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# Hambleton Chord Line [SE 561313]

Gradiometer Survey

October 1991



West Yorkshire  
Archaeology Service

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## Gradiometer Survey



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### Contents

1. Report Summary
  2. Introduction
  3. Instrumentation
  4. Method of Survey
  5. Results
  6. Discussion
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## Gradiometer Survey

### *1. Report Summary*

#### **Client**

North Yorkshire County Council, County Planning Department, County Hall, Northallerton, North Yorkshire, DL7 8AQ.

#### **Survey Objectives**

To provide a geophysical evaluation in order to assess the archaeological requirements of the site prior to its disturbance by the proposed British Rail Hambleton Chord Line Link

#### **Instrumentation**

Geoscan FM 18 and FM36 fluxgate gradiometers with Geoscan ST1 sample trigger and Compaq portable computer.

#### **Method of Survey**

Measurements were taken traversing west/east and east/west within 20m by 20m grids at intervals of 1m.

#### **Conclusions**

Only two anomalies have been identified as being potentially archaeological in nature. However, the apparent lack of magnetic contrast across the site makes the resolution and identification of any other anomalies difficult. Further features could exist but remain, due to their nature, undetectable by means of magnetic survey.

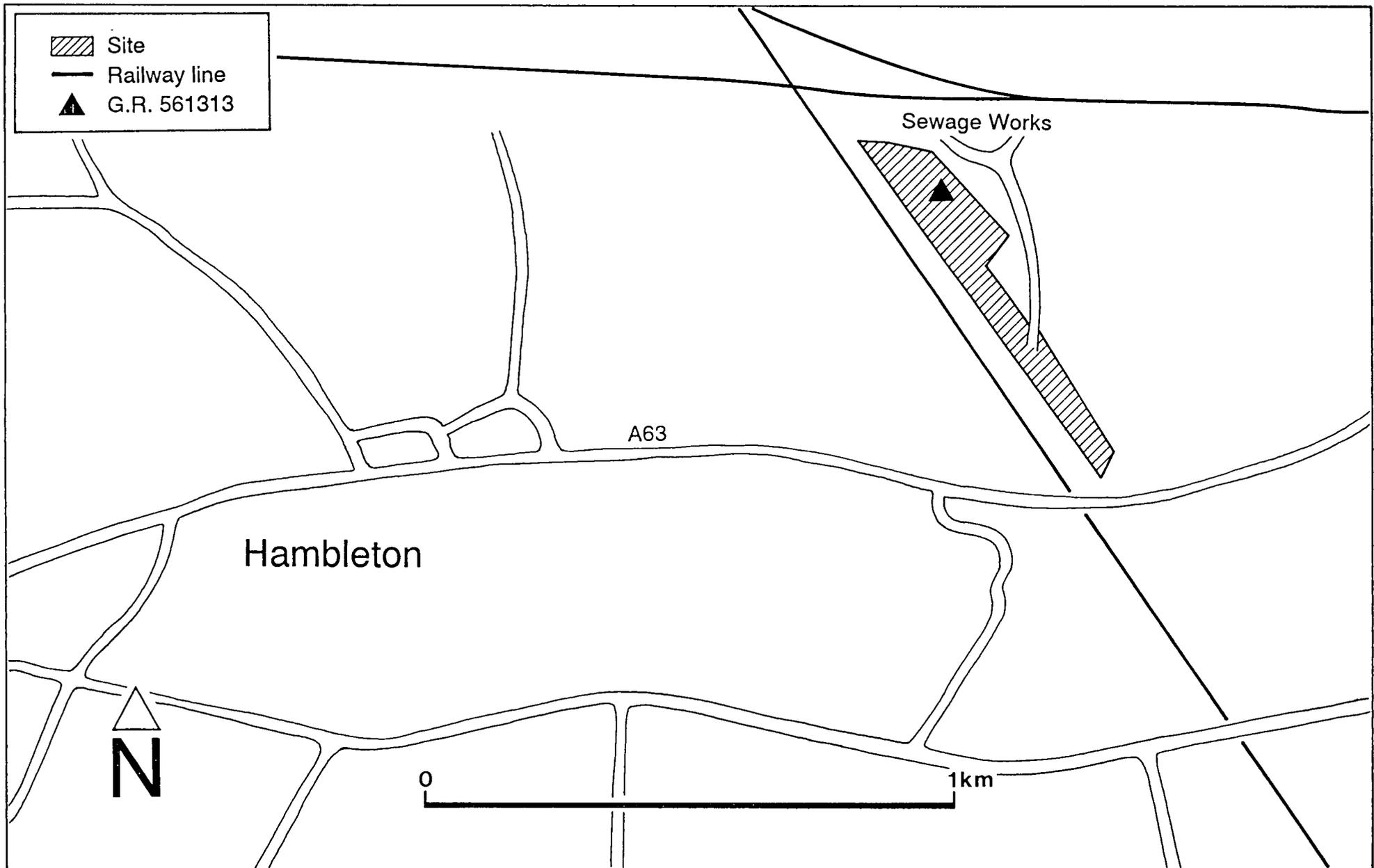


Fig 1. Site location plan.

## **2. Introduction**

2.1 A gradiometer survey was carried out by two officers of the West Yorkshire Archaeology Service on behalf of North Yorkshire County Council Planning Department between September 16th and September 25th 1991.

2.2 The site lies on arable agricultural land immediately east of the York-Doncaster railway line and immediately south of the York-Selby line (both of which delimit the site) in the parish of Hambleton (SE 561313; Fig. 1).

2.3 The northern part of the site was bisected by a 2m deep land drain which prohibited continuous surveying, whilst Whinny Hagg Lane further separated the site into three discrete sample areas (see Figs 2-5).

## **3. Instrumentation**

3.1 The survey was carried out using the Geoscan FM18 and FM36 fluxgate gradiometers combined with the Geoscan ST1 sample trigger. The data was then transferred to a Compaq personal computer.

3.2 Various geophysical processing packages were employed for both the initial on-screen processing and analysis, and the laser-printed hard copies.

## **4. Method of Survey**

4.1 A baseline was surveyed in parallel to, and 20m from, the York-Doncaster line, 3m inside the wire fence field boundary. From this the site was divided into a grid of 20m by 20m squares. Each of these was then surveyed and the data stored on the magnetometer.

4.2 The data was logged at 1m intervals on W-E and E-W orientated traverses with a 1m spacing between them, thus giving 400 readings for each grid square.

## **5. Results**

### **5.1 Presentation of Results (Figs 2-5)**

On Figure 2 the survey data is represented as a filtered grey density contour plot. Readings  $< -1\text{nT}$  (nano-Tesla) are shown white, and readings  $> 3\text{nT}$  black, so that the greater the magnetic response the darker the plot becomes. An interpretative sketch has been drawn below (Fig. 3). The raw, unfiltered data is shown on Figure 4. A large-scale (1:1250) site location plan with the filtered data superimposed is enclosed as a pull-out at the end of this report (Fig. 5).

5.2 With respect to Figure 2, faint linear anomalies are seen running roughly N-S, parallel to the base line and at right angles to the direction of the survey traverse (Anomaly A). These

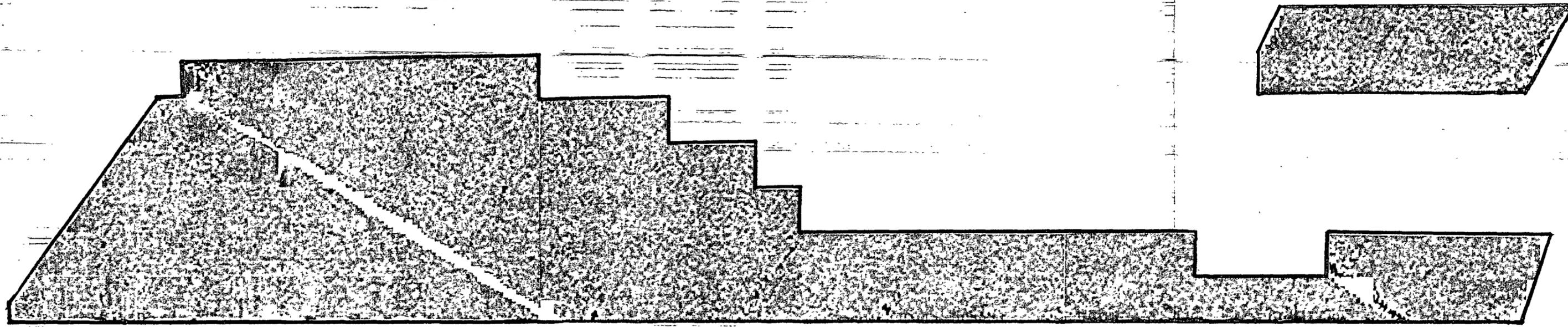


Fig. 2. Filtered grey density contour plot of magnetic data. Scale 1:1750

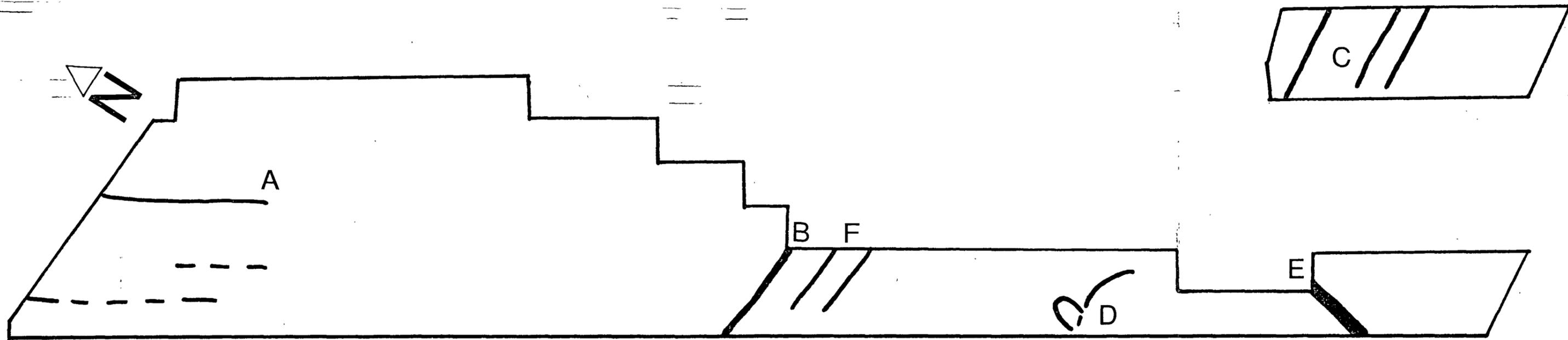


Fig. 3. Interpretative sketch of magnetic data.

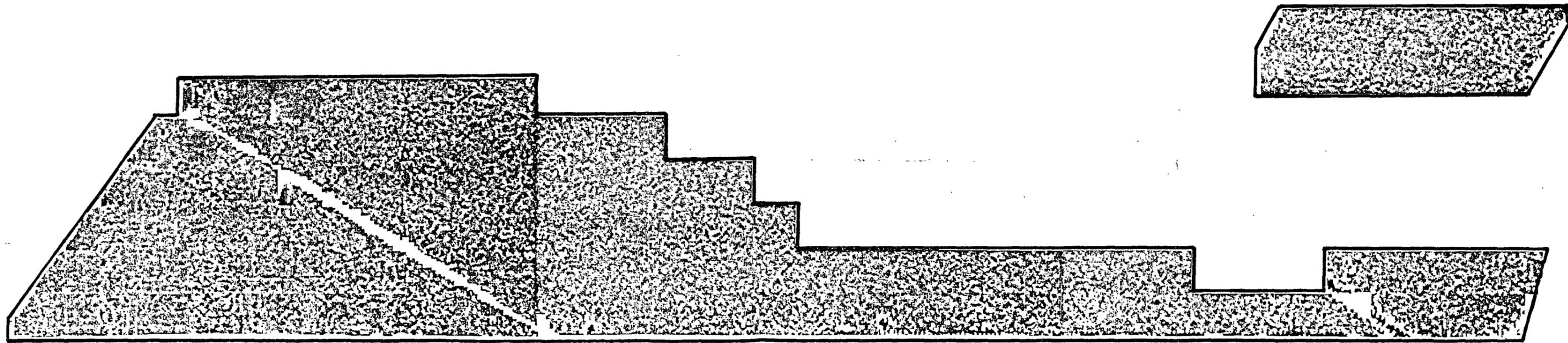


Fig. 4. Unfiltered magnetic data.

have a very low magnitude ( $<-1$  nT), as have three further linear anomalies between  $-1.5$  and  $+1.5$  nT at the southern end of the site (Anomaly C). In both cases the low magnitude and orientation of the anomalies suggest features of recent agricultural origin.

**5.3** The highest response (against generally low background readings) came from Anomaly B (Fig. 2). Although discontinuous in nature it has peaks in excess of 3nT with a sharp negative response either side of the feature. This is the type of response expected from a relatively deep infilled feature (for example a ditch) and therefore may be of archaeological interest.

**5.4** The anomalies marked D (Figs 2 and 3) do not exhibit the marked response described above (5.3) and are consistent with responses experienced from natural geological features.

**5.5** Anomaly E is the response caused by surveying over Whinny Hagg Lane.

**5.6** Two seemingly parallel linear anomalies, of very low magnitude, about 20m apart, are marked as Anomaly F.

**5.7** The high magnetic readings along the western edge of the site (along the baseline) are due to the proximity of a wire fence, 3m away.

## **6. Discussion**

**6.1** Only one anomaly (B), running east-west across the middle of the survey area, is strongly identified by magnetic means as being of potential archaeological interest. However, it is notable that Anomaly B is at right angles to the north-south land drain and could, therefore, represent a filled-in field boundary related to it. Such an arrangement may be detected in the cropmark plot (AP24; North Yorks SMR), as can two parallel linear cropmarks (indicative of a trackway) running east-west through the AP24 complex. The latter may be represented in the magnetic data by Anomaly F, though the magnitude of the signal is not consistent with a ditched trackway.

**6.2** The lack of magnetic contrast across the site has made the resolution and identification of further magnetic anomalies unreliable. Moreover, one cannot discount the possibility of further features in the survey area which, due to their nature, remained undetectable by means of magnetic survey.

**6.3** With regard to further evaluation, small-scale trial trenches to ascertain the nature and date of anomalies B and F might be considered, while some consideration may also be given to investigating known cropmark features that have not manifested themselves in the magnetic data.

### **Acknowledgements**

*Fieldwork:* A. Boucher, A. Webb  
*Report:* A. Webb, A. Boucher, I. Roberts  
*Figures:* A. Webb, A. Swann  
October 1991

SNY 9469 Fig. 5. UNRESIZED FIGURES TO  
BE TO SCAN ORIGINAL TO BE SEEN FOR  
CLARITY.