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BROOKSBY AGRICULTURAL COLLEGE

Stage 2 Archaeological Evaluation of a Potential Quarry for Lafarge Redland Ltd

Edited by Keith Challis

Code: BRK.2

SK 672 154
Planning Application Number: 00/0443/6

LMARS Accession Code: X.A37.2000 (trial excavation)
LMARS Accession Code: X.A73.2000 (test pits)

SMR 61 NE BA
61 NE BZ
61 NE BF

SLE:	1650
ELE:	5870
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TRENT & PEAK ARCHAEOLOGICAL UNIT

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BROOKSBY AGRICULTURAL COLLEGE
Stage 2 Archaeological Evaluation

SUMMARY

- A second stage of archaeological evaluation was undertaken at Brooksby Agricultural College on behalf of Lafarge Redland Aggregates Ltd.

- Evaluation comprised gradiometer survey, test-pitting and trial excavation.

- **Gradiometer survey** in field 4 showed that the probable Iron Age and Romano-British settlement complex (site 5) in this field was more extensive than at first thought. The complex appears to cover an area of approximately 8ha in total. It appears likely that the geophysical survey has succeeded in identifying the limits of the complex.

- **Gradiometer survey** adjacent to Spinney Farm located a number of possible archaeological anomalies.

- **Test pits** excavated in field 3 examined a concentration of mainly prehistoric struck flint (site 3). The test-pits showed that the character of the subsoil varied across the area examined. Flint, together with some handmade and Romano-British pottery, were recovered mainly from test-pits over sandy subsoil. Machine stripped areas failed to identify archaeological features associated with these finds, however it remains likely that the finds distribution does represent a past activity area - perhaps only poorly preserved.

- **Trial excavation** in field 4 examined the geophysical anomalies identified by the gradiometer survey and, as a comparison, areas free from geophysical anomalies or surface finds.

- Trench A, sites over the geophysical anomalies, revealed ditches and gullies associated with Iron Age and Romano-British pottery.

- Trenches B and C, sites away from the anomalies, revealed only the bases of medieval plough-furrows, confirming that the gradiometer survey has identified the full extent of the settlement complex.

- **Trial excavation** in the valley of Rearsby Brook examined the alluvial deposits there and the geophysical anomalies identified adjacent to Spinney Farm. A range of alluvial deposits, including those infilling on palaeochannel of the brook were identified, but no organic deposits of palaeoenvironmental significance were found, neither was there further trace of the possible palaeosol identified in the first stage of the evaluation. No archaeological features were identified in either trench.

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1 INTRODUCTION

1.1 PROJECT BACKGROUND

Lafarge Redland Aggregates Ltd proposes to extract aggregate from an area to the south of Brooksby College at Brooksby, in north-west Leicestershire (Figure 1). The application area lies in the valley of Rearsby Brook. The gravel deposits beneath the site form part of the Baginton Formation, a Quaternary sequence laid down by the pre-Anglian Midland or Bytham River and associated with Palaeolithic cultural archaeological material and organic deposits with rich plant and animal fossil remains both locally and elsewhere.

1.2 SUMMARY OF PREVIOUS ARCHAEOLOGICAL WORK

Trent & Peak Archaeological Unit (T&PAU) undertook a programme of archaeological evaluation on behalf of Lafarge Redland Aggregates Ltd.

The report on this work (Challis and Howard 1999) comprised a summary of fieldwalking undertaken by Leicester Museum Service in 1997, together with accounts of air-photographic research, geophysical survey and geoarchaeological assessment and field survey undertaken by T&PAU.

Fieldwalking revealed that extensive activity, of prehistoric, Romano-British, Anglo-Saxon and Medieval date exists across the study area.

Aerial photographs failed to reveal any cropmarks or other archaeological features associated with the artefact scatters. This is probably because the soils across the site are not susceptible to cropmark formation.

Aerial photographs did reveal a system of palaeochannels across the narrow valley floor of Rearsby Brook.

Geophysical survey showed that at least one of the artefact scatters is associated with a complex arrangement of ditched enclosures, field and trackways which on both morphological grounds and by association with the artefact found during fieldwalking dates from the later prehistoric and Roman-British periods.

Geoarchaeological survey showed that the palaeochannels of Rearsby Brook contain no organic material and are themselves likely to be of low archaeological significance. However, the floodplain of the Brook does encompass a buried land surface, with intact palaeosol, provisionally dated to the medieval period by associated artefacts. This buried land surface might contain preserved archaeological deposits of medieval or earlier date and is of archaeological significance.

Most significantly, the sand and gravel deposits beneath the site were shown to be part of the Baginton formation, laid down by the Pleistocene Midland River, which flowed

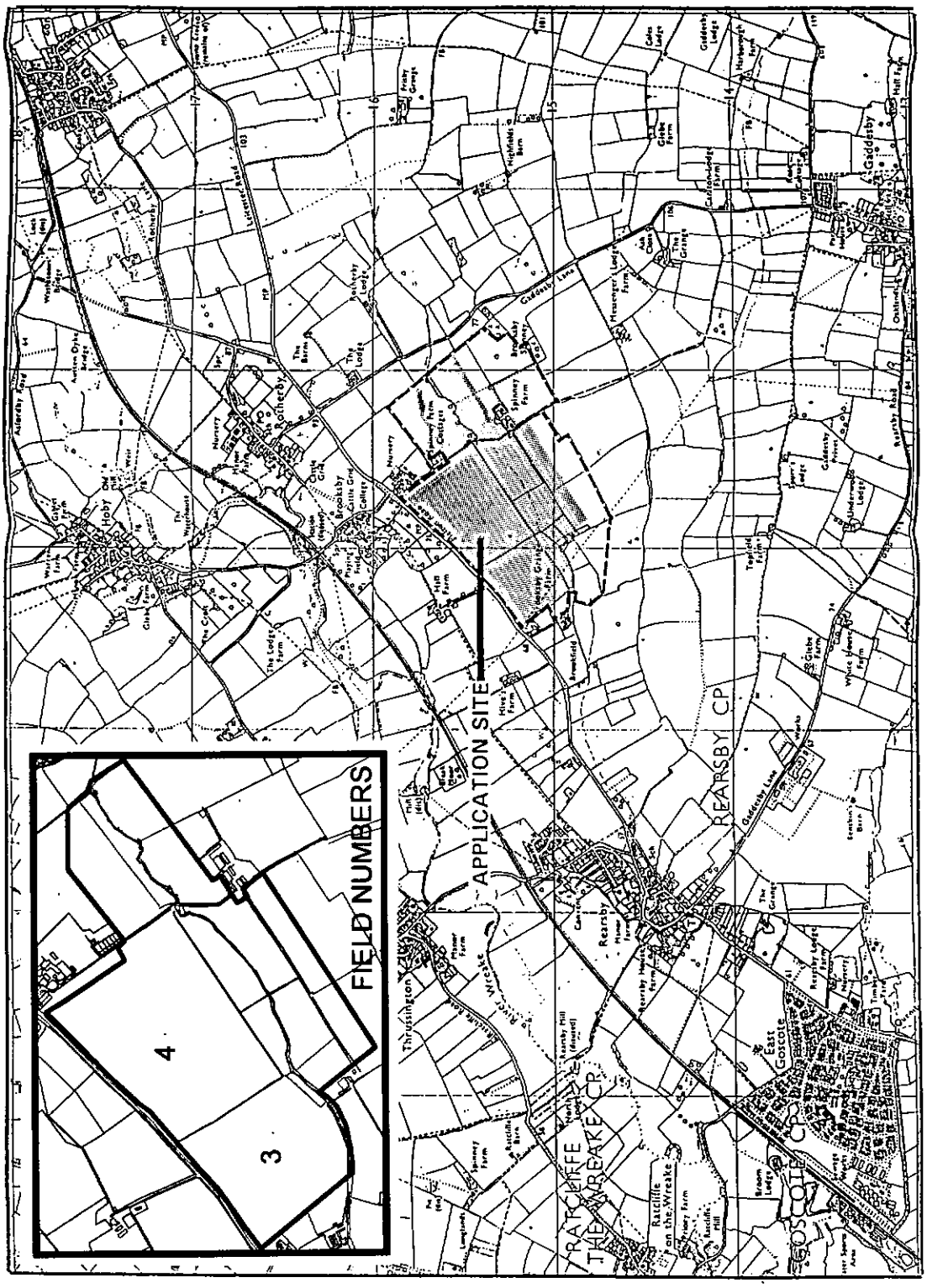

Figure 1: Plan showing the location of the site, with the extraction area shown shaded and the application area by the broken outline. Inset shows field numbers mentioned in text.

eastward on approximately the line of the present River Wreake before the Anglian Glaciation (*c.*500,000 bp).

Regionally, and at the site, the Baginton formation is associated with organic remains with temperate affinities and with andesitic handaxes, suggesting contemporary human activity.

In addition, the Brooksby sands and gravels, an organic-rich deposit infilling a channel stratigraphically earlier than the Baginton sands and gravels, have been shown to extend to within the extraction area.

Together, the Baginton and Brooksby deposits may preserve rare evidence for environment and activity associated with the earliest human inhabitance of the British Isles. As such these deposits may be of national archaeological significance.

1.3 AIMS AND OBJECTIVES OF STAGE 2 EVALUATION

The outline scheme for the evaluation, drafted by T&PAU in March 1999 envisaged a second phase of evaluation, with the dual aim of determination of the context and state of preservation of buried cultural archaeological remains. Further geoarchaeological evaluation is not considered necessary or feasible given the depth at which deposits of interest are buried.

The content of the proposed second phase of evaluation, which has been devised in consultation with the Leicestershire County Council Senior Archaeological Advisor, and was to comprise:

- Further magnetic survey to be carried out using an FM36 Fluxgate Gradiometer, manufactured by Geoscan Research using a methodology identical to that used in the first stage of evaluation.

- Hand-excavated test pits, supplemented by machine stripping, to examine the flint scatter in field 3 (Figure 12).

- Machine-excavated trial trenches to examine the enclosure complex in field 4 and geophysical anomalies and alluvial deposits adjacent to Rearsby Brook, near to Spinney Farm (Figure 17).

2 GEOPHYSICAL SURVEY

By P Barker and E Mercer, Stratascan Ltd

2.1 INTRODUCTION

2.1.1 Survey Background

Lafarge Redland Aggregates Ltd. proposes to extract sand and gravel from an area at Brooksby Agricultural College. As a result Trent & Peak Archaeological Unit have been commissioned to undertake an archaeological evaluation of the site. As part of that evaluation Stratascan undertook a geophysical survey in the summer of 1999 which proved to be productive. As a result a supplementary survey has taken place to extend on an area previously surveyed and to target a further area for survey.

The previous survey undertaken in summer 1999 proved successful in locating a complexity of enclosures and other such features thought to relate to a site of Iron Age and possible Romano-British occupation. This survey served as an extension and showed other similar features extending beyond the original survey area. However, they are less complex and less numerous which suggests that the majority of the enclosure complex has been located.

A further survey also undertaken to the south was to target an area thought to be related to a Romano-British pottery scatter. Two areas of magnetic debris were located which may belong to pottery scatters. However, there were no other significant features.

2.1.2 Description of site

The survey area consists of the valley of the small stream known as the Hawbeck, which slopes, to the north and south of the stream. The underlying geology is Lower Lias Clay with the overlying surface geology consisting mainly of boulder clay and Morainic drift with a thin band of alluvium in the Rearsby Brook valley floor. The soils over the site are known as Flint which consist of reddish fine loamy over clayey soils.

Only one archaeological site within the vicinity of the survey area is recorded in the Leicestershire Sites and Monuments Records as a small trapezoidal cropmark, which may belong to a small gravel pit or alternatively may be an element of an Iron Age settlement.

Worked flint material was located in every field over the survey area. However, it was not evenly distributed. Little evidence was located close to the stream probably due to the alluvial deposits situated in the valley bottom covering prehistoric stratigraphy. The finds have been classified into early and later material with distribution of the later material taken as evidence of areas of activity. The two areas targeted with detailed magnetometry (Areas 1 and 2, Figure 2) were two such activity areas thought to be occupation sites judging by the types of flint tools in the collection.

Area 1 seen in Figure 2 was also targeted due to the amount of Iron Age pottery located here. This affirms the theory that this is probably an occupation site, which is

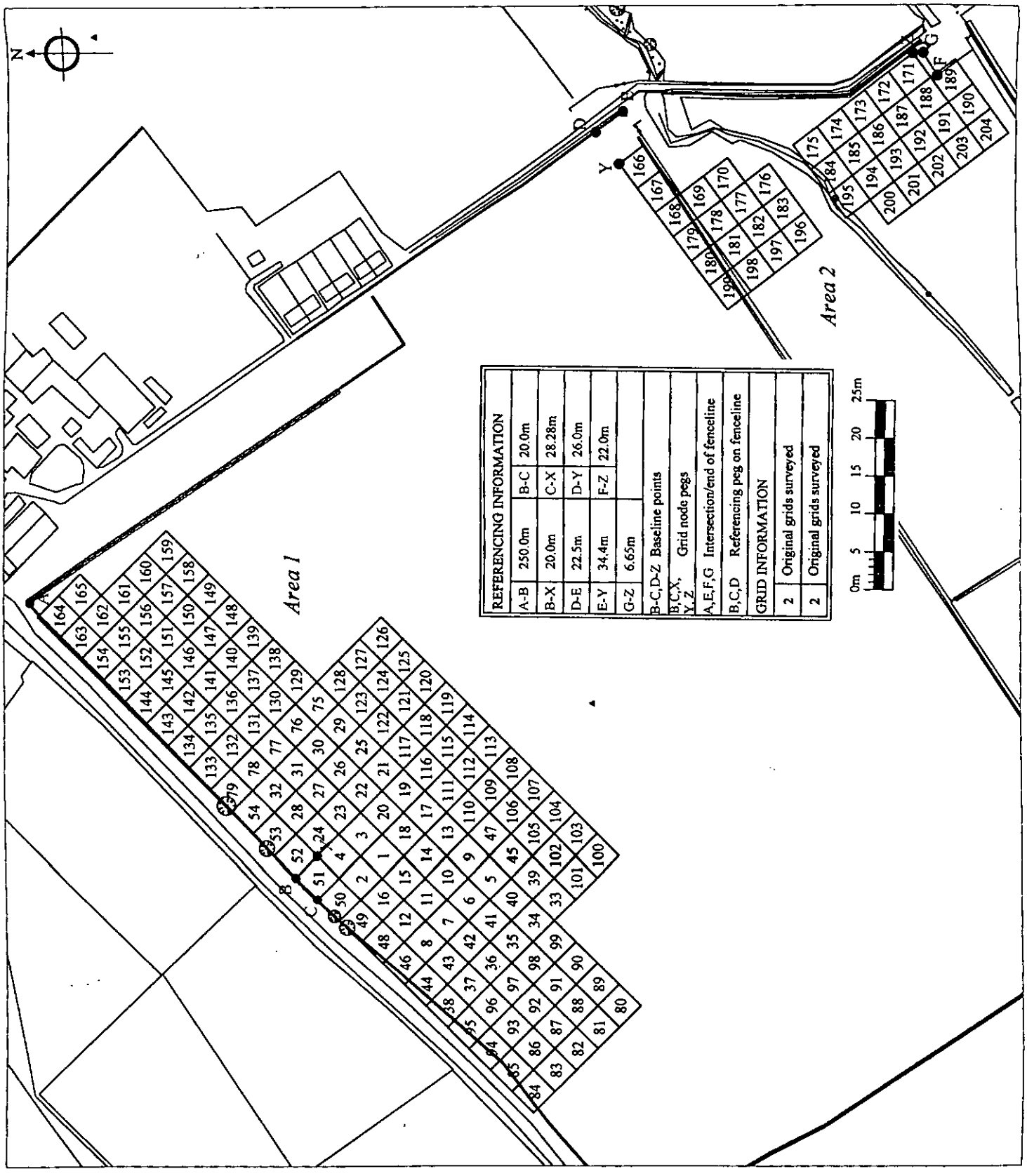

Figure 2: Site plan showing location of grids and referencing.

also thought to have continued into the Roman period. Scatters of Roman pottery were found to be distributed over the survey area but this is probably a result of the manuring process during the Roman period. However, relatively dense scatters were located around the identified occupation sites, which are likely to represent permanent arable in-fields.

There is no evidence of a medieval settlement within the survey area as this appears to have been located north of the A607 around the College buildings and church. However, aerial photographs have identified ridge and furrow as remains of the medieval field system which was seen across most of the survey area suggesting that the area was all ploughed land during the medieval period. This is further supported by the fairly even scatter of medieval pottery with no concentrations being distinguished. As with the Roman pottery scatters this can be assigned to the manuring process. Nineteenth century maps indicate that the modern field pattern was by then in existence although some hedges have since been removed.

2.1.3 Survey objectives and methods

The objectives of the survey were to locate any anomalies associated with an enclosure complex previously found in the original survey as well as any anomalies relating to a Romano-British pottery scatter in an area around Spinney Farm.

The original survey showed magnetometry to be very effective in the location of archaeological features associated with the enclosure complex. In addition, magnetometry is known to be successful in the location of kiln debris or pottery wasters. Therefore, it was considered to be the most suitable technique. More details regarding this method is in the Methodology section below.

2.2 GENERAL SURVEY METHODOLOGY

2.2.1 Date of fieldwork

Fieldwork was carried out over eleven days on Monday 28th February and Tuesday 29th February 2000, Wednesday 1st March to Friday 3rd March 2000, Tuesday 7th to Friday 10th March 2000 and Tuesday 14th and Wednesday 15th March 2000.

2.2.2 Grid locations

The locations of the survey grids have been plotted in Figure 2.

2.2.3 Description of techniques and equipment configurations

Although the changes in the magnetic field resulting from differing features in the soil are usually weak, changes as small as 0.2 nanoTesla (nT) in an overall field strength of 48,000nT, can be accurately detected using an appropriate instrument.

The mapping of the anomaly in a systematic manner will allow an estimate of the type of material present beneath the surface. Strong magnetic anomalies will be generated by buried iron-based objects or by kilns or hearths. More subtle anomalies such as pits

and ditches can be seen if they contain more humic material which is normally rich in magnetic iron oxides when compared with the subsoil.

To illustrate this point, the cutting and subsequent silting or backfilling of a ditch may result in a larger volume of weakly magnetic material being accumulated in the trench compared to the undisturbed subsoil. A weak magnetic anomaly should therefore appear in plan along the line of the ditch.

The magnetic survey was carried out using an FM36 Fluxgate Gradiometer, manufactured by Geoscan Research. The instrument consists of two fluxgates mounted 0.5m vertically apart, and very accurately aligned to nullify the effects of the earth's magnetic field. Readings relate to the difference in localised magnetic anomalies compared with the general magnetic background.

2.3 SAMPLING INTERVAL, DEPTH OF SCAN, RESOLUTION AND DATA CAPTURE

2.3.1 Sampling interval

Readings were taken at 0.5m centres along traverses 1m apart. This equates to 800 sampling points in a full 20m x 20m grid. All traverses are surveyed in a "parallel" rather than "zigzag" mode.

2.3.2 Depth of scan and resolution

The FM36 has a typical depth of penetration of 0.5m to 1.0m. This would be increased if strongly magnetic objects have been buried in the site. The collection of data at 0.5m centres provides an optimum resolution for the technique.

2.3.3 Data capture

The readings are logged consecutively into the data logger which in turn is daily down- loaded into a portable computer whilst on site. At the end of each job, data is transferred to the office for processing and presentation.

2.4 PROCESSING, PRESENTATION OF RESULTS AND INTERPRETATION

2.4.1 Processing

Processing is performed using specialist software known as *Geoplot 3*. This can emphasise various aspects contained within the data but which are often not easily seen in the raw data. Basic processing of the magnetic data involves 'flattening' the background levels with respect to adjacent traverses and adjacent grids. 'Despiking' is also performed to remove the anomalies resulting from small iron objects often found on agricultural land. Once the basic processing has flattened the background it is then possible to carry out further processing which may include low pass filtering to reduce 'noise' in the data and hence emphasise the archaeological or man-made anomalies.

Figure 3: Plot of processed magnetometer data for north extension for Area 1.

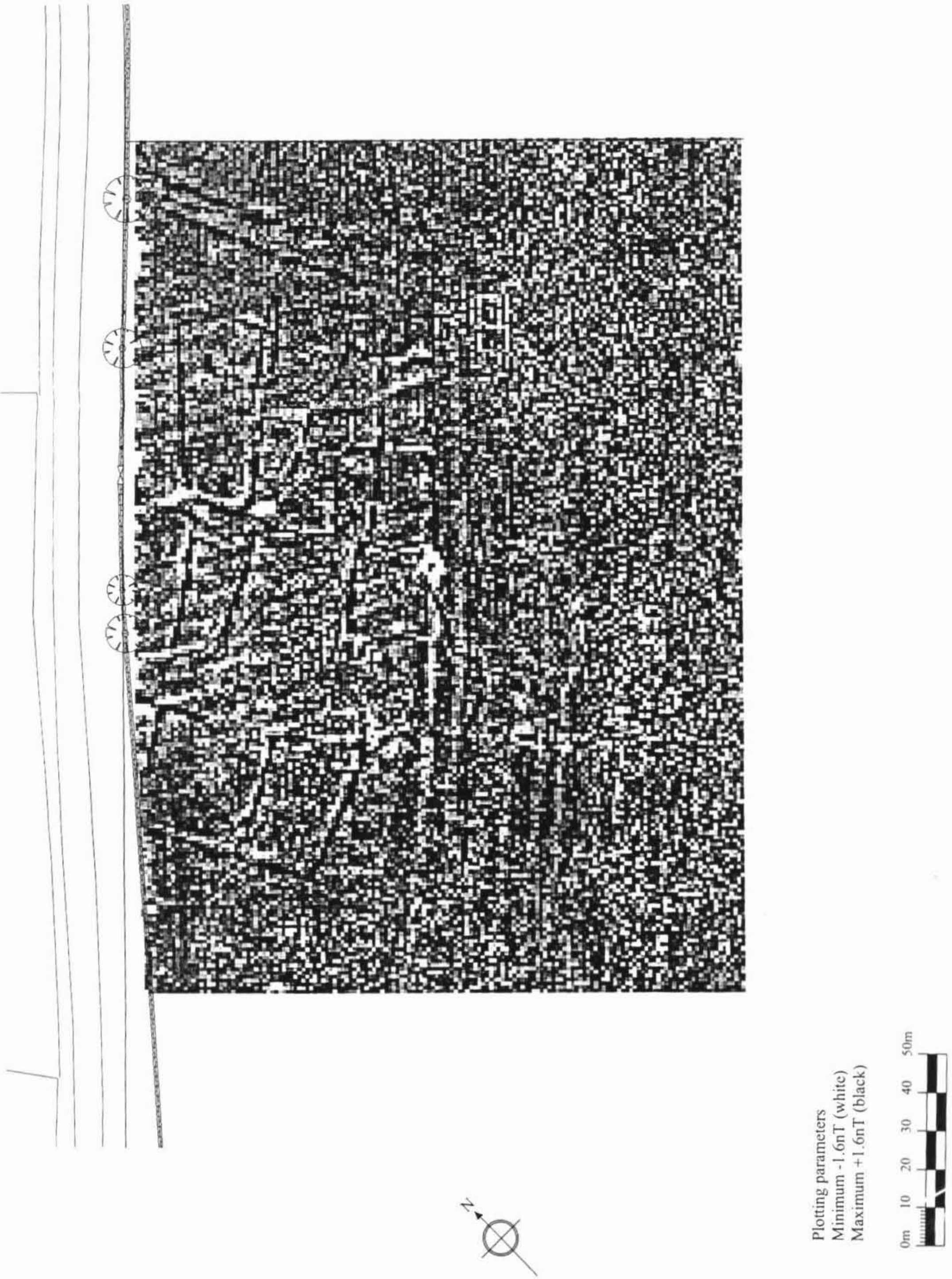

Figure 4: Plot of processed magnetometer data for east extension for Area 1.

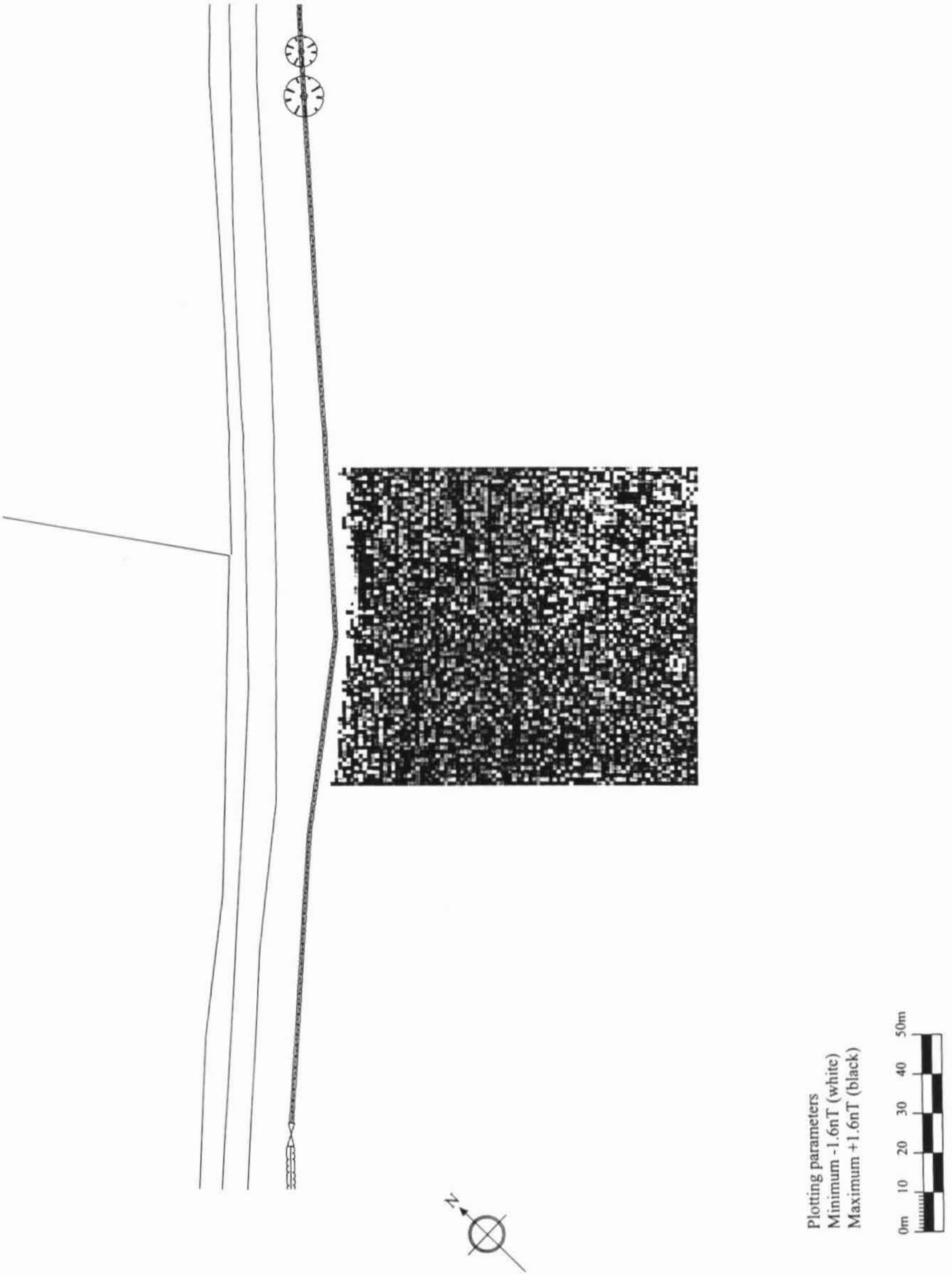

Figure 5: Plot of processed magnetometer data for south west extension Area 1.

The following schedule shows the basic processing carried out on all processed magnetometer data used in this report:

Zero mean grid	*Threshold = 0.25 std. dev.*
Zero mean traverse	*Last mean square fit = off*
Despike	*X radius = 1 Y radius = 1*
	Threshold = 3 std. dev.
	Spike replacement = mean

2.5 RESULTS

2.5.1 Area 1

The results for Area 1 also include the data from the original survey (see Figure 2 for details). Within this area a complex of positively magnetic linear anomalies were identified. It was hoped that by extending this area on three of its four sides the extent of the complex could be ascertained.

The results for the extended areas have been combined with the original survey area and can be seen in Figures 3 to 6. The abstraction of anomalies has also included the original survey results. The interpretation plot (Figure 7) shows the majority of the enclosure complex to be positioned within the original survey area. Generally, in the extended survey areas the anomalies are fewer in number and less intricate. However, the main portion of the enclosure complex does seem to continue into the northern survey extension. The survey extensions to the east and south west appear to show that the main portion of complex has been located and that there are peripheral cut features.

A possible trackway was located in the original survey, which can be seen to run into the extended survey area for up to 50m (see Figure 7). A further possible trackway has been identified running into the northern survey extension. Over the whole of the combined survey a number of ferrous responses have been identified. Contained more within the main enclosure complex are a number of positive responses of a low magnitude that have been interpreted as pits. Two areas of magnetic debris were abstracted in Figure 7, which may be of archaeological potential given the likelihood of occupation in this area. Cutting through one of these areas of debris lying close to the A607 Melton road is a linear anomaly producing a strong response. The

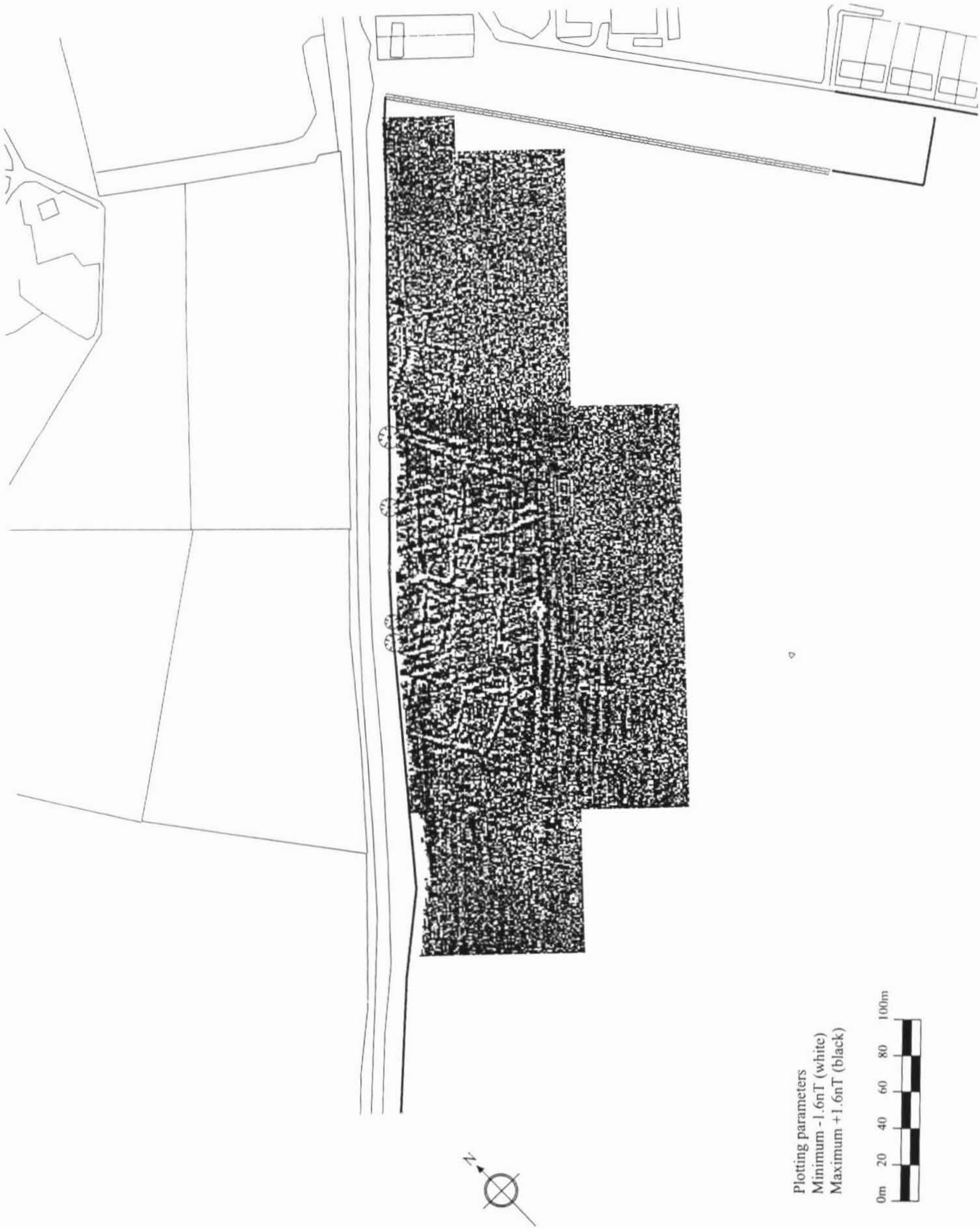

Figure 6: Plot of processed magnetometer data for all of Area 1.

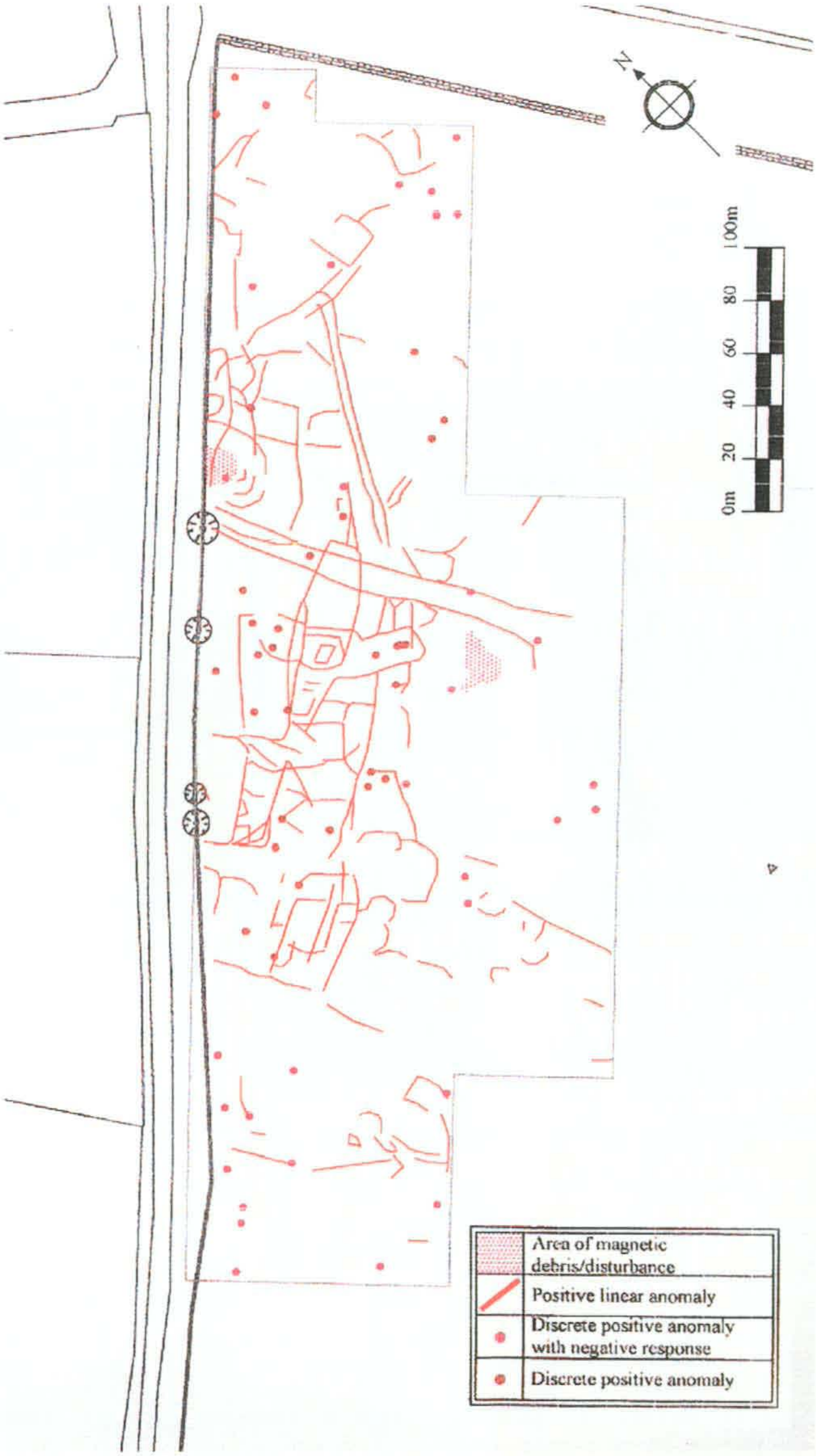

Figure 7: Abstraction of magnetometer anomalies for Area 1

Figure 8: Interpretation of magnetometer anomalies for Area 1.

magnitude of this response suggests that it could be a ditch infilled with thermoremnant material although it is advisable that this is investigated further.

Ridge and furrow can be clearly seen in the magnetometer data for Area 1. This has not been included in the abstraction and interpretation plots as it is felt that the numerous anomalies that would be plotted to represent both ridges and furrows would detract from the other anomalies. Over the main part of the enclosure complex the ridge and furrow can be seen to consistently run away from the road which also concurs with aerial photographic evidence. However, this meets with ridge and furrow running orthogonally to it which was also seen in the original survey. The extended survey areas also show ridge and furrow running almost parallel to the road apart from the extended area to the north were no ridge and furrow is evident.

2.5.2 Area 2

Area 2 is situated to the south-east of Area 1. Previous geophysical survey in this area consisted of a magnetic susceptibility survey undertaken in summer 1999, which found an area of magnetic enhancement. This correlated with a Romano-British pottery scatter located during fieldwalking. Therefore, the purpose of Area 2 was to investigate these findings.

Results indicate a pipeline running through the top of the survey area. The high magnetic response caused by the presence of the pipeline can serve to mask any more subtle features, which may exist. Therefore, Figure 9 shows the results for Area 2 without the grids containing the pipeline. Nevertheless, there are few anomalies of archaeological significance that have been abstracted (Figure 10).

The interpretation plot (Figure 10) shows the pipeline as M1. M7 is also thought to be modern due to the high ferrous response. However, its function cannot be determined and it is thought to be either a small pipe or remains of a fenceline.

There are several areas of magnetic debris or disturbance, which have been abstracted in Figure 11. M4 has a very strong response and probably contains ferrous material. This is thought to be modern in origin. Anomalies M5 and M6 are two parallel linear areas of debris. Their shape and form suggests that they may be infilled drains although this would need to be investigated further with trenching.

M2 and M3 are areas of debris, which appear to contain anomalies of thermoremnant response. It is possible that these are concentrations of pottery scatters or kiln debris and therefore are of archaeological potential (Figure 11).

The survey did not locate any cut features similar to those in Area 1 apart from M8. These anomalies appear as two parallel positive linear features, which curve across the survey area towards the gate in the corner of the field. This suggests that they may belong to a modern trackway or tractor wheel ruts used to access the field although this may need to be confirmed through trenching.

Figure 9: Plot of processed magnetometer data for Area 2.

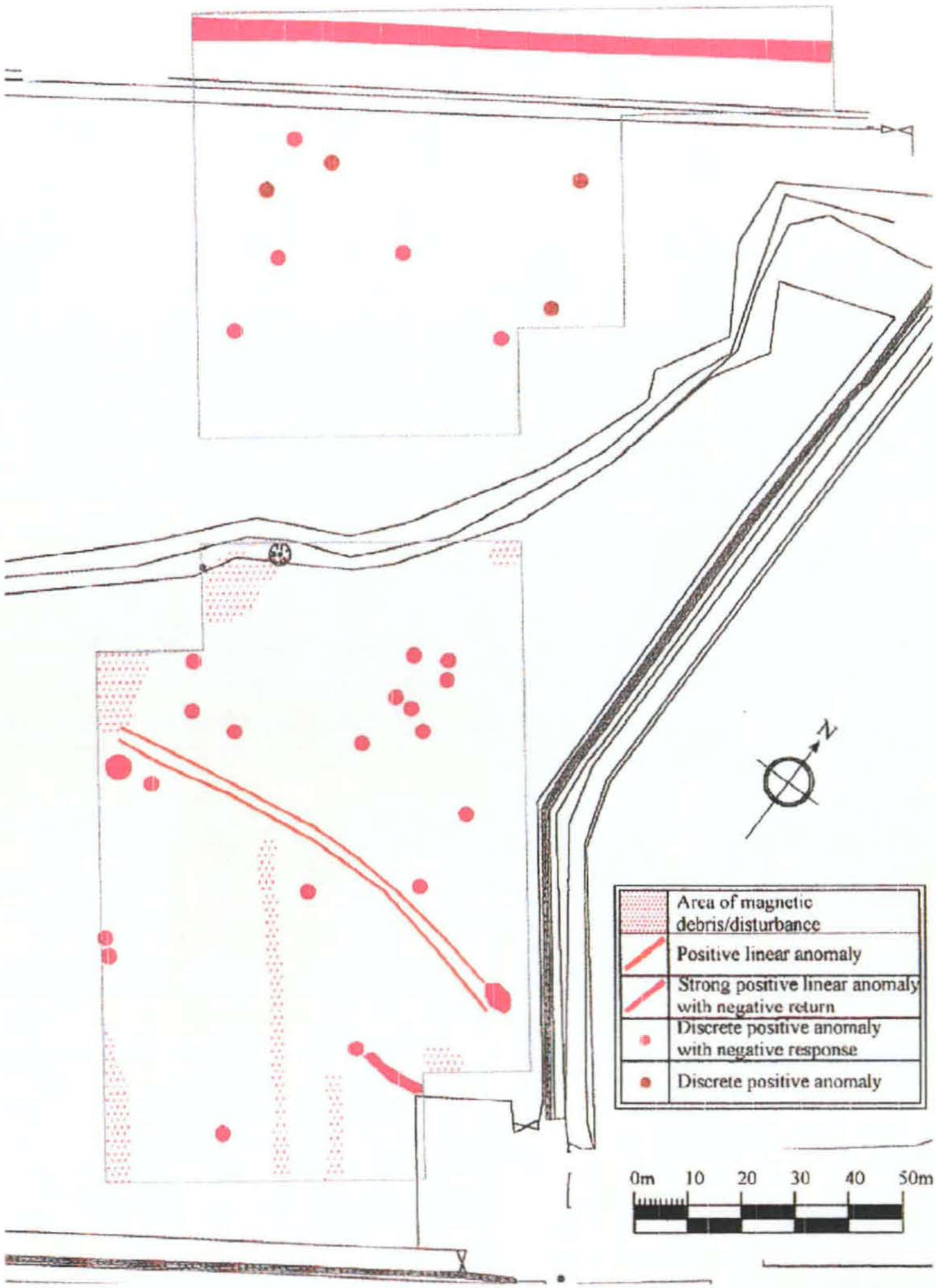

Figure 10: Abstraction of magnetometer anomalies for Area 2.

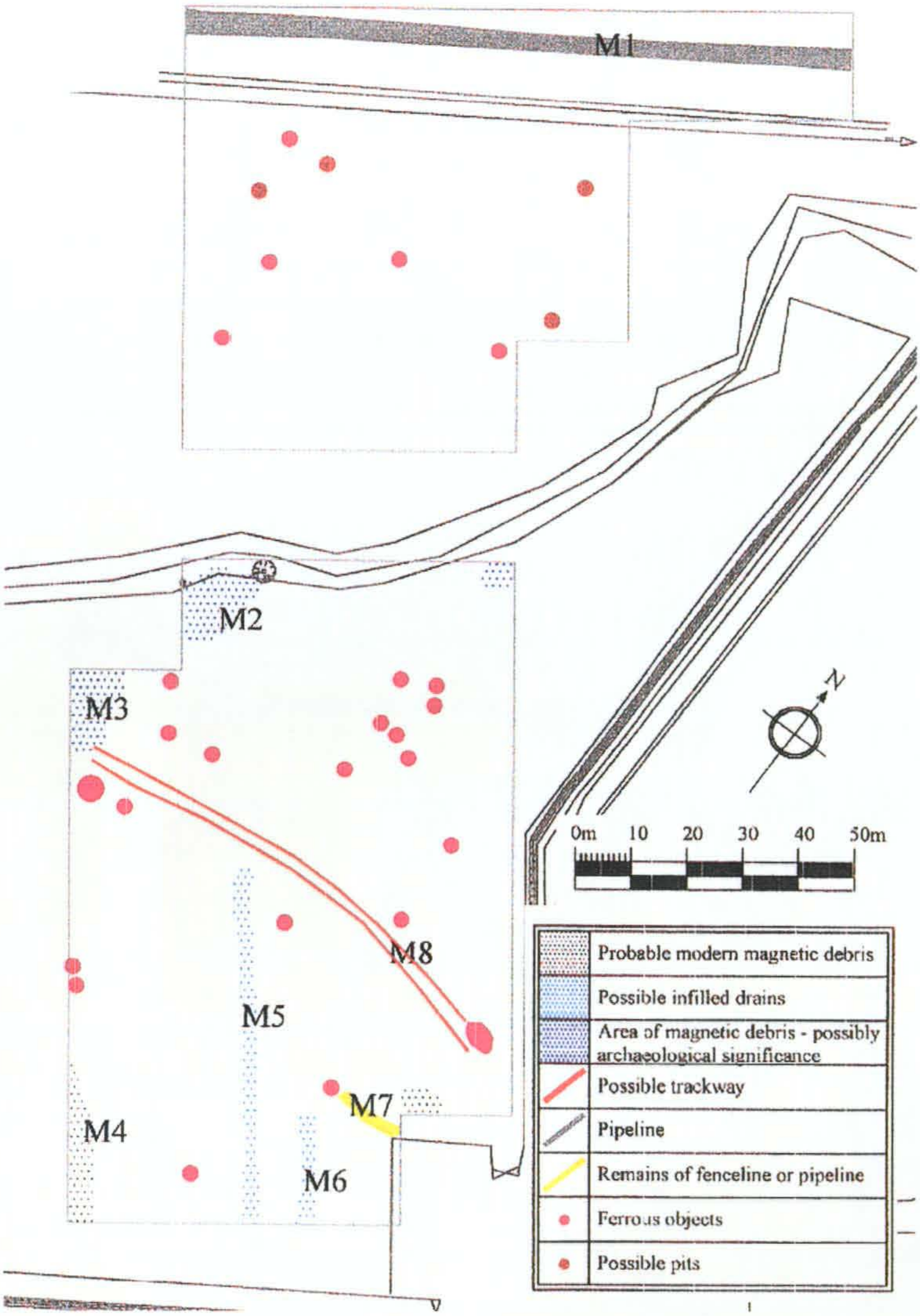

Figure 11: Interpretation of magnetometer anomalies for Area 2.

2.6 CONCLUSION

The survey in Area 1 served as an extension to a previous survey where an enclosure complex was discovered. The extended survey aimed to locate the extents of the complex. From this it appeared that the enclosure complex continues north east towards the corner of the field. However, to the east and south west the anomalies belonging to the complex occur less and this may indicate the extents of the enclosure complex.

Area 2 was carried out to target an area of magnetic enhancement located during a previous survey and pottery scatters found during fieldwalking. The survey found areas of debris containing thermoremnant responses which may indicate further pottery scatters, although these would need to be trenched to be certain. The remaining anomalies appear to be modern in origin.

3 TEST PITTING

By Alex Ward

3.1 INTRODUCTION

In order to analyse the distribution of the flint scatter and associated finds in field 3, 30 test-pits were excavated during April 2000. Spacing of the test-pits was determined at intervals of 25m as this should broadly characterise the spatial patterning of any artefact assemblages in the subsoil and give an impression of the survival of features in the subsoil.

In order to provide adequate coverage over the site the test-pits were laid out using two baselines in a cross formation. The first baseline ran south-west to north-east through the middle of the site and the second north-west to south-east up the slope. In order to maximise test-pit coverage of the site the distribution of test-pits was skewed over the two central baselines. For base line 1 the sequence ran one test pit on the base line, one 20m north west of the base line and one 20m south east of the base line. This sequence was then repeated using test-pits 1-15.

The sequence over the second line was slightly altered. The 25m spacing between test-pits remained the same but to skew the distribution one test-pit was placed 20m to the south-west of the line and the next 20m north-east of the line. The sequence was than repeated use test-pits 16-23.

Test-pits 24-30 were excavated around test-pits containing high levels of finds.

3.2 TEST-PIT METHODOLOGY

The selected size of the test-pits was 1m by 1m square, which is considered sufficient size to recover some artefacts even at low background densities. The test-pits were excavated in the following manner. Turf, if present, was removed by spading off a 5cm spit. The underlying topsoil would be trowelled in 10cm spits. In order to ascertain a clear distinction between finds from the topsoil and finds from the subsoil the base of the topsoil would be trowelled onto the top of the subsoil. The subsoil was removed also in 10cm spits. If artefacts are found in the subsoil, further 10cm spits would be removed until no artefacts have been located in the last 10cm removed.

The location of any artefacts recovered by trowelling was recorded at 1:20 within the test-pit by spit. One section of each test-pit was photographed and drawn at 1:20. The position of each test-pit was located with reference to the 0S 1:2500 map by EDM survey (Figure 12).

3.3 MACHINE EXCAVATED AREAS

As a supplement to the test-pitting, ten machine stripped trial trenches around selected test-pits were excavated to ascertain whether artefact scatters were related to nearby features and to investigate sub-soil stratigraphy.

3.3.1 Artefect Concentrations

The trial trenches were created by removing topsoil from an area up to 3m x 8m immediately around the ten test pits producing the greatest quantity of finds (Figure 12). Topsoil was removed by a JCB with a toothless ditching bucket and the exposed subsoil surface hand cleaned. In the event, archaeological features were identified in only one of the machine stripped areas, that around test-pit 16. Here, a narrow, linear, V-section, north-east - south-west gulley (Figure 16) cut into the silty sand subsoil. A 1m cutting at the north-eastern end of the gulley was hand excavated, but produced no finds. The gulley is interpreted as a modern feature, perhaps associated with the similarly aligned land-drains identified in some test-pits.

3.3.2 Subsoil stratigraphy

In addition, test pit results indicated two layers of stratigraphy beneath the topsoil, a layer of orange-brown very sandy clay to sandy clay loam and a layer of red-brown silty clay. The distribution of these two deposits appeared uneven across the area examined (Figure 16). Two trial pits were utilised to ascertain the character of and relationship between these two layers of stratigraphy, one placed over a test-pit containing purely red-brown silty clay under the topsoil (22), the second over a test-pit containing orange-brown very sandy clay to sandy clay loam under the topsoil (14). The results indicate that the orange-brown sandy clay overlies the red-brown silty clay, which is the weathered surface of the till deposits identified in boreholes. The origin of the sandy clay is uncertain, but it occurs in frequent, irregular hollows in the surface of the till.

An additional a machine excavated trial pit (31) was positioned close to the Rearsby Brook in order to investigate the depth and character of alluvial deposits. A JCB with toothless ditching bucket excavated to a depth of approximately 3m. The section revealed could not be drawn due to the Health and Safety implications of a pit at this depth, however a photographic record was made of each section and is held in archive. An homogenous clayey alluvium overlay till deposits. No traces of organic material were noted in the alluvium.

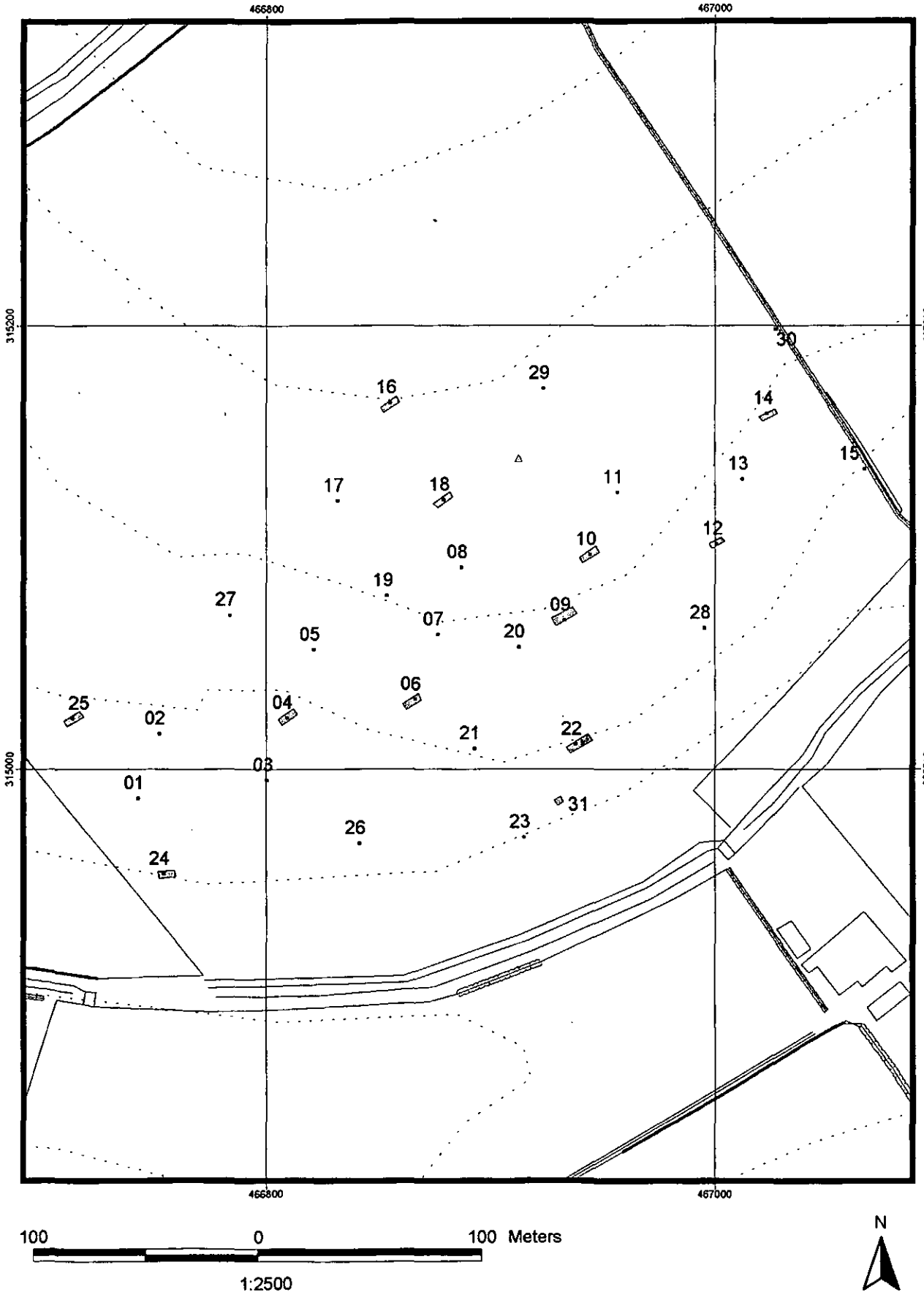

Figure 12: Plan showing the location of test-pits (numbered in order of excavation) and machine-stripped areas around test-pits.

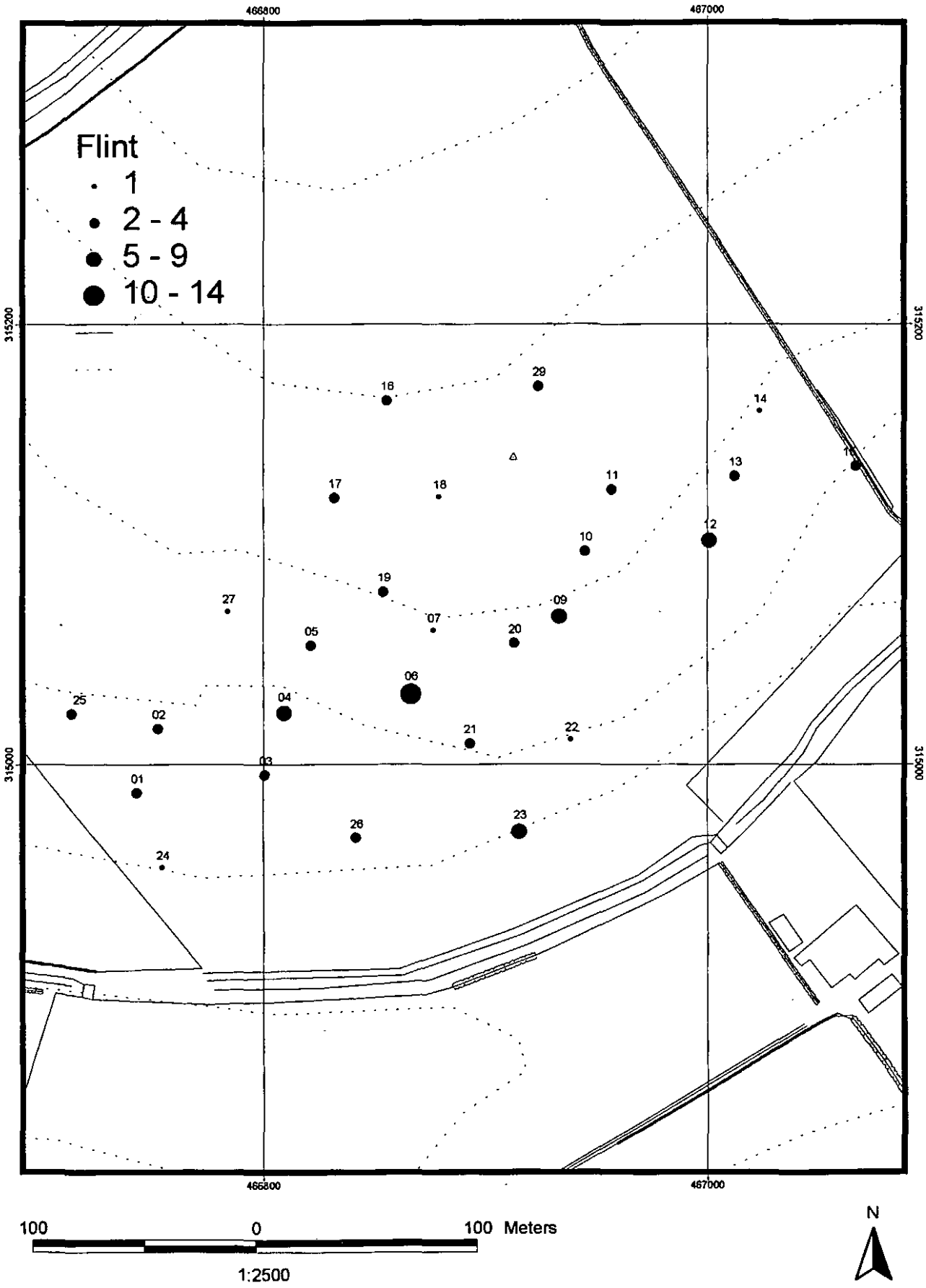

Figure 13: Plan showing the quantity of flint from each test-pit indicated by proportional circles.

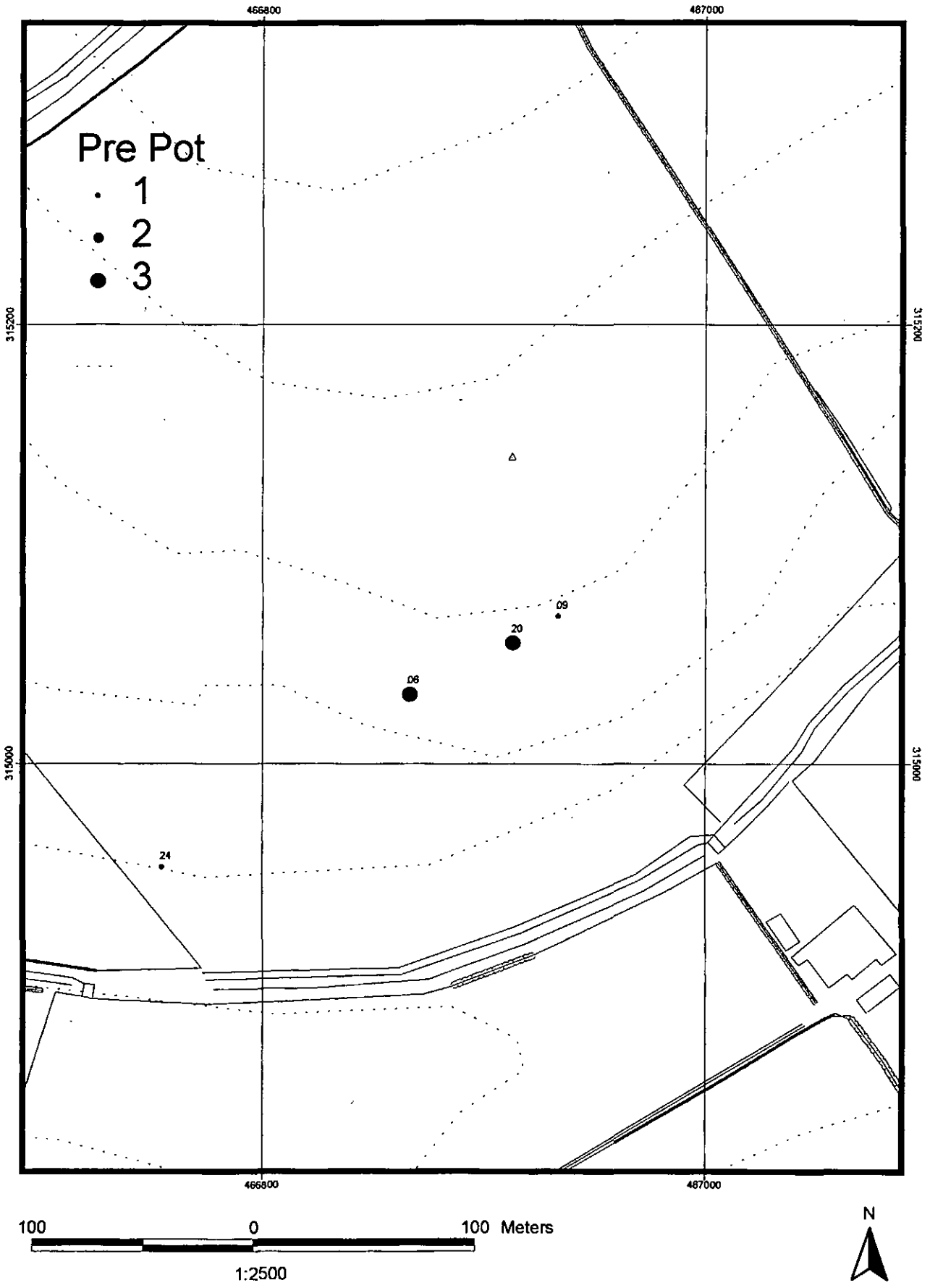

Figure 14: Plan showing the quantity of handmade pottery from each test-pit indicated by proportional circles.

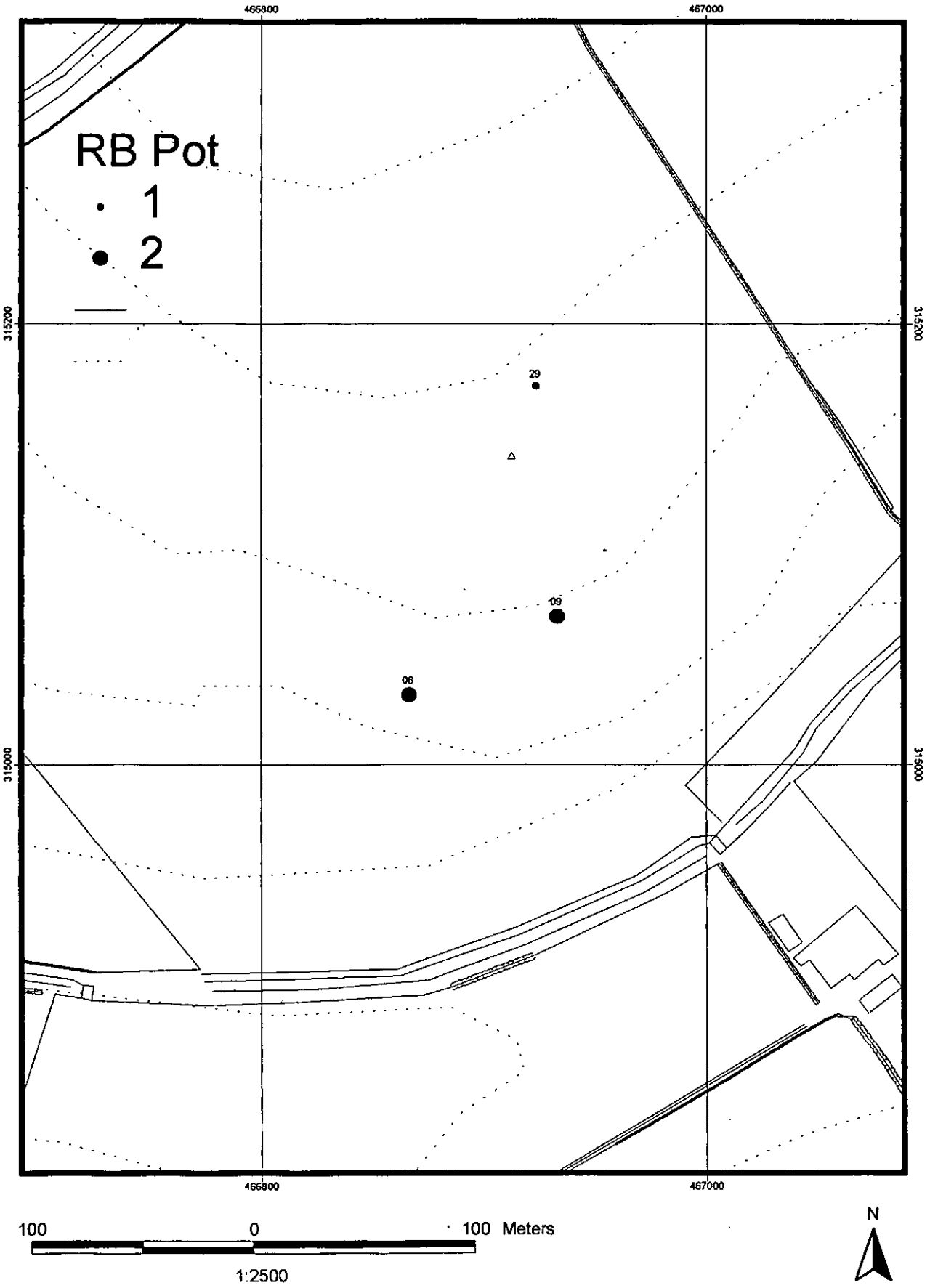

Figure 15: Plan showing the quantity of greyware, possibly of Romano-British date, from each test-pit indicated by proportional circles.

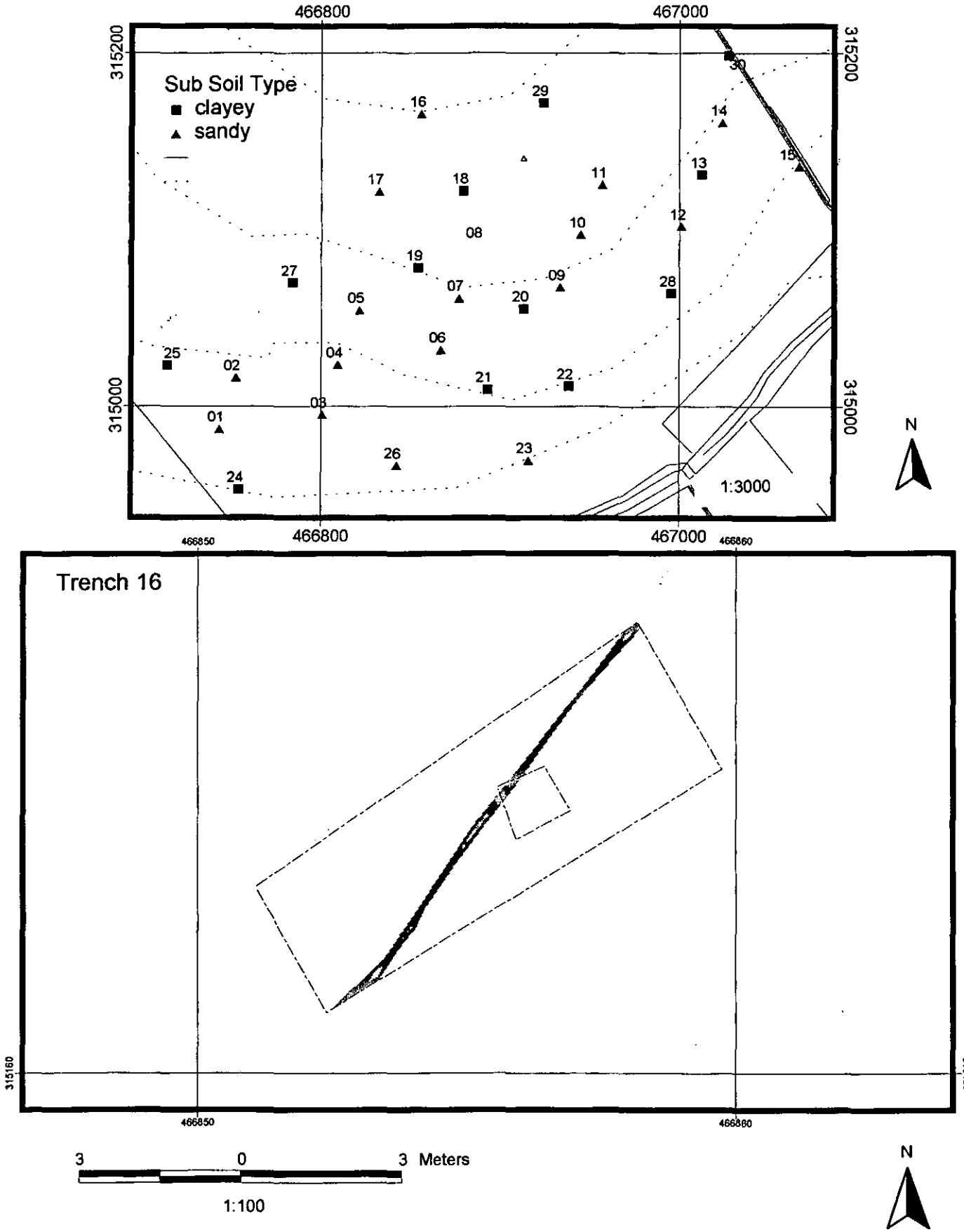

Figure 16: Plans showing the character of the subsoil in each test pit (top) and plan of machine stripped area around test-pit 16 showing linear gulley (bottom).

3.4 FLINT

By J. Brown and D. Garton

3.4.1 General comments

92 pieces of flint were recovered from test-pits and trenches, of which 15 were judged not to have been humanly-modified. There is also a substantial amount of damage to many pieces, presumably as a result of ploughing, and a number of other pieces may also result more from this agency than from human modification.

The collection consists almost exclusively of good quality translucent flint, ranging in colour from honey through brown and black to grey. A few pieces are quite heavily corticated, although damage to them shows that they are of the same translucent flint. Where cortex is present it is water-worn and abraded, and often stained orange or brown, indicating a source derived from a river deposit. The size of the pieces suggests that they are made from small nodules of flint, again consistent with reworking by river action. The raw materials used are macroscopically indistinguishable from those seen regularly in collections made in and around the Trent Valley in Nottinghamshire. Such collections are considered to have as their source the gravels of the Trent Valley and related drift deposits (Henson, 1989, 11). At Brooksby deposits of sands and gravels have been exposed as the River Wreake has cut down through the boulder clay; it is most probable that these are the source of the flint in this collection although the author has not seen them.

The debitage consists mostly of chunks and small flakes with nothing distinctive about them. However there are two blades (BFC and AKE), three fragments considered to be from blades (BFD, ARV and AUG), and a single-platform core with platform preparation by abrasion from which blades have been removed (AOE); all except AKE are heavily corticated. There is also a small exhausted core (AXG) which appears to have had small squat flakes as last removals from it.

Blade AKE has been obliquely truncated, but there are no other formal tools. Miscellaneous retouched pieces ATA and AUA may represent unfinished stages in tool-making. ATA is a thermal, large for the collection, with a very few bold removals around parts of the margin; AUA looks like an attempt to make a bifacial piece, which was abandoned.

AOG was recovered from subsoil deposits and has been described as an "unclassified piece". Had it been found in the topsoil it may have been classified as "plough bashed", and it is still possible that this is the correct description. It is a small flake from which large removals, relative to the size of the piece, have been made, although the removals would have been very modest, no more than 15mm long or broad.

3.4.2 Dating

It would appear that the collection demonstrates flintworking at two different times, with the corticated pieces representing an earlier period of activity. There is nothing diagnostic about them, but they are visually different from the rest of the collection and all were recovered from well down in the subsoil. They are best associated with blade technology and would be consistent with production in the Mesolithic/Early Neolithic.

If oblique truncation AKE belongs with them this might suggest that a date in the Mesolithic is most probable.

The two miscellaneous retouched pieces (ATA and AUA) are most probably from a later period, perhaps in the Late Neolithic/Early Bronze Age. Such informal tools are often seen at this time, and they were recovered from later deposits in the topsoil.

The rest of the collection is nondescript and could be found at any period. The use of small nodules of flint would almost certainly restrict the knapping techniques, which could be used, making differentiation between periods of activity even more difficult. Small, squat flakes may be considered to be typical of the Late Neolithic onwards, but may also be employed in the Late Mesolithic for the production of narrow-blade microliths. Calculation of length:breadth ratios and comparison with data collected from a range of sites in southern Britain (Pitts, 1978, 194) shows a best correlation of this collection with the Late Neolithic and later. However it is a very small collection and no great reliance can be placed on any statistics based on such modest amounts of data. Most of the collection must remain undated.

3.4.3 Distributions

Nearly all of the 30 test-pits produced a small amount of humanly modified flint, although only one or two pieces were recovered from most (Figure 13). Test-pits 06 and 23 were most fruitful, producing 8 and 9 pieces respectively, with four additional pieces from a trench over test-pit 06. Flint densities from test-pits can only be interpreted with any confidence where comparable studies followed by excavation have taken place in the vicinity. None were available here, but a similar exercise in the Peak District of Derbyshire seems to suggest that densities greater than 4 flints per test-pit can be significant (Garton, unpublished). As sieving was not possible at Brooksby, this will almost inevitably mean that the recorded densities under-represent the flint present within the soils, and therefore those pits with higher densities may represent significant clusters of material.

All of the pieces suggested as possibly Mesolithic are found in what may be seen as a slight concentration around test-pits 10, 11 and 20, with 15 and 16 as outliers. The total number of humanly modified pieces from these five test-pits totals only 13: three from pits 10, 15 and 20; two from pit 11; and one from pit 16. Only eight are certainly from subsoil deposits. Whilst this seems a very small number of pieces from which to extrapolate the presence of a possible Mesolithic site, the character of many flint scatters of this period makes this a reasonable suggestion. Mesolithic, and also Early Neolithic, scatters can be very tightly clustered, often contained within an area perhaps only 5 metres in diameter. Test-pits on a twenty-five metre grid, as conducted at Brooksby, have a very small chance of locating any such clusters; larger sites with a wider spread of material should be more readily detected. The discovery of Mesolithic material is therefore of potentially greater significance than the number of pieces recovered might indicate.

3.5 HANDMADE POTTERY

By David Knight

Ten handmade sherds were recovered from the site, from test-pits 06 (3 sherds: AFG,AFH,AFJ), 09 (1 sherd: BFA), 20 (3 sherds: AUF,AUH,AUI) and 24 (1 sherd: AYR). Two other sherds of uncertain provenance may also derive from test-pit 06 (AFM, AFR). The majority of the pottery derived from a restricted area located towards the centre of the evaluation area, centred upon test-pits 06 and 20 (Figure 14). Sherds AFG, AFH, AFJ, AUF, AUH, AUI and AYR derived from the subsoil, from depths of 15-43cm beneath ground level. The depths of the remaining sherds are unknown.

The sherds derive from a range of moderately fine to coarse sandy wares. No attempt has been made to define separate fabric groups in view of the very small sample size, and it must suffice at present to note the range of variability. The sherds incorporate mainly sparse (3-10%) to moderate (11-20%) medium (0.25-1mm), coarse (1-3mm) or very coarse (>3mm) quartz and quartzite, up to a maximum of *c.*5mm diameter, occasionally (BFA) with sparse grey angular inclusions up to *c.*3mm which might represent grog, are predominantly soft with a sandy texture and hackly fracture, and are irregularly fired (surface colours ranging from black through grey, brown, buff and orange). All sherds appear to derive from handmade vessels, but the small size of some fragments prevents positive identification of the method of manufacture. They comprise mainly small body sherds, plus a flat base fragment (AUF) and base angle (AUI) from test-pit 20 and a small direct rounded rim from test-pit 06 (AFG). Insufficient survives of each vessel for the profile to be constructed.

None of the sherds is closely datable. The rim-sherd, AFG, is characterised by a hard sandy fabric, irregularly fired but predominantly black to grey in colour, which invites comparison with Saxon coarse pottery from the region - although insufficient evidence is available to permit firm dating to this period. Several other sherds of similar fabric have been recorded (AFH, AFM), and hence could conceivably also date from the Saxon period - but further evidence is required before we could establish beyond doubt the presence of Saxon activity. The remainder of the pottery would fit most comfortably within a first millennium BC context, but more precise dating is not possible.

Further excavation, aimed at retrieving significantly larger quantities of pottery, is required before more precise dating may be attempted. On current evidence, however, there are sufficient grounds to suggest later prehistoric and possibly Saxon activity within the boundaries of the evaluation area. Further more detailed analysis of the fabrics is also recommended, including thin-sectioning to characterise more precisely the inclusions and to establish the possible raw material sources.

3.6 CERAMIC FINDS

By R.S. Leary

Most of the ceramic debris is post-Mediaeval pottery and brick fragments. A small number of grey ware sherds were identified but these may be post-Roman in date and

were undiagnostic in fabric and form (Figure 15). One sherd, BDH, despite being very abraded could be confidently compared with a "native" ware dating from the 1st century AD and continuing as late as the second century in some areas.

4 TRIAL EXCAVATION

By Jon Coward (ULAS)

4.1 AIMS

The trial excavation was undertaken with three main aims:

1) To examine an area of the enclosure complex to gather information about the survival and condition of the archaeological deposits.

2) To sample the area downslope of the enclosures. Any colluvial cover on this slope might be masking archaeological features, preventing their detection by magnetic or fieldwalk survey techniques.

3) To follow up any significant geophysical anomalies detected after the completion of further magnetic survey in the area near Spinney Farm.

4.2 METHODOLOGY

The trial trenching was carried out during May 2000. There was a cereal crop at knee height in field 4 at the time of the evaluation, and it was necessary to fit the trenches between regular 'tramlines' in this field which were in use for agricultural machinery.

One 20 x 3m trench (A) was opened in the enclosure complex in Field 4, positioned to pick up two converging linear anomalies detected by gradiometer orientated southwest – northeast in the enclosure complex (Figures 17 and 18). No survey pegs from the gradiometer survey could be located, so it was laid out by measuring down the hedgeline from the northern corner of the field, and then out at a right angle, duplicating the set-out for the geophysical survey. Locating trenches onto bitmapped geophysical anomaly data is often an inexact science, and it should be noted that illustrated trench position in relation to the anomaly position is a retrospective 'best fit'.

Two 3 x 50m trenches were opened (B and C) running along the slope further down the field towards the brook. The tramlines necessitated segmenting the trenches, but a minimum of 50m was stripped along each line. No convincing geophysical anomalies had been detected in the magnetic survey near Spinney Farm, and two further trenches (D and E) were opened in the flat land adjacent to the brook to check on the presence or absence of buried land surfaces under alluvial cover.

Topsoil and subsoil were stripped in spits to an appropriate level using a toothless ditching bucket on the back actor of a JCB. Where archaeological features were noted or suspected, the exposed surface was hand cleaned. A sample of archaeological features was excavated. Where archaeological features were present, scale drawings were made. Trenches were recorded on pro-forma sheets, and where archaeological features present a baulk section drawn. Although no archaeological features were noted in trench E, this was planned and a baulk section drawn as it exhibited complex geological stratigraphy. The position of all trenches was surveyed by EDM.

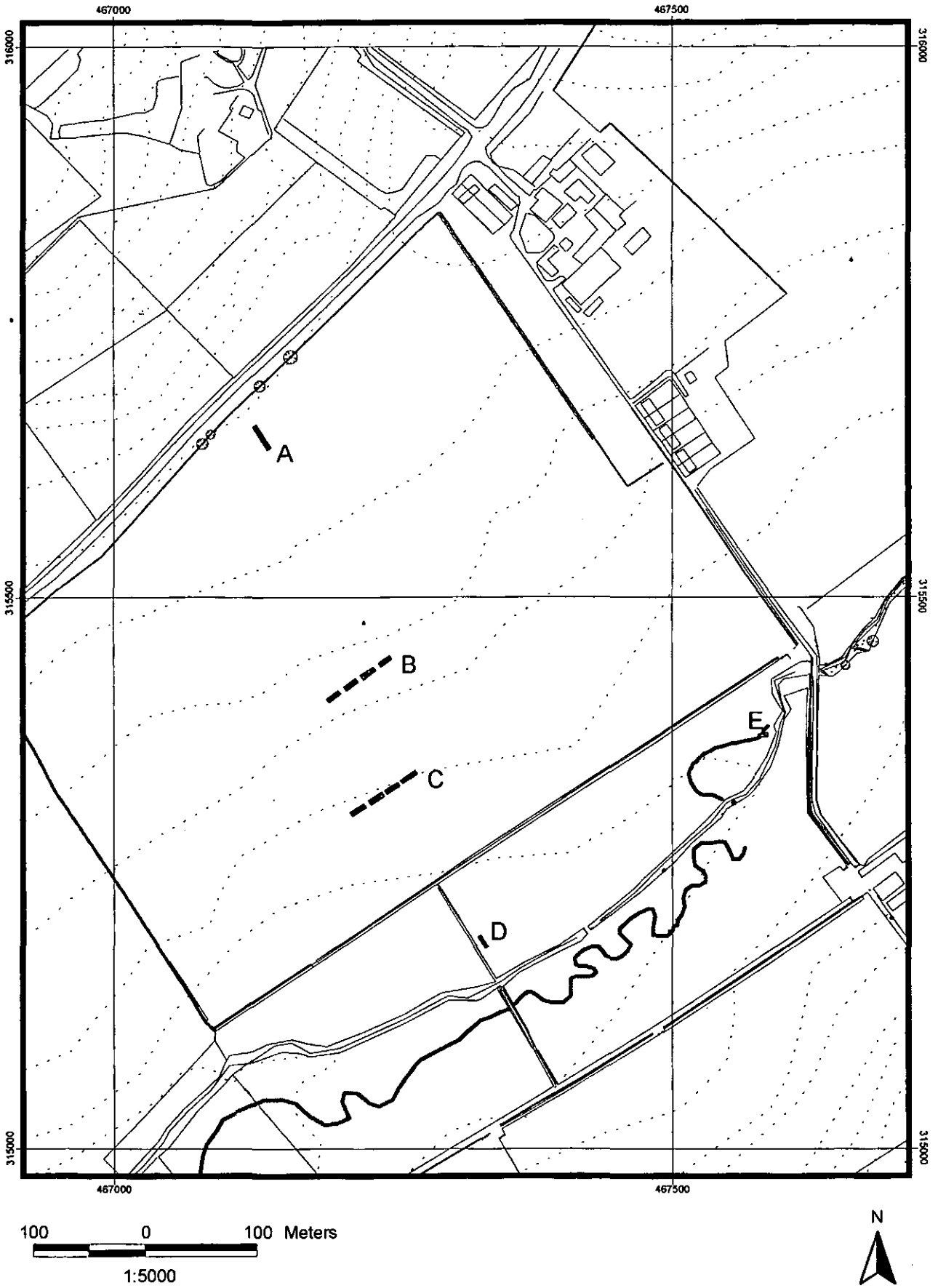

Figure 17: Plan showing the locations of trial trenches A - E.

4.3 RESULTS

4.3.1 Trench A

Trench A was started from the north-west end (Figures 19 and 20). A well-defined topsoil was removed and the subsoil cautiously taken down, becoming mixed and clayish lower down. Excavation was halted at 0.8m - 0.9m as it was thought that below this depth it would be unlikely for the gradiometer to have picked up such well-defined anomalies. The trench was stepped up at approximately 6.5m from the north-west end when a concentration of definite charcoal fragments gave rise to the suspicion that the trench might be in the middle of a large feature. From this point on, the trench was stripped at a depth of approximately 20cm below topsoil/subsoil interface to see if features would appear at this level. The ditches running across the trench proved reasonably visible on stripping, the gully feature parallel to the long baulk less so.

Topsoil: Dark orange brown. Clay loam. Friable. Frequent small pebbles, frequent charcoal and coal/lignite fragments. The interface between topsoil and subsoil was unusually sharp.

Subsoil: Light orange brown. Silty clayish sand overall, but in places discrete areas of predominantly sandy or clayish soil present.

Natural: Again this was mixed, being a beige silty clay in parts, also present a gravelly sand with iron and manganese panning.

Area: 72.5m^2

4.3.2 Features in Trench A

4.3.2.1 Ditches c2, c4, c7

These three linear features were intercutting and ran transversely across the trench. The west side fill was clear against the subsoil from the north to the south, but the fills could not be distinguished from each other in plan (cut c11, fill c8).

In section, ditch cut c2 (fill c1) was the largest and truncated fill c5 from ditch cut c7. The excavator was confident that it also truncated fill c3 in ditch cut c4, and it is illustrated in section as doing this; however the relationship was far from obvious and the profile shape could suggest alternatives.

Finds from fill c1 (cut c2) were pot and one fragment of burnt 3rd flake. The pot is undiagnostic prehistoric (from any date between Late Bronze Age through Iron Age) and Romano-British (single dateable sherd being late third/fourth century). The lower fill (c6) of ditch cut c7 contained two flint pieces only.

4.3.2.2 Gullies c10, c11

Gully cut c11 (fill c8) ran down the edge of the south-west baulk and only one side of this feature was visible. Its depth was approximately 0.30m. No relationship to the

Figure 18: Plan showing the location of trench A in relation to the gradiometer survey anomalies.

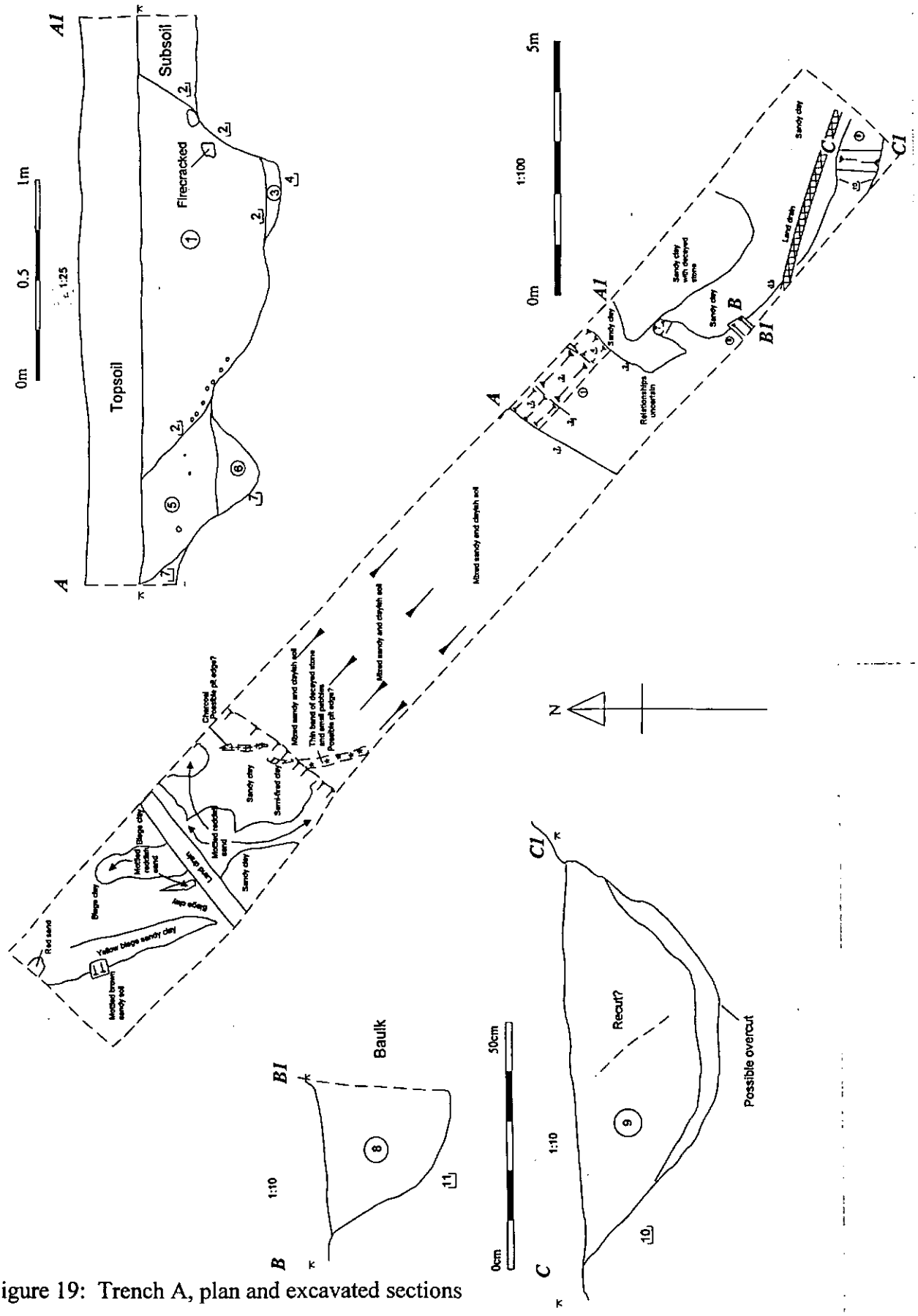

Figure 19: Trench A, plan and excavated sections

transverse ditch fills could be discerned, though it may be significant that it did not re-appear on the far side of them. It was stratigraphically divorced from the similar gully c10 (fill c9) to the south by a ceramic land drain. Finds in fill c8 were very similar to ditch fill c1

Curvilinear gully cut c10 was 0.80m in width and 0.30m in depth, and ran into the south-east baulk. A section excavated in this revealed a possible re-cut. Of interest in the fill c9 was the presence of several pieces of slag.

4.3.2.3 Other features in Trench A

Within the area of Trench A examined it is uncertain what the sediments excavated at the deeper north-west end of the trench represent. There was a selection of discrete mixes of sands and clays of differing colours, many of which contained common tiny black fragments. In fact no part of the base of the trench as excavated demonstrated a convincingly undisturbed natural, with charcoal together with lignite and/or coal fragments present throughout. Some of these appeared to be charcoal whereas others had a more granular feel to them as in coal or lignite. The baulk sections were also unhelpful. One possible feature may be represented by a thin band of definite charcoal, adjacent to a small deposit of decayed semi-fired clay. It was seeing this which prompted the decision to strip at a higher level. A thin (*c.*5cm) discontinuous band of tiny pebbles and decayed stone at the higher level may also define an edge of this putative feature. A small investigation of the charcoal revealed it sloping down to the east, implying that any pit fill was on that side, but no evidence for this could be found in the long south west facing baulk section.

4.3.3 Trench A: Finds

4.3.3.1 Pottery (Patrick Marsden, ULAS)

Fabric classes based on Pollard 1998 and Marsden 1998

Context	Sherd No.	Wt(g)	Fabric	Date
1	2	17	Q2	Late Bronze Age-Iron Age
1	2	21	GW	Roman
1	1	32	MO4	Roman
1	1	27	C2	Late 3rd-4th century
8	2	52	C2	Late 3rd-4th century
8	2	14	GW	Roman
8	1	2	Q2	Late Bronze Age-Iron Age
9	3	34	GW	Roman
U/S TRN A	3	11	Q2	Late Bronze Age-Iron Age
U/S TRN A	1	8	C2	Late 3rd-4th century
TOTAL	18	218		

The pottery includes six sherds weighing 30g of handmade prehistoric pottery. This is of a broad late Bronze Age-Iron Age date. There are also twelve sherds of Roman pottery weighing 188g. The dateable material consists of colour-coated vessels of the late third to fourth centuries.

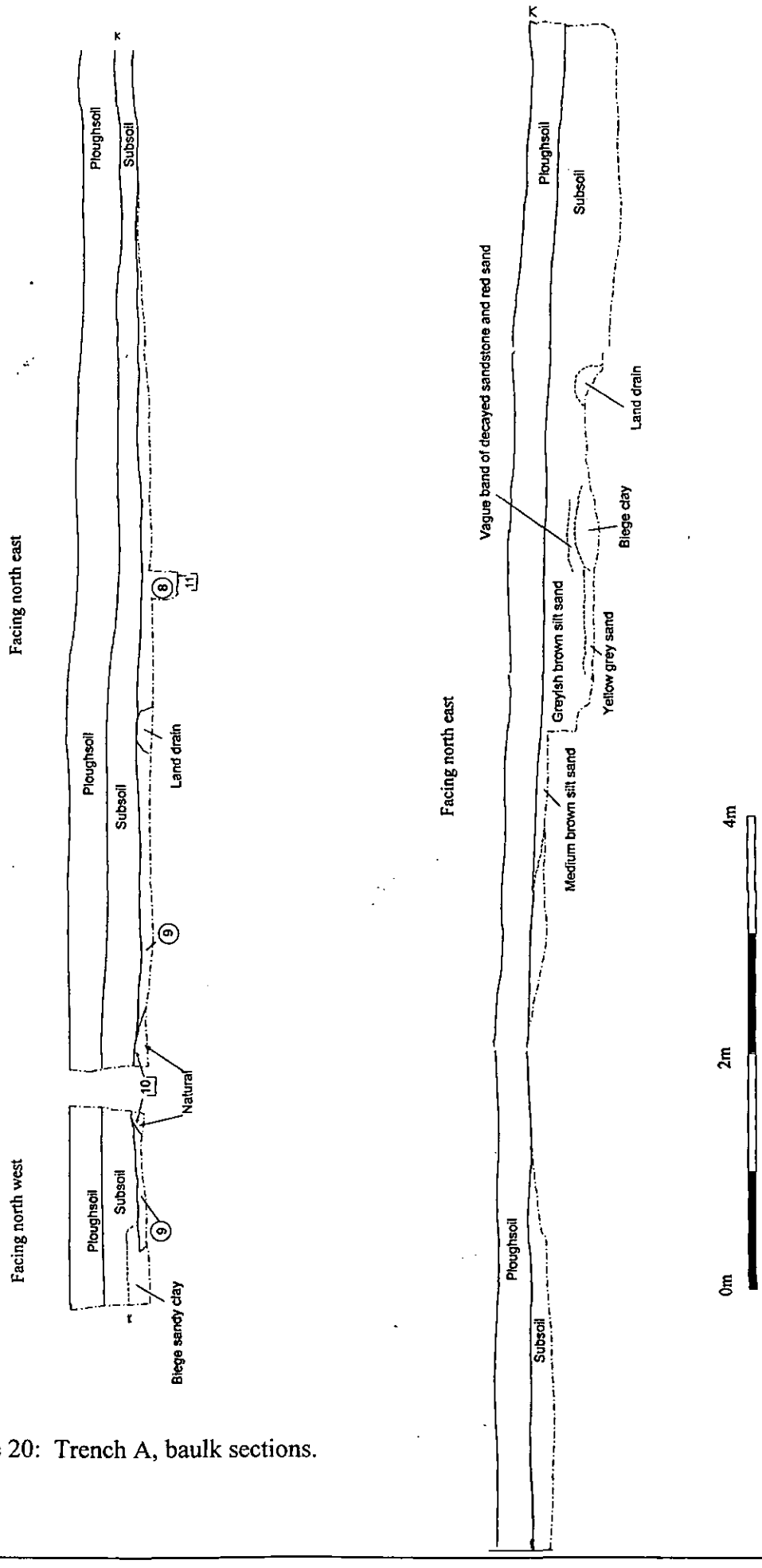

Figure 20: Trench A, baulk sections.

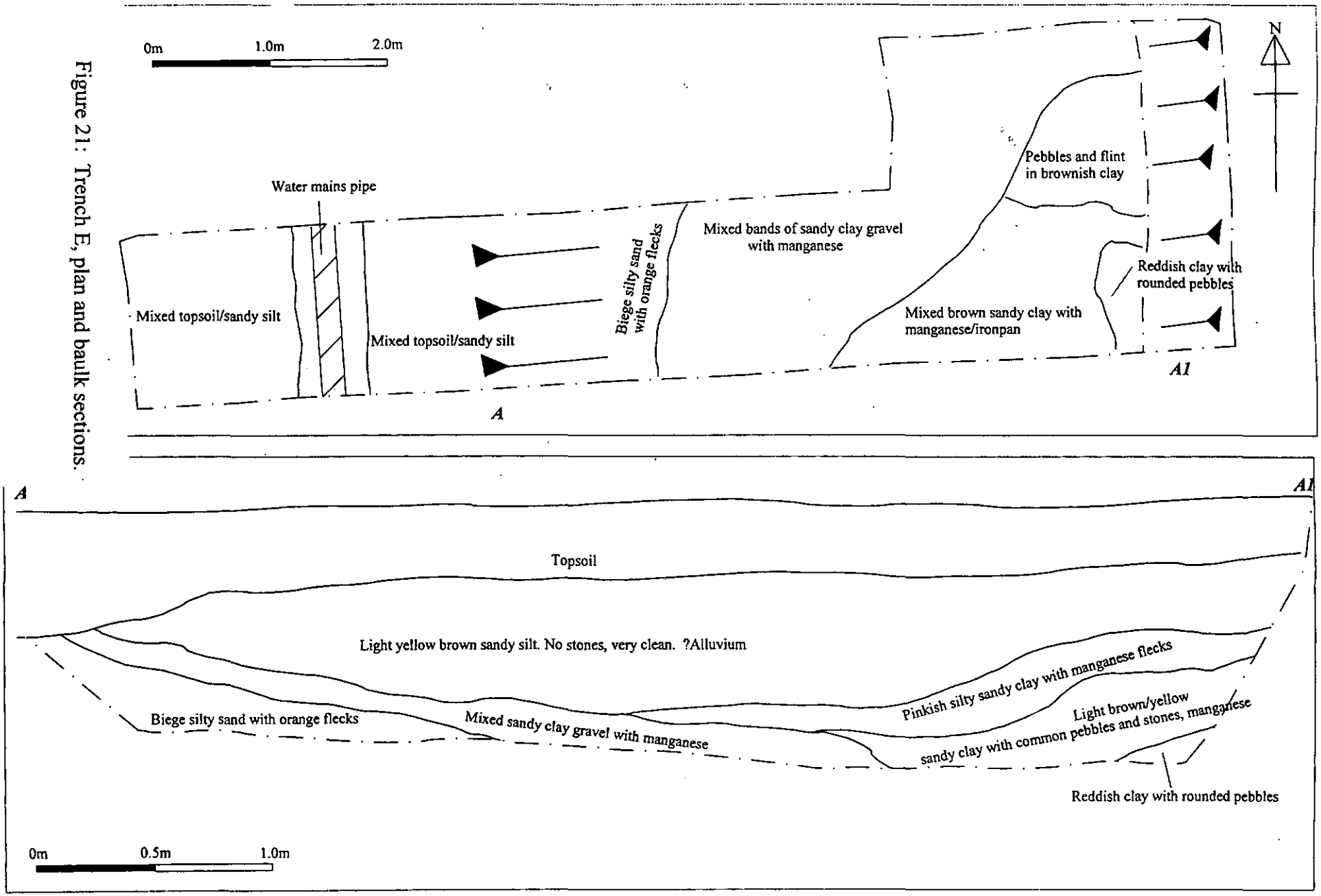

Figure 21: Trench E, plan and baulk sections.

Context 8 also produced one piece of ceramic building material, probably Roman tile.

4.3.3.2 Lithics (Lynden Cooper, ULAS)

Context no	Piece no	Description	Context description
1	1	Burnt 3rd flake frag	Ditch fill
6	2	Burnt chunk	Primary ditch fill
6	3	3rd flake	
8	4	chunk	Gully fill
8	5	notched flake	
U/S	6	notched chunk	

The assemblage is too small and undiagnostic to be dateable, but the working is of poor quality and is consistent with a later prehistoric date.

4.3.3.3 Industrial residues (Dr G C Morgan, School of Archaeological Studies)

166 g of slag was recovered from ditch cut 10, fill c9. This is vesicular fayacite and slagged/vitrified fired clay, probably hearth slag from iron working. One piece accounted for 104g of the overall weight and could possibly be iron extraction slag.

4.3.4 Trench B

Topsoil: Dark orange brown, friable. Silty sandy clay.
Subsoil: Medium pinkish brown, friable. Silty sandy clay. Moderate small pebbles.
Natural: Dark reddish brown clay with common small and medium pebbles

Area: 147.8m^2

The metre intervals are given from the south-west end as though no gaps existed: each trench segment has two readings.

Metres interval	0	7	14	21	28	35	42	53
Topsoil depth	0.26	0.36	0.30	0.30	0.37	0.40	0.22	0.30
Subsoil depth	0.39	0.49	0.46	0.46	0.54	0.52	0.26	0.32
Trench base	0.39	0.49	0.46	0.46	0.54	0.52	0.26	0.32

No finds or features were noted in Trench B. There was no sign of colluvial cover. Plough furrows running north-northwest south-southeast were present.

4.3.5 Trench C

Topsoil: Dark orange brown, friable. Silty sandy clay
Subsoil: Medium pinkish brown, friable. Silty sandy clay. Moderate small pebbles.
Natural: Dark reddish brown clay with common small and medium pebbles. More silty/sandy patches towards the south-west end

Area: 167m^2

The metre intervals are given from the south-west end as though no gaps existed: each trench segment has two readings excepting the last segment which has three.

Metres interval	0	7	14	21	28	35	42	49	55
Topsoil depth	0.25	0.30	0.30	0.30	0.25	0.35	0.34	0.30	0.30
Subsoil depth	0.35	0.45	0.40	0.52	0.38	0.40	0.36	0.38	0.33
Trench base	0.35	0.45	0.40	0.52	0.38	0.40	0.36	0.38	0.33

No finds were noted in Trench C. The sandy/silty patches at the south-west end were investigated, but appeared not to be archaeological in origin. There was no sign of colluvial cover. Plough furrows running north-northwest south-southeast were present.

4.3.6 Trench D

Trench D was positioned in the valley bottom, to check on the presence or absence of a buried land surface. On the experience of trench E, which was machined first, it was decided to move away from the brook into an area which would demonstrate alluviation but hopefully not be directly disturbed by the stream channel.

Topsoil: Dark brown silty sand, friable. Occasional small stones
Subsoil: Medium brown sandy silt, occasional small pebbles
Natural: Mixed clayish sand with abundant medium and large pebbles, mostly rounded, up to 25cm.

Area: 36.5m^2

The metre intervals are given from the north north-west end.

Metres interval	0	5	10	12
Topsoil depth	0.30	0.30	0.30	0.30
Subsoil depth	0.65	0.70	0.70	0.65
Trench base	0.73	0.75	0.75	0.70

No finds or features were noted in Trench D. The subsoil was deep and very homogenous, and looked alluvial despite the presence of occasional small pebbles. There was no sign of any buried soil profile in the trench.

4.3.7 Trench E

No table of topsoil/subsoil/natural depths is given here as it would not be informative. Due to the presence of complex deposition, presumably relating to a previous channel of the river adjacent, the entire long baulk section facing north was drawn, and reference should be made to this illustration (Figure 21).

This trench was positioned to check on the alluviated valley base and in particular to establish the presence or absence of any buried land surface. The trench was started with a width of 3m, but was narrowed. A modern cut was apparent at the base of the topsoil at the west end of the trench; careful machining revealed a modern water main and the machining halted.

Topsoil: Dark brown sandy silt, friable. Occasional stones. Appeared to deepen at west end, perhaps due to modern truncation of subsoil.
Subsoil: Light yellow brown sandy silt, friable. No stones, and generally very clean and homogenous. Alluvium?
Natural: See illustrations.

Area: 17m^2

No finds were noted in trench E, or archaeological features. No buried land surface was observed. The complicated series of differing geologies at the base are most likely due to fluvial processes of deposition and scouring.

4.4 CONCLUSIONS AND DISCUSSION

Evaluation trench A has demonstrated that archaeological features represented by the geophysical anomalies are present, and that they are surviving to a level slightly below modern topsoil. The unusually sharp and clean delineation between the present topsoil and subsoil suggests that modern plough damage may be minor. The extent of medieval plough damage has not been demonstrated; there was no sign of furrow in the trench, but as the ridge and furrow runs parallel to it, this may be fortuitous. Nevertheless, it seems clear that under the ridges at least, preservation could be good.

Stratigraphic relationships between features exist, but the evaluation encountered considerable difficulty in defining these in plan, and only slightly less in section. The ditch fills were deliberately machined hard in a largely fruitless attempt to aid definition; any future area stripping may need to allow time to see if deposits weather out.

The finds demonstrate a long occupation span, at its narrowest late prehistoric to late third century AD, whether continuous or not. The wide date range of finds in ditch fill c1 implies considerable residuality and/or intrusion. Whereas this wide range could be seen as a result of misinterpretation of the stratigraphy, this is less likely to be the case for gully fill c8 which exhibits a similar trait. The presence of slag in fill c9 attests to ironworking on-site, and may be connected with the probable Romano-British ceramic building material, semi-fired clay, and charcoal . Considering the relatively small volume of fill excavated, the number of finds recovered demonstrate that a considerable assemblage may survive within the entire complex.

No finds, features or colluvial cover was noted in either trench B or C.

In the event , no significant anomalies were detected. Instead, trenches D and E provided an examination of the valley base. Neither demonstrated a buried soil

horizon such as that noted in the stream bank *c.*200 m to the south west, and so it can be inferred that this paleosol is either localised or discontinuous.

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APPENDIX 1: CATALOGUE OF FINDS FROM TEST-PITS

TP	Findcode	Material	Form	Period
	BFH	POT	GREY WARE SHERD	ROMANO-BRITISH
1	AAA	FLINT	FLAKE	PREHISTORIC
	AAB	GLASS	FRAGMENT	MODERN
	AAC	POT	SHERD	MEDIEVAL
	AAD	METAL	FRAGMENT	MODERN
	AAE	FLINT	BLADE	PREHISTORIC
	AAF	FLINT	FLAKE	PREHISTORIC
2	ABA	FLINT	NATURAL	PREHISTORIC
	ABB	POT	SHERD	POST MEDIEVAL
	ABC	FLINT	PLOUGH-BASHED FLAKE	PREHISTORIC
3	ACA	POT	SHERD	POST MEDIEVAL
	ACB	FLINT	NATURAL	PREHISTORIC
	ACC	POT	SHERD	POST MEDEIVAL
	ACD	POT	SHERD	POST MEDEIVAL
	ACE	FLINT	NATURAL	PREHISTORIC
	ACF	POT	SHERD	POST MEDEIVAL
	ACG	POT	SHERD	POST MEDIEVAL
	ACH	FLINT	FLAKE	PREHISTORIC
	ACI	PLASTIC	FRAGMENT	MODERN
	ACJ	BRICK	FRAGMENT	POST MEDIEVAL
4	ADA	FLINT	NATURAL	PREHISTORIC
	ADB	FLINT	NATURAL	PREHISTORIC
	ADC	FLINT	NATURAL	PREHISTORIC
	ADD	BRICK	FRAGMENT	POST MEDIEVAL
	ADE	FLINT	NATURAL	PREHISTORIC
	ADF	FLINT	NATURAL	PREHISTORIC
	ADG	POT	SHERD	POST MEDEIVAL
5	AEA	POT	SHERD	POST MEDIEVAL
	AEB	FLINT	CHUNK	PREHISTORIC
	AEC	POT	SHERD	POST MEDIEVAL
	AED	POT	SHERD	POST MEDEIVAL
	AEE	POT	SHERD	POST MEDIEVAL
	AEF	POT	SHERD	POST MEDIEVAL
	AEG	FLINT	FLAKE	PREHISTORIC
6	AFA	POT	SHERD	POST MEDEIVAL
	AFB	POT	SHERD	MODERN
	AFC	POT	SHERD	MODERN
	AFD	FLINT	NATURAL	PREHISTORIC
	AFE	FLINT	NATURAL	PREHISTORIC
	AFF	FLINT	FLAKE	PREHISTORIC

6	AFF	MISSING		
	AFG	POT	SHERD	PREHISTORIC
	AFH	POT	SHERD	PREHISTORIC
	AFI	POT	GREYWARE BODYSHERD	ROMANO-BRITISH
	AFJ	POT	SHERD	PREHISTORIC
	AFK	FLINT?	FLAKE	PREHISTORIC
	AFL	FLINT	FLAKE	PREHISTORIC
	AFM	POT	SHERD	PREHISTORIC
	AFN	FLINT	FLAKE	PREHISTORIC
	AFO	FLINT	FLAKE	PREHISTORIC
	AFP	FLINT	FLAKE	PREHISTORIC
	AFQ	FLINT	FLAKE	PREHISTORIC
	AFR	POT	SHERD	PREHISTORIC
	AFS	FLINT	PLOUGH-BASHED FLAKE	PREHISTORIC
	AFT	POT	GREYWARE BODYSHERD	ROMANO-BRITISH
	BFA	POT	SHERD	PREHISTORIC
	BFI	FLINT	FLAKE	PREHISTORIC
	BFJ	FLINT	CHUNK	PREHISTORIC
	BFK	FLINT	FLAKE	PREHISTORIC
	BFL	FLINT	FLAKE	PREHISTORIC
7	AGA	FLINT	FLAKE	PREHISTORIC
	AGB	POT/TILE	GLAZED FRAGMENT	POST MEDEIVAL
	AGC	POT	SHERD	POST MEDEIVAL
	AGD	CERAMIC	OXIDISED SCRAP	NOT DATED
8	AHA	POT	SHERD	POST MEDEIVAL
	AHB	POT	SHERD	POST MEDEIVAL
9	AIA	FLINT	FLAKE	PREHISTORIC
	AIB	FLINT	FLAKE	PREHISTORIC
	AIC	POT	SHERD	POST MEDEIVAL
	AID	POT	SHERD	POST MEDEIVAL
	AIE	POT	SHERD	POST MEDEIVAL
	AIF	FLINT	NATURAL	PREHISTORIC
	AIG	FLINT	CHUNK	PREHISTORIC
	AIH	SLAG	FRAGMENT	NOT DATED
	AII	POT	SHERD	POST MEDEIVAL
	AIJ	FLINT	FLAKE	PREHISTORIC
	AIK	FLINT	FLAKE	PREHISTORIC
	BFB	FLINT	FLAKE	PREHISTORIC
10	AJA	POT/BRICK	FRAGMENT	POST MEDIEVAL
	AJB	BRICK/TILE	FRAGMENT	POST MEDIEVAL

	AJC	CERAMIC	OXIDISED SCRAP	NOT DATED
	AJD	POT	SHERD	POST MEDEIVAL
	AJE	BRICK	FRAGMENT	POST MEDIEVAL
	AJF	CERAMIC	OXIDISED SCRAP	NOT DATED
	AJG	FLINT	CHUNK	PREHISTORIC
	BFC	FLINT	BLADE	PREHISTORIC
	BFD	FLINT	INDETERMINATE F/B	PREHISTORIC
	BFF	FLINT	FLAKE	PREHISTORIC
11	AKA	FLINT	PLOUGH-BASHED CHUNK	PREHISTORIC
	AKB	POT	SHERD	POST MEDEIVAL
	AKC	POT	SHERD	POST MEDEIVAL
	AKD	FLINT	CHUNK	PREHISTORIC
	AKE	FLINT	BLADE	PREHISTORIC
	AKF	POT	SHERD	POST MEDIEVAL
	AKG	POT	SHERD	POST MEDIEVAL
12	ALA	FLINT	PLOUGH-BASHED FLAKE	PREHISTORIC
	ALB	POT	SHERD	POST MEDEIVAL
	ALC	POT	SHERD	POST MEDEIVAL
	ALD	FLINT	SPALL	PREHISTORIC
	ALE	FLINT	NATURAL	PREHISTORIC
	ALF	POT	SHERD	POST MEDEIVAL
	ALG	FLINT	NATURAL	PREHISTORIC
	ALH	FLINT	FLAKE	PREHISTORIC
	ALI	FLINT	FLAKE	PREHISTORIC
	ALJ	POT	SHERD	POST MEDEIVAL
	ALK	POT	SHERD	POST MEDEIVAL
	ALL	FLINT	FLAKE	PREHISTORIC
13	AMA	POT	SHERD	POST MEDEIVAL
	AMB	FLINT	FLAKE	PREHISTORIC
	AMC	BRICK	FRAGMENT	POST MEDIEVAL
	AMD	BONE MISSING		
	AME	GLASS	FRAGMENT	MODERN
	AMF	CERAMIC	OXIDISED SCRAP	NOT DATED
	AMG	BONE	FRAGMENT	NOT DATED
	AMH	POT	SHERD	MODERN
	AMI	GLASS	FRAGMENT	MODERN
	AMJ	GLASS	FRAGMENT	MODERN?
	AMK	CLAY PIPE	FRAGMENT	POST MEDEIVAL
	AML	GLASS	FRAGMENT	MODERN
	AMM	METAL	FRAGMENT	NOT DATED
	AMN	POT	SHERD	POST MEDEIVAL

	AMO	FLINT	FLAKE	PREHISTORIC
	AMP	SLAG	FRAGMENT	NOT DATED
14	ANA	FLINT	PLOUGH-BASHED CHUNK	PREHISTORIC
	ANB	POT	SHERD	POST MEDEIVAL
	ANC	BRICK	FRAGMENT	POST MEDEIVAL
	AND	GLASS	FRAGMENT	MODERN
	ANE	BRICK	FRAGMENT	POST MEDEIVAL
15	AOA	FLINT	CHUNK	PREHISTORIC
	AOB	GLASS	FRAGMENT	MODERN
	AOC	POT	CISTERCIAL WARE BODY SHERD	POST MEDEIVAL
	AOD	GLASS	FRAGMENT	MODERN
	AOE	FLINT	CORE	PREHISTORIC
	AOF	BRICK	FRAGMENT	POST MEDEIVAL
	AOG	FLINT	FLAKE	PREHISTORIC
	AOH	POT	CISTERCIAL WARE BODY SHERD	POST MEDEIVAL
16	ARA	POT	SHERD	POST MEDEIVAL
	ARB	POT	SHERD	POST MEDEIVAL
	ARC	POT	SHERD	POST MEDEIVAL
	ARD	POT	SHERD	POST MEDEIVAL
	ARE	PLASTIC	FRAGMENT	MODERN
	ARF	POT	SHERD	POST MEDEIVAL
	ARG	POT	SHERD	POST MEDEIVAL
	ARH	POT	SHERD	POST MEDEIVAL
	ARI	CLAY PIPE	FRAGMENT	POST MEDEIVAL
	ARJ	POT	SHERD	POST MEDEIVAL
	ARK	CLAY PIPE	FRAGMENT	POST MEDEIVAL
	ARL	GLASS	FRAGMENT	MODERN
	ARM	GLASS	FRAGMENT	MODERN
	ARN	POT	SHERD	MODERN
	ARO	POT	SHERD	POST MEDEIVAL
	ARP	POT	SHERD	POST MEDEIVAL
	ARQ	GLASS	FRAGMENT	MODERN
	ARR	POT	SHERD	POST MEDEIVAL
	ARS	POT	POSSIBLY DERBYSHIRE WARE	ROMANO-BRITISH
	ART	POT	SHERD	MEDIEVAL
	ARU	POT	SHERD	MEDIEVAL
	ARV	FLINT	INDETERMINATE F/B	PREHISTORIC
	BFE	POT	SHERD	POST MEDEIVAL
	BFG	FLINT	NATURAL	PREHISTORIC

17	ASA	POT	SHERD	POST MEDEIVAL
	ASB	BRICK	FRAGMENT	POST MEDEIVAL
	ASC	FLINT	FLAKE	PREHISTORIC
	ASD	BRICK	FRAGMENT	POST MEDEIVAL
	ASE	BRICK	FRAGMENT	POST MEDEIVAL
	ASF	BRICK	FRAGMENT	POST MEDEIVAL
	ASG	BRICK	FRAGMENT	POST MEDEIVAL
	ASH	BRICK	FRAGMENT	POST MEDEIVAL
	ASI	POT	SHERD	POST MEDEIVAL
	ASJ	FLINT	SPALL	PREHISTORIC
	ASK	BRICK	FRAGMENT	POST MEDEIVAL
	ASL	POT	SHERD	POST MEDEIVAL
18	APA	SLAG	FRAGMENT	NOT DATED
	APB	POT	SHERD	POST MEDEIVAL
	APC	FLINT	FLAKE	PREHISTORIC
19	ATA	FLINT	THERMAL	PREHISTORIC
	ATB	FLINT	FLAKE	PREHISTORIC
	ATC	SLAG	FINE ORANGE FABRIC, BODY SHERD	NOT DATED
	ATD	POT	FINE ORANGE FABRIC, BODY SHERD	POSSIBLY ROMANO-BRITISH
	ATE	FLINT	FLAKE	PREHISTORIC
20	AUA	FLINT	BIFACIAL WRKD NODULE	PREHISTORIC
	AUB	GLASS	FRAGMENT	MODERN
	AUC	POT	SHERD	POST MEDEIVAL
	AUD	METAL	FRAGMENT	MODERN
	AUE	FLINT	FLAKE	PREHISTORIC
	AUF	POT	SHERD	PREHISTORIC
	AUG	FLINT	BLADE	PREHISTORIC
	AUH	POT	SHERD	PREHISTORIC
	AUI	POT	SHERD	PREHISTORIC
	AUJ	FLINT	FLAKE	PREHISTORIC
21	AVA	FLINT	FLAKE	PREHISTORIC
	AVB	FLINT	PLOUGH BASHED CHUNK	PREHISTORIC
	AVC	POT	SHERD	POST MEDEIVAL
	AVD	POT	SHERD	POST MEDIEVAL
	AVE	FLINT	FLAKE	PREHISTORIC
22	AWA	FLINT	FLAKE	PREHISTORIC
23	AXA	POT	SHERD	POST MEDEIVAL
	AXB	FLINT	FLAKE	PREHISTORIC

	AXC	FLINT	PLOUGH BASHED CHUNK	PREHISTORIC
	AXD	FLINT	PLOUGH-BASHED CHUNK	PREHISTORIC
	AXE	FLINT	FLAKE	PREHISTORIC
	AXF	FLINT	FLAKE	PREHISTORIC
	AXG	FLINT	CORE	PREHISTORIC
	AXH	FLINT	NATURAL	PREHISTORIC
	AXI	GLASS	FRAGMENT	MODERN
	AXJ	FLINT	CHUNK	PREHISTORIC
	AXK	FLINT	FLAKE	PREHISTORIC
	AXL	POT	SHERD	MEDIEVAL
24	AYA	PLASTIC	FRAGMENT	MODERN
	AYB	FLINT	PLOUGH-BASHED FLAKE	PREHISTORIC
	AYC	BRICK	FRAGMENT	POSTMEDIEVAL
	AYD	TILE	FRAGMENT	POST MEDEIVAL
	AYE	BRICK	FRAGMENT	POST MEDIEVAL
	AYF	CLAY PIGEON	FRAGMENT	MODERN
	AYG	CLAY PIGEON	FRAGMENT	MODERN
	AYH	CLAY PIGEON	FRAGMENT	MODERN
	AYI	CLAY PIGEON	FRAGMENT	MODERN
	AYJ	PLASTIC	FRAGMENT	MODERN
	AYK	CLAY PIGEON	FRAGMENT	MODERN
	AYL	CLAY PIGEON	FRAGMENT	MODERN
	AYM	PLASTIC	FRAGMENT	MODERN
	AYN	CLAY PIGEON	FRAGMENT	MODERN
	AYO	POT	SHERD	POST MEDEIVAL
	AYP	BONE	FRAGMENT	NOT DATED
	AYQ	GLASS	FRAGMENT	MODERN
	AYR	POT	SHERD	PREHISTORIC
25	AZA	FLINT	FLAKE	PREHISTORIC
	AZB	FLINT	FLAKE	PREHISTORIC
	AZC	SLAG	FRAGMENT	NOT DATED
	AZD	POT	SHERD	POST MEDEIVAL
	AZE	POT	SHERD	POST MEDEIVAL
	AZF	BRICK	FRAGMENT	POST MEDEIVAL
	AZG	BRICK	FRAGMENT	POST MEDEIVAL
26	BAA	FLINT	CHUNK	PREHISTORIC
	BAB	GLASS	FRAGMENT	MODERN
	BAC	FLINT	FLAKE	PREHISTORIC
27	BBA	GLASS	FRAGMENT	MODERN
	BBB	FLINT	CHUNK	PREHISTORIC
28	BCA	POT	SHERD	POST MEDEIVAL

	BCB	POT	SHERD	MODERN
	BCC	METAL	FRAGMENT	MODERN
	BCD	POT	SHERD	MEDIEVAL
	BCE	CERAMIC	OXIDISED SCRAP	NOT DATED
	BCF	BRICK	FRAGMENT	POST MEDEIVAL
29	BDA	POT	SHERD	POST MEDEIVAL
	BDB	FLINT	FLAKE	PREHISTORIC
	BDC	POT	SHERD	POST MEDEIVAL
	BDD	POT	SHERD	MODERN
	BDE	POT	SHERD	POST MEDEIVAL
	BDF	FLINT	FLAKE	PREHISTORIC
	BDG	FLINT	FLAKE	PREHISTORIC
	BDH	POT	ABRAIDED SHERD	POSSIBLY ROMANO-BRITISH
	BDI	FLINT	FLAKE	PREHISTORIC

APPENDIX 2: SUMMARY CONTEXT DESCRIPTIONS FROM TEST-PITS

SUMMARY OF CONTEXT DESCRIPTIONS FROM TEST-PITS

Test-Pit No	Topsoil (thickness indicated)	Subsoil (nb subsoil not fully excavated, therefore no thickness given)
01	0.3m dark brown clay-loam	red-brown silty clay
02	0.2m dark brown sandy clay-loam	red-brown sandy clay
03	0.25m dark brown sandy clay-loam	red sandy clay
04	0.3m dark brown silty clay	red-brown sandy clay
05	0.3m dark brown clay-loam	orange-brown sandy clay loam
06	0.3m mid brown clay loam	red-brown silty clay loam
07	0.3m mid brown sandy clay	red clay
08	0.25m dark brown clay laom	red-brown silty clay
09	0.25m dark brown silty clay loam	orange brown silty clay
10	0.25m dark brown sandy clay loam	orange-brown sandy clay loam
11	0.25m dark brown clay-loam	orange-brown silty clay
12	0.25m mid-brown sandy clay loam	red brown clay
13	0.25m brown sandy clay loam	red sandy clay
14	0.25m mid brown silty clay loam	red-brown silty clay loam
15	0.3m dark brown silty clay	red-brown silty clay
16	0.3m dark brown sandy clay loam	orange-brown sandy clay
17	0.25m mid browm clay-loam	red clay
18	0.25m mid brown clay-loam	red-brown silty clay
19	0.25m mid brown sandy clay	red-brown clay
20	0.25m dark brown silty clay	orange-brown silty clay
21	0.3m mid brown silty clay	orange-brown sandy clay
22	0.25m mid brown sandy clay loam	red-brown sandy clay

Test-Pit No	Topsoil (thickness indicated)	Subsoil (nb subsoil not fully excavated, therefore no thickness given)
23	0.3m dark brown silty clay	orange-brown silty sand
24	0.2m mid brown sandy clay loam	orange-brown sandy clay
25	0.3m dark brown silty clay loam	red-orange silty clay
26	0.2m dark brown silty clay	orange-brown silty clay
27	0.3m mid brown sandy clay loam	orange brown sandy clay
28	0.2m grey-brown silty clay loam	red-brown silty clay
29	0.25m mid brown silty clay loam	orange-brown silty clay
30	0.25m mid brown silty clay loam	not fully excavated

RP
PL
SMR

BROOKSBY AGRICULTURAL COLLEGE

Design for Stage 2 of the Archaeological Evaluation of a Potential Quarry for Lafarge Redland Ltd

By Keith Challis

Code: BRK.1

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1 INTRODUCTION

1.1 SUMMARY OF PREVIOUS WORK

A programme of archaeological evaluation was undertaken by Trent & Peak Archaeological Unit (T&PAU) on behalf of Lafarge Redland Aggregates Ltd, at a potential gravel quarry at Brooksby, Leicestershire.

The report on this work (Challis and Howard 1999) comprised a summary of fieldwalking undertaken by Leicester Museum Service in 1997, together with accounts of air-photographic research, geophysical survey and geoarchaeological assessment and field survey undertaken by T&PAU.

Fieldwalking revealed that extensive activity, of prehistoric, Romano-British, Anglo-Saxon and Medieval date exists across the study area.

Aerial photographs failed to reveal any cropmarks or other archaeological features associated with the artefact scatters. This is probably because the soils across the site are not susceptible to cropmark formation.

Aerial photographs did reveal a system of palaeochannels across the narrow valley floor of Rearsby Brook.

Geophysical survey showed that at least one of the artefact scatters is associated with a complex arrangement of ditched enclosures, field and trackways which on both morphological grounds and by association with the artefact found during fieldwalking dates from the later prehistoric and Roman-British periods.

Geoarchaeological survey showed that the palaeochannels of Rearsby Brook contain no organic material and are themselves likely to be of low archaeological significance. However, the floodplain of the Brook does encompass a buried land surface, with intact palaeosol, provisionally dated to the Medieval period by associated artefacts. This buried land surface might contain preserved archaeological deposits of Medieval or earlier date and is of archaeological significance.

Most significantly, the sand and gravel deposits beneath the site were shown to be part of the Baginton formation, laid down by the Pleistocene Midland River, which flowed eastward on approximately the line of the present River Wreake before the Anglian Glaciation (*c.*500,000 bp).

Regionally, and at the site, the Baginton formation is associated with organic remains with temperate affinities and with andesitic handaxes, suggesting contemporary human activity.

In addition, the Brooksby sands and gravels, an organic-rich deposit infilling a channel stratigraphically earlier than the Baginton sands and gravels, have been shown to extend to within the extraction area.

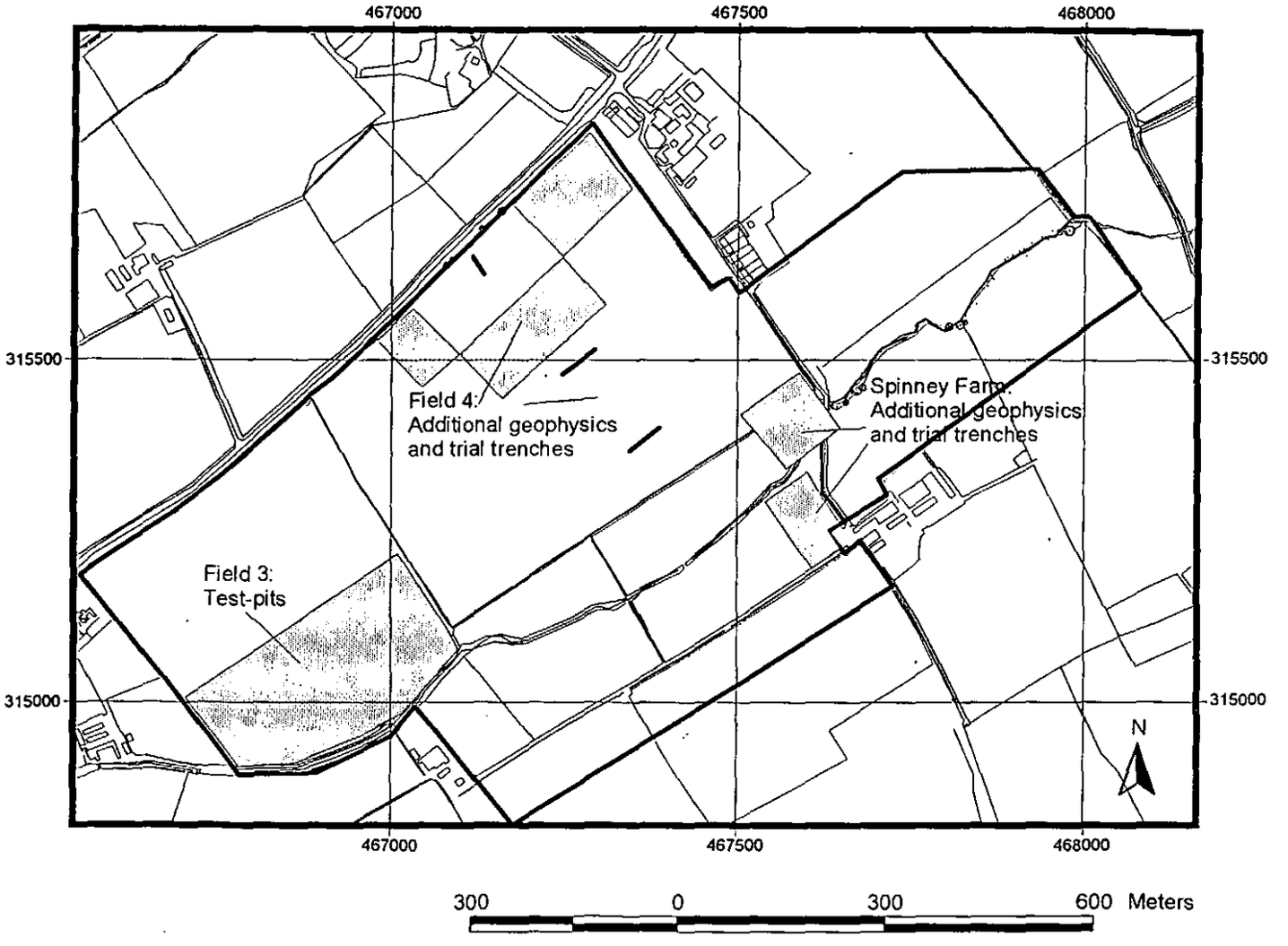

Figure 1: Brooksby College: Plan showing the proposed location of gradiometer survey, trial trenches and hand-excavated test-pits.

Together, the Baginton and Brooksby deposits preserve rare evidence for environment and activity associated with the earliest human inhabitance of the British Isles. As such these deposits are of national archaeological significance.

1.2 STAGE 2 EVALUATION

The outline scheme for the evaluation, drafted by T&PAU in March 1999 (Challis 1999) envisaged a second phase of evaluation, with the dual aim of determination of the context and state of preservation of buried cultural archaeological remains. Further geoarchaeological evaluation is not considered necessary or feasible given the depth at which deposits of interest are buried.

The content of the proposed second phase of evaluation, which has been devised in consultation with the Leicestershire County Council Senior Archaeological Advisor, is outlined below.

2 EVALUATION OBJECTIVES AND METHODOLOGY

2.1 GRADIOMETER SURVEY

Further magnetic survey will be carried out using an FM36 Fluxgate Gradiometer, manufactured by Geoscan Research using a methodology identical to that used in the first stage of evaluation.

2.1.1 Enclosure Complex in Field 4

The gradiometer survey already undertaken in this area has proven highly effective at locating archaeological features. Up to an additional 3ha of gradiometer survey will be undertaken to the south, east and west of the earlier survey (Figure 1) to further examine this area and determine the full extent of the enclosure complex.

2.1.2 Geophysical Anomalies Around Spinney Farm

Topsoil magnetic susceptibility survey identified a number of anomalies north and west of Spinney Farm, which might be related to the small Romano-British pottery scatter in field 15, to the south. Up to 2ha of gradiometer survey will be undertaken to further investigate the area of topsoil magnetic enhancement (Figure 1) to determine the extent and nature of the magnetically enhanced areas.

2.1.3 Gradiometer Survey Methodology

Readings will be taken at 0.5m centres along traverses 1m apart (800 sampling points in a full 20m x 20m grid). All traverses will be surveyed in a "parallel" rather than "zigzag" mode

Readings will be logged consecutively into the data logger and downloaded into a portable computer while on site.

Processing will be performed using Geoscan Research, Geoplot versions 2 and 3 software.

The presentation of the data will comprise a printout of the raw data both as grey scale and trace plots, together with grey scale plots of the processed data. Magnetic anomalies will be identified and plotted onto the 'Abstraction and Interpretation of Anomalies' drawing for the areas surveyed.

2.2 MACHINE-STRIPPED TRIAL TRENCHES

2.2.1 Enclosure Complex in Field 4

A single 20 x 3m machine trench will be positioned to examine an area of the enclosure complex located by geophysical survey at the northern end of field 4 (Figure 1). This trench will examine a typically complex area of the enclosures to gather information about the survival and condition of archaeological deposits, in particular the survival of vertical stratigraphy.

Two 50 x 3m machine trenches will be located south of the enclosure complex, between the southern edge of the enclosures and Rearsby Brook (Figure 1). These trenches will examine the possibility that archaeological features in this area may be sealed by colluvial deposits and so have eluded detection by geophysical survey and fieldwalking.

2.2.2 Geophysical Anomalies Around Spinney Farm

If gradiometer survey around Spinney Farm locates significant geophysical anomalies likely to be of archaeological origin, up to two 20 x 3m machine trenches will be excavated within the area of the gradiometer survey to examine selected anomalies to determine their nature and significance.

2.2.3 Excavation Methodology

An EDM survey will be made of the location and extent of all excavated areas.

Topsoil will be machine stripped with a toothless ditching bucket on the back actor of an appropriate machine. The exposed surface will be hand cleaned and a sample of archaeological features excavated, sufficient to provide evidence for the date, function and state of preservation of any archaeological features encountered.

Trenches will be machine backfilled with the excavated material at the completion of excavation.

2.3 HAND EXCAVATED TEST-PITS

2.3.1 Flint Scatter in Field 3

A significant concentration of struck flint, including tools and debitage, has been identified towards the southern end of field 3, adjacent to Rearsby Brook. An

extensive quantity of material in the ploughsoil may indicate that archaeological deposits here have suffered severe plough-damage and are only poorly preserved. This is particularly so for flint scatters where the sheer quantity of material in the ploughsoil suggests little may remain of the features from which flint is derived. The objective of this stage of the evaluation is to examine the stratigraphic location of the artefact concentration to determine the state of preservation of the archaeological remains. This will be achieved through a combination of hand-excavated test-pits (to determine the stratigraphic location of flint artefacts within the soil profile) and machine stripping of topsoil, to identify archaeological features from which artefact concentrations may be derived.

2.3.2 Methodology

Thirty, 1x1m test-pits will be laid out at 25m intervals across the flint scatter (Figure 1). A 25m test-pit interval was chosen as this should broadly characterise the spatial patterning of any artefact assemblages, with 1x1m test-pits being large enough to recover some artefacts even at low background densities.

Each test-pit will be excavated in the following manner. The turf (if present) will be removed in *c.* 5cm thick piece, then the underlying topsoil trowelled in spits.

The upper 10cm of subsoil will be treated in the same manner as the topsoil. If artefacts are found in the subsoil, spits will be removed until no artefacts have been located within the last 10cm removed.

The location of any artefacts recovered by trowelling will be recorded at 1:50 within the test-pit and by depth.

One section of each test-pit will be photographed and drawn at 1:20. The position of each test-pit will be located with reference to the OS 1:2500 map by EDM survey.

2.3.3 Machine Topsoil Stripping Around Test-Pits

To attempt to locate features from which the artefacts are derived, topsoil will be machine stripped from an up to 5 x 5m area immediately around up to ten of the test-pits. Topsoil will be machine stripped with a toothless ditching bucket on the back actor of an appropriate machine. The exposed surface will be hand cleaned and a sample of archaeological features excavated, sufficient to provide evidence for the date, function and state of preservation of any archaeological features encountered.

Trenches will be machine backfilled with the excavated material at the completion of excavation.

