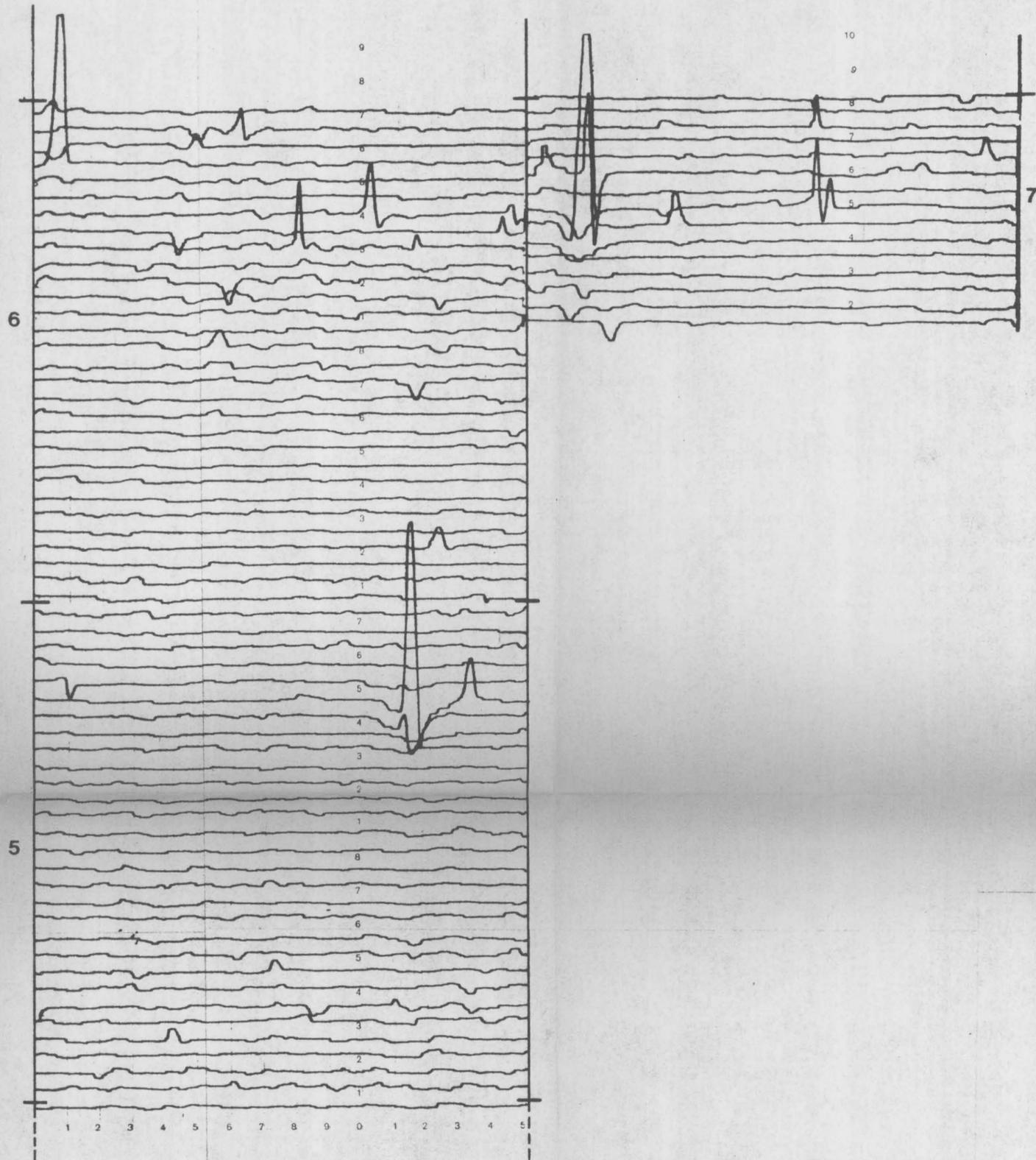
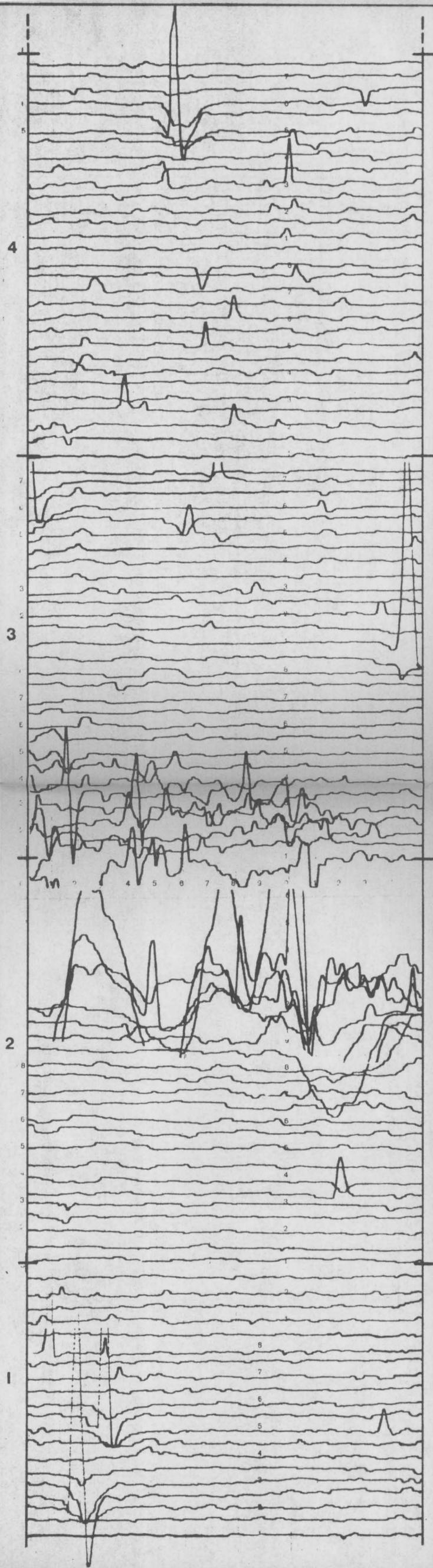
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MAGNETOMETER SURVEY 1975

1:200

+ : grid pegs

○ : suggested archaeological features



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MAGNETOMETER SURVEY 1975

1:200

+ : grid pegs