RPS Planning, Transport and Environment

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Proposed A417 Lechlade Bypass, Gloucestershire: archaeological field evaluation

First report:

geophysical survey; fieldwalking; trial excavation north of Hambidge Lane.

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November 1995

Proposed A417 Lechlade Bypass, Gloucestershire: archaeological field evaluation.

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1 Summary

Archaeological field evaluation was undertaken along the proposed route of the A417 Lechlade Bypass, Gloucestershire. A range of techniques - geophysical survey, fieldwalking and trial trenching - was used to undertake the work. Trial trenching to the north of Hambidge Lane revealed a penannular ditch and rectilinear ditches interpreted as settlement boundaries dating to the middle-late iron age. Further trial trenching along the proposed route of the bypass to the south of Hambidge Lane will be required to complete the field evaluation

2 Introduction

2.1 Archaeological field evaluation was undertaken along the proposed route of the A417 Lechlade Bypass, Gloucestershire. The work was commissioned by Gloucestershire County Council's Surveyor's Department and undertaken by the County Council's Archaeology Service. The proposed route (Figs 1 and 5) runs north from a junction with the current alignment of the A417 road west of Lechlade (at SU 20459982), and then eastwards to join the A361 to the north of Lechlade (at SP 21350089). The proposed route measures c.2km long, and will measure c.10m wide. Excluded from the evaluation was c.250m-length of proposed roadline adjacent to the A361 road, since this area had been quarried for sand and gravel. The northern part of the proposed route transects a portion of an archaeological site whose national archaeological importance is reflected in its designation as a Scheduled Monument (multi-period settlement, cemetery and ceremonial complex west of Lechlade: county monument no 413). The monument incorporates features dating to the neolithic (Darvill *et al* 1986; Miles *et al* 1986), bronze age (Miles and Palmer 1986), iron age (King 1994), Romano-British and Anglo-Saxon periods (Miles and Palmer 1986), some of which are visible as cropmarks on aerial photographs.

2.2 Previous stages of assessment

A desk-based assessment of the area of interest was commissioned in 1990 (OAU 1990). The assessment reviewed the evidence for the extensive complex of cropmarks associated with the Scheduled Monument and adjoining areas (the resulting plot is presented on Fig 5). In 1989 fieldwalking located a scatter of prehistoric flint (Walker 1993) located in the 1995 area of survey.

2.3 1995 field evaluation: method

2.3.1 Geophysical survey

The field evaluation was undertaken using a range of techniques to examine the archaeological potential of the area of the proposed road. Initially, geophysical (magnetometer) survey was undertaken along a 30m-wide corridor centred on the proposed road line, the survey corridor being extended to 40m wide in the Scheduled Monument. The total area examined covered c.6.5 hectares. The work was undertaken by specialist contractors (Geophysical Surveys of Bradford) and the results are

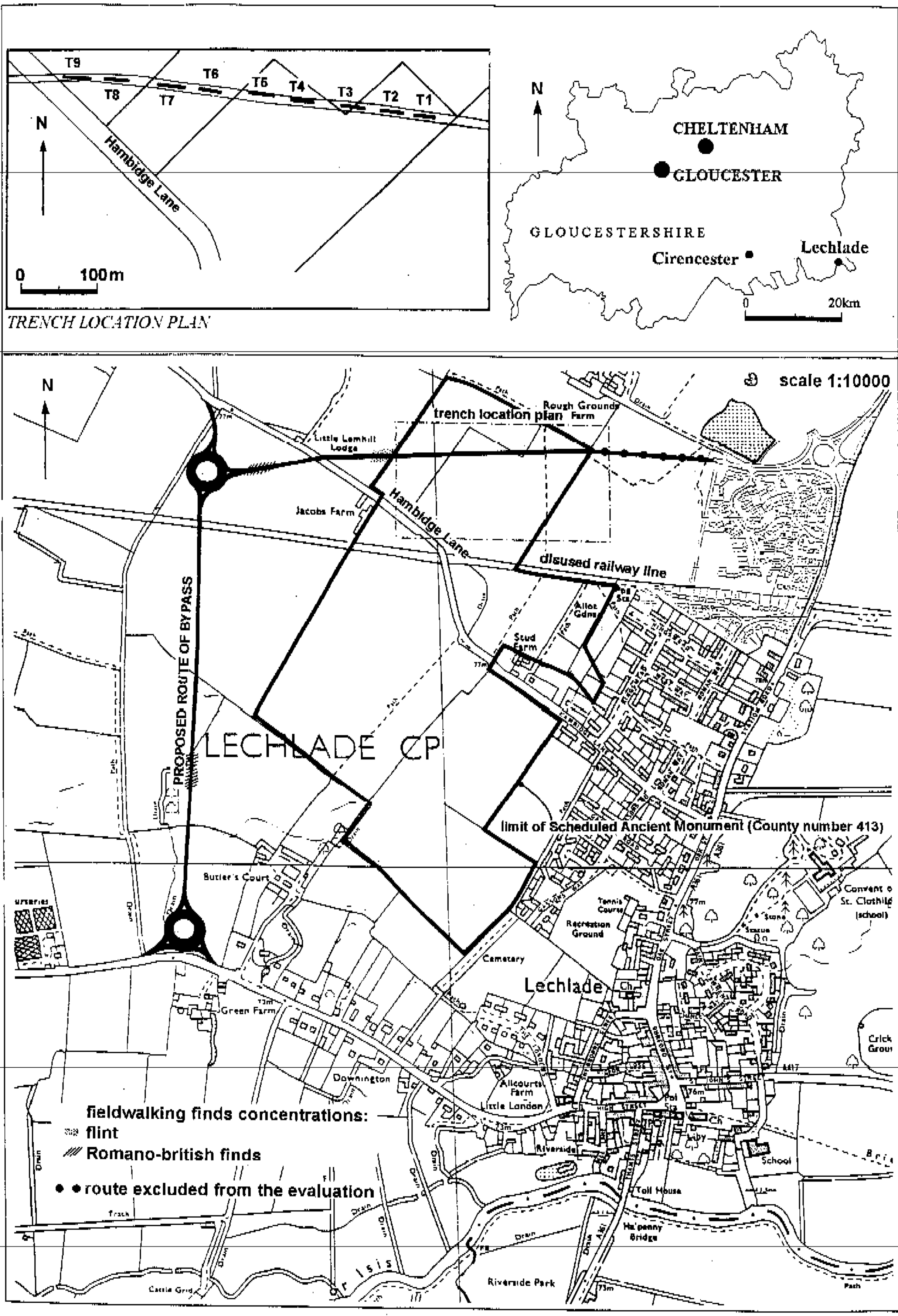


Fig 1: *Site and trench location plan showing road corridor and concentration of fieldwalking finds*

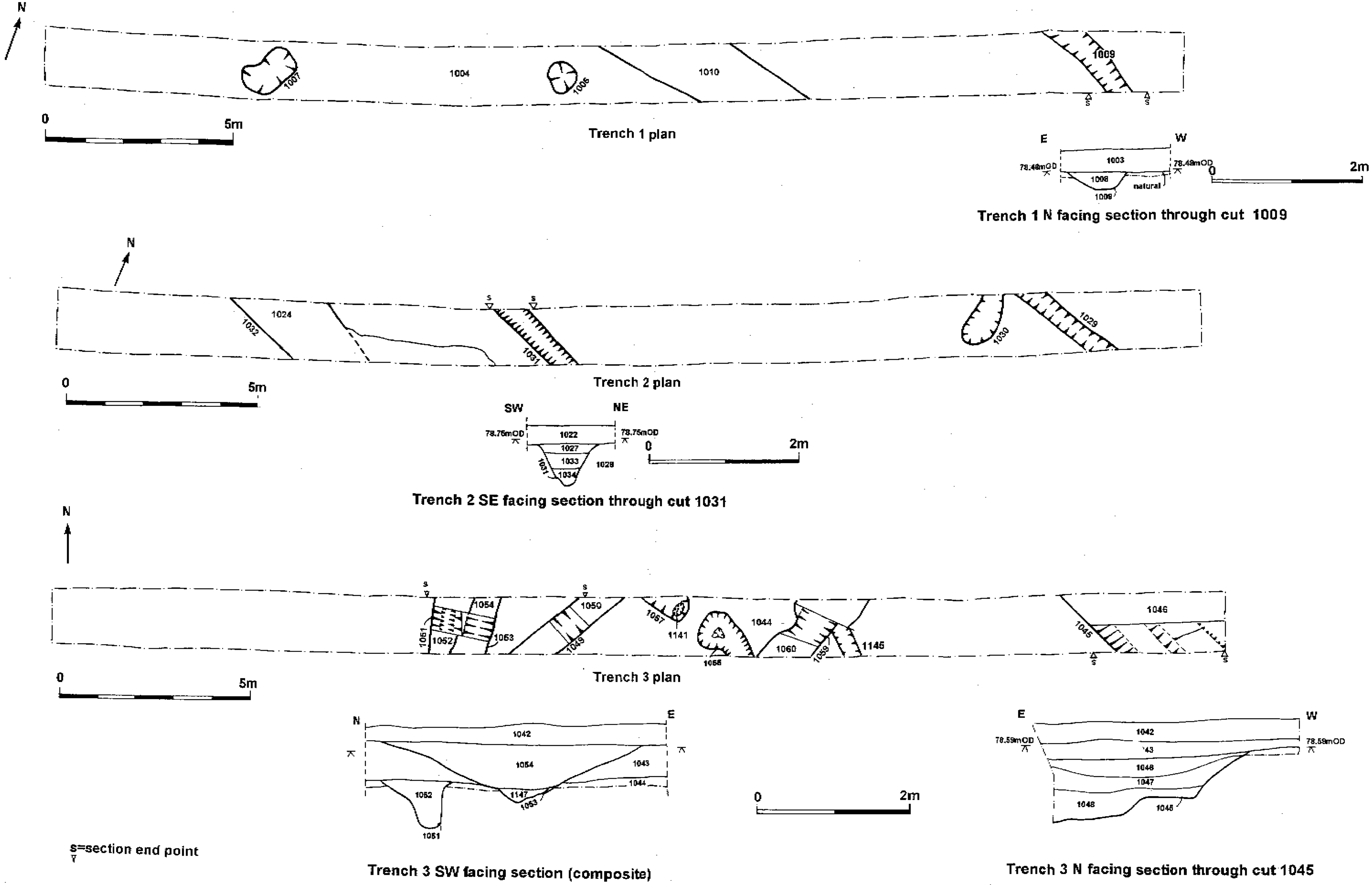


Fig 2: *Trenches 1-3 plans & sections*

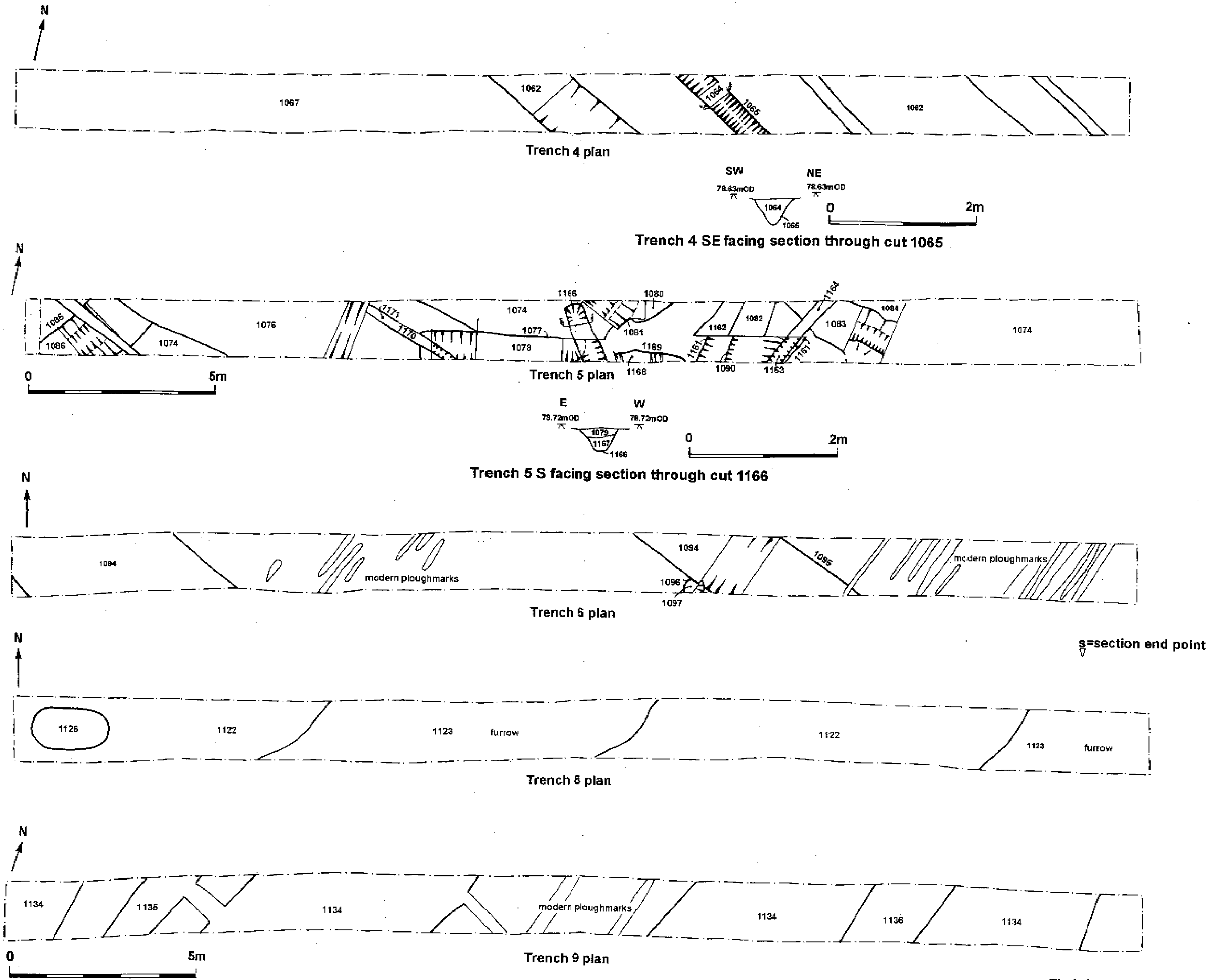
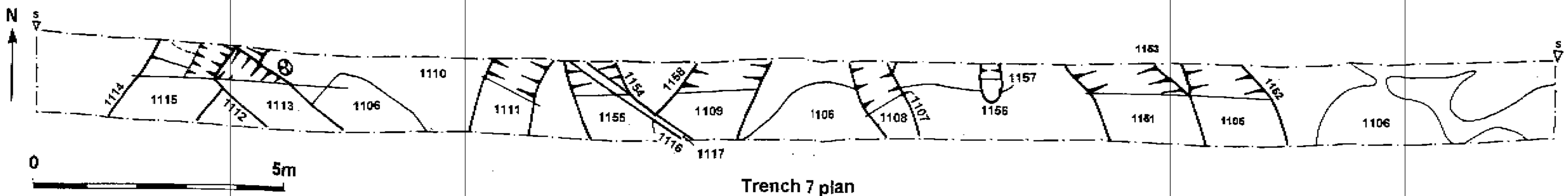
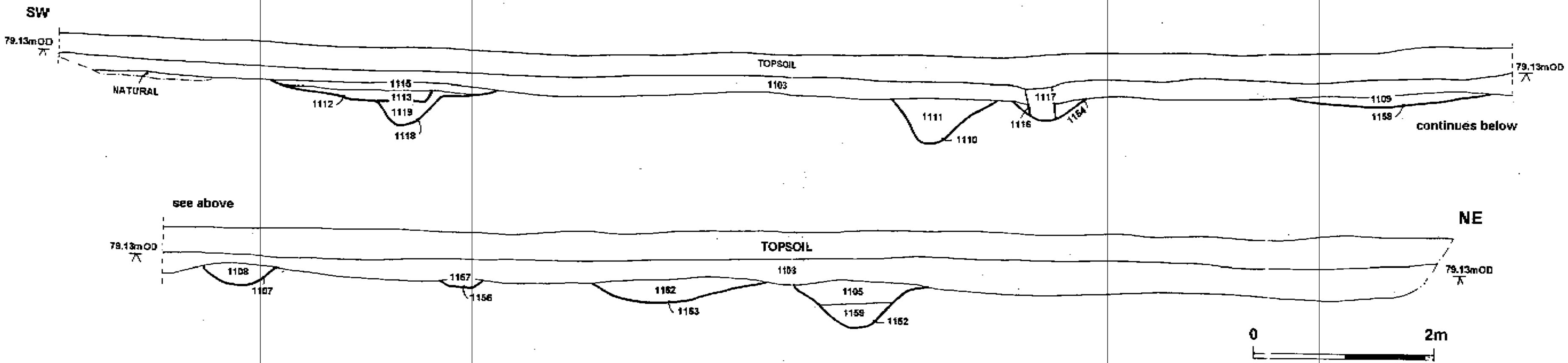


Fig 3: *Trenches 4-6, 8, 9 plans & sections*



Trench 7 plan



Trench 7 SE facing section

s=section end point

Fig 4: *Trench 7 plan & section*

presented in an appendix below. Briefly, the geophysical work predicted a range of curvilinear and rectilinear ground anomalies: trial trenching proved that many of these were significant archaeological features dating to the iron age. Plough furrows associated with a medieval field system, and modern drainage features were also predicted by the geophysical work.

2.3.2 Fieldwalking

Fieldwalking to retrieve scatters of surface artifacts was undertaken in the arable areas. Within a 30m-wide corridor centred on the road line, artefacts were collected at 5m intervals. Some 4 hectares of the c.7.7 hectare survey area was examined by fieldwalking. Three areas of interest were defined (located on Fig 1).

1) A small concentration of worked flint located in OS land parcel no 8900 (immediately north of Hambidge Lane and adjoining the Scheduled Monument). The significance of the scatter is uncertain; no significant archaeological deposits were found in this area when it was sampled by trial trenching in 1995.

2) A concentration of Romano-British and medieval pottery located in the fields west of Jacob's Farm (OS land parcel nos 6016/4326). No sample excavation was undertaken there in 1995, and the significance of the scatter remains uncertain.

3) A concentration of Romano-British and medieval pottery located in OS land parcel no 6576, to the north of Butlers Court Farm. No sample excavation was undertaken there in 1995, and the significance of the scatter remains uncertain.

2.3.3 Trial trenching

Nine trial trenches were excavated along the proposed roadline to the north of Hambidge Lane. The trenches were placed along the approximate centre line of the proposed road, and positioned to test the cropmark evidence, and the results of the geophysical survey and fieldwalking. The trenches sampled some 2% of the survey corridor. The land south of Hambidge Lane was not evaluated, due to the presence of sown crops. It is proposed to complete the sampling of these areas when access to the land becomes possible. The trial trenches measured c.30m long by 1.5m wide. Plough soils were machine-excavated to expose the surface of the natural subsoil, revealing archaeological features as soil marks. These were then excavated by hand and recorded by means of a written, drawn, and photographic record.

3 Excavation: description

Trench 1 (Fig 2)

A number of features were observed cutting the natural gravel. Two irregular depressions (contexts 1006 and 1007) were filled by a light brown silty clay (contexts 1002 and 1005). These appear to represent root holes or animal disturbances.

A linear feature (context 1009) was observed at the east end of the trench. It measured 0.65m wide by 0.25m deep and was aligned north-west to south-east. It was filled by grey brown clay slit (context 1008) incorporating a piece of burnt limestone and animal bone. No dating evidence was recovered.

A medieval furrow (context 1011: not illustrated) was aligned north-west to south-east across the trench. It was filled with yellow brown clay slit (context 1010). The furrow was sealed by a topsoil (context 1003) of dark grey brown clayey silt.

Trench 2 (Fig 2)
A number of features were exposed cutting the natural gravel. A linear feature aligned north-west to south-east (context 1029), measuring 0.5m wide by 0.2m deep, was filled with a dark greyish brown silty clay (context 1025). No dating evidence was recovered.

An ovoid feature (context 1030) measured 0.8m wide by 0.25m deep. It was aligned approximately north-east to south-west and had a rounded terminal to the south-west. It contained a fill (context 1026) of dark greyish brown silty clay. No dating evidence was recovered.

A linear feature (context 1031) measuring 0.75m wide by 0.5m deep, was aligned north-west to south-east across the trench. It contained three fills (contexts 1033, 1034 and 1027). The primary fill (context 1034) was a dark greyish brown silty clay. Above was a greyish brown gravelly silt (context 1033) and a greyish brown silty clay (context 1027). No dating evidence was recovered from any of the fills.

A medieval furrow (context 1032) was aligned north-west to south-east across the trench. It measured 1.6m wide by 0.08m deep with a shallow concave profile. The furrow was sealed by topsoil (context 1022).

Trench 3 (Fig 2)
Trench 3 was positioned across a headland earthwork relating to the medieval field system. A number of archaeological features below the headland deposit were found cut into the natural gravel subsoil. At the eastern end of the trench a large linear feature (context 1045) was aligned north-west to south-east: it measured 4.5m wide by 0.95m deep and contained three fills. The primary fill was a grey brown clay (context 1048). Above were light brown silty clays (contexts 1047 and 1046). No dating evidence was recovered from these deposits. The ditch was sealed by the medieval headland deposit, context 1043.

A linear feature (context 1049) aligned north-east to south-west measured 0.75m wide by 0.17m deep. It contained a fill of dark brown silty clay (context 1050). No finds were recovered.

A linear feature (context 1051) measuring 0.7m wide by 0.5m deep was aligned north-north-east to south-south-west. It contained a fill of dark grey brown clay silt (context 1052) containing burnt limestones, gravel, bone, daub and a sherd of iron age pottery.

A pair of terminal ends was observed, positioned 0.56m apart. The north-west terminal (context 1057) measured 0.6m wide by 0.25m deep; in the base of the terminal end was a post hole (context 1141) measuring 0.35m by 0.2m by 0.45m. Both the post hole and the ditch were filled by a yellow brown silty clay (context 1058) incorporating a few small fragments of burnt limestone. The south-east terminal (context 1055) measured 0.7m wide by 0.22m deep. It was filled by a yellow brown silty clay; a possible post hole (context 1144) was contained in the terminal, but the area had suffered root disturbance No dating evidence was recovered from any of these deposits.

A linear feature (context 1059) measuring 0.9m wide by 0.23m deep was aligned north-east to south-west across the trench. It was filled by a brown silty clay (context 1060) incorporating fragments of burnt limestone. It cut an earlier ditch (context 1145) measuring 0.5m wide by 0.17m deep, infilled with yellow brown silty clay (context 1146). No finds were recovered from any of these fills.

These features were all sealed under a thick layer of a yellow brown silty clay (context 1043) representing a medieval headland visible at ground level as an earthwork aligned north-east to south-west across the field. Cutting through the medieval headland deposit was a modern field boundary ditch (context 1053) sealed by topsoil (context 1042).

Trench 4 (Fig 3)
Context 1065 was a linear 'V' shaped cut measuring 0.45m wide by 0.4m deep, aligned north-west to south-east. It was filled by a dark greyish brown silty clay (context 1064). A sherd of iron age pottery was incorporated in the fill.

Two medieval furrows (context 1063) were aligned north-west to south-east, filled with a yellowish brown silty clay (context 1062). One of the furrows had a modern land drain running along it. Modern plough marks (context 1069: not illustrated) were also found cutting across the trench. These were all sealed below topsoil (context 1068).

Trench 5 (Fig 3)
The trench was aligned c.4m north of the centre line of the proposed road to examine a ground anomaly predicted by geophysical survey. A complex assemblage of features was defined.

A linear feature (context 1077) aligned south-west to north-east, measured 0.6m wide by 0.3m deep. This was filled by a yellowish brown silty clay (context 1078) incorporating animal bone, daub and iron age pottery. The feature was cut by a modern land drain (context 1171).

Feature 1166 measured 0.5m wide by 0.3m deep and was aligned east to west. It had a rounded terminal end with steeply sloping sides containing a primary fill of greyish brown silty clay (context 1167) incorporating animal bone and iron age pottery. In the terminal was a post hole cutting the primary fill (context 1167), which measured 0.3m in diameter by 0.18m deep, and was filled by a dark greyish brown silty clay (context 1089) incorporating burnt clay and soil. This was sealed below a fill of dark greyish brown silty clay (context 1079) incorporating burnt limestones, animal bone and iron age pottery. Feature 1166 cut two earlier features (contexts 1078 and 1080) perhaps representing terminal ends of boundary ditches.

A subcircular feature (context 1081) measured 1.3m in diameter. It was filled by a yellowish brown silty clay (context 1080), and is interpreted as a natural hollow formed by tree or root disturbance.

A linear feature (context 1161) aligned north to south, measured 2.6m wide by 0.25m deep, and was filled with a light yellow brown silty clay (context 1162). This feature was recut (context 1090). No dating evidence was recovered.

Ditch 1084 was aligned east to west and measured 0.3m wide by 0.4m deep; it was filled with a dark yellow brown silty clay (context 1083) incorporating animal bone and iron age pottery. The feature had been cut by a modern land drain (context 1163).

At the western end of the trench was a large linear feature (context 1085) aligned north to south, measuring 1.4m wide by 0.6m deep. This was filled by a yellowish brown silty clay (context 1086) incorporating animal bone and pottery of uncertain date.

The edge of a semi-circular feature (context 1169) was observed in the southern edge of the trench. Only 2m of its length was defined. It was filled with a greyish brown silty clay with patches of gravel. No dating evidence was recovered.

A medieval furrow (context 1075) was aligned east to west and measured 2.5m wide and 0.17m deep with a shallow concave profile. It was filled with light yellow brown silty clay (context 1076). A number of modern land drains (contexts 1087, 1163 and 1171) were observed in the trench. These were aligned north to south and east to west.

Trench 6 (Fig 3)
A small circular pit (context 1096) measured 0.8m in diameter by 0.19m deep, and was filled by a dark yellowish brown silty clay (context 1097) incorporating a sherd of iron age pottery. Two medieval furrows (context 1095) and a number modern plough marks (context 1098) were observed cutting the natural gravel.

Trench 7 (Fig 4)
Trench 7 was positioned across a penannular feature and linear features predicted as ground anomalies by the geophysical survey.

As defined by excavation the penannular feature measured approximately 15m in diameter, and is interpreted as a small circular enclosure. The circumference of the ditch forming the penannular feature was observed in two places curving across the trench. At the east end (where it was designated 1152) it measured 1.1m wide by 0.47m deep, and contained two fills. The primary fill (context 1159) was a very dark brown silty clay incorporating fragments of burnt limestone and sandstone, animal bone, and iron age pottery. Above was a dark brown silty clay (context 1105) also incorporating burnt sandstone and limestone, animal bone and iron age pottery. To the west the ditch forming the penannular feature (context 1110) measured 1.07m wide by 0.58m deep, and contained a fill of very dark greyish brown silty clay (context 1111) incorporating burnt sandstones, animal bone, iron age pottery and a fragment of quernstone. Within the area enclosed by the penannular feature several linear features were observed. Context 1153 was aligned east to west and measured 1.4m wide by 0.3m deep, and was filled by a very dark greyish brown silty clay (context 1151) incorporating fragments of burnt sandstones and limestones, animal bone and iron age pottery. The feature was cut by the penannular ditch (context 1152).

In addition, there was an irregular, semi-oval feature (context 1156) cut into layer 1106, filled with dark yellowish brown silty clay (context 1157) incorporating charcoal flecks, flint flakes, bone and iron age pottery: its function is uncertain.

A linear ditch (context 1107) was aligned north-west to south-east across the trench, filled with very dark grey silty clay (context 1108) incorporating fragments of burnt limestones, animal bone and iron age pottery. Another linear feature (context 1154) was aligned north to south and measured 1.2m wide by 0.22m deep; it was filled by context 1155, a dark brown silty clay from which no dating evidence was recovered.

West of the penannular feature was a linear ditch (context 1112) aligned north-west measuring 1m wide by 0.15m deep, filled by dark brown silty clay (context 1113) incorporating fragments of burnt stone, animal bone, and iron age pottery. This feature had also been predicted by the geophysical survey: it cut across a second ditch (context 1118) filled by a dark brown silty clay (context 1119) incorporating iron age pottery.

Trench 8 (Fig 3)
Excavation of Trench 8 revealed two medieval plough furrows (context 1124) aligned north to south. No significant archaeological deposits were observed there.

Trench 9 (Fig 3)
Excavation of Trench 9 revealed three medieval plough furrows (context 1135) aligned north to south. No significant archaeological deposits were observed there.

4 Interpretation and discussion

The results from the archaeological field evaluation demonstrated that the area north of Hambidge Lane contained numerous ditches dating to the middle - late iron age (dated by an assessment of the pottery; Appendix 3 below). The majority of these can be interpreted as boundaries for agricultural enclosures, although it is not possible to establish the overall plan from the limited areas examined. No domestic focus of the iron age occupation was identified, but the quantity of pottery excavated from the iron age features (Appendix 3 below) might indicate that such a focus lay within the area of survey or close by. In two of the trenches (5 and 7) intercutting iron age boundaries were sampled, suggesting that the iron age occupation developed over a period of time. The evidence suggests that a complex system of land division was present in the landscape west of Lechlade during the middle to late iron age. In the areas examined by trial trenching, the iron age occupation may be confined to the Scheduled Monument: no iron age deposits were found in the field immediately to the west.

The middle - late iron age date of the boundaries sampled in 1995 is interesting, since this is the first evidence for occupation of this period from Lechlade. Previously, only early iron age occupation was attested in the Lechlade area (Darvill *et al* 1986; King 1993; Allen *et al* 1993). A middle iron age settlement has been excavated locally at Claydon Pike, c.2km west of Lechlade (Miles 1984, 197-9 and fig 2), and this settlement incorporated circular enclosures similar in size to the penannular feature examined in Trench 7. At Claydon Pike the circular enclosures contained houses.

Many of the iron age features were overlain by medieval plough furrows and headland deposits. Some furrows were aligned with the iron age ditches, and masked them. This probably explains why the iron age boundaries generally are not revealed as cropmarks on aerial photographs, and why some went unpredicted by the geophysical survey. Cropmarks do, however, suggest that more penannular enclosures are located south of the example examined by trial trenching (Fig 5: see also Appendix 1 below, fig 7). Such clustering is reminiscent of the middle iron age circular house enclosures found at Claydon Pike.

Within the survey area there was no evidence for late iron age or Romano-British occupation, which was presumably concentrated throughout these periods at Roughground Farm c.0.5km east of the evaluation area (Allen *et al* 1993). This suggests that, although truncated by medieval agriculture (see below), the iron age features have not been disturbed or modified by later phases of occupation.

5 State of preservation; archaeological potential

The effect of medieval and modern ploughing has been to erode much of the vertical stratigraphy of the site, with the result that no surfaces contemporary with the iron age occupation are preserved. There is no direct evidence to indicate the level of truncation, but the postholes set into the terminals of some of the iron age ditches indicate that scope may exist for the recovery of structural plans. In addition, the character of the pottery assemblage (Appendix 3 below) indicates that potential exists for the recovery of an extensive ceramic assemblage from the site.

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Appendix 1

Report on geophysical survey, by Geophysical Surveys of Bradford

Geophysical Surveys of Bradford

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REPORT ON GEOPHYSICAL SURVEY

LECHLADE BYPASS
Gloucestershire

Report number 95/105

Work commissioned by :

GLOUCESTERSHIRE
COUNTY COUNCIL

SITE SUMMARY SHEET

95 / 105 Lechlade Bypass

NGR: SP 205 005 (Approximate)

Location, topography and geology

The proposed route of the Lechlade Bypass lies to the west and north of the village. The line of the road links the A361 Burford Road (north of Lechlade) to the A417 to Cirencester. The fields were all fairly flat and were under various crops. The soils of the site, typical brown calcareous earths, comprise fine loamy soils over limestone river terrace gravels. Restricted areas of the site are more prone to gleying due to a high water table and comprise fine silt loams and clays. However, in general the soil fall within the Badsey 1 association (511h).

Archaeology

Part of the area of land between the proposed road route and the village of Lechlade is well known as an area of considerable archaeological wealth. The evidence from both aerial photographs and excavation has provided great detail concerning both the type of archaeological sites and their distribution. A large part of this landscape has been classed as a Scheduled Ancient Monument (SAM) and the northern part of the proposed route passes through it.

Aims of Survey

It was hoped that a gradiometer survey along the length of the proposed road would help evaluate the archaeological potential of the area. In general the sample widths were 30m, except those samples within the scheduled area which were 40m. The areas were extended around the position of two proposed roundabouts. Magnetic susceptibility was measured at 20m intervals along the centreline of the road. It was hoped that this would help indicate areas of former anthropogenic activity.

Summary of Results *

The gradiometer has identified a great number of anomalies within the sample areas. In many cases the anomalies are believed to represent drainage / ridge and furrow. Despite these anomalies a number of potentially archaeologically sensitive areas has been noted. Some of the anomalies have been found to be roughly correlated with increased magnetic susceptibility levels, which supports the possible archaeological interpretation.

*** It is essential that this summary is read in conjunction with the detailed results of the survey.**

SURVEY RESULTS

95/105 Lechlade Bypass

1. Survey Areas

1.1 The proposed route of the bypass and the general position of the areas covered by the gradiometer technique can be seen in Figure 1 at a scale of 1:10 000. The position of the individual samples (A-H) and the magnetic susceptibility positions can be seen in Figures 2-4 at 1:2500.

1.2. The grid was set out by staff from **Geophysical Surveys of Bradford** using an EDM system. The tie-in information has been supplied to the client.

2. Display

2.1 The gradiometer results are displayed as X-Y traces, dot density plots and greyscale images. These display formats are discussed in the *Technical Information* section, at the end of the text.

2.2 A summary interpretation, showing the potential archaeological and geological anomalies detected during the survey, is produced at a scale of 1:2500 in Figures 5-7. Data plots, together with a detailed interpretation for each survey area are reproduced at 1:1000 in Figures A.1- H.3.

3. General Considerations / Complicating factors

3.1 In general, the survey areas were gently sloping and free of obstructions. The vegetational cover was low, providing very good conditions for gradiometer survey.

3.2 Given the nature of the soils at Lechlade and the results of past surveys, one would expect that the results of the present survey would be a fair representation of the archaeology. The exceptions would be those areas with a greater alluvial cover and with more pronounced gleying.

3.3 There are a number of small, sharp anomalies within the data set that are likely to be the product of ferrous material in the topsoil. It is assumed that the majority of these anomalies are not likely to be archaeologically significant.

4. The Results of the Magnetic Susceptibility Survey (MS)

4.1 **Field and Laboratory Method**

The survey area comprised eight fields which were either arable or under pasture. In the arable fields volume magnetic susceptibility (κMS) was measured by means of the Bartington field coil and these readings were complemented by the mass specific readings (χMS) of soil samples taken from two points along the same sampling transect. A soil auger was used to take samples at 10cm depth intervals until either the parent material was encountered or augering became too difficult. In the diagrams, however, only the results down to a depth of 40cm are given. In the fields under pasture, the coil was not used and topsoil samples were taken by auger. The position of the samples can be seen in Figures 2-4.

The soil samples were air dried and ground to pass through a 2mm sieve. The χMS was determined using and AC coil and susceptibility bridge and adjusted to a standard 50g sample. The results are given in SI units/kg x 10-8. Field coil readings are given in dimensionless SI units.

4.2 Results and Discussion

The results are displayed graphically in Figures MS1-3 and in number form in Table MS1 and Table MS2.

4.2.1 **Field A** was under rough pasture but displayed strong ridge and furrow features. Augered soil samples (SS10 - SS22) were taken every 20m along the centre line of the gradiometry survey grid. For comparison a field coil survey was undertaken along the same transect and the results were found to roughly mirror the mass magnetic susceptibility.

The χMS readings are of a low magnitude and unvarying, showing little of interest. The apparently higher readings at either end are more likely to correspond with a trackway (northern end, SS22) and the main road (southern end, SS10).

4.2.2 **Field B** was a ploughed field to the north of Field A and which had originally been subdivided into two smaller fields. The old boundary is still topographically visible as a sudden drop in the level of the ground surface. This topographical change corresponds with Readings 8 to 9 (MS1) and the sudden leap to a higher magnitude of MS readings reinforces the interpretation of this feature as an old field boundary between two fields with differing magnetic enhancements. The mean KMS for the two parts of Field B differ markedly, 35SI as opposed to 56SI. It is not possible from the technique to confidently propose the past land uses and management practices of the two fields on the basis of their (K) MS results.

The augered soil samples SS5 - SS7, which correspond with Readings 2, 8 and 11 respectively, (see Table MS1) generally correspond closely with the field coil readings, although SS7 shows a greater variance. Table MS1 indicates that this is due to the presence of enhanced materials within, and restricted to, the Ap horizon. The χMS results down the three auger profiles display no subsurface horizons which commonly characterise archaeological anomalies. With this in mind, the higher χMS reading at SS7, and by implication the higher KMS readings, may be interpreted as a 'ploughed-out' area of enhanced features or as the incorporation of extraneous enhanced materials into the Ap horizon.

As the Ap horizon is underlain by horizons with a far lesser susceptibility the former explanation is less likely, as this would require an eroding soil surface for ploughing to have 'ploughed out' and incorporated any horizon of enhancement. In what is essentially an alluvial context one would expect the ground surface to be more of an accumulating one i.e. depositional. Nevertheless, the explanation of these areas of enhanced topsoil susceptibilities as severely plough damaged features cannot be ruled out.

4.2.3 **Field C.** The coil readings continue at the same level of magnitude (mean 52SI) as those of the northern half of Field B and, other than a slight increase in the size of the readings towards the northern half of this transect, the coil data do not display anything of obvious archaeological interest.

The χMS results for the soil samples from augers SS8 and SS9 do not correspond in terms of magnitude as closely with the coil data as in other cases (e.g. Fields A, B, D and E) and the reason for this is not clear. The augered samples do indicate the presence of magnetically enhanced materials within, and restricted to, the Ap horizon. This may again be interpreted as the incorporation of enhanced materials into the plough soil, either from an underlying archaeological horizon or from extraneous sources.

4.2.4 **Field D (east - west transect).** The sample transect ran over short cropped pasture (Readings 1-4) and arable (Readings 5 onwards). The coil data (mean 62SI) are interesting for the magnitude and patterning of the results which have detected an area of interest in the central portion of the transect. This would add weight to an archaeological interpretation for any anomalies detected by gradiometry although the variation of χMS down the soil profile (SS1 and SS2) does not strongly indicate any anomalous horizons of enhancement and, again, the enhancement seems restricted to the Ap horizon. It should be noted that there was a wide variation in soil types along this transect: towards the western end there were gleyed clays and the suggestion of a palaeochannel.

The KMS readings for the **north - south transect**, in contrast, are of a lower magnitude (mean 47SI) and show little variation. The peak at Reading 10 arises from the spread of ash and clinker associated with the dismantled railway. The χMS of the two soil samples (SS3 and SS4) accord with the coil readings and indicate nothing of an obvious archaeological nature. The high χMS of the topsoil at SS4 is probably related to the spread of materials from the railway.

4.2.5 **Field E.** Little can be interpreted from the coil data are there is no suggestion of any enhancement of archaeological significance.

4.2.6 **Fields F, G and H** were all under pasture and χMS was determined for augered soil samples from the Ap horizon only because these three fields fall within the scheduled area and deeper augering was considered unsuitable. As a consequence, the archaeological information which can be derived is limited. What is apparent is that relatively high susceptibilities are found in Field F and, to a lesser extent, Field H, although there is little or no distinctive patterning in the data. The enhancement evident in Field F would lend weight to any interpretation of a gradiometric anomaly as 'archaeological' and the peak in enhancement at SS26 is worthy of archaeological interest. Whilst Field H possessed relatively high susceptibilities, the signs of disturbance evident in the field render such enhanced susceptibilities dubious. Little can be made of the results for Field G.

5. The Results of the Gradiometer Survey

The samples are reported starting at the southern end of the proposed route and working field by field through the survey.

5.1 **Area A.** The ground cover in this field is rough pasture and evidently contains elements of ridge and furrow. The gradiometer results are dominated by the broad, linear anomalies generated by the ridge and furrow. There are no other anomalies that can be definitely identified as being of archaeological interest. The results are compatible with the soil analysis.

5.2 **Area B.** This sample was situated within a ploughed field, that was previously subdivided. The former field division survives as a low earthwork. This earthwork, has provided a clear, but weak response. \there is some suggestion for archaeological type anomalies throughout the central and northern parts of this area. However, a formal interpretation of the possible remains cannot be given due to the narrowness of the sample and its orientation with respect to the features. Interestingly, there are a number of broad anomalies, situated largely south of the former boundary, that are unlike any others found elsewhere in this survey. It is believed that they may be the product of pockets of magnetic gravels. However, given the possible archaeological context, it must be considered that they may represent large pits or similar features. The soil analysis also indicated that this area may be of some archaeological interest.

5.3 **Area C.** This is again a sample on a ploughed field. Within the data can be seen a regular response from drainage and/or ridge and furrow. Although there are hints that other, lower level responses may be on a different alignment, the distorting affects of the drainage / ridge and furrow allow little prospect of a confident interpretation. Interestingly, the soil analysis indicates that this field may contain archaeological activity. If this is so, then the strength of the drainage / ridge and furrow anomalies will be due to disturbing the earlier archaeological activity.

5.4 **Area D (north-south transect).** The results from this sample appear to have more archaeological integrity than those from the previous three areas. However, it is still uncertain as to how much of the linear anomalies are likely to be part of the drainage / ridge and furrow that is so apparent in many of the other data sets. Despite this it is believed that the results may indicate a series of fields / enclosures. There may be some correlation between the gradiometer and soil analysis, but the latter does not suggest any major archaeological presence.

5.5 **Area D (east-west transect).** This area is split between two fields. The western part of the sample is within the same field as Area D (north-south), while the eastern part is in the adjacent pasture field. In both fields the data are dominated by the presumed drainage / ridge and furrow anomalies. The interpretation of the soil information suggests that archaeological information may be found in this area despite the gradiometer results.

5.6 **Area E.** This is the first of four samples north of Hambridge Road. The surface was bare earth at the time of the survey. There is a trend in the data that would suggest ploughing, or similar, with the alignment approximately parallel with the present field boundaries. One of the anomalies curves slightly and is stronger than the others. It is suggested that this may be more likely to be archaeological. The soil information suggests that this not likely to be an area of archaeological interest.

5.7 **Area F.** This is the first of three samples (F, G and H) that lie within the scheduled area. As a result of the archaeological sensitivity of these areas the sample width was extended to 40m. The data in Area F are, again, dominated by the trend noted in the previous samples. However, there are a number of points to note. Firstly, the anomalies within the western half of this area are stronger than those situated in the east. This may indicate features associated with strong magnetic enhancement, perhaps occupation debris rather than 'activity' or a field system. Secondly, the two circular / subcircular anomalies are clearly unusual given the responses in the previous areas. The soil analysis suggested that this area is likely to be of archaeological interest.

5.8 **Area G.** The gradiometer data are, again, confused by the presumed drainage / ridge and furrow trend. However, a curvilinear anomaly, similar in form to the ones found in the western part of Area F, has been noted near the boundary adjoining that area. This area is not considered to have enhanced levels of magnetic susceptibility.

5.9 **Area H**. This sample lies next to the quarried area at the northen end of the proposed bypass. Again, the results are confused by the drainage / ridge and furrow trend noted throughout the previous areas. There are a few anomalies that are stronger and have a possible archaeological form. The fact that this sample is adjacent to the quarry may indicate that some of the anomalies may be the result of landscaping around the edge of the works. Although the general level of susceptibility is high in this area, the possibility of ground disturbance cannot be ignored.

6. Conclusions

6.1 The gradiometer data have defined a number of anomalies of potential archaeological interest both within the scheduled area and beyond. In many cases the archaeological interpretation can be only tentative, due to the narrow survey area. The supporting magnetic susceptibility data has strengthened the gradiometer interpretation in some areas. Despite the problem of drainage / ridge and furrow anomalies it is believed that archaeological features have been detected.

Project Co-ordinator: Dr C Gaffney
Project Assistants: J Gater, Dr S Ovenden-Wilson, A Shields, C Stephens and D Weston.

Start of Fieldwork: 18th September 1995
Report Date: 2nd November 1995

TECHNICAL INFORMATION

The following is a description of the equipment and display formats used in **GEOPHYSICAL SURVEYS OF BRADFORD** reports. It should be emphasised that whilst all of the display options are regularly used, the diagrams produced in the final reports are the most suitable to illustrate the data from each site. The choice of diagrams results from the experience and knowledge of the staff of **GEOPHYSICAL SURVEYS OF BRADFORD.**

All survey reports are prepared and submitted on the basis that whilst they are based on a thorough survey of the site, no responsibility is accepted for any errors or omissions.

Magnetic readings are logged at 0.5m intervals along one axis in 1m traverses giving 800 readings per 20m x 20m grid, unless otherwise stated. Resistance readings are logged at 1m intervals giving 400 readings per 20m x 20m grid. The data are then transferred to portable computers and stored on 3.5" floppy discs. Field plots are produced on a portable Hewlett Packard Thinkjet. Further processing is carried out back at base on computers linked to appropriate printers and plotters.

Instrumentation

(a) Fluxgate Gradiometer - Geoscan FM36

This instrument comprises of two fluxgates mounted vertically apart, at a distance of 500mm. The gradiometer is carried by hand, with the bottom sensor approximately 100-300mm from the ground surface. At each survey station, the difference in the magnetic field between the two fluxgates is conventionally measured in nanoTesla (nT) or gamma. The fluxgate gradiometer suppresses any diurnal or regional effects. Generally features up to one metre deep may be detected by this method.

(b) Resistance Meter - Geoscan RM4 or RM15

This measures the electrical resistance of the earth, using a system of four electrodes (two current and two potential.) Depending on the arrangement of these electrodes an exact measurement of a specific volume of earth may be acquired. This resistance value may then be used to calculate the earth resistivity. The "Twin Probe" arrangement involves the paring of electrodes (one current and one potential) with one pair remaining in a fixed position, whilst the other measures the resistance variations across a fixed grid. The resistance is measured in Ohms and the calculated resistivity is in Ohm-metres. The resistance method as used for area survey has a depth resolution of approximately 0.75m, although the nature of the overburden and underlying geology will cause variations in this generality. The technique can be adapted to sample greater depths of earth and can therefore be used to produce vertical "pseudo sections".

(c) Magnetic Susceptibility

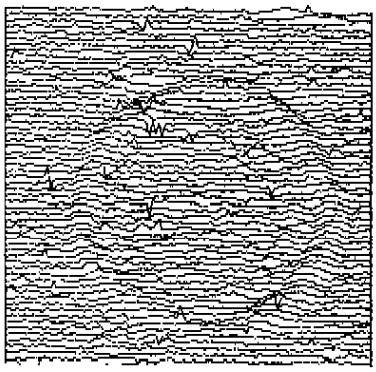
Variations in the magnetic susceptibility of subsoils and topsoils occur naturally, but greater enhanced susceptibility can also be a product of increased human/anthropogenic activity. This phenomenon of susceptibility enhancement can therefore be used to provide information about the "level of archaeological activity" associated with a site. It can also be used in a predictive manner to ascertain the suitability of a site for a magnetic survey. The instrument employed for measuring this phenomenon is either a field coil or a laboratory based susceptibility bridge. For the latter 50g soil samples are collected in the field.

Display Options

The following is a description of the display options used. Unless specifically mentioned in the text, it may be assumed that no filtering or smoothing has been used to enhance the data. For any particular report a limited number of display modes may be used.

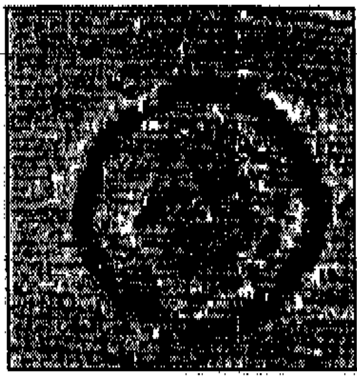
(a) Dot-Density

In this display, minimum and maximum cut-off levels are chosen. Any value that is below the minimum cut-off value will appear white, whilst any value above the maximum cut-off value will appear black. Any value that lies between these two cut-off levels will have a specified number of dots depending on the relative position between the two levels. The focus of the display may be changed using different levels and a contrast factor (C.F.). Usually the C.F. = 1, producing a linear scale between the cut-off levels. Assessing a lower than normal reading involves the use of an inverse plot. This plot simply reverses the minimum and maximum values, resulting in the lower values being presented by more dots. In either representation, each reading is allocated a unique area dependent on its position on the survey grid, within which numbers of dots are randomly placed. The main limitation of this display method is that multiple plots have to be produced in order to view the whole range of the data. It is also difficult to gauge the true strength of any anomaly without looking at the raw data values. This display is much favoured for producing plans of sites, where positioning of the anomalies and features is important.



(b) X-Y Plot

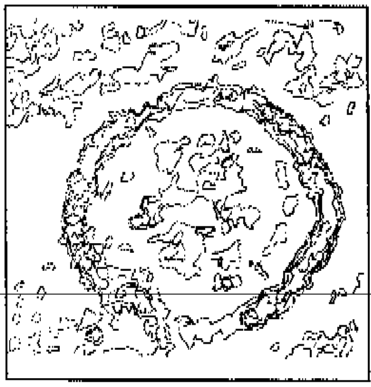
This involves a line representation of the data. Each successive row of data is equally incremented in the Y axis, to produce a stacked profile effect. This display may incorporate a hidden-line removal algorithm, which blocks out lines behind the major peaks and can aid interpretation. Advantages of this type of display are that it allows the full range of the data to be viewed and shows the shape of the indiviual anomalies. Results are produced on a flatbed plotter.



(c) Grey-Scale

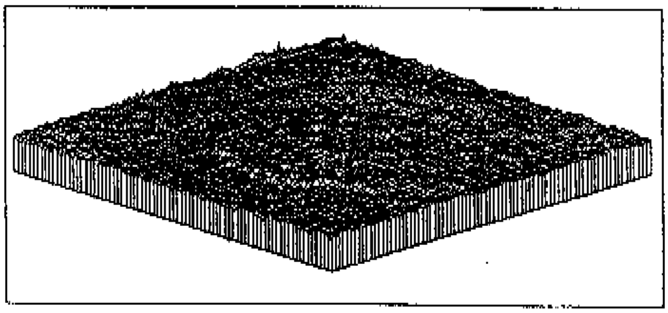
This format divides a given range of readings into a set number of classes. These classes have a predefined arrangement of dots or shade of grey, the intensity increasing with value. This gives an appearance of a toned or grey scale.

Similar plots can be produced in colour, either using a wide range of colours or by selecting two or three colours to represent positive and negative values. While colour plots can look impressive and can be used to highlight certain anomalies, grey-scales tend to be more informative.



(d) Contour

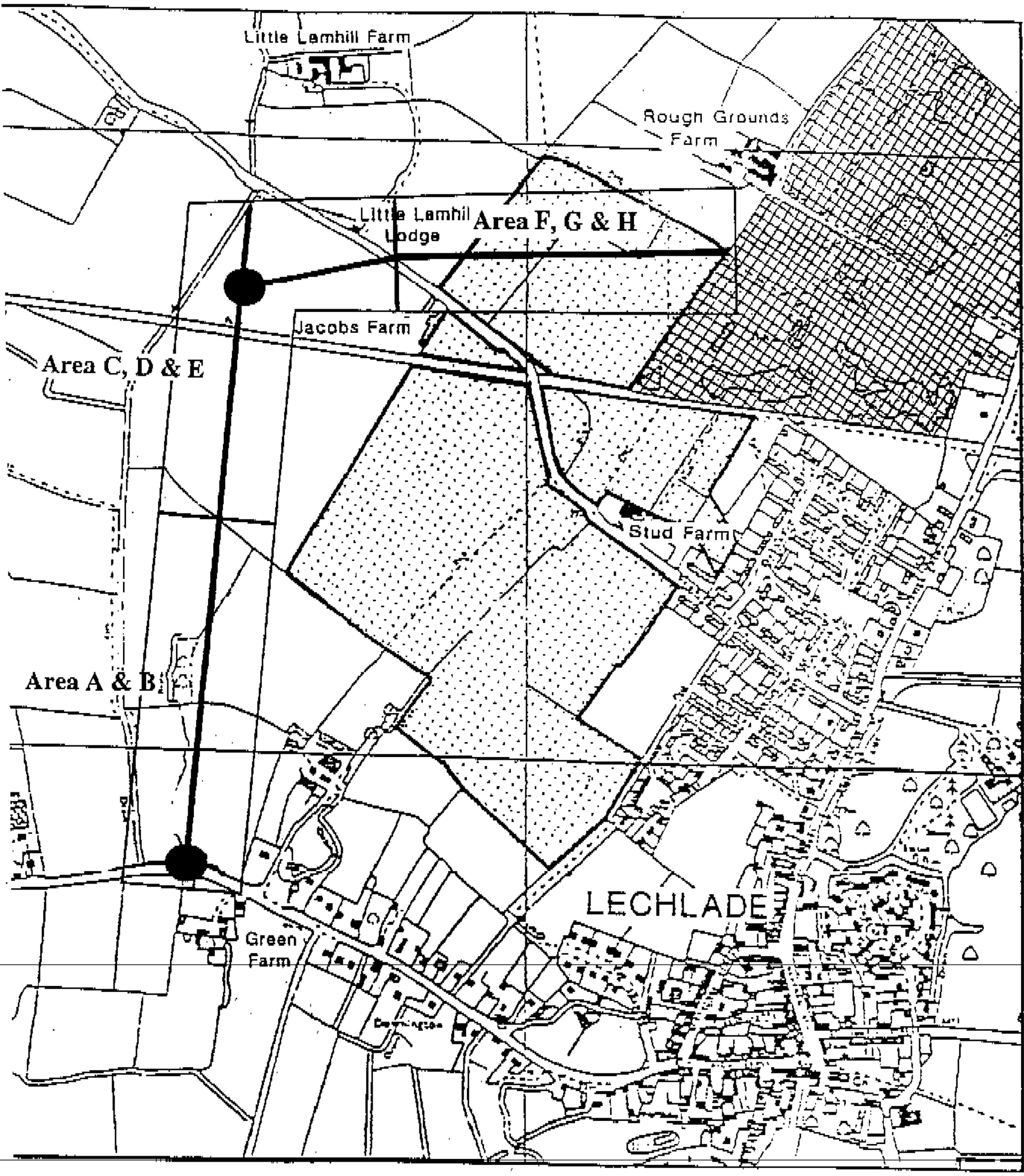
This display format is commonly used in cartographic displays. Data points of equal value are joined by a contour line. Closely packed contours indicate a sharp gradient. The contours therefore highlight an anomalous region. The range of contours and contour interval are selected manually and the display is then generated on the computer screen or plotted directly on a flat bed plotter / inkjet printer.



(e) 3-D Mesh

This display joins the data values in both the X and Y axis. The display may be changed by altering the horizontal viewing angle and the angle above the plane. The output may be either colour or black and white. A hidden line option is occasionally used (see (b) above).

LECHLADE BYPASS
Approximate Position of Proposed Bypass



Area of Scheduled Ancient Monument

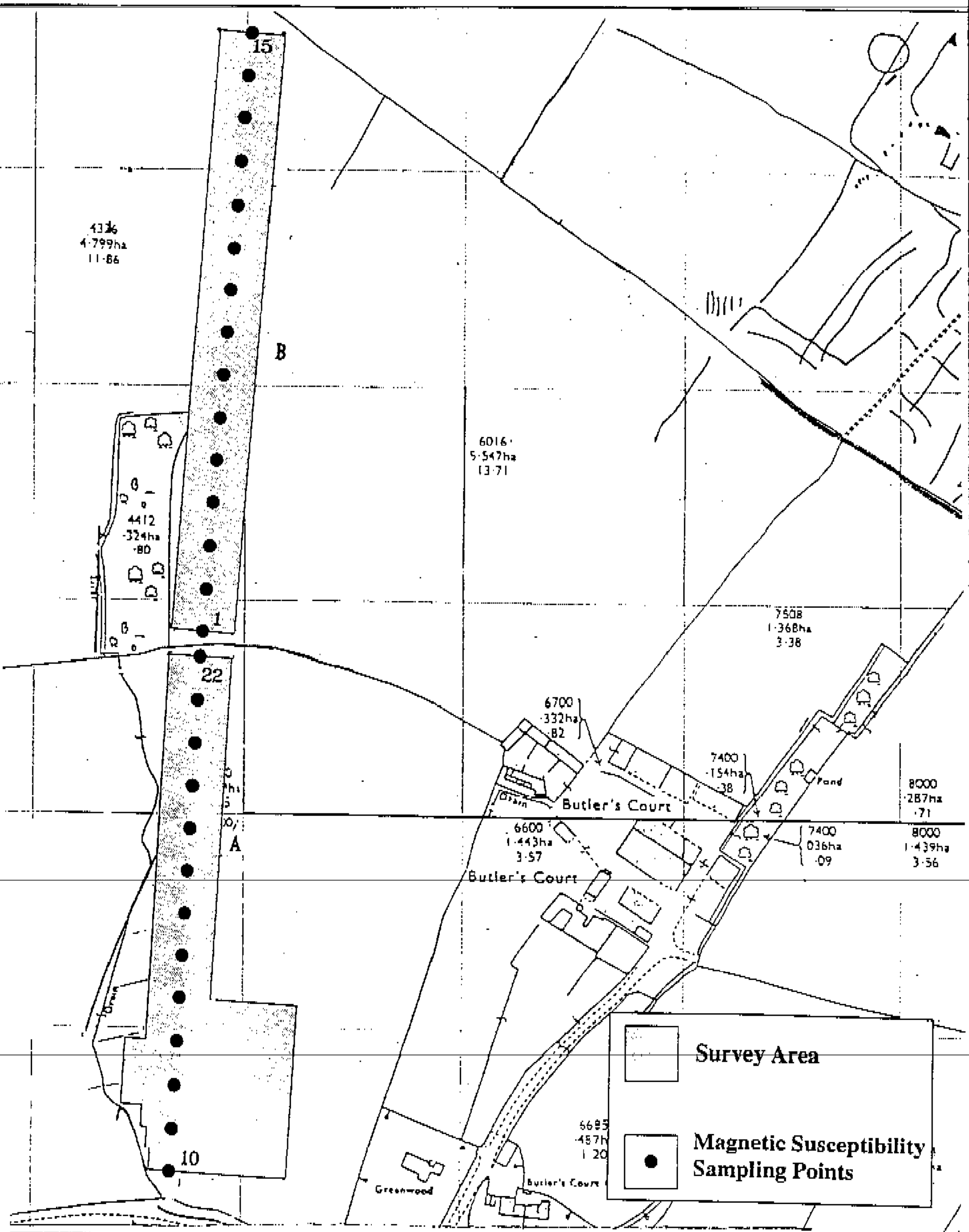
Area of gravel extraction

1:10000

Based on plan supplied by
Oxford Archaeological Unit
"...eological Survey Lechlade Bypass"

Figure 1

LECHLADE BYPASS
Location of Survey Area A & B



1:2500

Figure 2

LECHLADE BYPASS
Location of Survey Area C, D & E

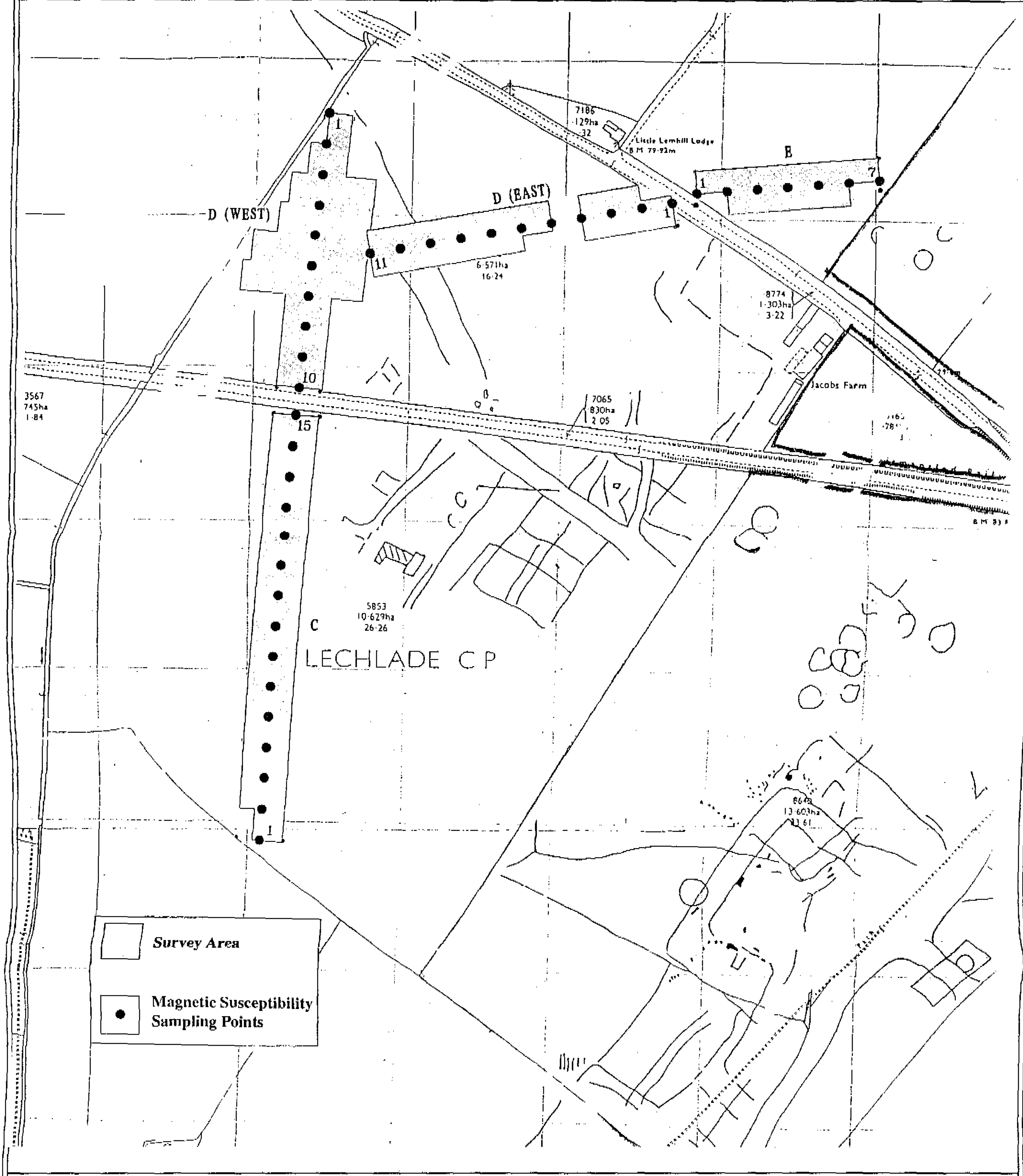


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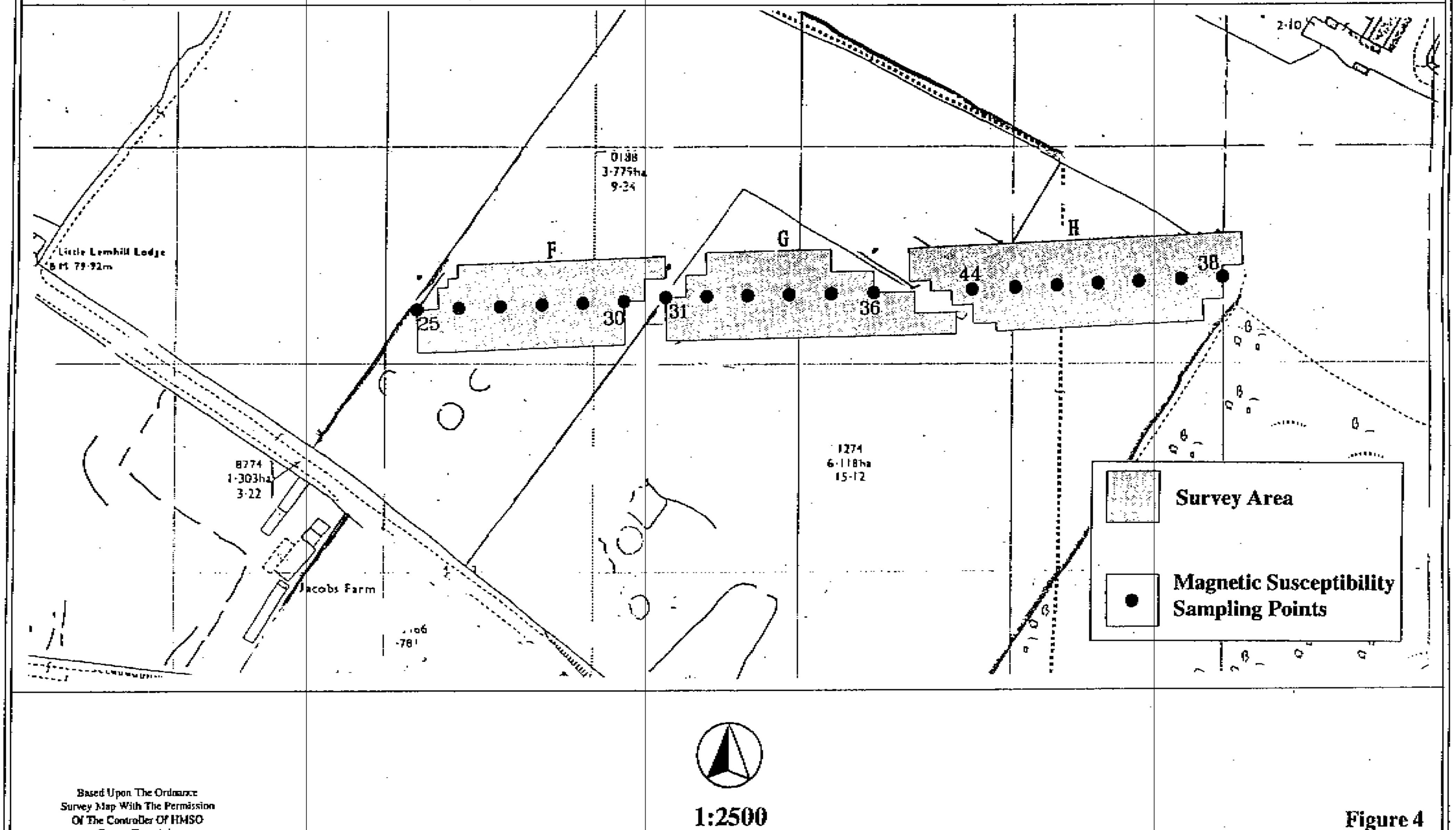
Figure 3

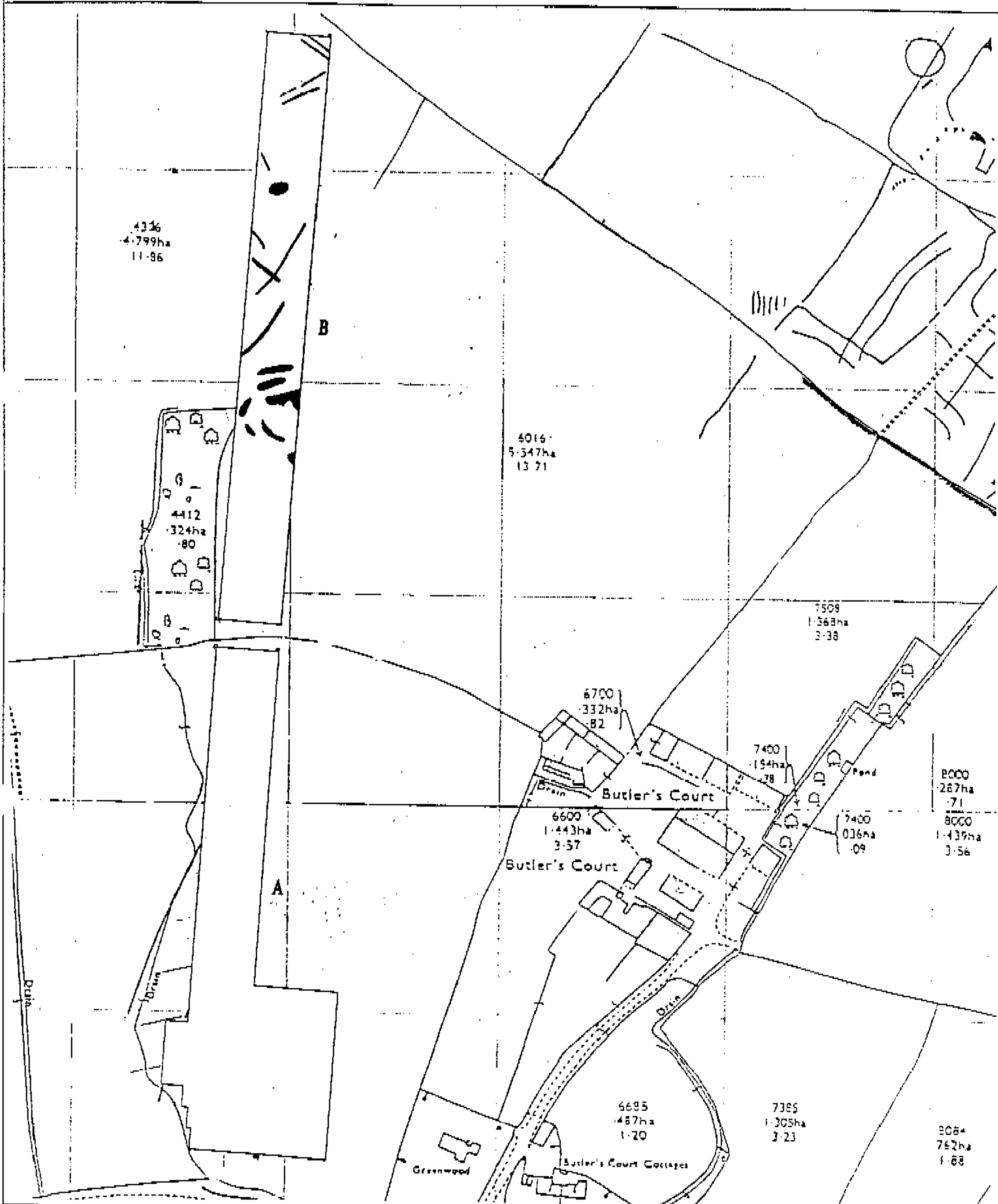
LECHLADE BYPASS
Location of Survey Area F, G & H



Based Upon The Ordnance Survey Map With The Permission Of The Controller Of HMSO

Figure 4

LECHLADE BYPASS
Summary Interpretation of Area A & B



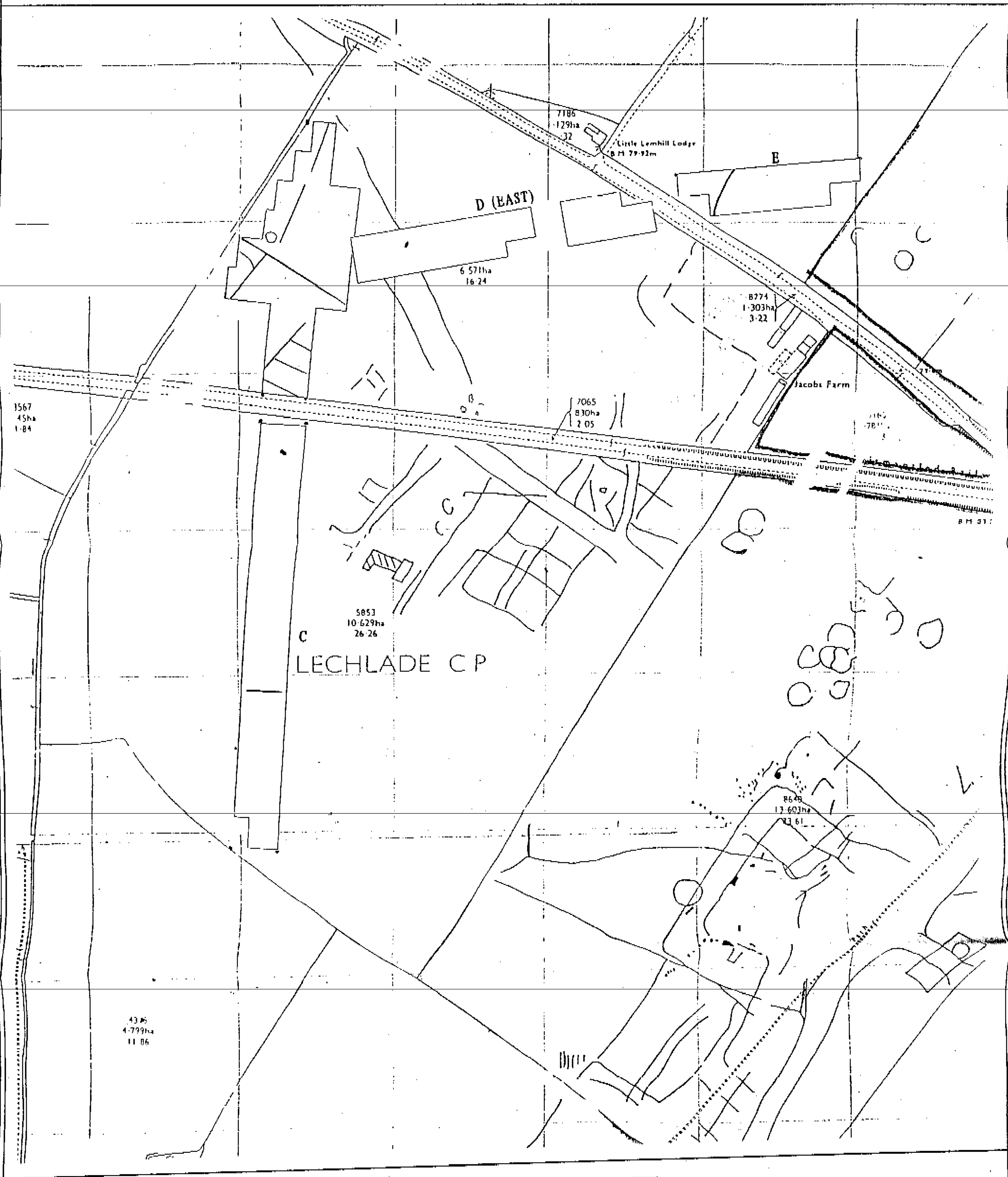
?Archaeology

Geology

1:2500

Figure 5

LECHLADE BYPASS
Summary Interpretation of Area C, D & E



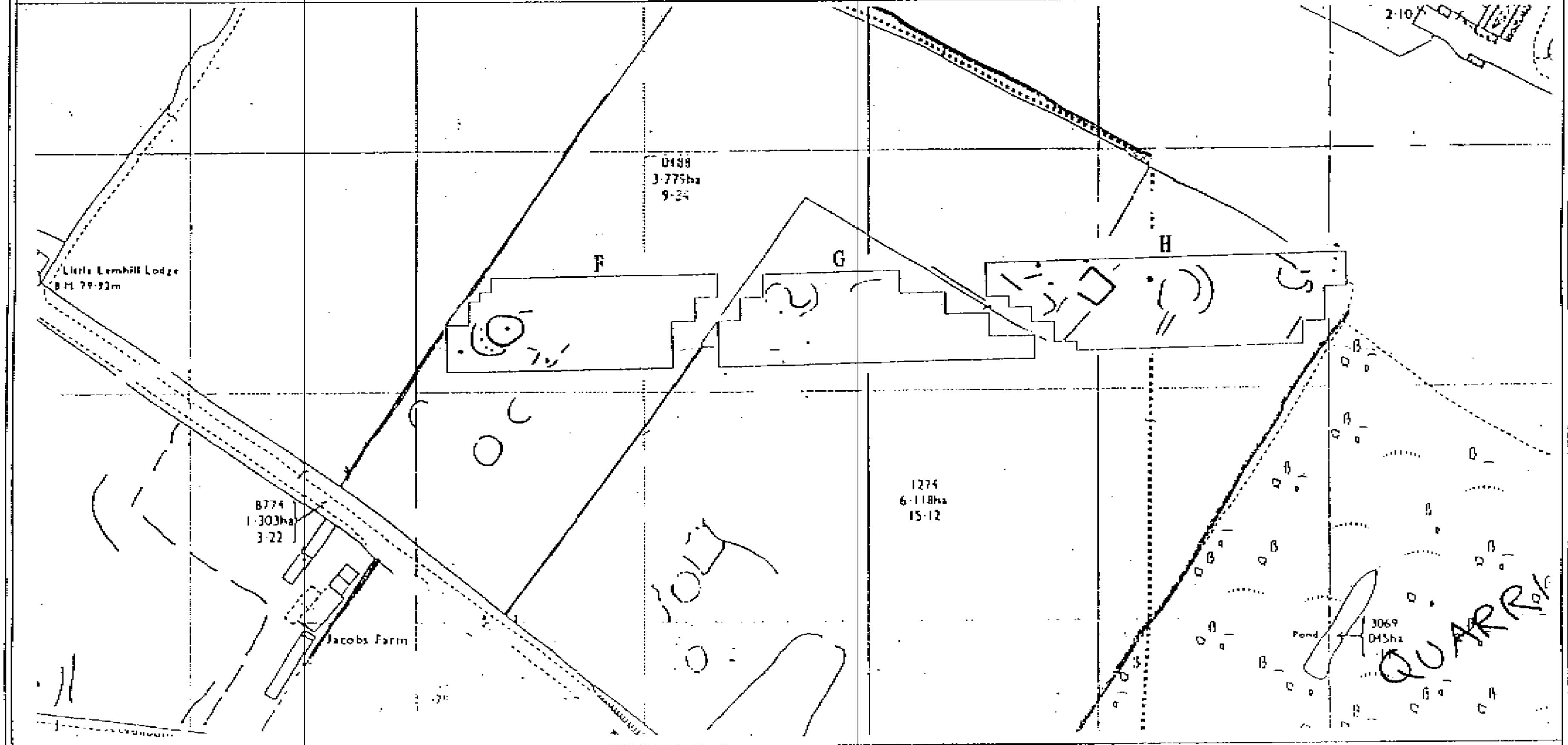
?Archaeology

Geology

1:2500

Figure 6

LECHLADE BYPASS
Summary Interpretation of Area F, G & H



?Archaeology

Geology

1:2500

Based Upon The Ordnance Survey Map With The Permission Of The Controller Of HMSO Crown Copyright

Figure 7

LECHLADE BYPASS
Area A

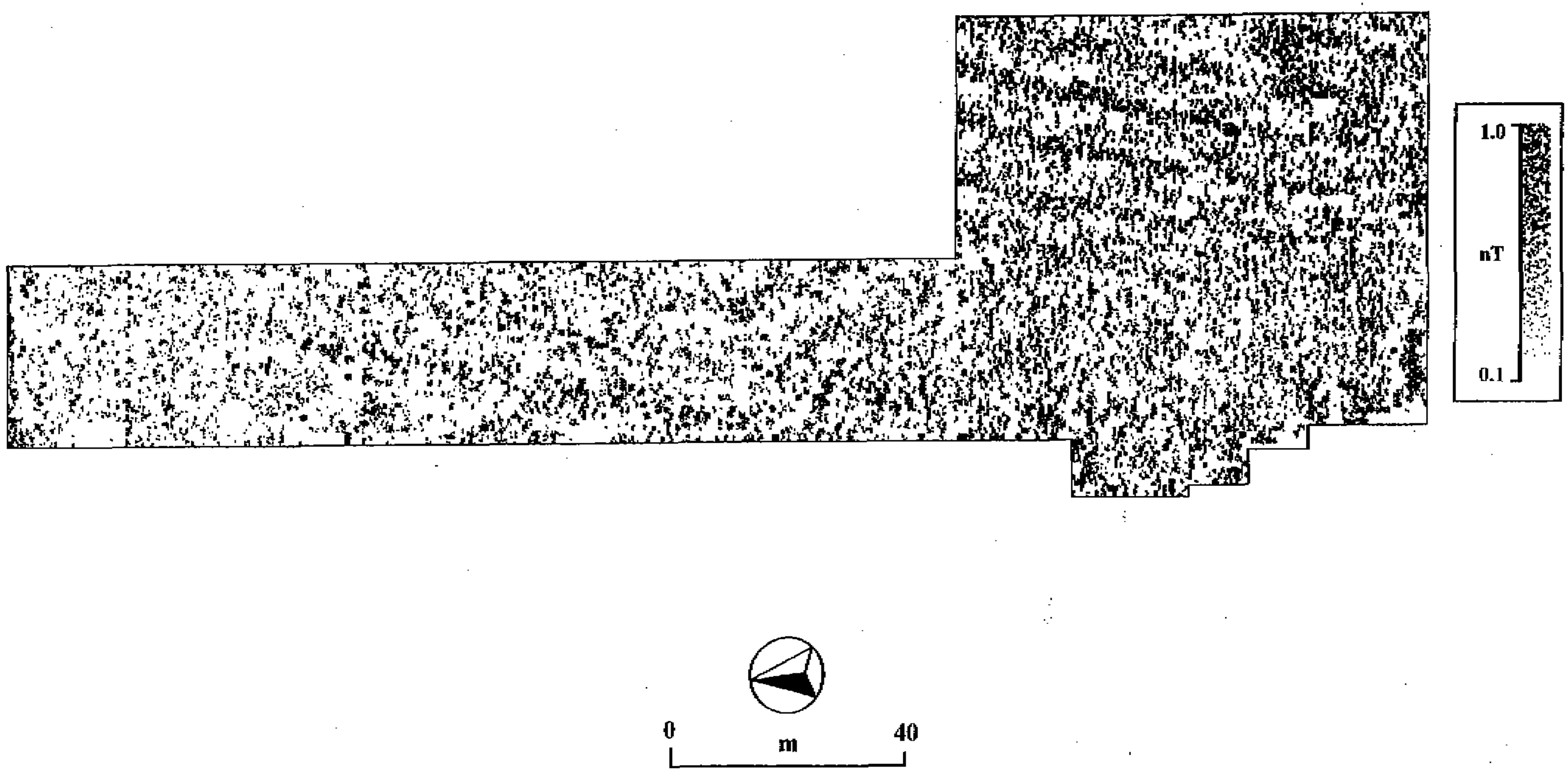


Figure A.1

LECHLADE BYPASS
Area A

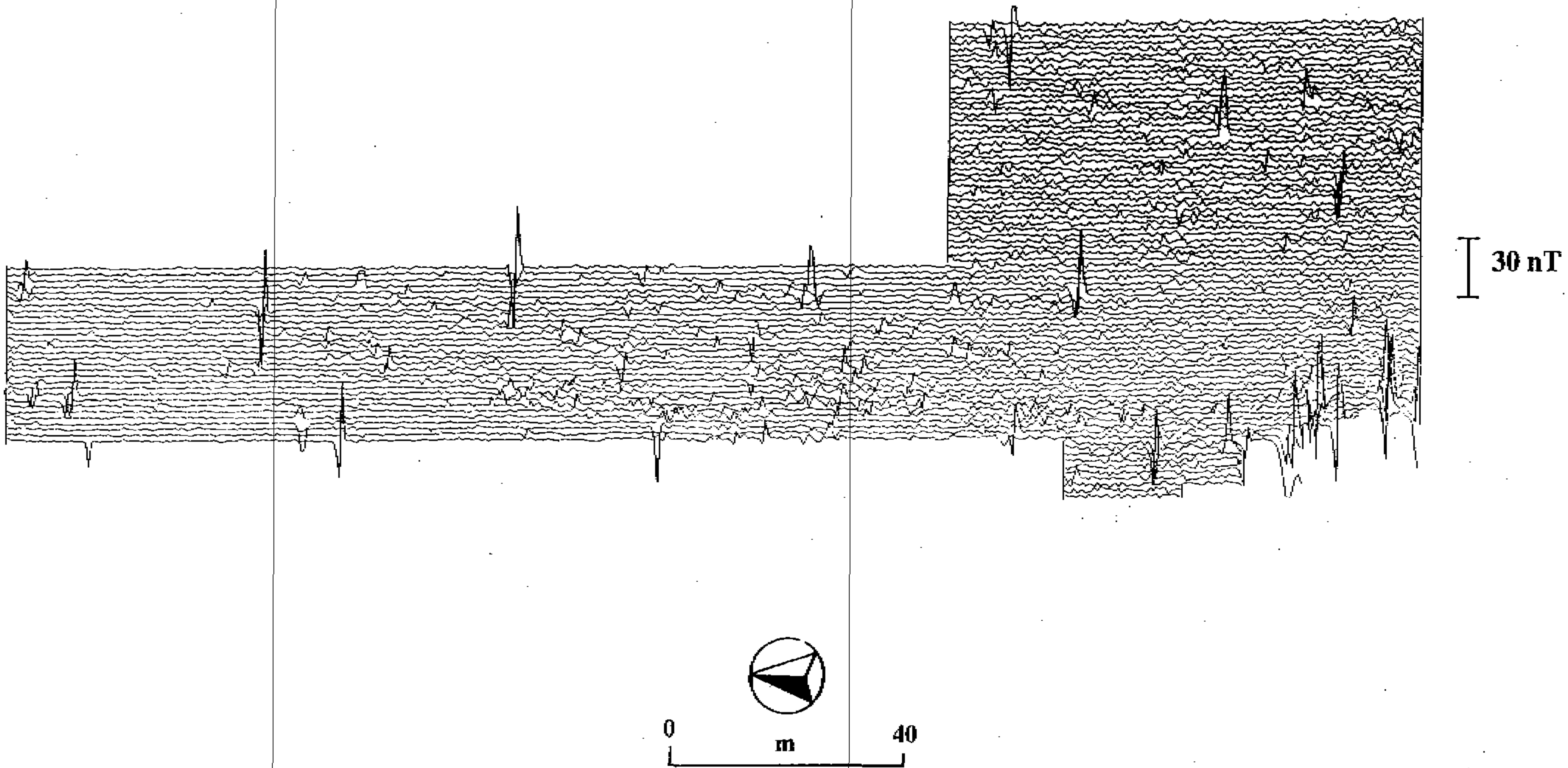
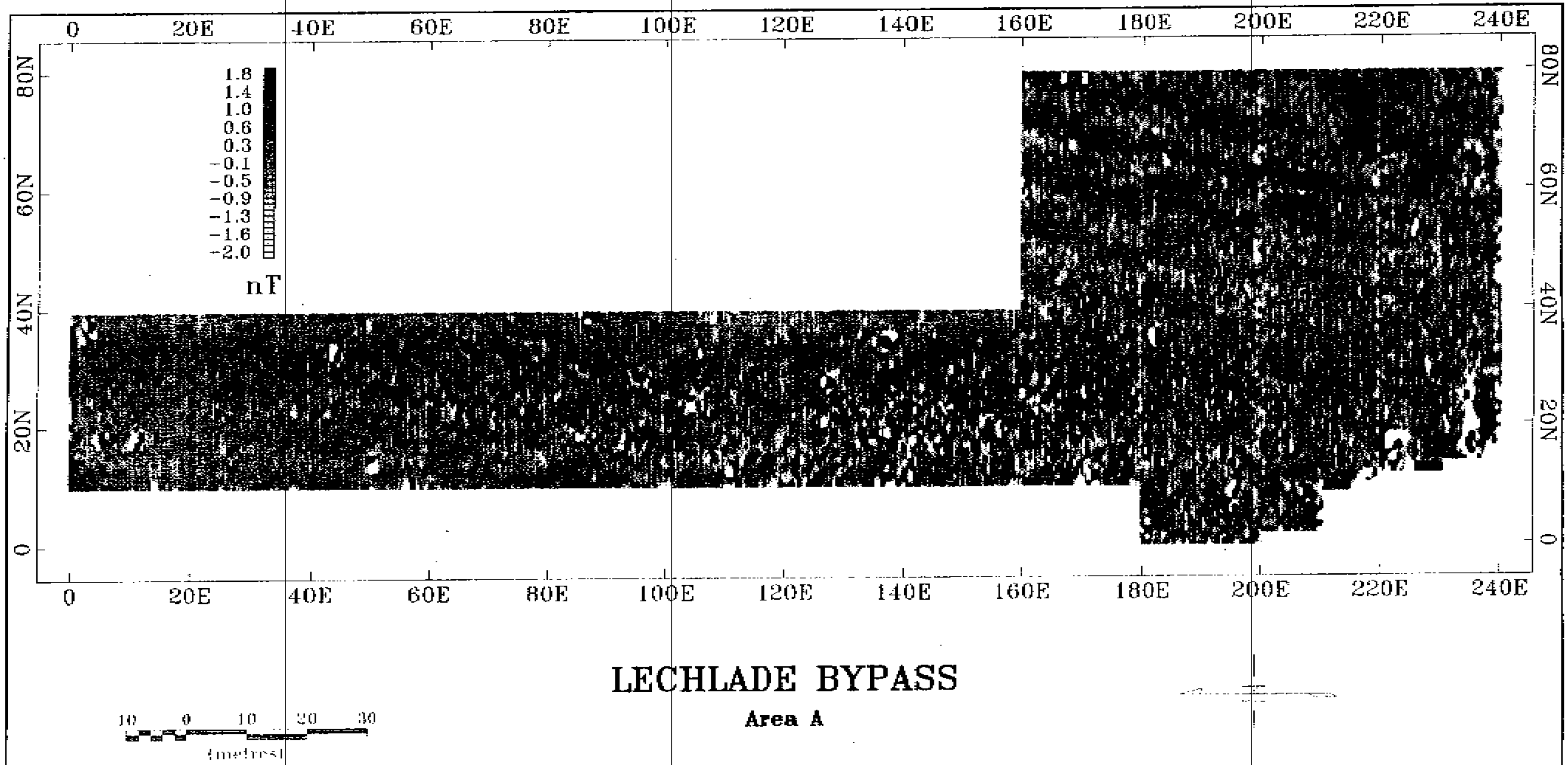


Figure A.2



LECHLADE BYPASS

Area A

Figure A.3

LECHLADE BYPASS
Area A

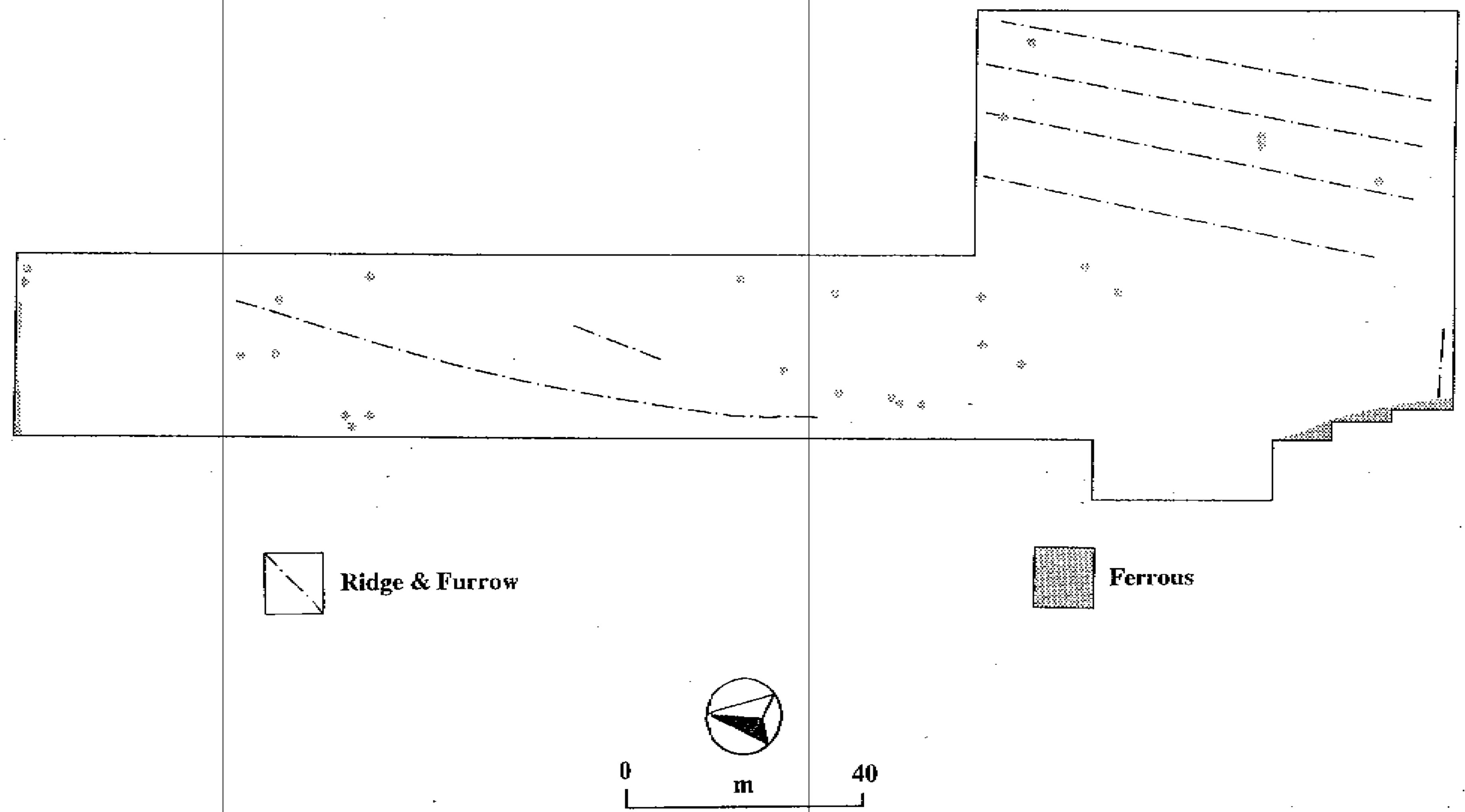


Figure A.4

LECHLADE BYPASS
Area B

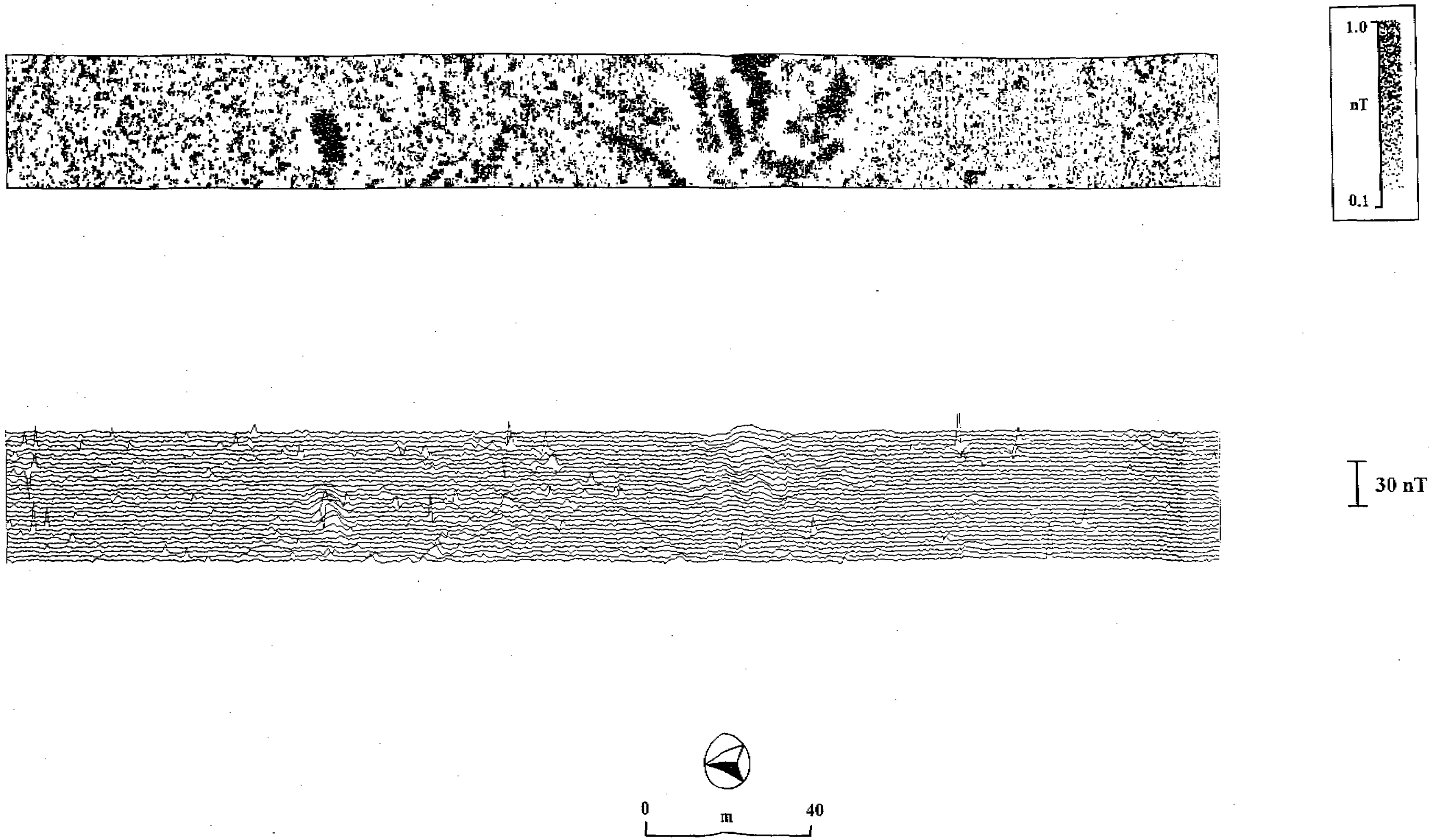
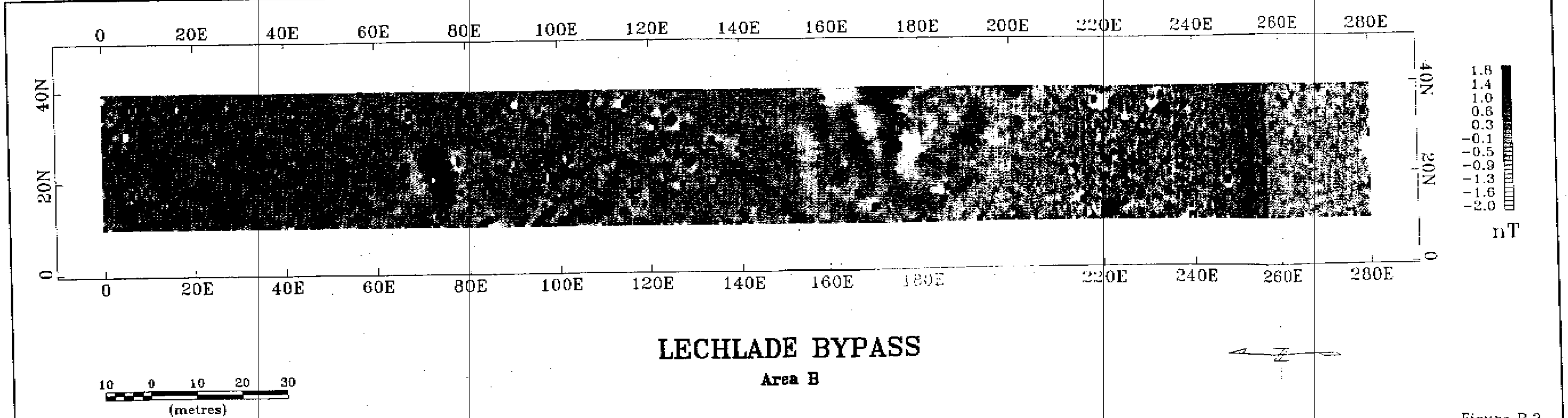


Figure B.1



LECHLADE BYPASS

Area B

Figure B.2

LECHLAI

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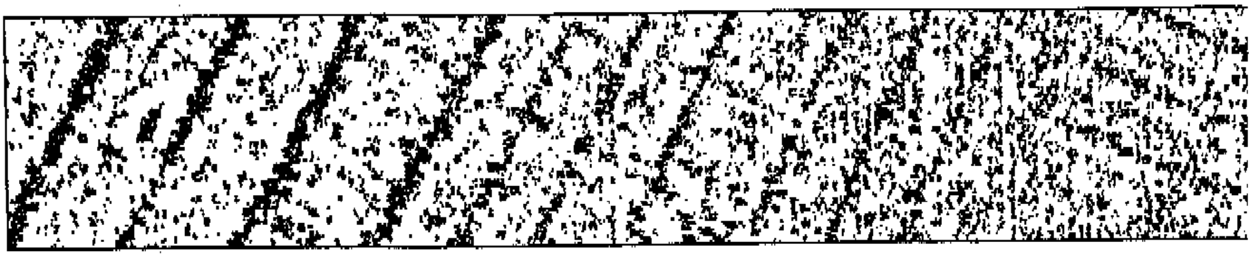
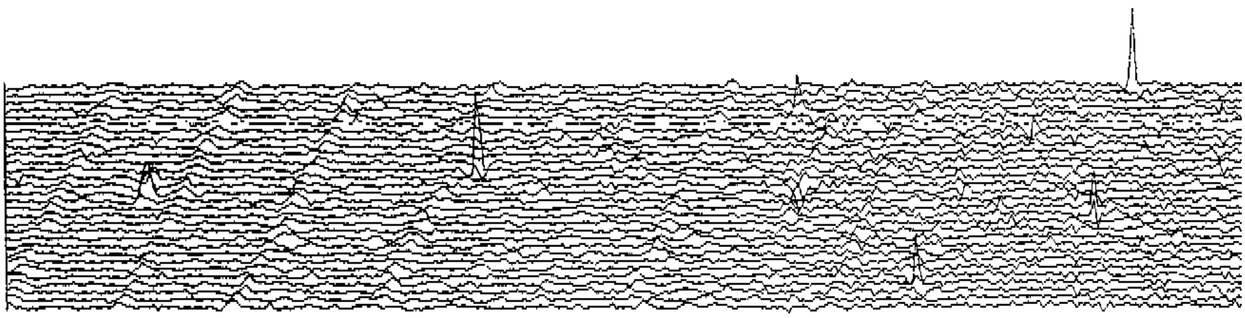
Are





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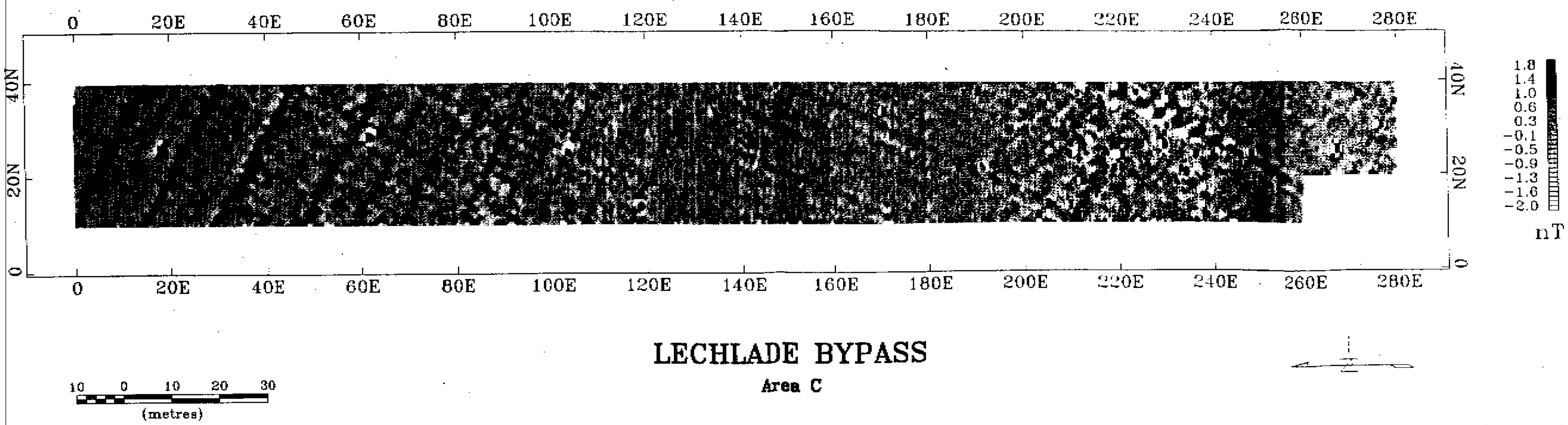


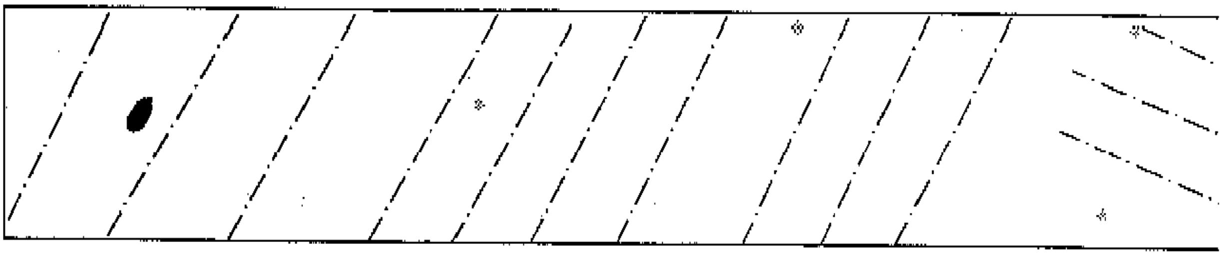
LECHLADE BYPASS

Area C

Figure C.2

LECHLA

A



(

0

LECHLADE BYPASS
Area D (West)

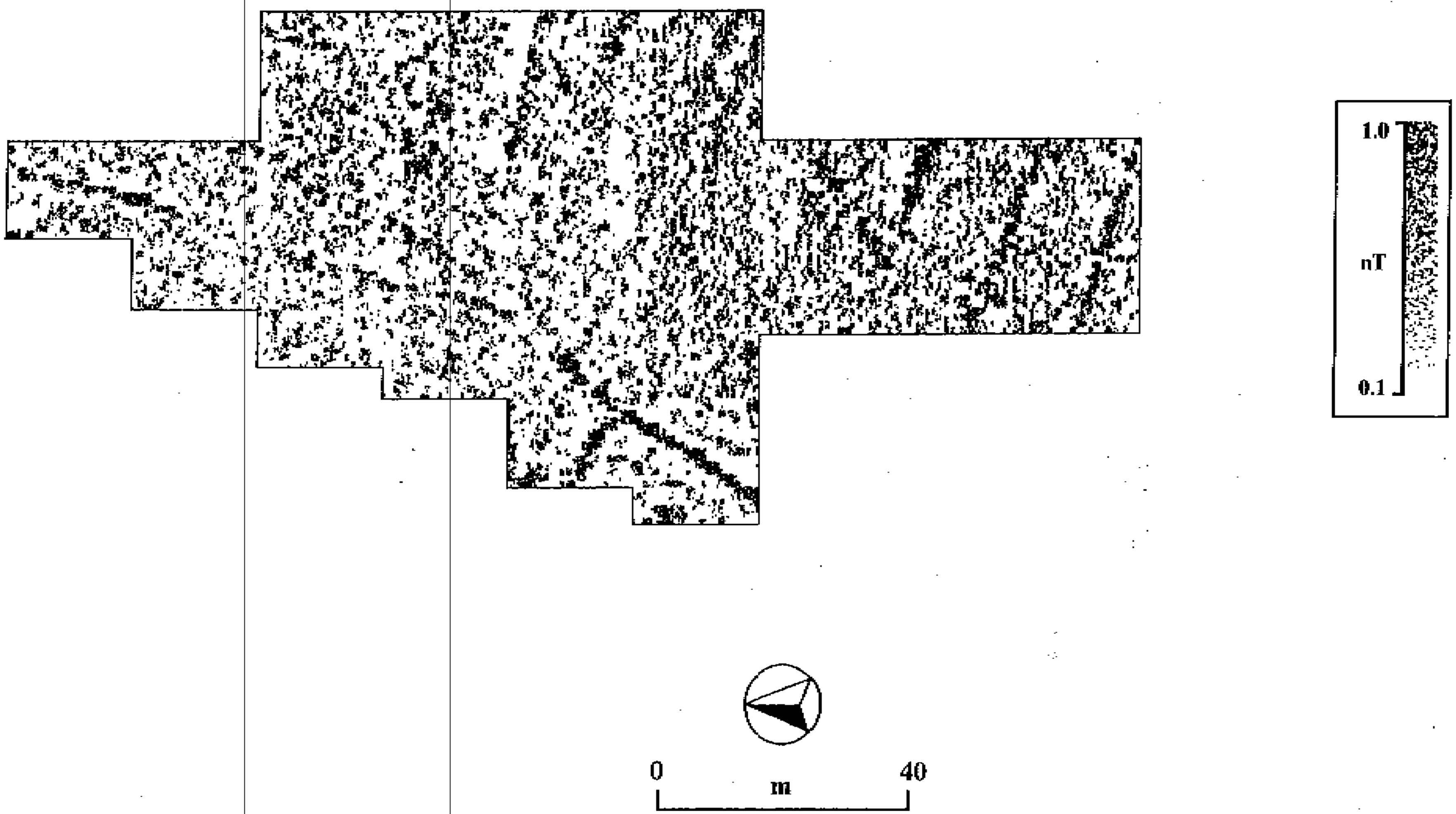


Figure D.1

LECHLADE BYPASS
Area D (West)

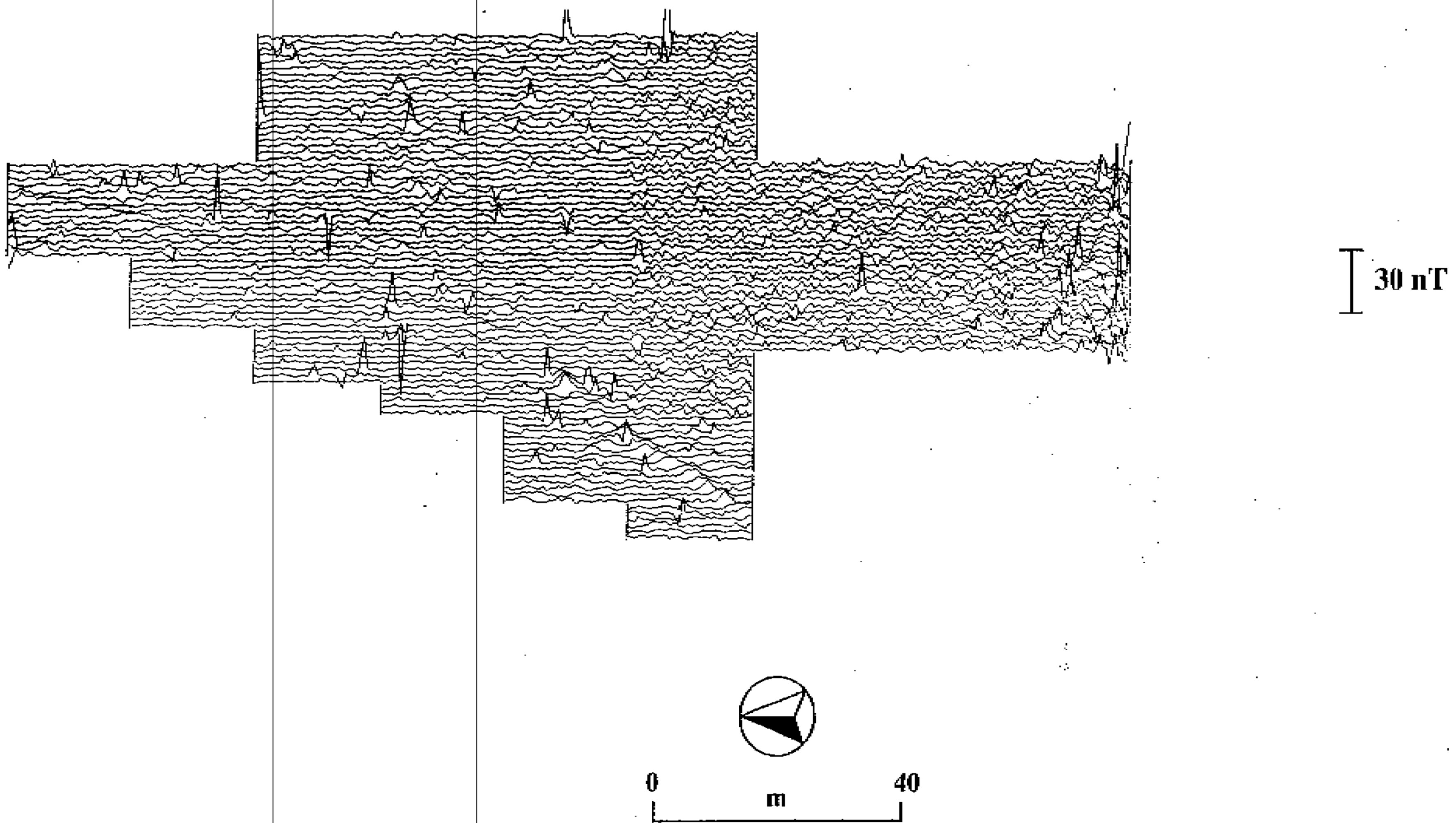
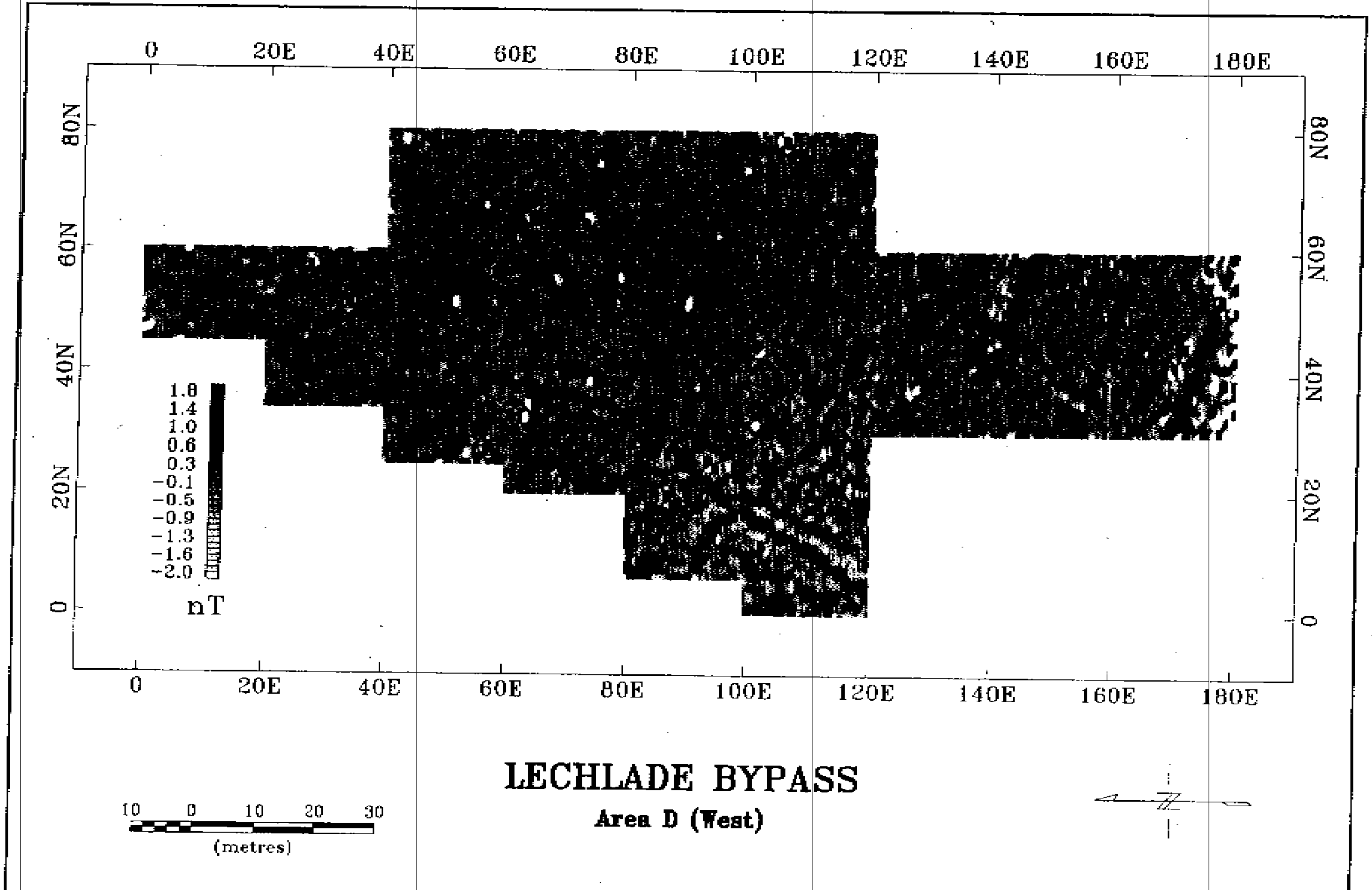


Figure D.2



0
20E
40E
60E
80E
100E
120E
140E
160E
180E
80N
60N
40N
20N
0
1.8
1.4
1.0
0.6
0.3
−0.1
−0.5
−0.9
−1.3
−1.6
−2.0
nT
LECHLADE BYPASS
Area D (West)
10 0 10 20 30
(metres)

Figure D.3

LECHLADE BYPASS
Area D (West)

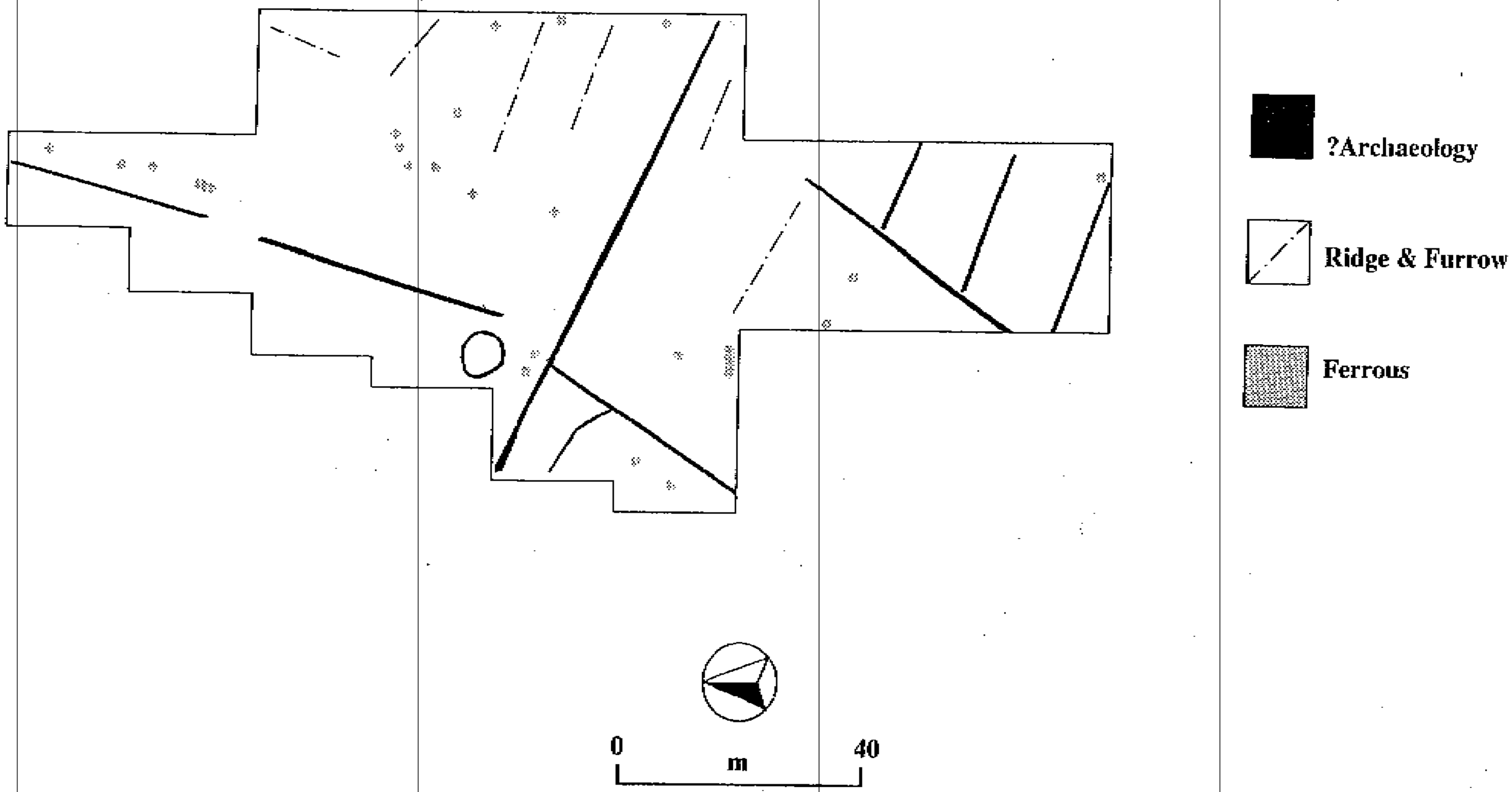


Figure D.4

LECHLADE BYPASS
Area D (East)

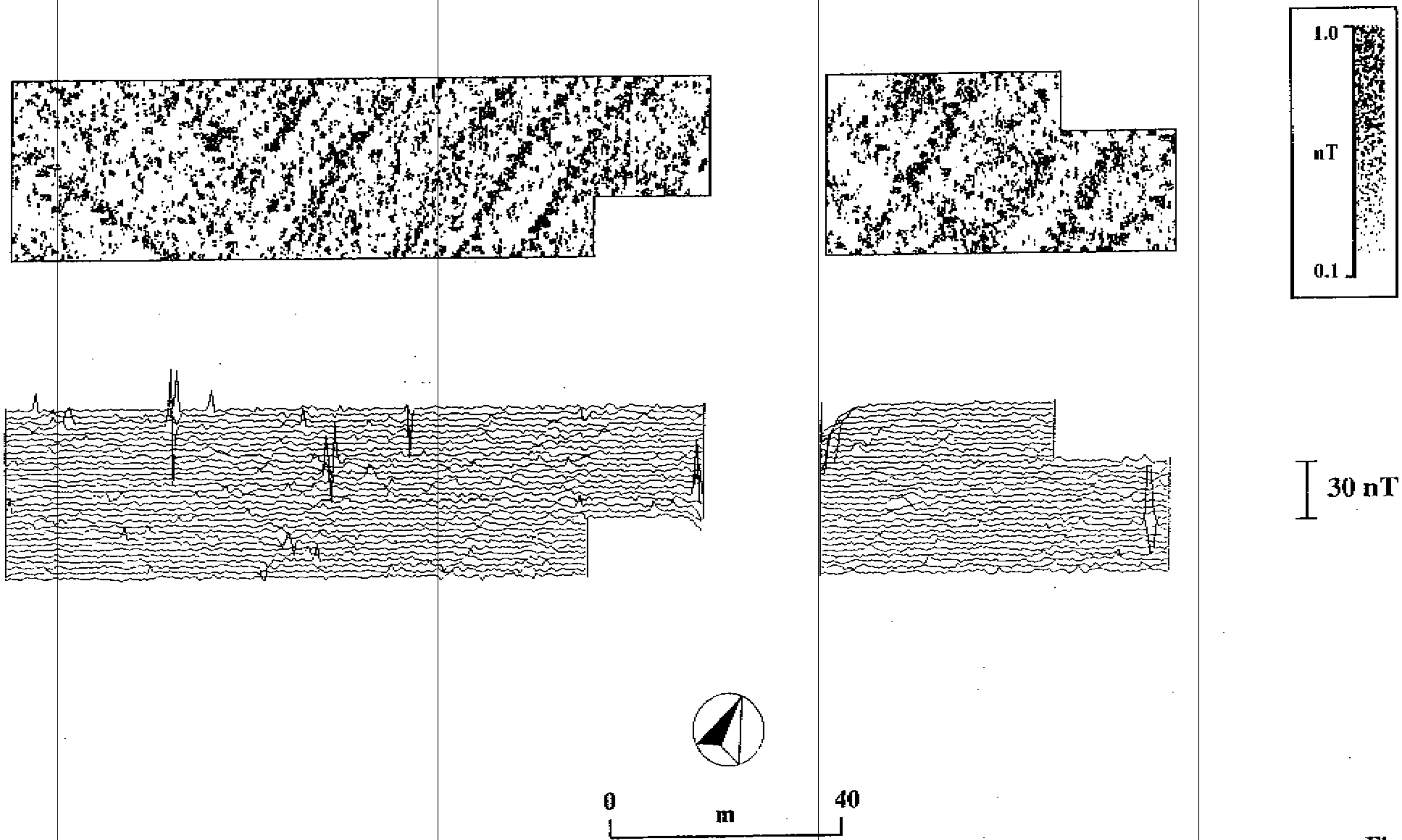
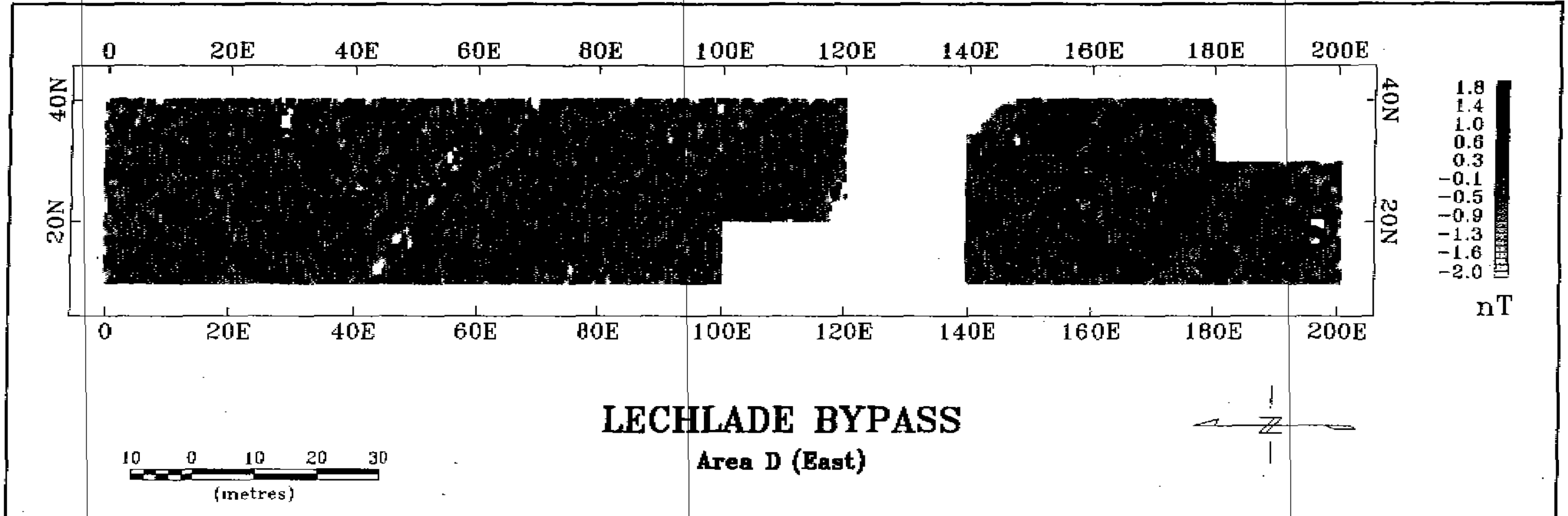


Figure D.5



0
20E
40E
60E
80E
100E
120E
140E
160E
180E
200E
40N
20N
1.8
1.4
1.0
0.6
0.3
-0.1
-0.5
-0.9
-1.3
-1.6
-2.0
nT
LECHLADE BYPASS
Area D (East)
10 0 10 20 30
(metres)

Figure D.6

LECHLADE BYPASS
Area D (East)

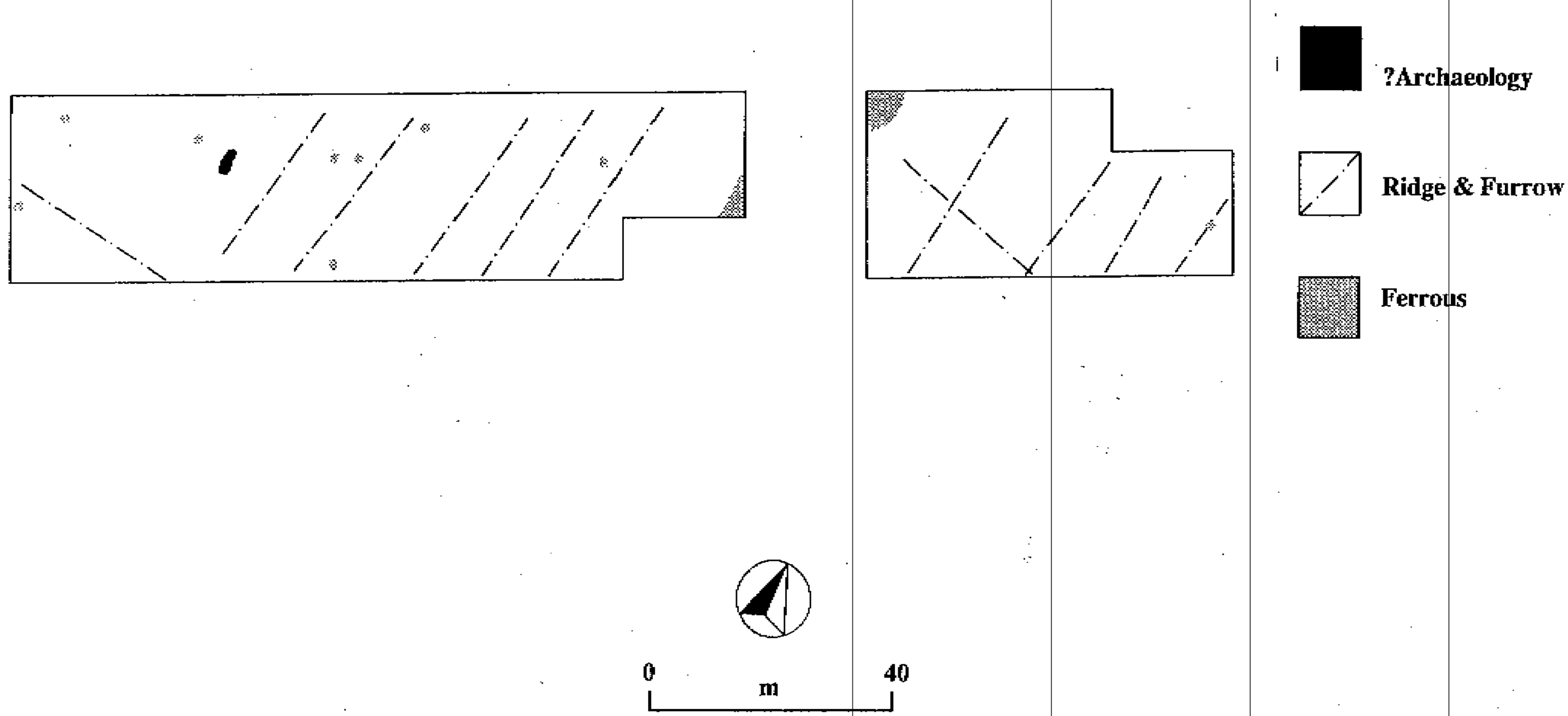


Figure D.7

LECHLADE BYPASS
Area E

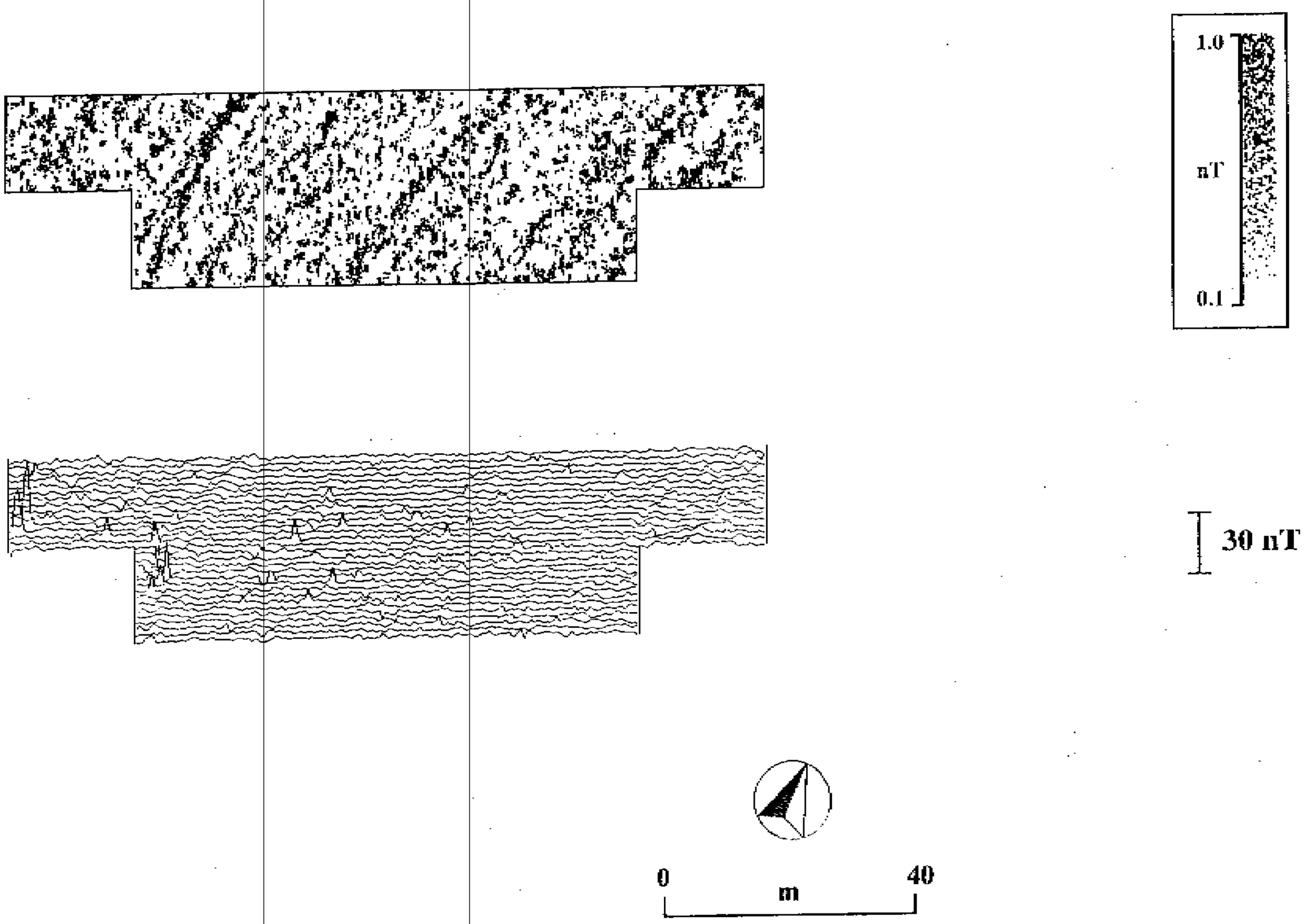
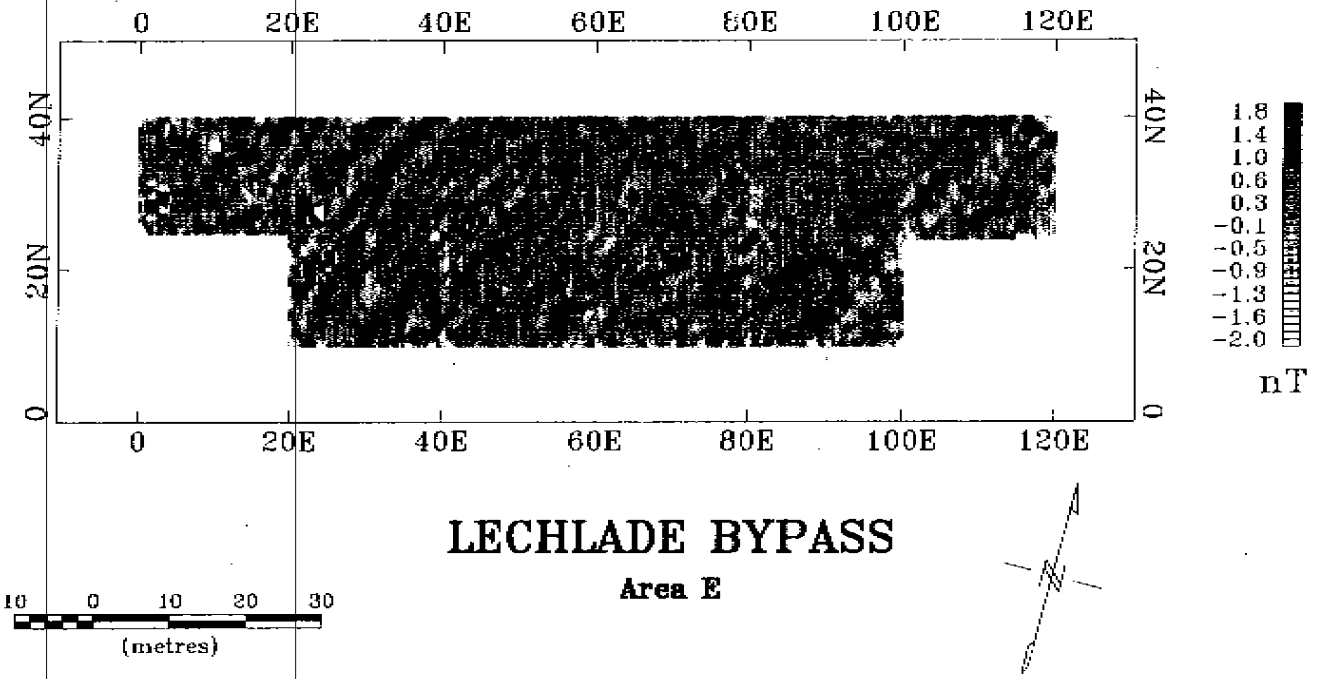


Figure E.1



LECHLADE BYPASS

Area E

Figure E.2

LECHLADE BYPASS
Area E

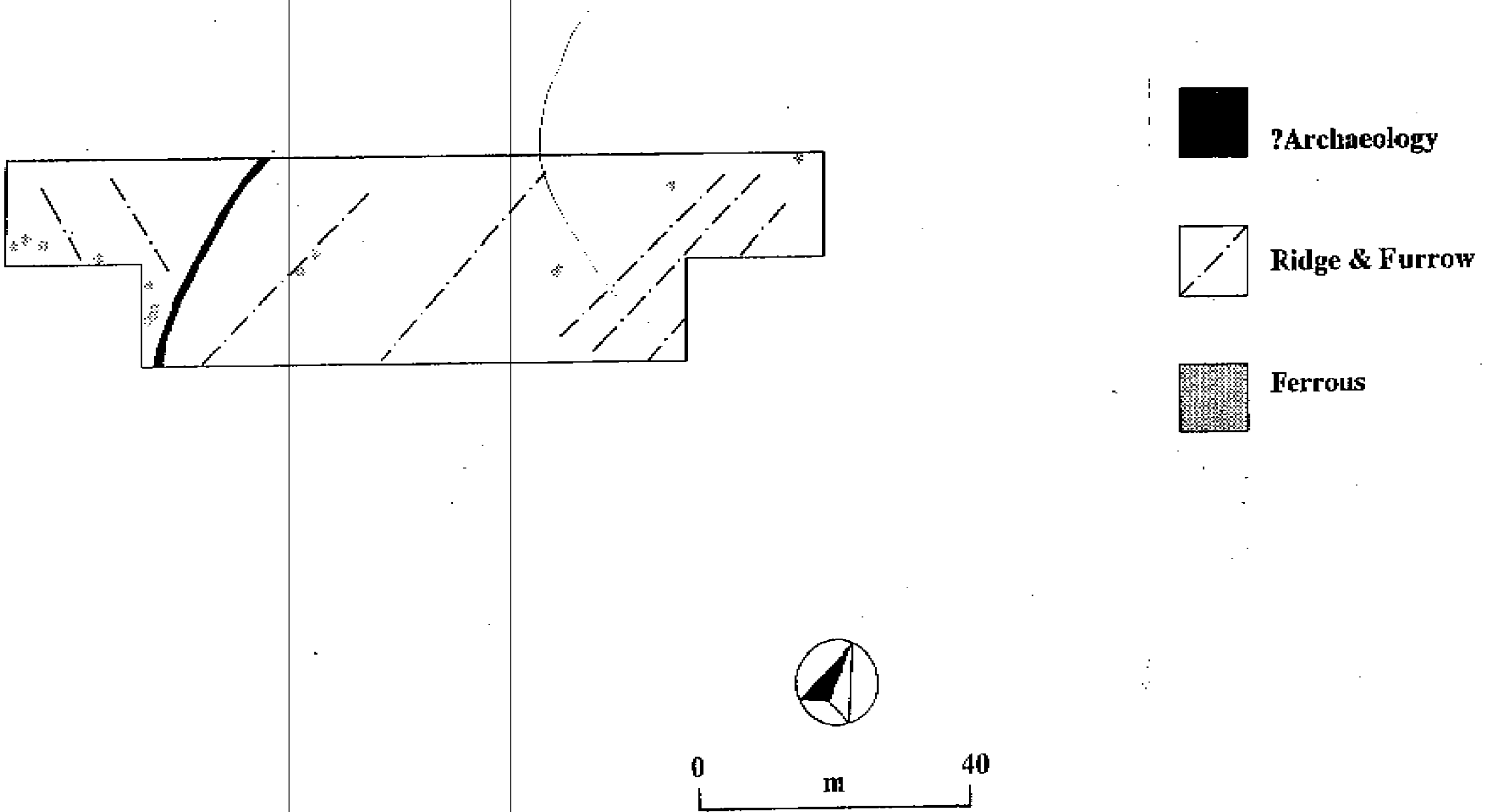


Figure E.3

LECHLADE BYPASS
Area F

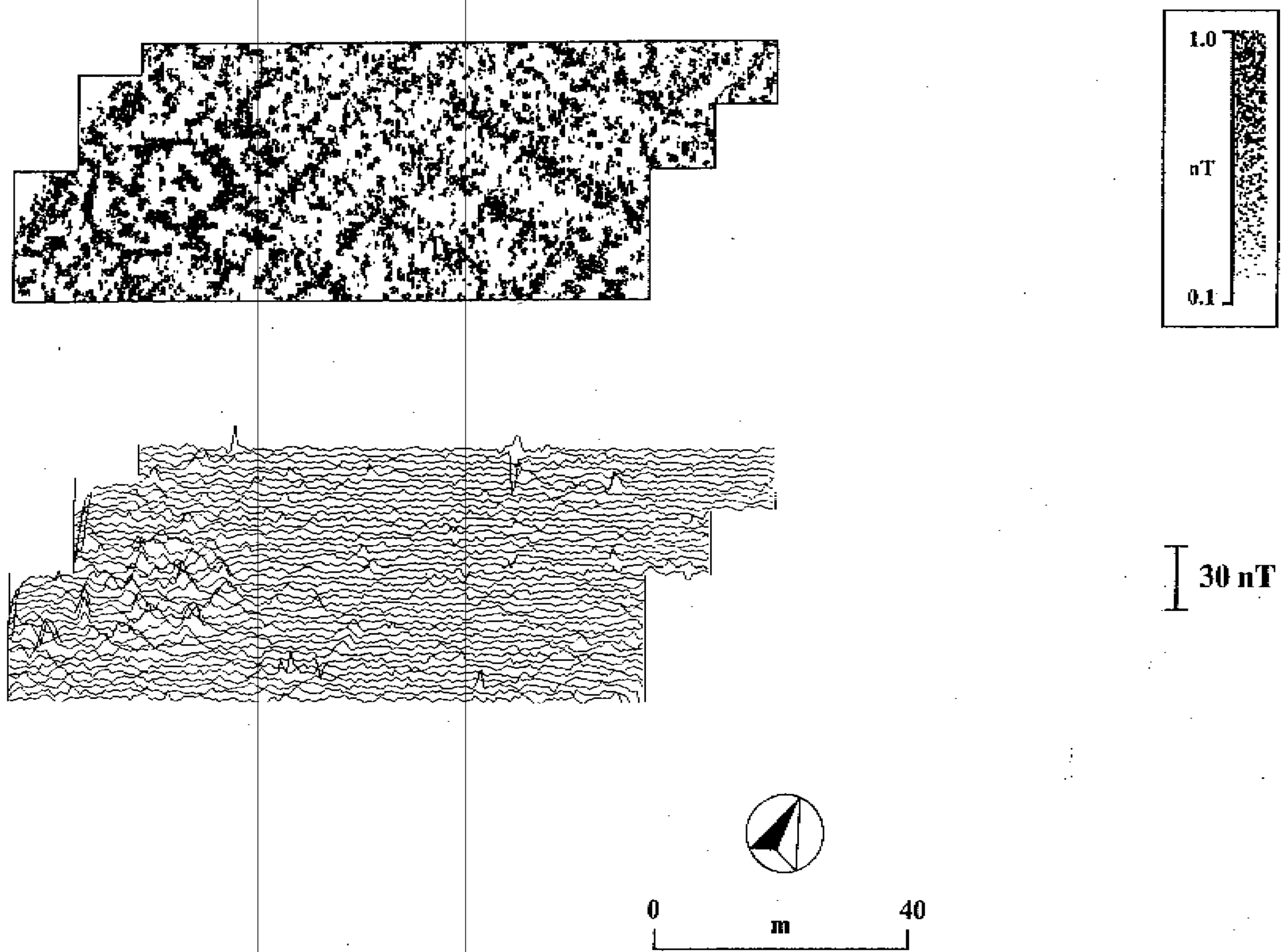
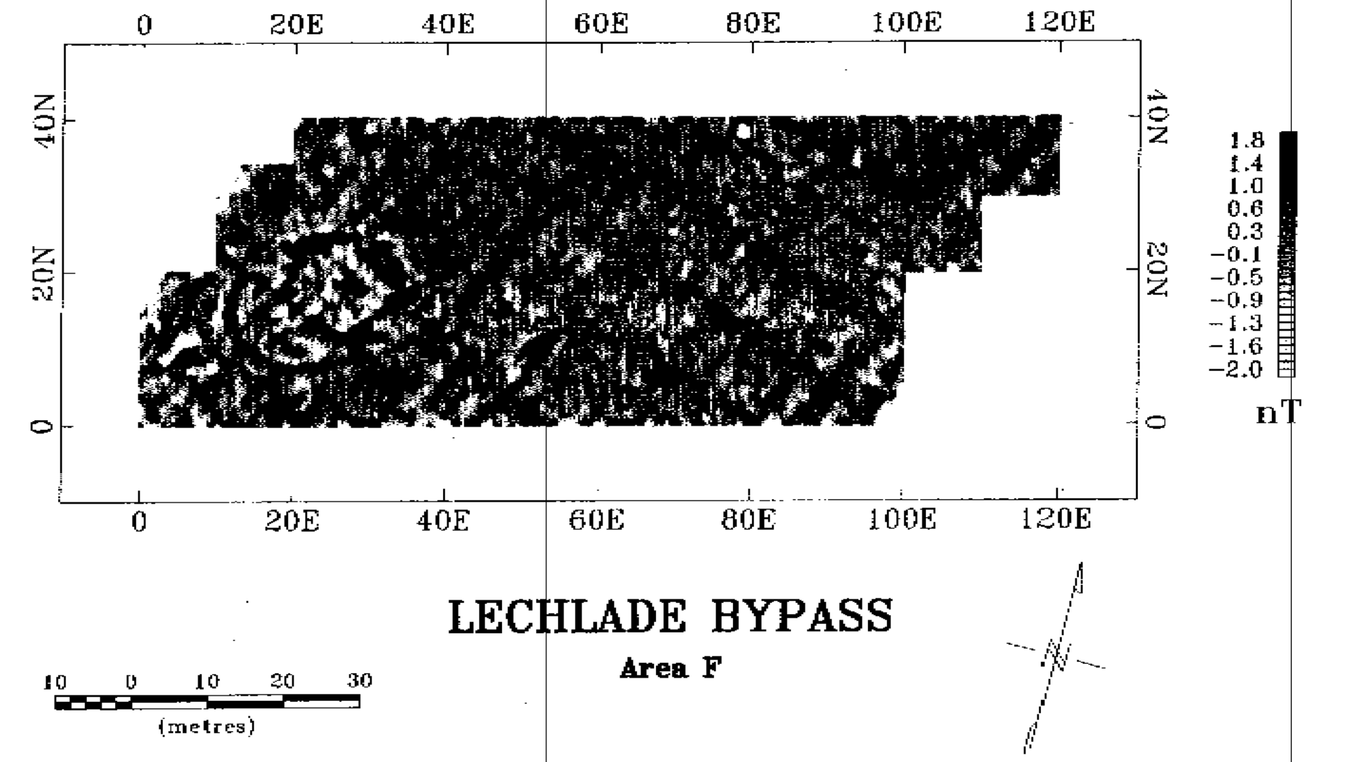


Figure F.1



LECHLADE BYPASS

Area F

Figure F.2

LECHLADE BYPASS
Area F

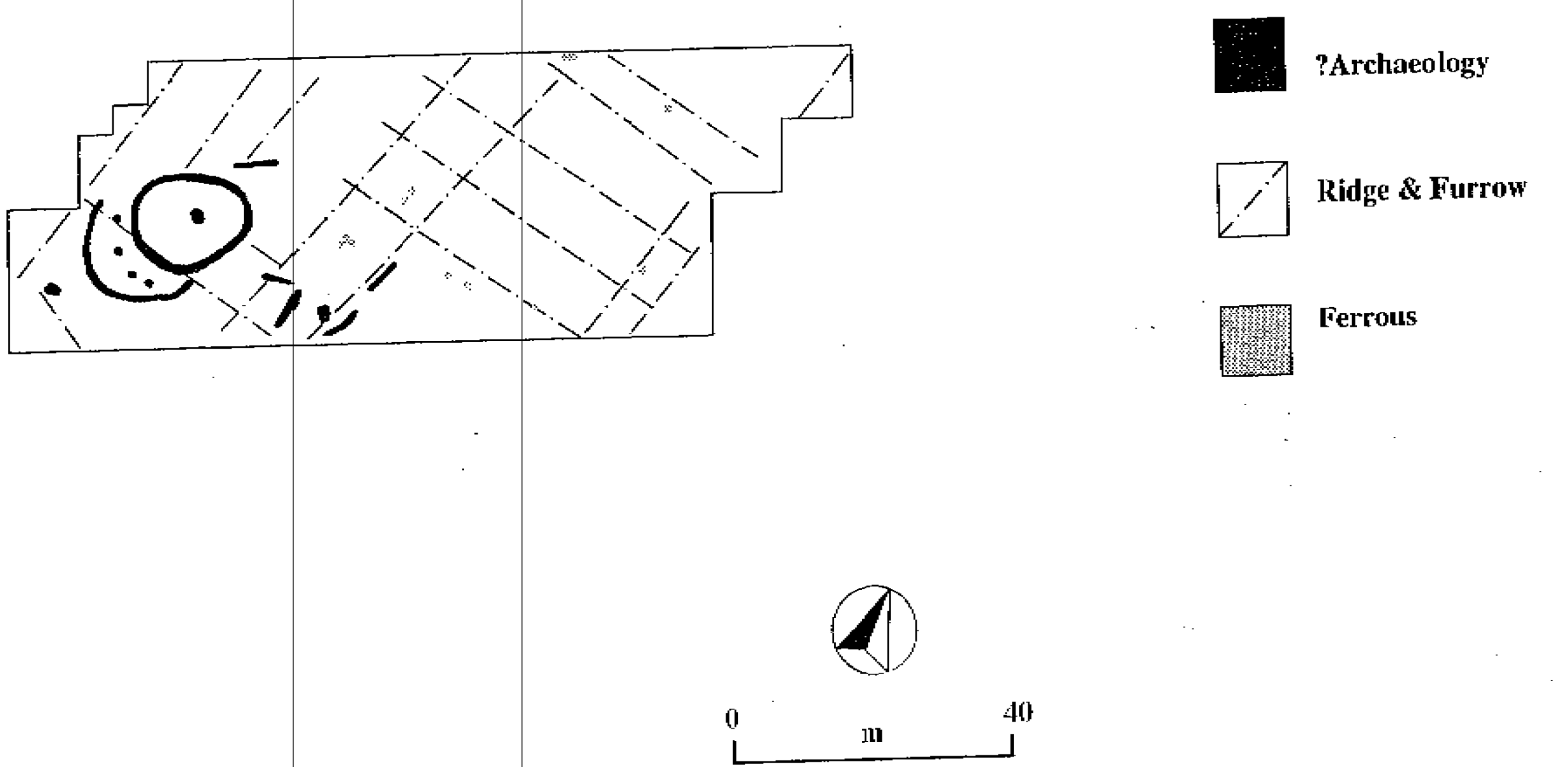


Figure F.3

LECHLADE BYPASS
Area G

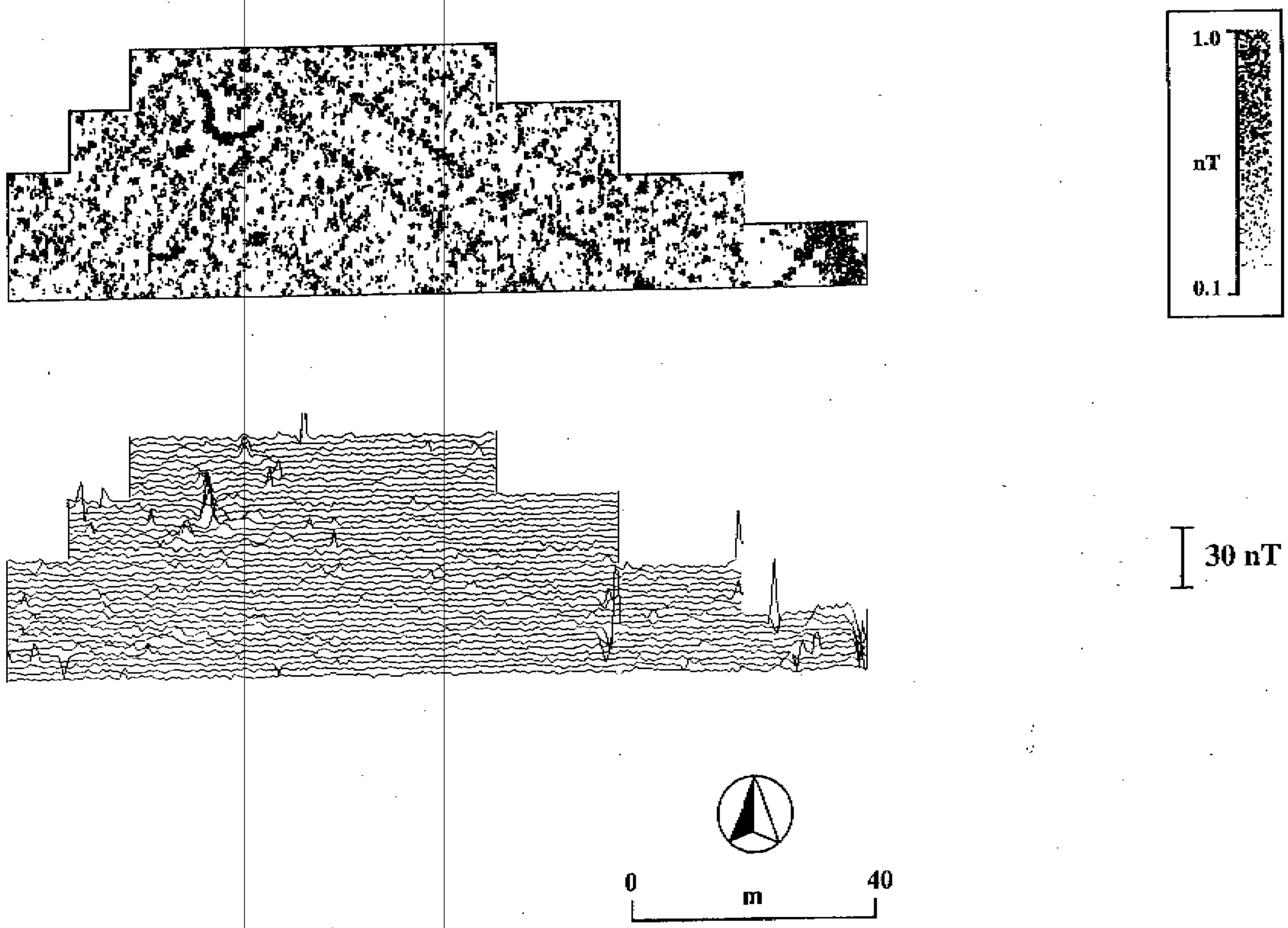
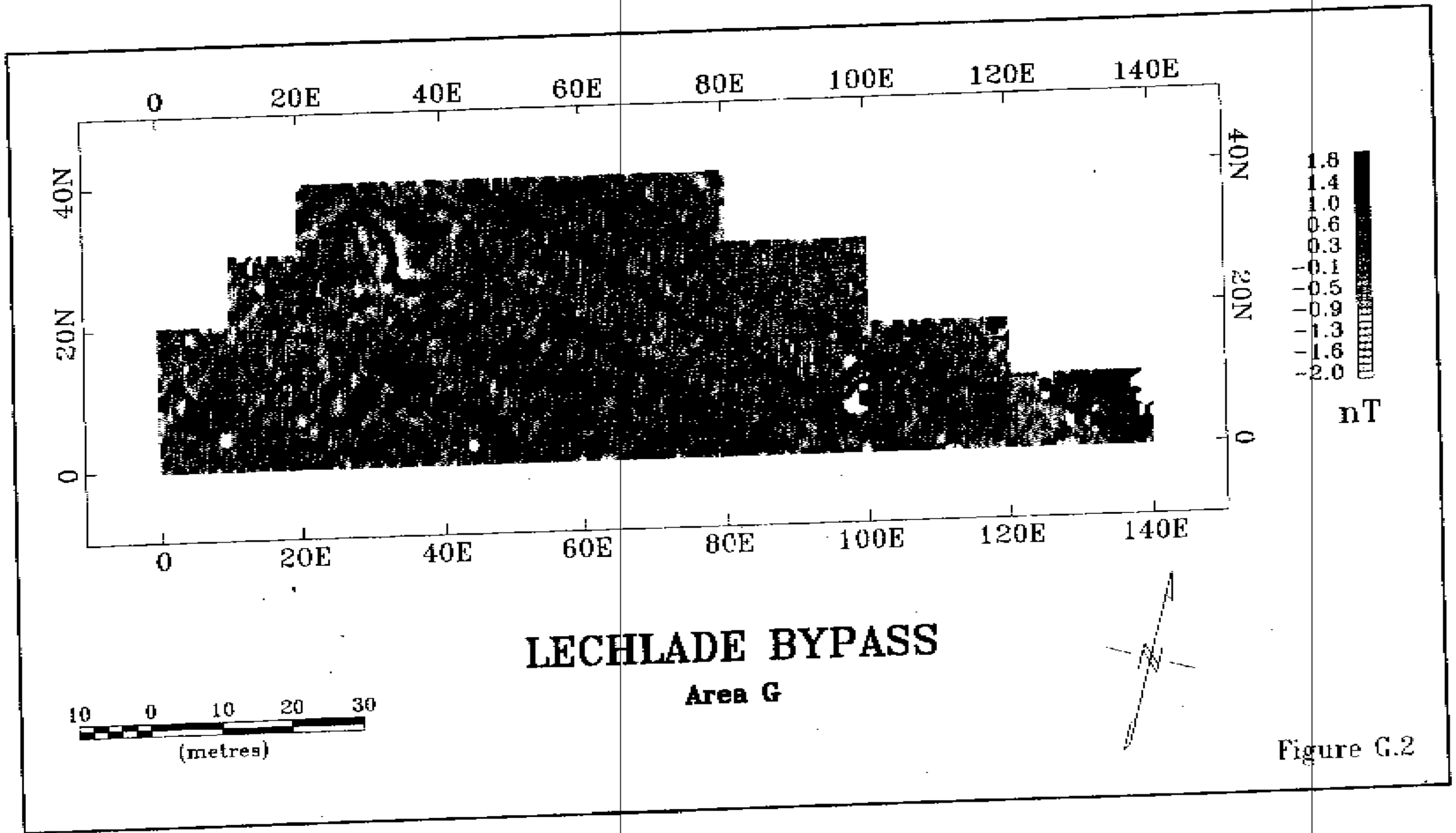


Figure G.1



0
20E
40E
60E
80E
100E
120E
140E
40N
20N
0
1.8
1.4
1.0
0.6
0.3
-0.1
-0.5
-0.9
-1.3
-1.6
-2.0
nT
LECHLADE BYPASS
Area G
10
0
10
20
30
(metres)

Figure G.2

LECHLADE BYPASS
Area G

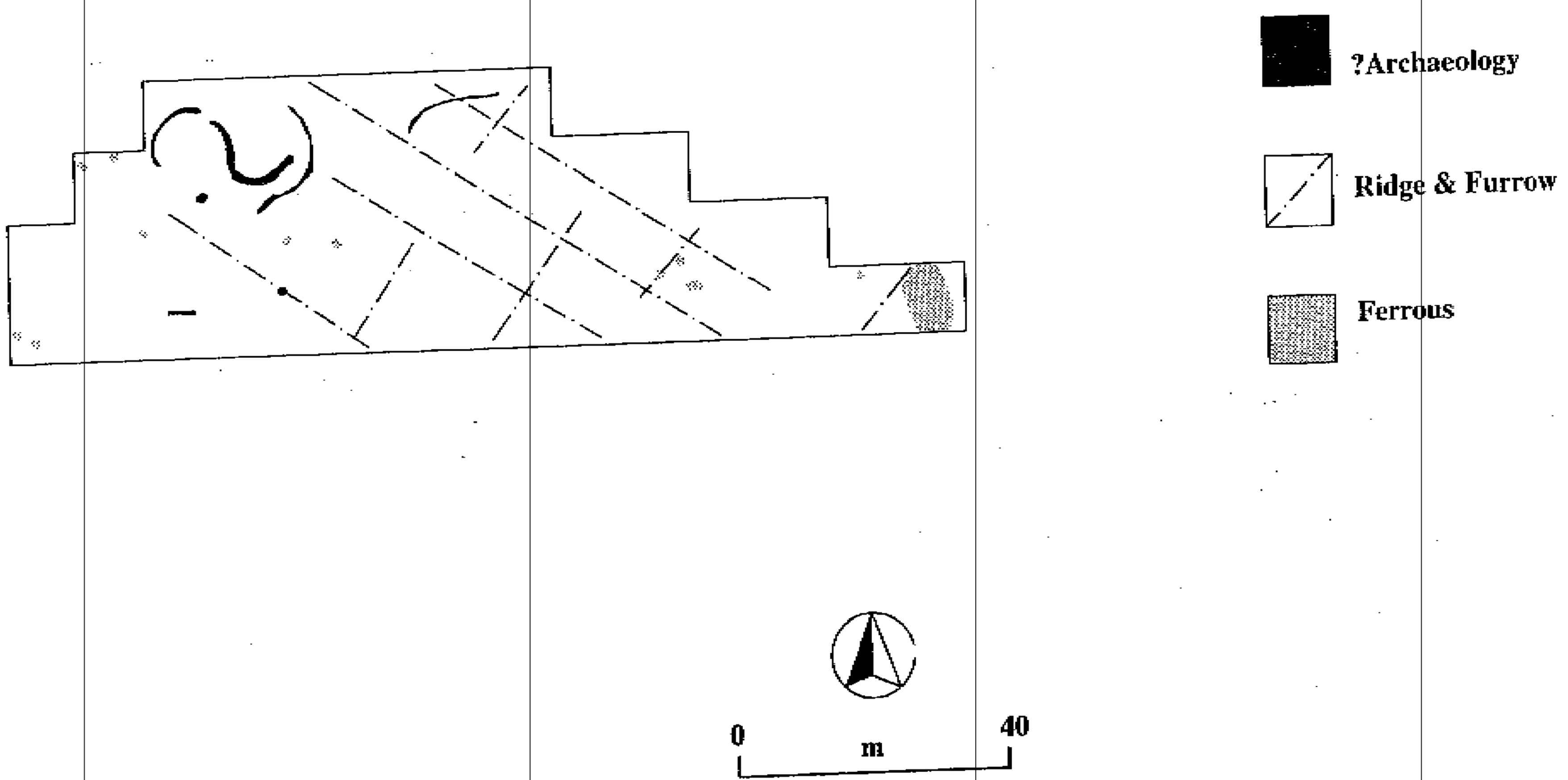


Figure G.3

LECHLADE BYPASS
Area H

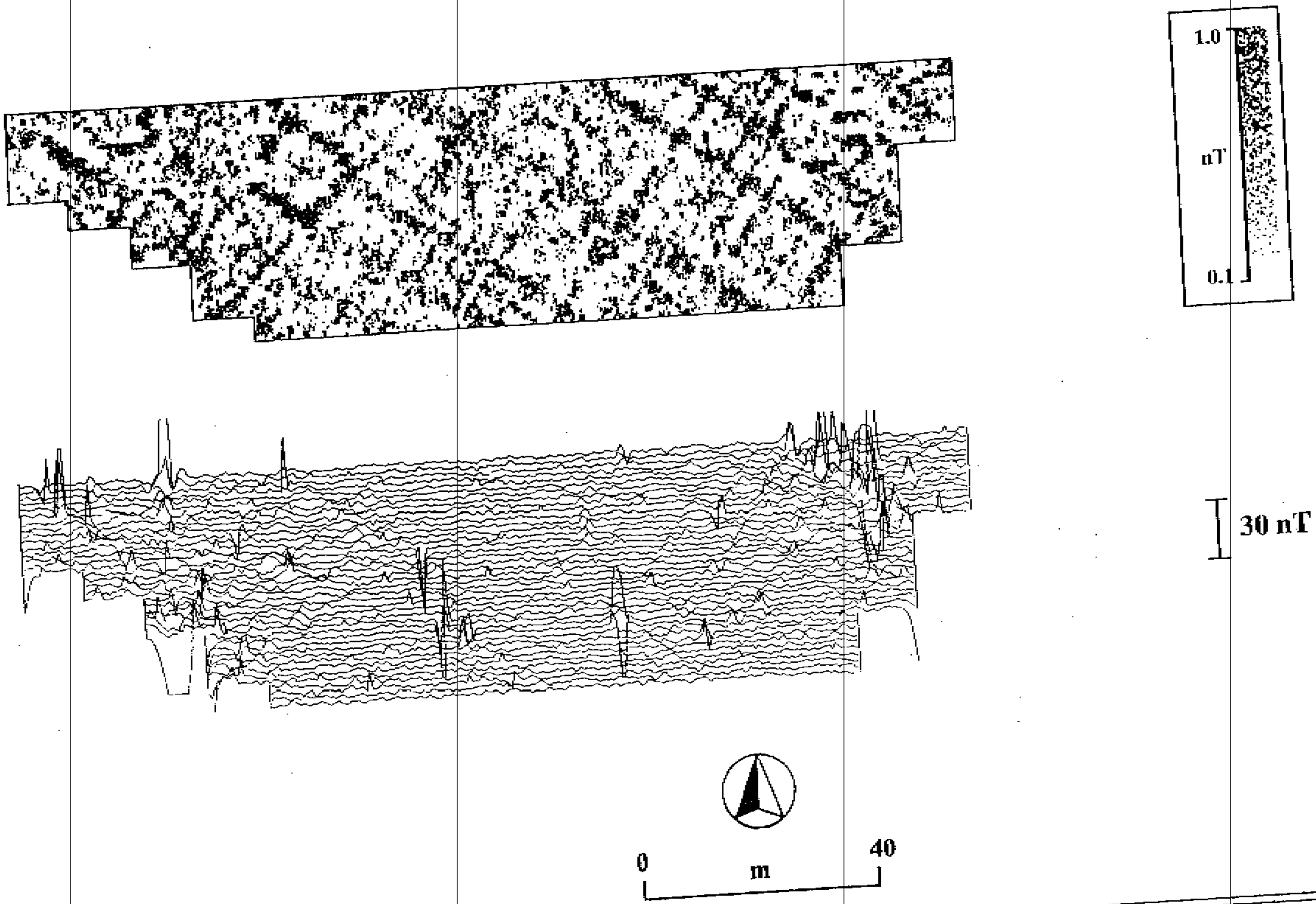
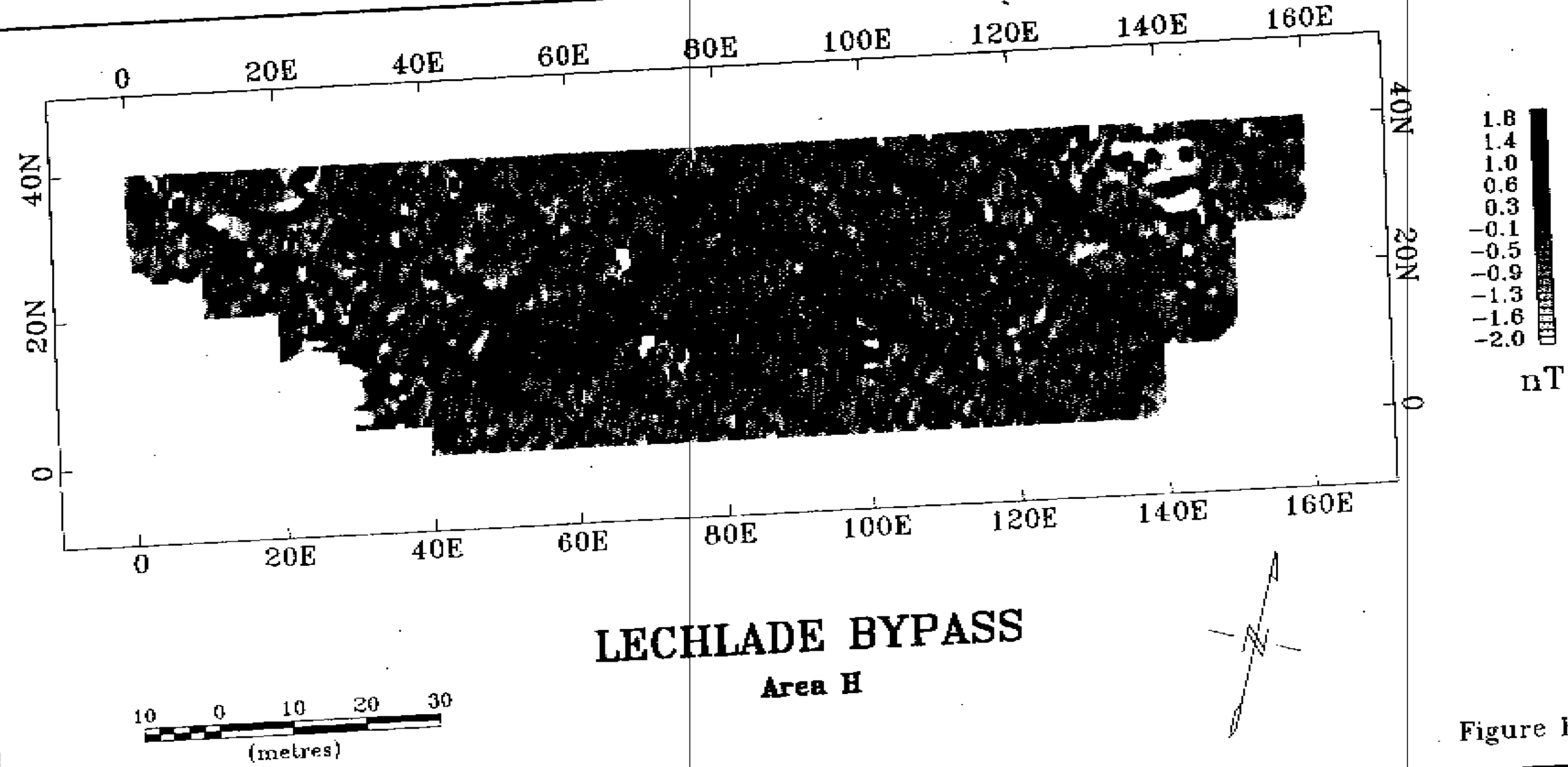


Figure H.1



LECHLADE BYPASS

Area H

Figure H.2

LECHLADE BYPASS
Area H

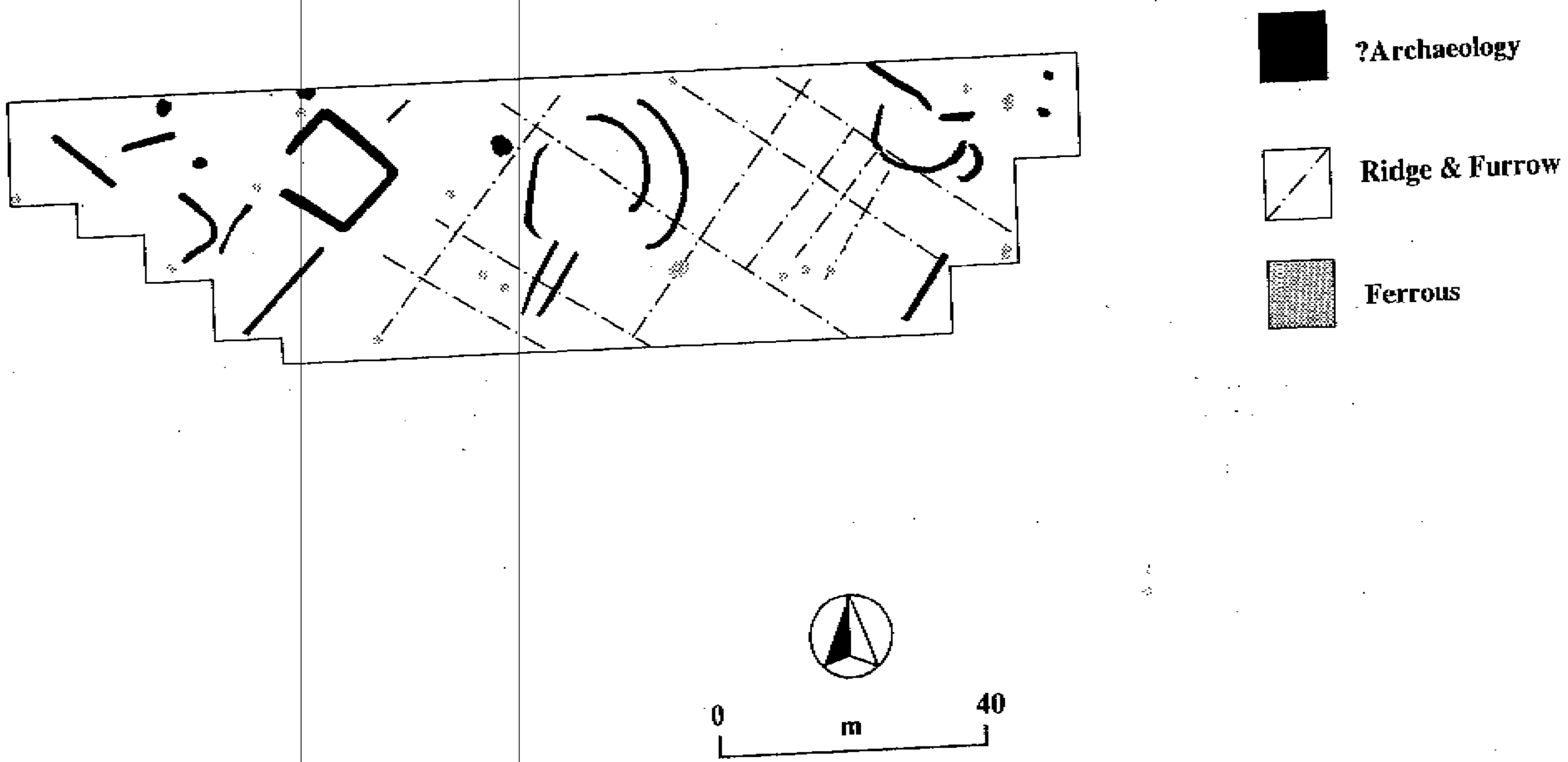
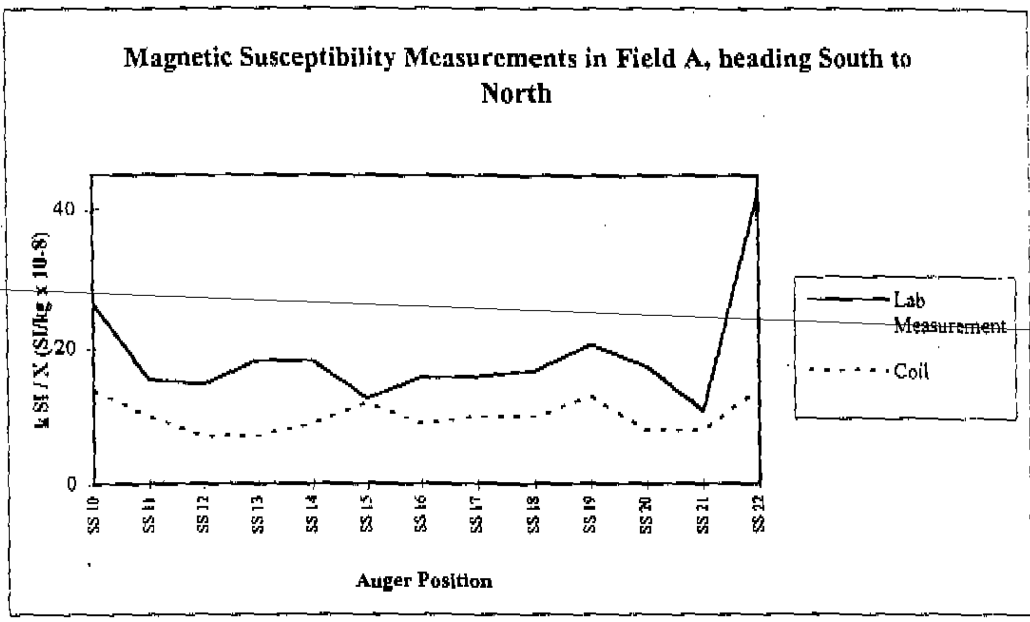
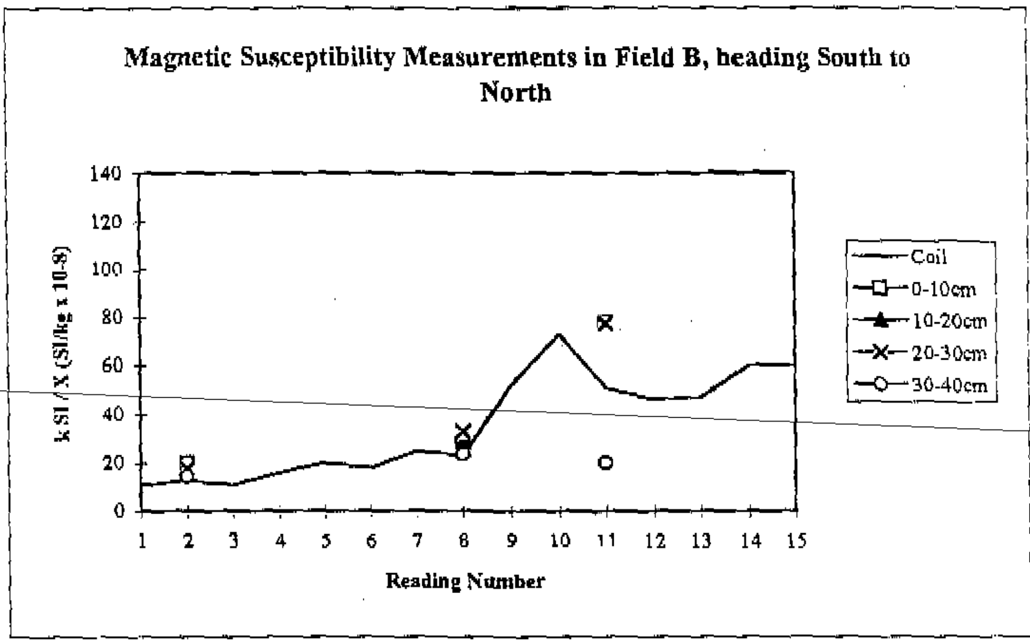


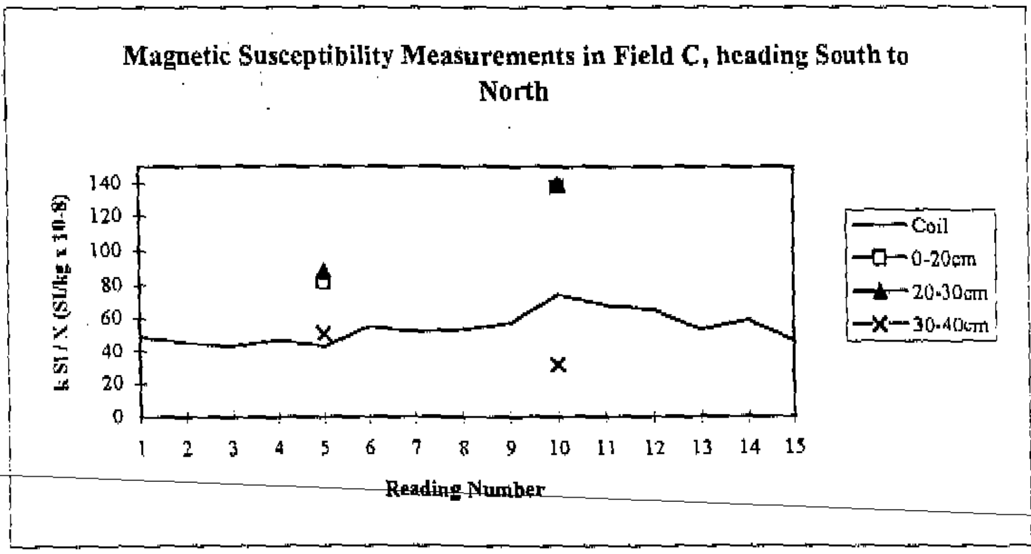
Figure H.3



Magnetic Susceptibility Measurements in Field A, heading South to North
k SI / X (SI/kg x 10-8)
40
20
0
SS 10
SS 11
SS 12
SS 13
SS 14
SS 15
SS 16
SS 17
SS 18
SS 19
SS 20
SS 21
SS 22
Auger Position
Lab Measurement
Coil



Magnetic Susceptibility Measurements in Field B, heading South to North
k SI / X (SI/kg x 10-8)
140
120
100
80
60
40
20
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
Reading Number
Coil
0-10cm
10-20cm
20-30cm
30-40cm



Magnetic Susceptibility Measurements in Field C, heading South to North
k SI / X (SI/kg x 10-8)
140
120
100
80
60
40
20
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
Reading Number
Coil
0-20cm
20-30cm
30-40cm

Figure MS

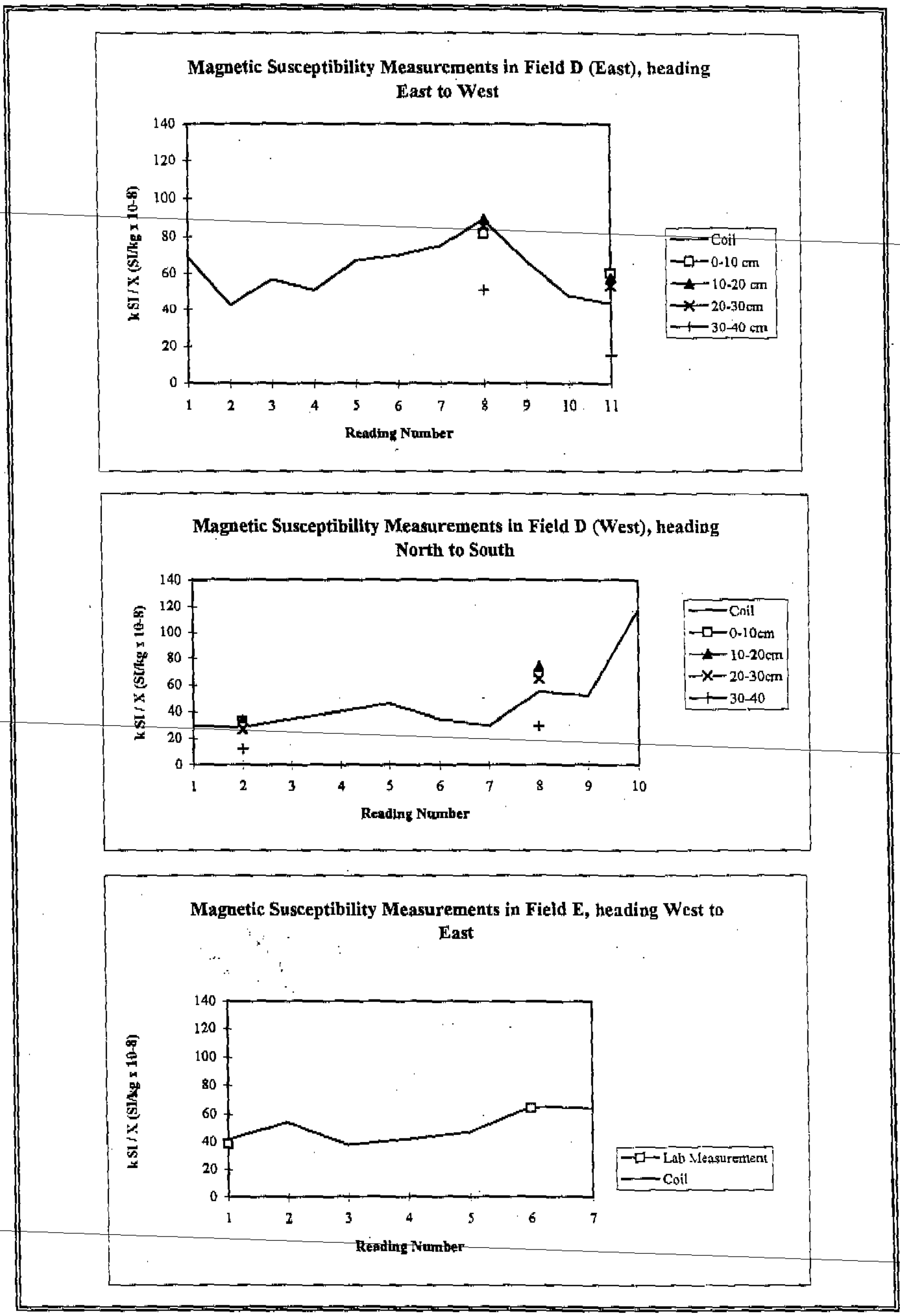
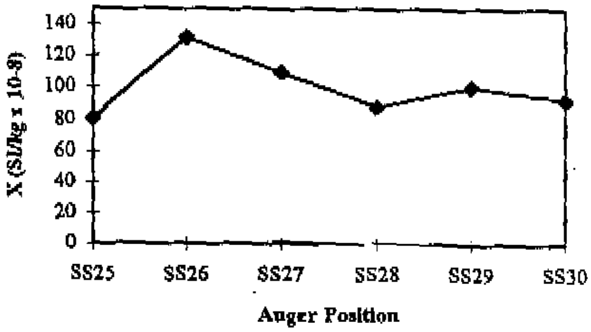
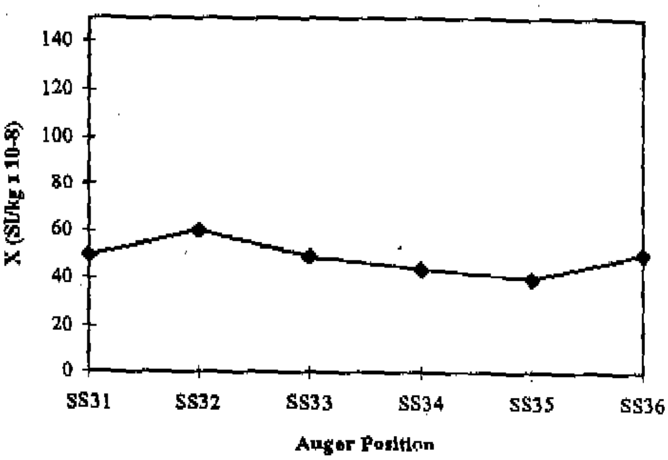

Magnetic Susceptibility Measurements in Field D (East), heading East to West
k SI / X (SI/kg x 10-8)
Reading Number
Coil
0-10 cm
10-20 cm
20-30cm
30-40 cm
Magnetic Susceptibility Measurements in Field D (West), heading North to South
k SI / X (SI/kg x 10-8)
Reading Number
Coil
0-10cm
10-20cm
20-30cm
30-40
Magnetic Susceptibility Measurements in Field E, heading West to East
k SI / X (SI/kg x 10-8)
Reading Number
Lab Measurement
Coil

Figure MS

Magnetic Susceptibility Measurements in Field F, heading West to East



Magnetic Susceptibility Measurements in Field G



Magnetic Susceptibility Measurements in Field H

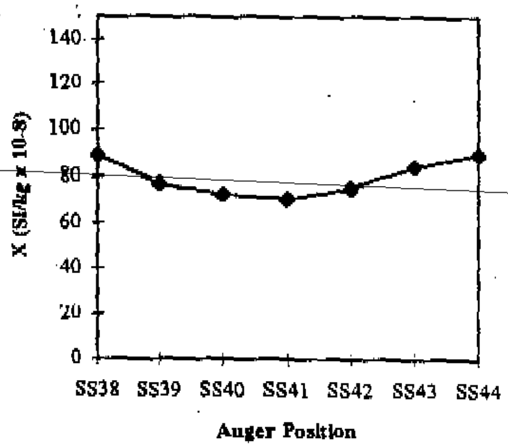


Figure MS

Mass Specific Magnetic Susceptibility Results

	Sample Name	X, SI/kg x 10-8
Field D (East) (E to W)	SS1 0-10	81.3
	SS1 10-20	89.0
	SS1 20-28	85.5
	SS1 28-40	51.1
	SS1 40-50	39.1
	SS2 0-10	60.3
	SS2 10-20	57.8
	SS2 20-32 Lower Ap	53.5
	SS2 30-40	15.2
	SS2 40-	15.4
Field D (West) (N to S)	SS3 0-10	32.7
	SS3 10-20	33.1
	SS3 20-30	26.9
	SS3 30-40	12.0
	SS3 40-50	16.4
	SS3 50-60	9.9
	SS4 0-10	66.5
	SS4 10-20	74.1
	SS4 20-30	64.6
	SS4 30-40	29.1
Field B	SS5 0-10	20.0
	SS5 10-20	15.6
	SS5 20-26	18.1
	SS5 30-40	14.6
	SS5 40-45	13.2
	SS5 45-55	7.4
	SS6 Ap	28.4
	SS6 25-30	33.1
	SS6 30-40	23.5
	SS6 40-50	30.1
	SS6 50-60	21.2
	SS7 Ap	77.5
	SS7 30-40	20.2
	SS7 40-60	15.9
Field C	SS8 Ap	81.4
	SS8 20-28 Lower Ap	87.8
	SS8 30-40	50.8
	SS9 Ap	137.7
	SS9 20-30 (Lower Ap)	139.0
	SS9 30-40	31.6
Field A	SS 10	26.5
	SS 11	15.4
	SS12	14.7
	SS 13	18.3
	SS 14	18.1
	SS 15	12.6
	SS 16	15.8
	SS 17	15.9
	SS 18	16.7
	SS 19	20.5
	SS 20	17.4
	SS 21	10.9
	SS 22	42.1
Field E	SS23	38.6
	SS24	64.4
Field F	SS25	80.9
	SS26	131.6
	SS27	109.2
	SS28	87.8
	SS29	100.1
	SS30	92.0
Field G	SS31	49.9
	SS32	59.9
	SS33	49.1
	SS34	43.8
	SS35	40.0
	SS36	50.0
	SS37	
Field H	SS38	89.1
	SS39	77.0
	SS40	72.7
	SS41	70.6
	SS42	75.0
	SS43	84.3
	SS44	89.5

Table 1

Field Coil Data

	Field A (N to S)	Field B (S to N)	Field C (S to N)	Field D (E to W)	Field D (N toS)	Field E (W to E)
	All units are dimensionless SI units					
	14	11	49	69	29	42
	10	13	45	43	28	54
	7	11	43	57	34	38
	7	16	47	51	40	42
	9	20	43	67	46	47
	12	18	55	70	34	65
	9	25	52	75	29	64
	10	23	53	89	55	
	10	52	57	67	52	
	13	73	74	48	118	
	8	51	68	44		
	8	46	65			
	14	47	53			
		60	59			
		60	46			
Mean	10	35	54	62	47	50
		56 northern half				
		17 southern half				

Table 2

Appendix 2: list of contexts

Context no	Summary description	Interpretation\date
Trench 1		
Context 1001	Trench	Evaluation trench
Context 1002	Fill of 1006	Unknown
Context 1003	Topsoil	
Context 1004	Natural substratum	
Context 1005	Fill of 1007	Unknown
Context 1006	Cut	Tree hole
Context 1007	Cut	Tree hole
Context 1008	Fill of 1009	No dating evidence
Context 1009	Cut	Linear ditch
Context 1010	Fill of 1011	
Context 1011	Furrow	Medieval
Trench 2		
Context 1021	Trench	Evaluation trench
Context 1022	Topsoil	
Context 1023	Subsoil	Medieval ploughsoil
Context 1024	Fill of 1032	Medieval
Context 1025	Fill of 1029	No dating evidence
Context 1026	Fill of 1030	No dating evidence
Context 1027	Fill of 1033	No dating evidence
Context 1028	Natural substratum	
Context 1029	Cut	Linear ditch
Context 1030	Cut	Curvilinear ditch
Context 1031	Cut	Linear ditch
Context 1032	Furrow	Medieval
Context 1033	Secondary fill	No dating evidence
Context 1034	Primary fill	No dating evidence
Trench 3		
Context 1041	Trench	Evaluation trench
Context 1042	Topsoil	
Context 1043	Subsoil	Medieval ploughsoil
Context 1044	Natural substratum	
Context 1045	Cut	Boundary ditch
Context 1046	Fill of 1045	No dating evidence
Context 1047	Fill of 1045	No dating evidence
Context 1048	Fill of 1045	No dating evidence
Context 1049	Cut	Linear ditch
Context 1050	Fill of 1049	No dating evidence
Context 1051	Cut	Linear ditch
Context 1052	Fill of 1051	Iron age period
Context 1053	Cut	Field boundary ditch
Context 1054	Fill of 1053	18th century
Context 1055	Cut	Terminal end

Context no	Summary description	Interpretation\date
Trench 3		
Context 1056	Fill of 1055	No dating evidence
Context 1057	Cut	Terminal end
Context 1058	Fill of 1057 and 1141	No dating evidence
Context 1059	Cut	Linear ditch
Context 1060	Fill of 1059	No dating evidence
Context 1141	Cut	Post-hole within 1057
Context 1142	Fill of 1143	No dating evidence
Context 1143	Cut	Root hole
Context 1144	Cut	Remains of Post-hole in 1055
Context 1145	Cut	Linear ditch
Context 1146	Fill of 1145	No dating evidence
Context 1147	Fill of 1148	No dating evidence
Context 1148	Cut	Primary cut of 1053
Trench 4		
Context 1061	Trench	Evaluation trench
Context 1062	Fill of 1063	Medieval
Context 1063	Cut	Furrow
Context 1064	Fill of 1065	Iron age period
Context 1065	Cut	Linear ditch
Context 1066	Fill of 1069	Modern ploughsoil
Context 1067	Natural substratum	
Context 1068	Topsoil	
Context 1069	Cut	Modern plough furrow
Trench 5		
Context 1071	Trench	Evaluation trench
Context 1072	Topsoil	
Context 1073	Subsoil	
Context 1074	natural substratum	
Context 1075	Cut	Furrow
Context 1076	Fill of 1075	Medieval
Context 1077	Cut	Linear ditch
Context 1078	Fill of 1077	Iron age period
Context 1079	Fill of 1166	Iron age period
Context 1080	Fill of 1081	No dating evidence
Context 1081	Cut	Natural feature
Context 1082	Fill of 1090	No dating evidence
Context 1083	Fill of 1084	Iron age period
Context 1084	Cut	Linear ditch
Context 1085	Cut	Linear ditch
Context 1086	Fill of 1085	Undiagnostic material
Context 1087	Cut	Land drain
Context 1088	Fill of 1087	Modern
Context 1089	Fill of 1165	Iron age period

Context no	Summary description	Interpretation\date
Trench 5		
Context 1090	Cut	Recut of ditch (context 1161)
Context 1161	Cut	Linear ditch
Context 1162	Fill of 1161	No dating evidence
Context 1163	Cut	Land drain
Context 1164	Fill of 1163	Modern
Context 1165	Cut	Post-hole
Context 1166	Cut	Boundary ditch
Context 1167	Fill of 1166	Iron age
Context 1168	Fill of 1169	No dating evidence
Context 1169	Cut	Tree hole
Context 1170	Fill of 1171	Modern
Context 1171	Cut	Land drain
Trench 6		
Context 1091	Trench	Evaluation trench
Context 1092	Topsoil	
Context 1093	Natural substratum	
Context 1094	Fill of 1095	Medieval
Context 1095	Cut	Furrow
Context 1096	Cut	Small pit
Context 1097	Fill of 1096	Iron age period
Context 1098	Cuts	Modern plough marks
Trench 7		
Context 1101	Trench	Evaluation trench
Context 1102	Topsoil	
Context 1103	Subsoil	Medieval headland
Context 1104	Natural substratum	
Context 1105	Fill of 1152	Iron age
Context 1106	Layer	Dirty natural soil
Context 1107	Cut	Linear ditch
Context 1108	Fill of 1107	Iron age period
Context 1109	Fill of 1158	No dating evidence
Context 1110	Cut	Penannular feature
Context 1111	Fill of 1110	Iron age period
Context 1112	Cut	Linear ditch
Context 1113	Fill of 1112	Iron age period
Context 1114	Cut	Furrow
Context 1115	Fill of 1114	Medieval
Context 1116	Cut	Land drain
Context 1117	Fill of 1116	Modern
Context 1118	Cut	Linear ditch
Context 1119	Fill of 1118	Iron age period
Context 1151	Fill of 1153	Iron age period
Context 1152	Cut	Penannular feature

Context no	Summary description	Interpretation\date
Trench 7		
Context 1153	Cut	Linear ditch
Context 1154	Cut	Linear ditch
Context 1155	Fill of 1154	No dating evidence
Context 1156	Cut	Irregular feature
Context 1157	Fill of 1156	Iron age
Context 1158	Cut	Furrow
Context 1159	Fill of ditch	Iron age
Trench 8		
Context 1121	Topsoil	
Context 1122	Natural substratum	
Context 1123	Fill of 1124	Medieval
Context 1124	Cut	Furrow
Context 1125	Trench	Evaluation trench
Context 1126	Natural feature	
Trench 9		
Context 1131	Trench	Evaluation trench
Context 1132	Topsoil	
Context 1133	Subsoil	
Context 1134	Fill of 1135	Medieval
Context 1135	Cut	Furrow
Context 1136	Natural substratum	

Appendix 3: Pottery assessment by Elaine L. Morris, BA PhD MIFA

A total of 185 fragments (1,249g) of iron age pottery, late medieval and post-medieval pottery, and pieces of baked or fired clay was recovered and submitted for assessment.

Condition of the material

The pottery is generally in good condition, with most sherds retaining both surfaces; there is very little evidence for surface flaking or splitting of sherds. Although it is a small collection, the rim forms present are diagnostic of known vessel types, and some are measurable for the determination of vessel diameters. The actual surface condition of the sherds is very good, with evidence for use (such as sooting, burnt food deposits, and possible limescale), and surface treatment (such as burnishing) well preserved. It is not surprising that the mean piece size for the prehistoric pottery is relatively small (6g) due to the original soft-firing of the pottery and to the friable condition of the fabrics.

Nature of the deposits

Despite the limited amount of soil actually removed from the features revealed after topsoil stripping, a surprisingly large quantity of iron age pottery was recovered. This is important for future work on the site, since it indicates that the recovery of suitable quantities of dating evidence from features can be expected. It is usually necessary to recover at least 25 sherds of pottery (Morris 1991, 17) and preferably more than 50 sherds (Cunliffe 1995, 8) from features before any confidence can be placed on dating the infilling of that feature, since amongst such minimum amounts there are likely to be several suitably diagnostic and datable featured sherds as opposed to body sherds.

Date of the collection

A total of seven sherds of medieval and post-medieval pottery was identified. These were recovered from three medieval furrows and one field boundary ditch. Two sherds are probably derived from a large, late medieval, unglazed, straight-sided bowl or dish; both are in the same oolitic limestone tempered fabric. One sherd, made from a sandy fabric, is decorated with incised wavy lines and may have originated from a medieval jug. Five sherds are from glazed, redware vessels which date from the 17th century or later.

The iron age assemblage, (153 sherds, 846g), is made up of two main fabric groups, one dominated by shell limestone fabrics, the other represented by a variety of sandy fabrics. The ratio of the coarser limestone group to the finer sandy group is 14:1. All of the fabrics are likely to have been made from local resources, but since this is such a small assemblage there is a very real possibility that any of the well-known traded wares, such as those produced in the Malvern Hills from hard, igneous and metamorphic rock or Palaeozoic limestone rock (Peacock 1968), could be recovered from larger scale excavations. Rare examples of such non-local pottery types have been recovered from larger iron age assemblages recovered from sites in the region (Allen 1990; Gingell 1981) and well away from the sources.

The range of vessel forms present in the iron age pottery assemblage includes convex or ovoid forms, straight-sided or proto-saucepan pots, and necked, barrel-shaped jars without prominent shoulders, all of which are handmade. None of the vessels is decorated. The forms are consistent with a date in the middle to late iron age period, from about the 4th to 1st century BC. The assemblage is similar to those recovered from Ashville Trading Estate, Abingdon (De Roche 1978, figs 44-49), Watkins Farm, Northmoor (Allen 1990), and Groundwell Farm, Swindon (Gringell 1981) all located in the Upper Thames valley. It is unlikely for this part of the settlement to have continued much beyond that date, if at all, due to the absence of any romanized forms or fabrics. The use of this location to the north of Lechlade occurred several centuries after that excavated at both Rough Ground Farm (Allen, *et al* 1993) and The Loders (Darvill, *et al* 1986) since no forms of late bronze age or early iron age type were identified in the Bypass assemblage.

In addition to these well-known pottery forms, a single, large sherd (34g) from an iron age salt container was identified. This very diagnostic type of handmade vessel shaped like a truncated cone was made from a Keuper marl clay. These vessels were used to dry salt crystals over or beside hearths at the brine springs of Droitwich during the later prehistoric and early Roman periods (Morris 1985; Woodiwiss 1992). During the iron age, the salt was also transported in these containers to settlements where they were broken open to remove the dried salt blocks. Sherds from Droitwich salt containers have been found in the region on excavations at Claydon Pike, Lechlade and several sites in the Stanton Harcourt area outside Oxford (Allen 1990, 52-3), as well as at Groundwell Farm (Morris 1985, table 1, fig 6).

Several baked or fired clay fragments (31 fragments, 369g) were also identified amongst this ceramic material but none of the pieces is identifiable to the type of object or structure from which it originated.

Summary

The evaluation revealed a number of features containing a range of local middle to late iron age pottery wares and a salt transportation vessel from Droitwich, in addition to sherds of late medieval and post-medieval date. The quality of the material is good and the density of the iron age pottery indicates that any future excavations would be rewarded with a sizeable collection of datable pottery which can be used to provide an understanding of the activities and trading connections of this settlements inhabitants during the later iron age within the Upper Thames region.

Appendix 4: List of finds

Context	Material	Quantity	Weight
Context 1005	Animal bone	7	96g
Context 1009	Animal bone	14	234g
	Foreign stone	1	166g
Context 1024	Medieval pottery	1	11g
Context 1043	Iron age pottery	5	16g
Context 1048	Animal bone	3	122g
Context 1052	Iron age pottery	3	114g
	Animal bone	11	208g
Context 1054	Post medieval pottery	1	13g
Context 1062	Iron age pottery	1	3g
Context 1078	Iron age pottery	18	70g
	Animal bone	31	292g
Context 1079	Iron age pottery	9	7g
	Animal bone	8	308g
Context 1082	Flint	1	9g
Context 1083	Iron age pottery	5	32g
	Animal bone	5	21g
Context 1086	Ceramic uncertain	12	22g
	Animal bone	1	9g
Context 1089	Iron age pottery	1	12g
	Animal bone	6	45g
Context 1094	Medieval pottery	1	62g
	Post medieval pottery	3	45g
	Animal bone	3	3g
Context 1097	Iron age pottery	1	4g
Context 1105	Iron age pottery	22	138g
	Ceramic uncertain	5	17g
	Animal bone	27	282g

Context	Material	Quantity	Weight
Context 1105	Flint	1	2g
Context 1106	Animal bone	1	8g
	Flint	4	35g
Context 1108	Iron age pottery	10	59g
	Ceramic uncertain	2	32g
	Animal bone	20	122g
Context 1111	Iron age pottery	8	24g
	Animal bone	8	25g
	Flint	2	20g
	Foreign stone	1	584g
Context 1113	Iron age pottery	15	101g
	Animal bone	1	1g
	Flint	2	53g
Context 1119	Iron age pottery	13	88g
Context 1147	Animal bone	1	0g
Context 1151	Iron age pottery	5	16g
	Animal bone	6	35g
	Flint	3	6g
Context 1157	Iron age pottery	1	1g
	Animal bone	8	23g
	Flint	1	1g
Context 1159	Iron age pottery	10	34g
	Animal bone	10	85g
Context 1167	Slag	1	26g
	Iron age pottery	32	257g
	Animal bone	14	28g