LAND EAST OF LINWOOD ROAD, MARKET RASEN, LINCOLNSHIRE

Topsoil Magnetic Susceptibility and Gradiometer Survey

(Survey Ref: 1341297/MRL/PCA)

JANUARY 1998

Produced by

OXFORD ARCHAEOTECHNICS LIMITED

under the direction of

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Commissioned by

Pre-Construct Archaeology (Lincoln)

on behalf of

Hugh Bourn Developments (Wragby) Limited

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SUMMARY

A geophysical evaluation programme comprising topsoil magnetic susceptibility mapping and gradiometer survey was carried out on 6.7 ha area of land on the southern outskirts of Market Rasen, Lincolnshire (centred on NGR 511100 388500) in advance of proposed residential development.

The survey was based upon the principle that past human activity and its associated debris usually creates slight but persistent changes in the local magnetic environment which can be sensed from the surface (using magnetic susceptibility measurement and magnetometry).

The survey was conducted within an area of high potential for the discovery of Romano-British pottery-making remains. 10 m topsoil magnetic susceptibility survey identified two locations displaying strong magnetic susceptibility patterning, confirmed by subsequent gradiometer survey to overlie several features of potential archaeological significance, including: enclosures, areas of pitting and burning, local concentrations of debris containing possible kiln material, and burnt features, some of which may represent kiln bases.

1. INTRODUCTION

1.1 Geophysical survey was commissioned by Pre-Construct Archaeology (Lincoln) on behalf of Hugh Bourn Developments (Wragby) Limited on land situated on the southern outskirts of Market Rasen, Lincolnshire, in advance of proposed residential development. The fieldwork was carried out in December 1997.

1.2 The proposed development area (centred on NGR 511100 388500) comprises an irregular plot of agricultural land (6.7 ha) adjoining property boundaries on the southern outskirts of the town, immediately east of the B 1202 Linwood Road. The location is shown on Fig. 1.

1.3 Romano-British pottery sherds were observed on the ground surface during a site inspection carried out on 23rd. November 1997 (pers. comm. C. Palmer-Brown). Although no further sites or finds of archaeological significance have been recorded, the survey area lies within an area of clay and cover sands south of the modern town of Market Rasen which has yielded considerable evidence for a Romano-British pottery-making industry (dating from the 2nd - 4th centuries AD). A number of possible kiln sites have been recorded from the field immediately south of Highfield, on the opposite side of Linwood Road, less than 80 m from the current survey area (centred on NGR 510760 388530), as the result of chance finds following disturbance caused by a plane crash together with fieldwalking and limited excavation (in the 1960s); the remains comprised the bases of individual kilns, items of kiln furniture, pottery wasters, iron working slag, fired clay and burnt deposits, together with some traces of associated structural remains represented by paired postholes (Swan 1984a). Further kilns sites are known from Linwood Warren, situated some 2 km to the southeast of the survey area (Swan 1984a: 455-458; Swan 1984b; Whitwell 1992).

1.4 The geology comprises clay overlain by windblown sand. The site is generally level, at c.30 m AOD, although there are several hollows which may represent former sand or clay extraction pits: one at the extreme west of the survey area appears to be overlain by the modern B 1202 Linwood Road, and there is a broad shallow (wet) hollow centred some 80 m further east. Two further ponds (more regular in shape) lie within the extreme eastern boundary. Low ridge-like features within the survey area perhaps represent truncated sand dunes. The land had been cleared of low vegetation and scrub just prior to the survey work, leaving a stubble-like ground surface.

1.5 The geophysical survey comprised a combination of topsoil magnetic susceptibility field sensing and magnetometry. An explanation of the techniques used, and the rationale behind their selection, is included in an Appendix to the present report.

2. MAGNETIC SURVEY DESIGN

2.1 Survey control was established to the National Grid by EDM Total Station.

2.2 The equipment used for the direct topsoil magnetic susceptibility survey was a Bartington Instruments MS2 meter with an 18.5 cm loop.

2.3 *In situ* magnetic susceptibility readings were taken on a 10 m grid, an interval known to give a high probability of intersecting with dispersed horizons from a wide range of archaeological sites, particularly those associated with occupation and industrial activity from the later prehistoric period onwards. Soils over former occupation and industrial sites usually display stronger patterning, frequently showing a marked focus. Agricultural activity helps to both generate (by ploughing casting up underlying deposits), and ultimately disperses the more magnetic soils over a wider area. Patterns recorded by 10 m magnetic susceptibility mapping tend to define zones of former activity rather than locate individual elements. Nevertheless, in some contexts, a focus of markedly stronger soil magnetic susceptibility (or markedly magnetically lower soils indicative of ploughed down earthworks) is occasionally found to relate to material dispersed from specific underlying features.

2.4 Routine scanning by gradiometer was undertaken at 25 m traverse intervals to check for any major concentrations of underlying archaeological features whose presence may not have been detected by the topsoil susceptibility survey. Five areas (totalling 1.4 ha) showing significant enhanced topsoil magnetic susceptibility and/or gradiometer scanning anomalies were targeted for detailed gridded gradiometer survey with a Geoscan Research FM 36 Fluxgate Gradiometer (sampling 4 readings per metre at 1 metre traverse intervals in the 0.1 nT range). The nanotesla (nT) is the

standard unit of magnetic flux (expressed as the current density), here used to indicate positive and negative deviations from the Earth's normal magnetic field.

2.5 The topsoil magnetic susceptibility colour shade plot (Fig. 3) shows contours at a range of 10 SI intervals; an overview of results is shown on Fig. 10. Magnetometer data have been presented as grey scale and stacked trace (raw data) plots (Figs. 4 - 7); an interpretation of results is shown on Figs. 8 & 9) and an overview in Fig. 11.

3. SURVEY RESULTS

TOPSOIL MAGNETIC SUSCEPTIBILITY SURVEY (Figs. 3 & 10)

3.1 647 *in situ* magnetic susceptibility readings were recorded. Susceptibility is reported in SI: volume susceptibility units (x 10^{-5}), a dimensionless measure of the relative ease with which a sample can be magnetized in a given magnetic field.

3.2 *In situ* topsoil susceptibility measurements ranged between 5 and 756 (x 10^{-5}) SI units. The mean for the survey was 36.5 SI units and the standard deviation calculated against the mean was 44 SI units. Samples of the relatively clean sandy subsoils upcast by burrowing animals measured 9 - 11 SI.

3.3 The topsoil magnetic susceptibility measurements show a dynamic range which is unusual in topsoils formed above sandy substrates (see 4.1 below). The topsoil magnetic susceptibility map shows both patterning and foci of stronger magnetic enhancement. With the exception of a strong zone of magnetically enhanced soils c.30 m square situated within the extreme southeastern angle of the survey area (which appears to be attributable to visible brick and other modern debris) the majority of the stronger patterning and foci of enhancement lie within the western half of the survey area and, to a lesser extent, within a broad (50 m wide) band alongside the northern boundary.

3.4 The western half of the survey is characterised by bands of enhanced topsoils displaying discrete foci flanking an area of low magnetic susceptibility marking the site of a shallow depression (perhaps the site of a former sand or clay pit). The northern band displays more subtle magnetic patterning, with topsoils generally

exceeding 40 SI, probably reflecting the location of a former agricultural cultivation block.

3.5 In contrast, the topsoils within much of the eastern half of the survey area display relatively low levels of magnetic enhancement (blue shades on Fig. 3, under 30 SI).

MAGNETOMETER (GRADIOMETER) SURVEY

3.6 The survey area was scanned by gradiometer on 25 m traverses. Gridded gradiometer survey was carried out in five areas, three of which (Areas 1, 2 & 5) showed strongly enhanced topsoil magnetic susceptibility and gradiometer scanning anomalies, the other two showing more subtle magnetic patterning within the relatively magnetically 'quiet' eastern part of the survey area (Areas 3 & 4, and part of 5) where gradiometer scanning suggested a group of strong local magnetic anomalies. A total area of 1.4 ha was investigated by detailed gradiometer grids, their location is shown on Fig. 2.

AREA 1 (Figs. 4, 6 & 8)

3.7 This 60 x 60 m (0.36 ha) survey grid was sited to cover an area of strong magnetic susceptibility patterning at the extreme western edge of the survey area adjacent to Linwood Road, where the ground surface was littered with numerous large Romano-British pottery sherds (some displaying relatively fresh breaks), together with various fragments of fired clay, several of which appear to have been derived from a kiln structure (including two fragments of kiln lining and what may be part of a clay kiln bar).

3.8 Gradiometer survey recorded several areas showing strong but erratic magnetic anomalies. There are indications of several pit forms or hollows, a number of which

appear to be quite broad (up to 5 m in diameter). Few coherent 'cut' features could be recognised within this area, although some rectilinear patterning is suggested (Fig. 11) particularly in the area closest to the modern road.

3.9 The gradiometer plot gives the impression of disturbed ground incorporating considerable amounts of strongly magnetic material, which is likely to include ferrous, possible slag and fired clay in strong local concentrations. The gradiometer recorded anomalies of +10 - 20 nT when passed over some of the larger (10 cm) fragments of fired clay picked up from the surface in this location, and it is clear that the incorporation of even small amounts of this material in the topsoil could be responsible for the more erratic magnetic patterning recorded. The strength of signal generated by this material is such that it may be masking more subtle underlying structural features.

AREA 2 (Figs. 4, 6 & 8)

3.10 This (0.63 ha) survey grid was laid out in an irregular pattern, comprising seven contiguous 30 x 30 m boxes, to investigate an area of strong topsoil magnetic susceptibility patterning in which gradiometer scanning had indicated underlying 'cut' features.

3.11 The gradiometer plot shows a number of broadly orthogonal linear elements suggestive of enclosure ditches and perhaps a trackway, together with more fleeting curvilinear features, pit forms, and possible burnt features (including possible kiln or furnace sites), the strongest of which (some 4 - 5 m in diameter) lies central to the survey block. Hand augering of this feature (centred on NGR 510988 388470) produced black charcoal-rich soil together with fragments of burnt clay to a depth of 1 m beneath the present ground surface. This substantial, apparently burnt, feature lies

immediately west of a strong linear (ditch) which is visible for a distance of at least 20 m running on a roughly northwest-southeast alignment (forming part of a general group of rectilinear enclosure ditches). Significantly, this linear in closest proximity to the burnt feature shows as one of the most graphic elements on the gradiometer plot. This is likely to be the result of the incorporation of quantities of burnt (more highly magnetically susceptible) material into its fill, indicating probable contemporaneity. It may also be suggested that further orthogonal linears are equally substantial but display relatively weaker magnetic anomalies with less enhanced soils incorporated into their fills.

3.12 Numerous pits or hollows are also visible; some are quite large (2 - 3 m in diameter). The grouping of both the pits and the rectilinear patterning of the probable enclosure ditches suggests that further structural elements (e.g. postholes) may be anticipated within the enclosures, although such small features would not be visible to gradiometer survey at 1 m traverse intervals.

AREA 3 (Figs. 5, 7 & 9)

3.13 A 30 x 30 m survey grid (0.1 ha) was located within an area of marginally raised topsoil magnetic susceptibility within the northern part of the survey area, where gradiometer scanning suggested the possibility of relatively subtle underlying 'cut' features.

3.14 With the exception of a few possible pit forms (signals which may equally be due to more deeply buried ferrous material) and two fleeting linears which may be of agricultural origin, no features of obvious archaeological significance were recorded.

AREA 4 (Figs. 5, 7 & 9)

3.15 A 30 x 30 m survey grid (0.1 ha) was located within the centre of the survey area to include an area of weak topsoil magnetic susceptibility patterning, where a number of pieces of burnt flint were observed on the field surface. No strong magnetic anomalies were recorded, apart from two possible small pit forms. A weak linear on a northwest-southeast alignment is likely to be an agricultural striation.

AREA 5 (Figs. 5, 7 & 9)

3.16 A 60 x 30 m survey block (0.2 ha) was sited to investigate a small focus of magnetically enhanced topsoils in an area of otherwise low magnetic susceptibility. Observation of the ground surface suggested that the topsoil susceptibility focus is likely to be the result of the incorporation of brick and tile debris of relatively recent origin.

3.17 An area of disturbance and magnetic material extends over an area some 20 m square focusing on an area containing apparently ferrous and other magnetic debris, which is likely (although not conclusively) to be associated with the brick debris identified on the surface. Several broad anomalies located beyond this area of disturbance to both the southeast and northeast suggest relatively 'cleaner' hollows or pits. Weak linears and a single curvilinear may be agricultural striations, although one linear visible crossing the centre of the survey grid from northwest to southeast immediately east of the principal area of stronger magnetic activity gives the impression of a boundary between this zone of disturbance and the relatively 'quiet' soils further east.

4. CONCLUSIONS

4.1 Topsoils formed over sandy substrates generally display low topsoil magnetic susceptibility. However, the topsoil magnetic susceptibility patterning mapped during the current survey east of Linwood Road is clearly dynamic. For the most part the patterning is anthropogenic in origin, the majority probably due to the incorporation of burnt material (probably an admixture of burnt clays and other 'exotic' material) into the topsoil, and an association with the known Romano-British pottery making and other industrial activity known from this part of Market Rasen is suggested.

4.2 Local disturbance to archaeological horizons is demonstrated by the incorporation of significant quantities of Romano-British pottery into the topsoil which clearly indicates the potential for the mixing of underlying deposits of contrasting magnetic susceptibility, resulting in the stronger patterning recorded within the western half of the survey area. Material from underlying deposits will have been dispersed into the 'modern' topsoils as a result of agricultural activity (i.e. clearance, ploughing etc), and there has undoubtedly also been some upcasting from animals burrowing into the soft substrate. The influence of locally burnt deposits is apparent on the gradiometer plots, where stronger anomalies can be seen in proximity to burnt features due to the incorporation of magnetically enhanced material into the fills of contemporary or subsequent 'cut' features. In the absence of such magnetically enhanced deposits intrusive features with sandy fills would be less likely to be visible to the gradiometer.

4.3 The area of relatively low topsoil magnetic susceptibility corresponding with the topographic depression within the western half of the survey area may be the result of colluvial deposits. Significantly areas of higher potential have been defined on either side of this hollow (west and east) and the fact that a further apparent hollow is seemingly overlain by Linwood Road may indicate that these depressions represent

ancient extraction pits. No significant 'cut' edges to these features were recorded by gradiometer although the relatively 'diffuse' nature of the majority of the magnetic anomalies is consistent with features cut into soft substrate (both lacking 'hard' edges and covered by varying depths of agriculturally admixed overburden).

4.4 In contrast, the eastern half of the survey area appears relatively 'quiet' magnetically. Although this is thought to be a true reflection of a relative lack of archaeological features in this area, the possibility that some features infilled with material of lower magnetic susceptibility (i.e. lacking input from burnt and exotic material which is clearly present close to Linwood Road) may be present cannot be entirely discounted.

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ACKNOWLEDGEMENTS

Topsoil magnetic susceptibility mapping and magnetometer survey by Oxford Archaeotechnics Limited under the direction of A.E. Johnson *BA(Hons)*, with: M. Ayres *BSc(Hons), MSc, PhD.*

APPENDIX 1 - MAGNETIC TECHNIQUES: GENERAL PRINCIPLES

A1.1 It is possible to define areas of human activity (particularly soils spread from occupation sites and the fills of cut features such as pits or ditches) by means of *magnetic survey* (Clark 1990; Scollar et al. 1990). The results will vary, according to the local geology and soils (Thompson & Oldfield 1986; Gale & Hoare 1991), as modified by past and present agricultural practices. Under favourable conditions, areas of suspected archaeological activity can be accurately located and targeted for further investigative work (if required) without the necessity for extensive random exploratory trenching. Magnetic survey has the added advantages of enabling large areas to be assessed relatively quickly, and is non-destructive.

A1.2 Topsoil is normally more magnetic than the subsoil or bedrock from which it is derived. Human activity further locally enhances the magnetic properties of soils, and amplifies the contrast with the geological background. The main enhancement effect is the increase of *magnetic susceptibility*, by fire and, to a lesser extent, by the bacterial activity associated with rubbish decomposition; the introduction of materials such as fired clay and ceramics - and, of course, iron and many industrial residues - may also be important in some cases. Other agencies include the addition and redistribution of naturally magnetic rock such as basalt or ironstone, either locally derived or imported.

A1.3 The tendency of most human activity is to increase soil magnetic susceptibility locally. In some cases, however, features such as traces of former mounds or banks, or imported soil/subsoil or non-magnetic bedrock

(such as most limestones), will show as zones of lower susceptibility in comparison with the surrounding topsoil.

A1.4 Archaeologically magnetically enhanced soils are therefore a response of the parent geological material to a series of events which make up the total domestic, agricultural and industrial history of a site, usually over a prolonged period. Climatic factors may subsequently further modify the susceptibility of soils but, in the absence of strong chemical alteration (e.g. during the process of podzolisation or extreme reduction), magnetic characteristics may persist over millions of years.

A1.5 Both the magnetic contrast between archaeological features and the subsoil into which they are dug, and the magnetic susceptibility of topsoil spreads associated with occupation horizons, can be measured in the field.

A1.6 There are several highly sensitive instruments available which can be used to measure these magnetic variations. Some are capable, under favourable conditions, of producing extraordinarily detailed plots of subsurface features. The detection of these features is usually by means of a *magnetometer* (normally a fluxgate gradiometer). These are defined as passive instruments which respond to the magnetic anomalies produced by buried features in the presence of the Earth's magnetic field. The gradiometer uses two sensors mounted vertically, often 50 cm apart. The bottom sensor is carried some 30 cm above the ground, and registers local magnetic anomalies with respect to the top sensor. As both sensors are affected equally by gross magnetic effects these are cancelled out. In order to produce good results, the magnetic susceptibility contrast between features and their surroundings must be reasonably high, thereby creating good local anomalies; a generally raised

background, even if due to human occupation within a settlement context, will sometimes preclude meaningful magnetometer results. The sensitive nature of magnetometers makes them suitable for detailed work, logging measurements at a closely spaced (less than 1 metre) sample interval, particularly in areas where an archaeological site is already suspected. Magnetometers may also be used for rapid 'prospecting' ('scanning') of larger areas (where the operator directly monitors the changing magnetic field and pinpoints specific anomalies).

A1.7 *Magnetic susceptibility measuring systems*, whilst responding to basically the same magnetic component in the soil, are 'active' instruments which subject the sample area being measured (according to the size of the sensor used) to a low intensity alternating magnetic field. Magnetically susceptible material within the influence of this field can be measured by means of changes which are induced in oscillator frequency. For general work, measuring topsoil susceptibility *in situ*, a sensor loop of around 20 cm diameter is convenient, and responds to the concentration of magnetic (especially ferrimagnetic) minerals mostly in the top 10 cm of the soil. Magnetically enhanced horizons which have been reached by the plough, and even those from which material has been transported by soil biological activity, can thus be recognised.

A1.8 Whilst only rarely encountering anomalies as graphically defined as those detected by magnetometers, magnetic susceptibility systems are ideal for detecting magnetic spreads and thin archaeological horizons not seen by magnetometers. Using a 10 m interval grid, large areas of landscape can be covered relatively quickly. The resulting plot can frequently determine the general pattern of activity and define the nuclei of any occupation or industrial areas. As the intervals between susceptibility readings generally exceed the

parameters of most individual archaeological features (but not of the general spread of enhancement around features), the resulting plots should be used as a guide to areas of archaeological potential and to suggest the general form of major activity areas; further refinement is possible using a finer mesh grid or, more usually, by detailing underlying features using a gradiometer.

A1.9 Magnetic survey is not successful on all geological and pedological substrates. As a rule of thumb, in the lowland zone of Britain, the more sandy/stony a deposit, the less magnetic material is likely to be present, so that a greater magnetic contrast in soil materials will be needed to locate archaeological features; in practice, this means that only stronger magnetic anomalies (e.g. larger accumulations of burnt material) will be visible, with weaker signals (e.g. from the fillings of simple agricultural ditches) disappearing into the background. Similar problems can arise when the natural background itself is very high or very variable (e.g. in the presence of sediments partially derived from magnetic volcanic rocks).

A1.10 The precise physical and chemical processes of changing soil magnetism are extremely complex and subject to innumerable variations. In general terms, however, there is no doubt that magnetic enhancement of soils by human activity provides valuable archaeological information.

A1.11 As well as locating specific sites, topsoil magnetic susceptibility survey frequently provides information relating to former landuse. Variations in the soils and subsoils, both natural and those enhanced by anthropogenic agencies, when modified by agriculture, give rise to distinctive patterns of topsoil susceptibility. The containment of these spreads by either natural or man-made features (streams, hedgerows, etc.) gives rise to a characteristic

chequerboard or strip pattern of varying enhancement, often showing the location of former field systems, which persist even after the physical barriers have been removed. These patterns are often further amplified in fields containing underlying archaeological features within reach of the plough. More subtle landuse boundaries and indications of former cultivation regimes are often suggested by topsoil magnetic susceptibility plots.

A1.12 Where a general spread of magnetically enhanced soils contained within a long-established boundary becomes admixed over a long period by constant ploughing, it can be diffused to such a point that the original source is masked altogether. Magnetically enhanced material may also be moved or masked by natural agencies such as colluviation or alluviation. Generally, it appears that the longer a parcel of land has been under arable cultivation, the greater is the tendency for topsoil susceptibility to increase; at the same time there is increasing homogeneity of the magnetic signal within the soils owing to continuous agricultural mixing of the material. Some patterns of soil enhancement derived from underlying archaeological features are, however, apparently capable of resisting agricultural dispersal for thousands of years (Clark 1990).

FIGURE CAPTIONS

Figure 1. Location maps. Scale 1:50,000 and 1:10,000. Based upon OS 1:50,000 Map 121, and OS 1:2500 Sheet TF 1088 reduced to 1:5,000 scale.

Figure 2. Location Map showing location of gradiometer survey grids. Based upon OS 1:2500 Sheet TF 1088. Scale 1:2500.

Figure 3. Topsoil magnetic susceptibility survey: colour contour plot. Scale 1:2500.

Figure 4. Magnetometer (gradiometer) survey. Areas 1 & 2: grey scale plots (Geoscan Research Geoplot Licence No. GPB 885-6). Scale 1:1000.

Figure 5. Magnetometer (gradiometer) survey. Areas 3, 4 & 5: grey scale plots (Geoscan Research Geoplot Licence No. GPB 885-6). Scale 1:1000.

Figure 6. Magnetometer (gradiometer) survey. Areas 1 & 2: stacked trace plots (raw data (Geoscan Research Geoplot Licence No. GPB 885-6). Scale 1:1000.

Figure 7. Magnetometer (gradiometer) survey. Areas 3, 4 & 5: stacked trace plots (raw data) (Geoscan Research Geoplot Licence No. GPB 885-6). Scale 1:1000.

Figure 8. Magnetometer (gradiometer) survey. Areas 1 & 2: interpretation (Geoscan Research Geoplot Licence No. GPB 885-6). Scale 1:1000.

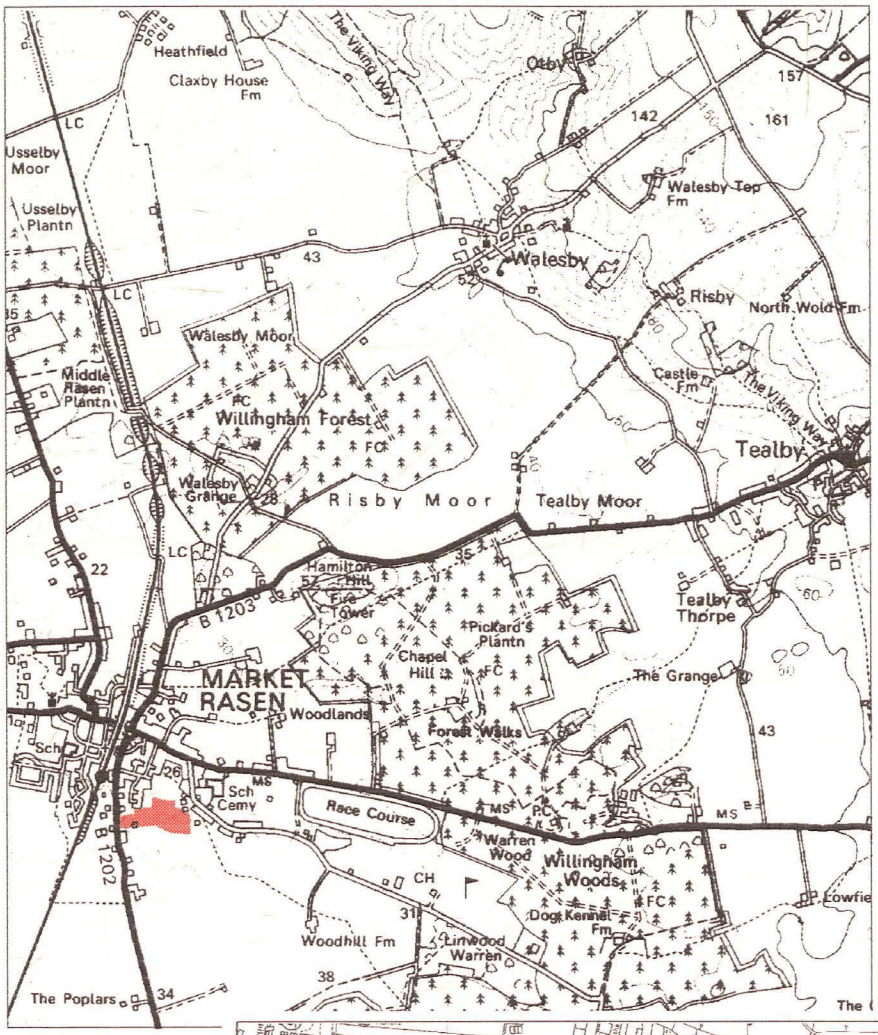
Figure 9. Magnetometer (gradiometer) survey. Areas 3, 4 & 5: interpretation (Geoscan Research Geoplot Licence No. GPB 885-6). Scale 1:1000.

Figure 10. Topsoil magnetic susceptibility survey: overview. Scale 1:2500.

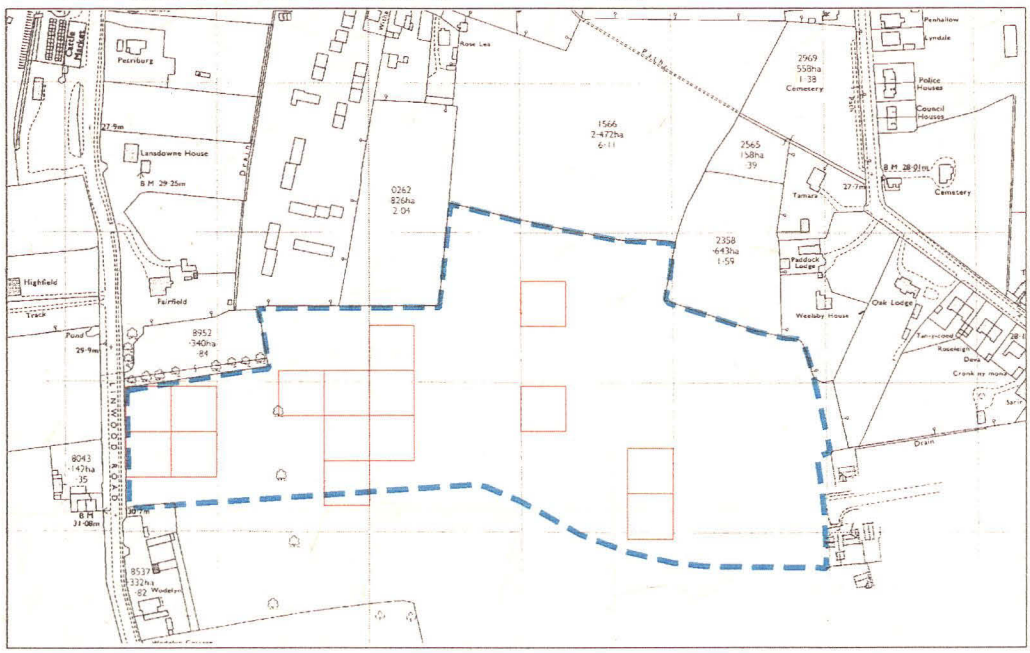
Figure 11. Magnetometer (gradiometer) survey. Overview: principal features (Geoscan Research Geoplot Licence No. GPB 885-6). Based upon OS 1:2500 Sheet TF 1088. Scale 1:2500.

Land East of Linwood Road, Market Rasen, Lincolnshire

Topsoil magnetic susceptibility & magnetometer survey: location



1:50,000



1:5,000

Topsoil magnetic susceptibility survey

Magnetometer (Gradiometer) survey

30m grids

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FIG. 1

Land East of Linwood Road, Market Rasen, Lincolnshire

Topsoil magnetic susceptibility & magnetometer survey: location

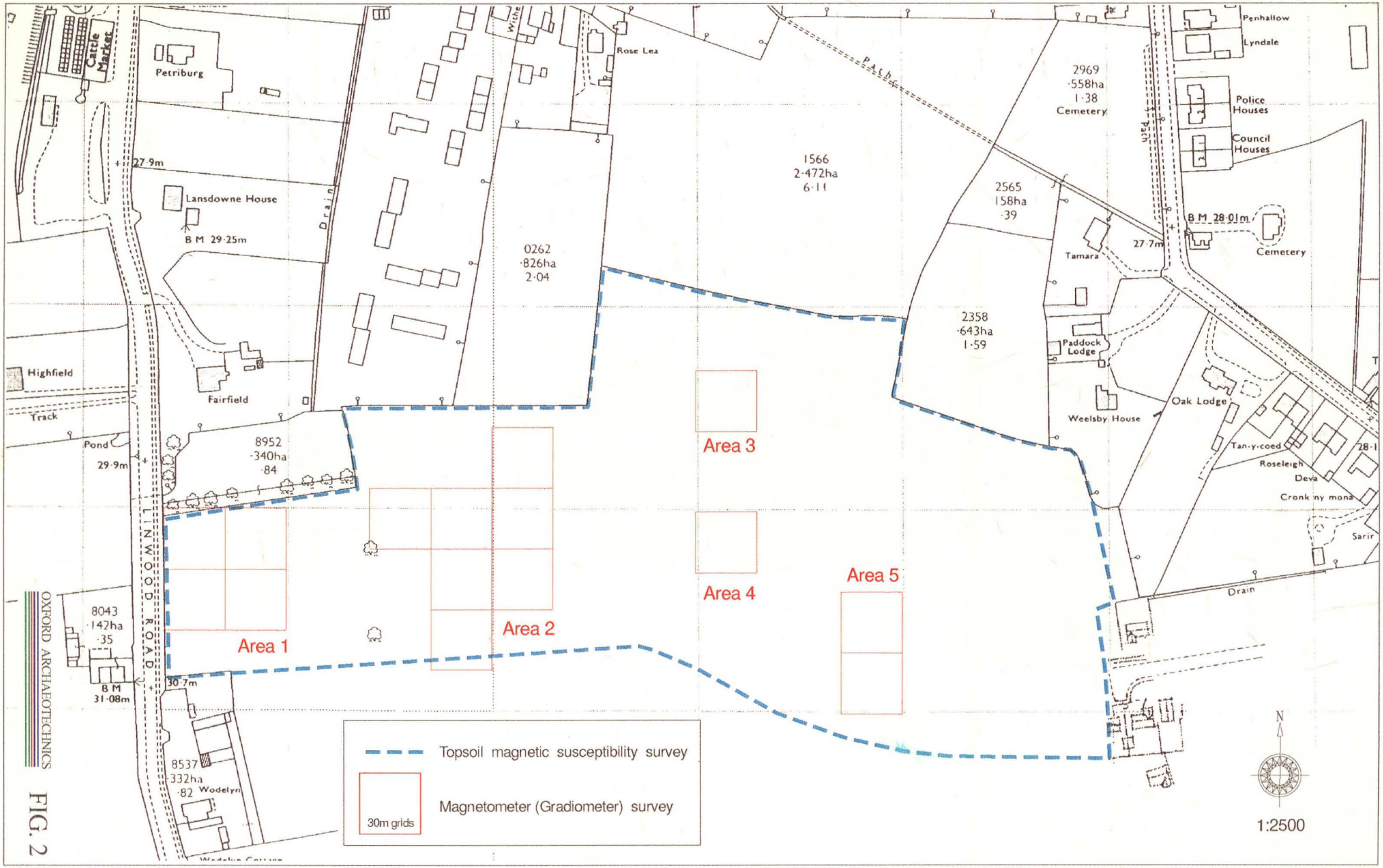

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FIG. 2

Land East of Linwood Road, Market Rasen, Lincolnshire

Topsoil magnetic susceptibility & magnetometer survey: topsoil magnetic susceptibility plot

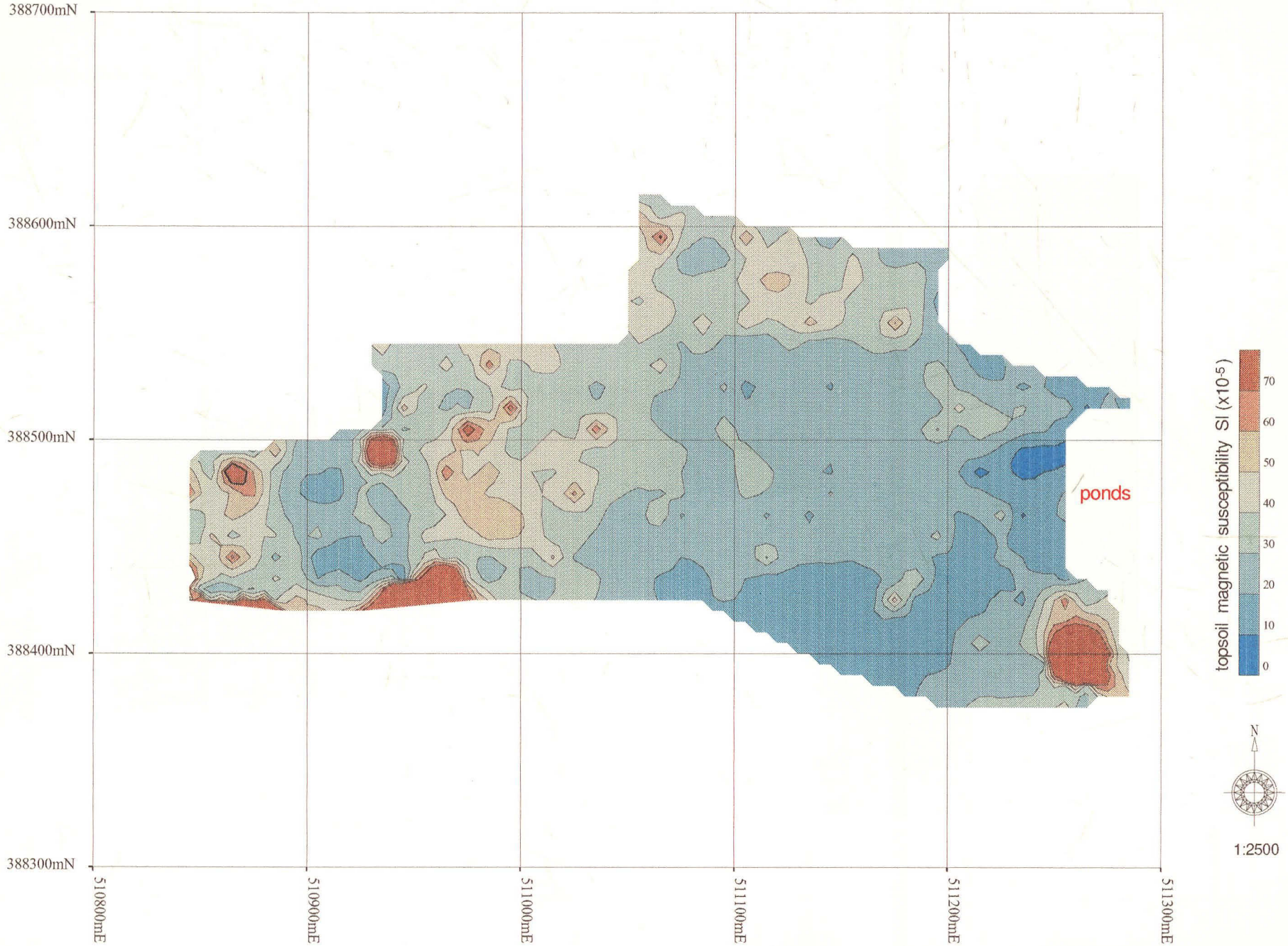

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FIG.3

Land East of Linwood Road, Market Rasen, Lincolnshire

Topsoil magnetic susceptibility & magnetometer survey

Gradiometer grey shade plot: Areas 1 & 2

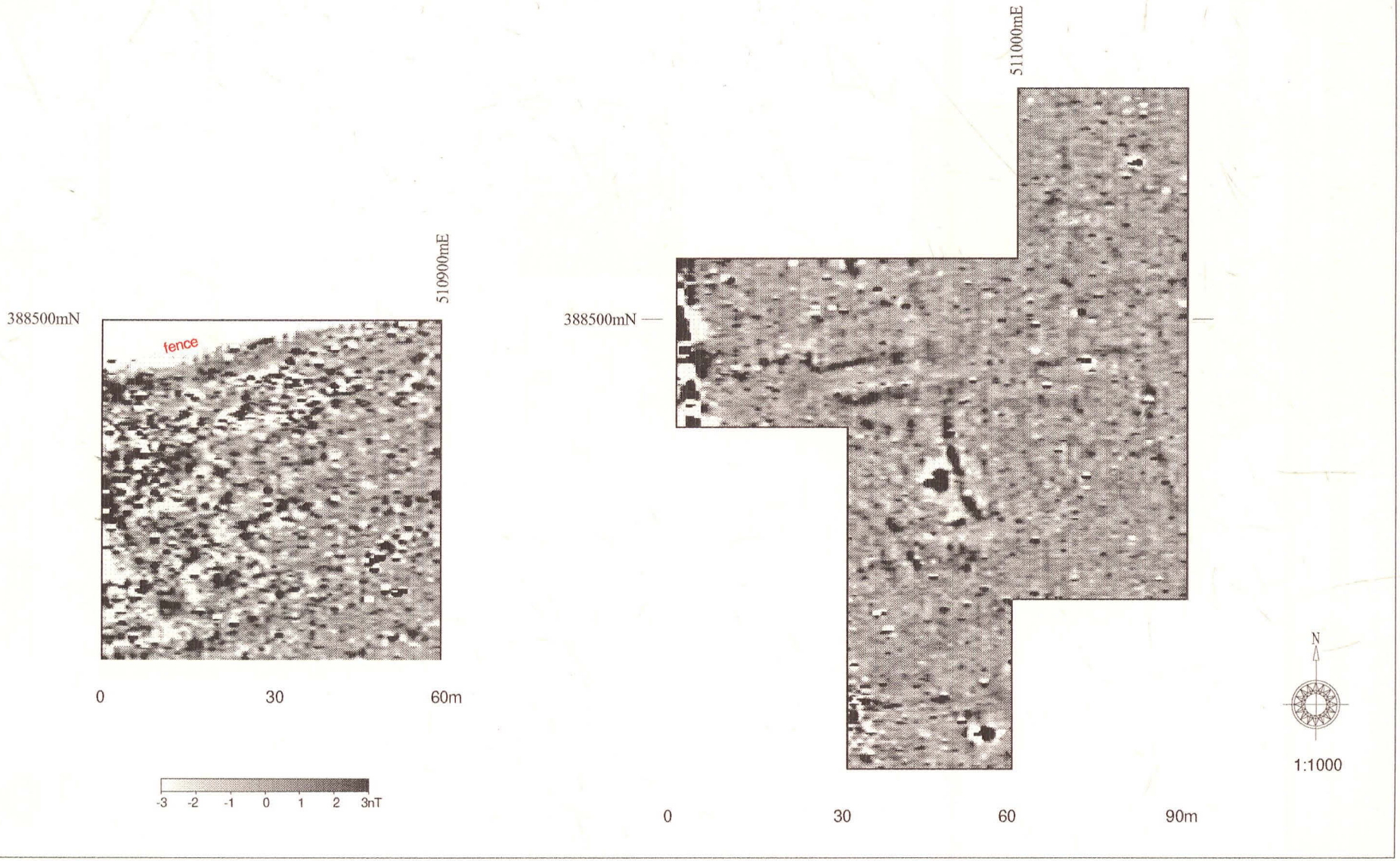

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FIG. 4

Land East of Linwood Road, Market Rasen, Lincolnshire

Topsoil magnetic susceptibility & magnetometer survey

Gradiometer grey shade plot: Areas 3, 4 & 5

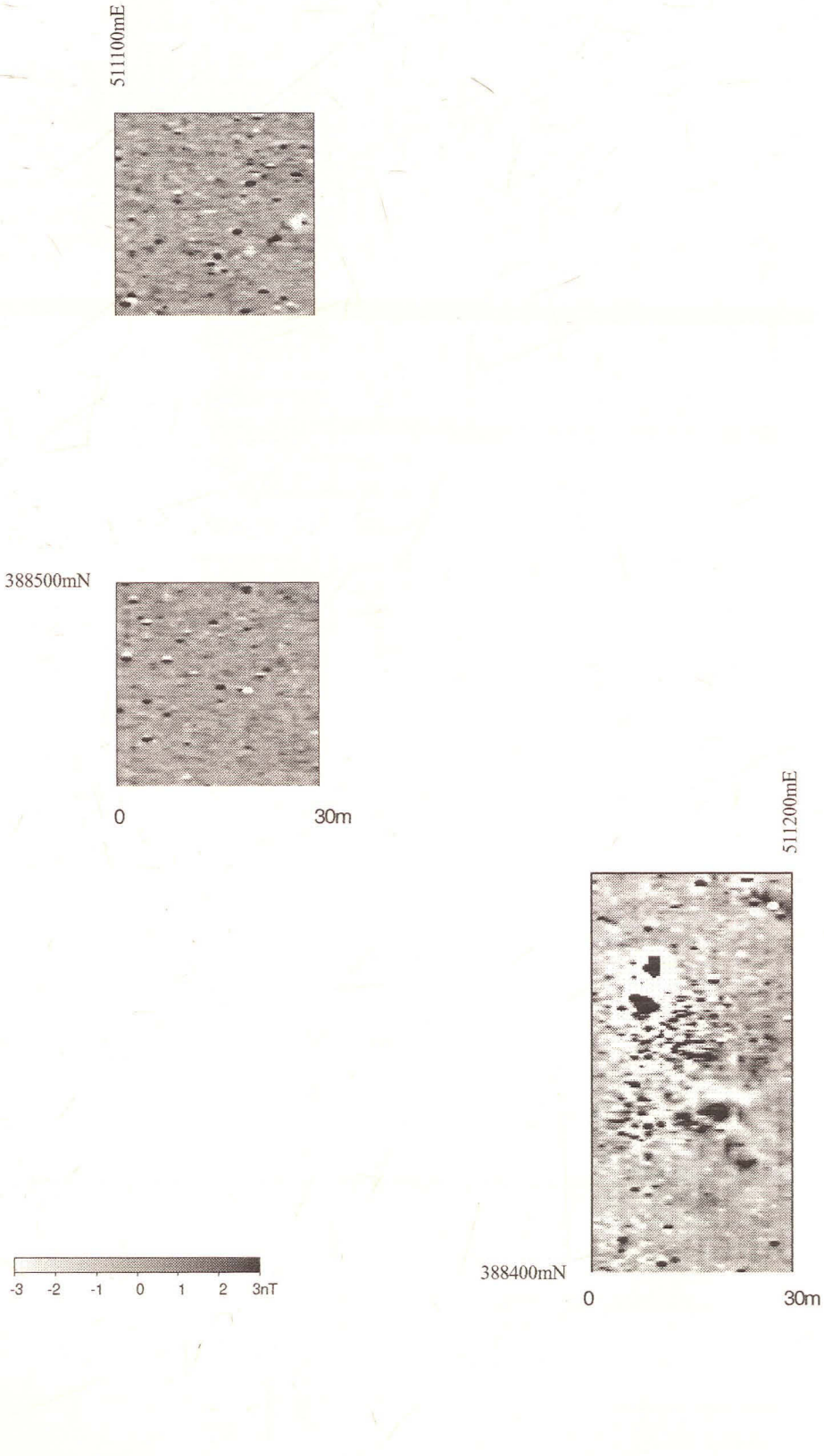

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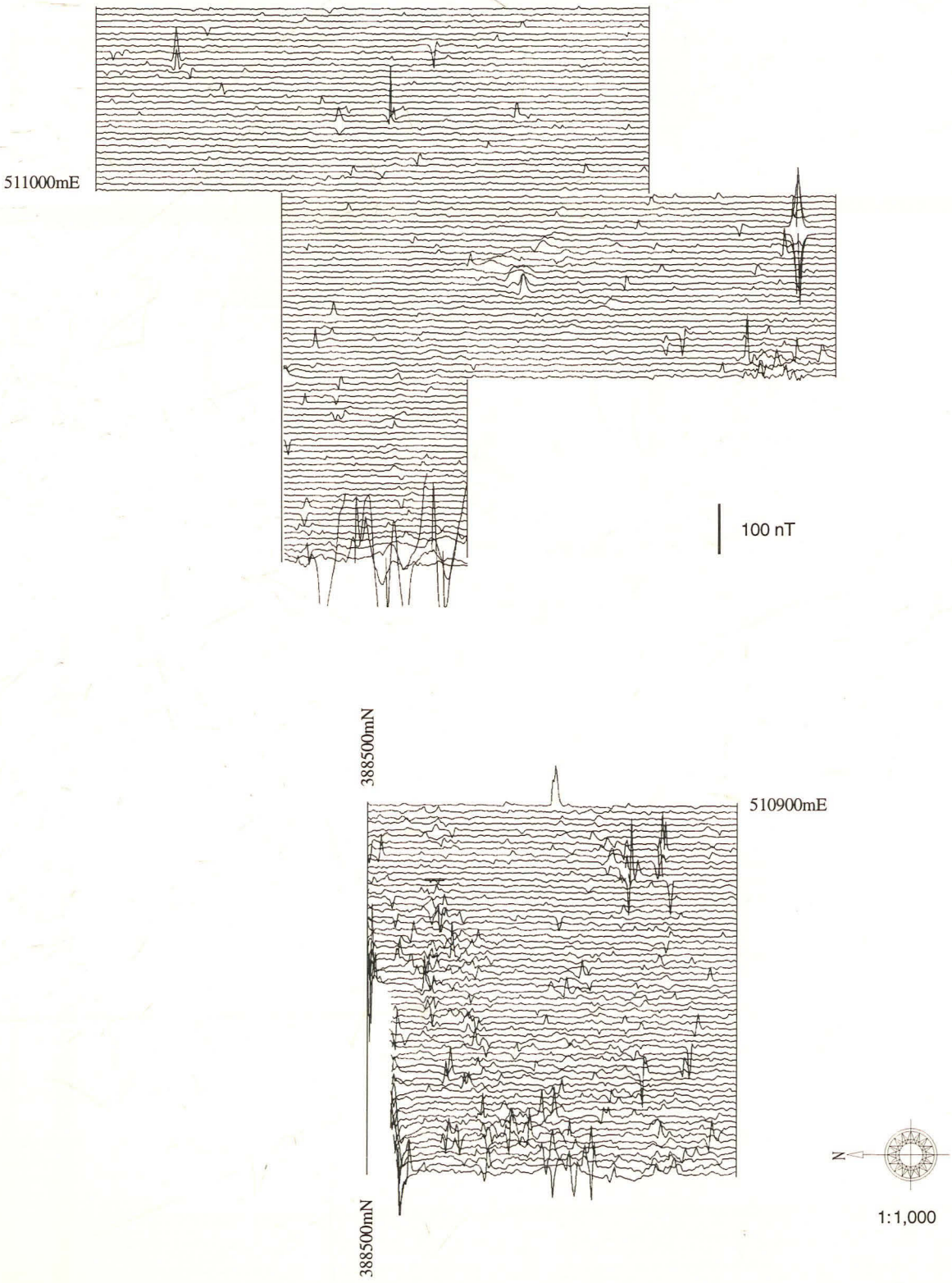
FIG.5

Land East of Linwood Road, Market Rasen, Lincolnshire

Topsoil magnetic susceptibility & magnetometer survey

Gradiometer stacked trace plot: Areas 1 & 2, raw data



OXFORD ARCHAEOTECHNICS FIG. 6

Land East of Linwood Road, Market Rasen, Lincolnshire

Topsoil magnetic susceptibility & magnetometer survey

Gradiometer stacked trace plot: Areas 3, 4 & 5, raw data

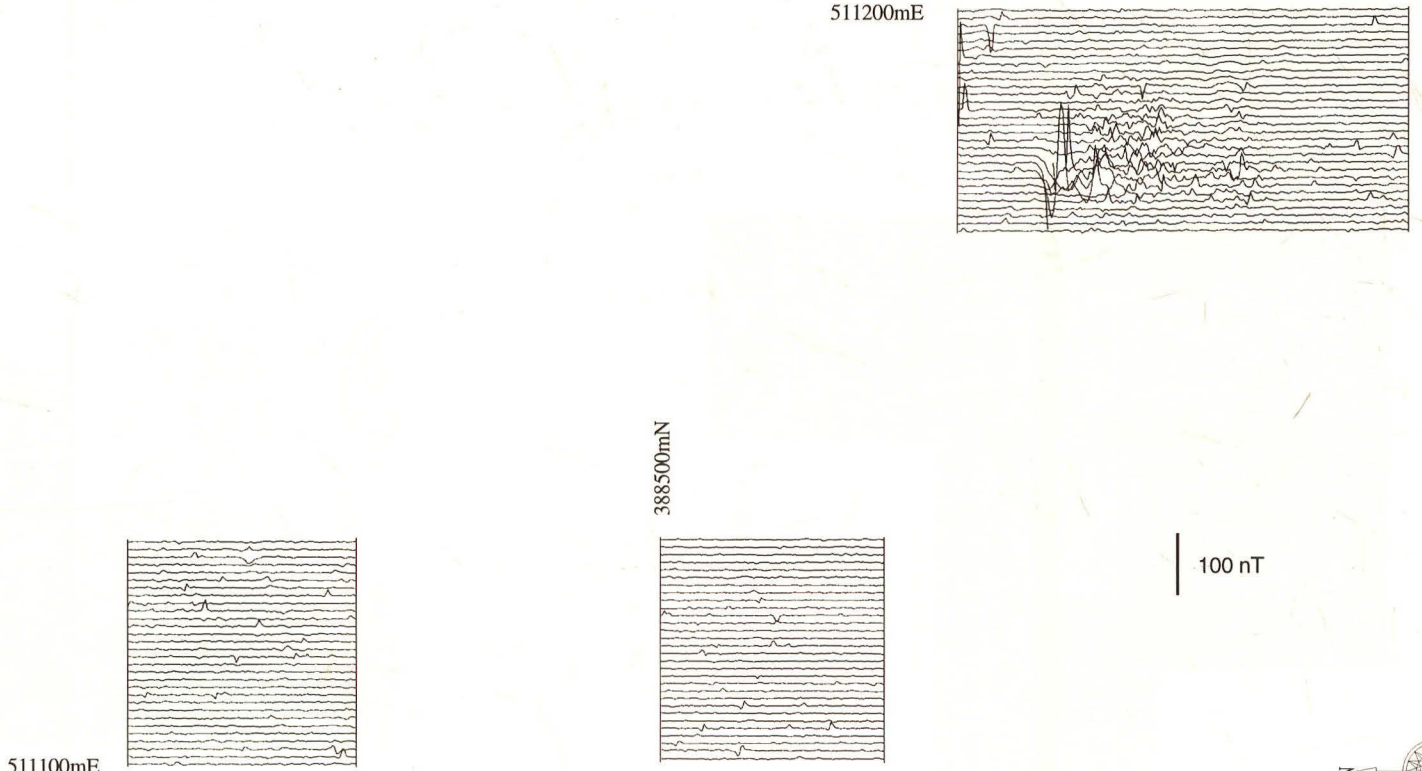


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FIG. 7

Land East of Linwood Road, Market Rasen, Lincolnshire

Topsoil magnetic susceptibility & magnetometer survey

Gradiometer grey shade plot: Areas 1 & 2, interpretation

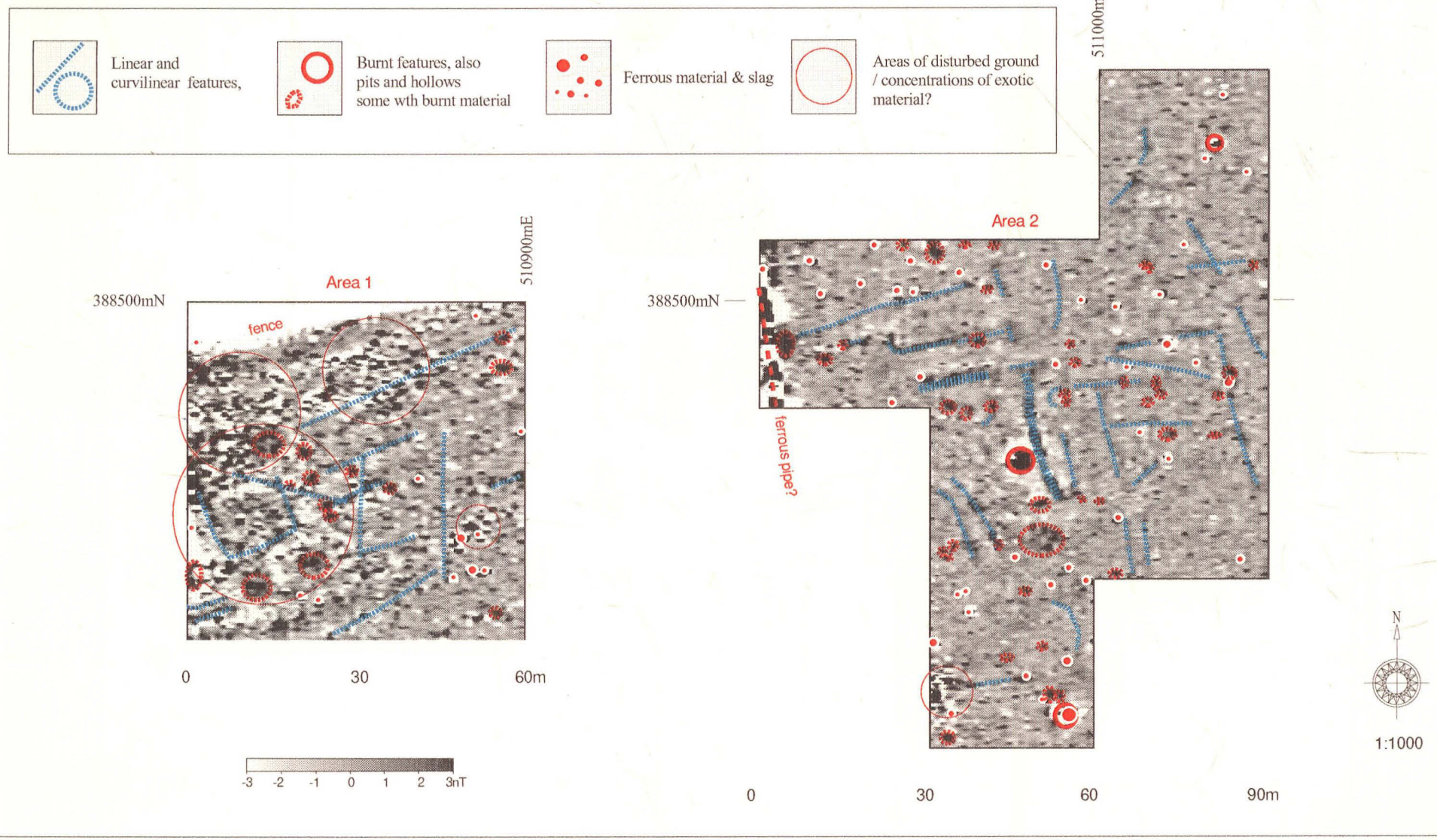

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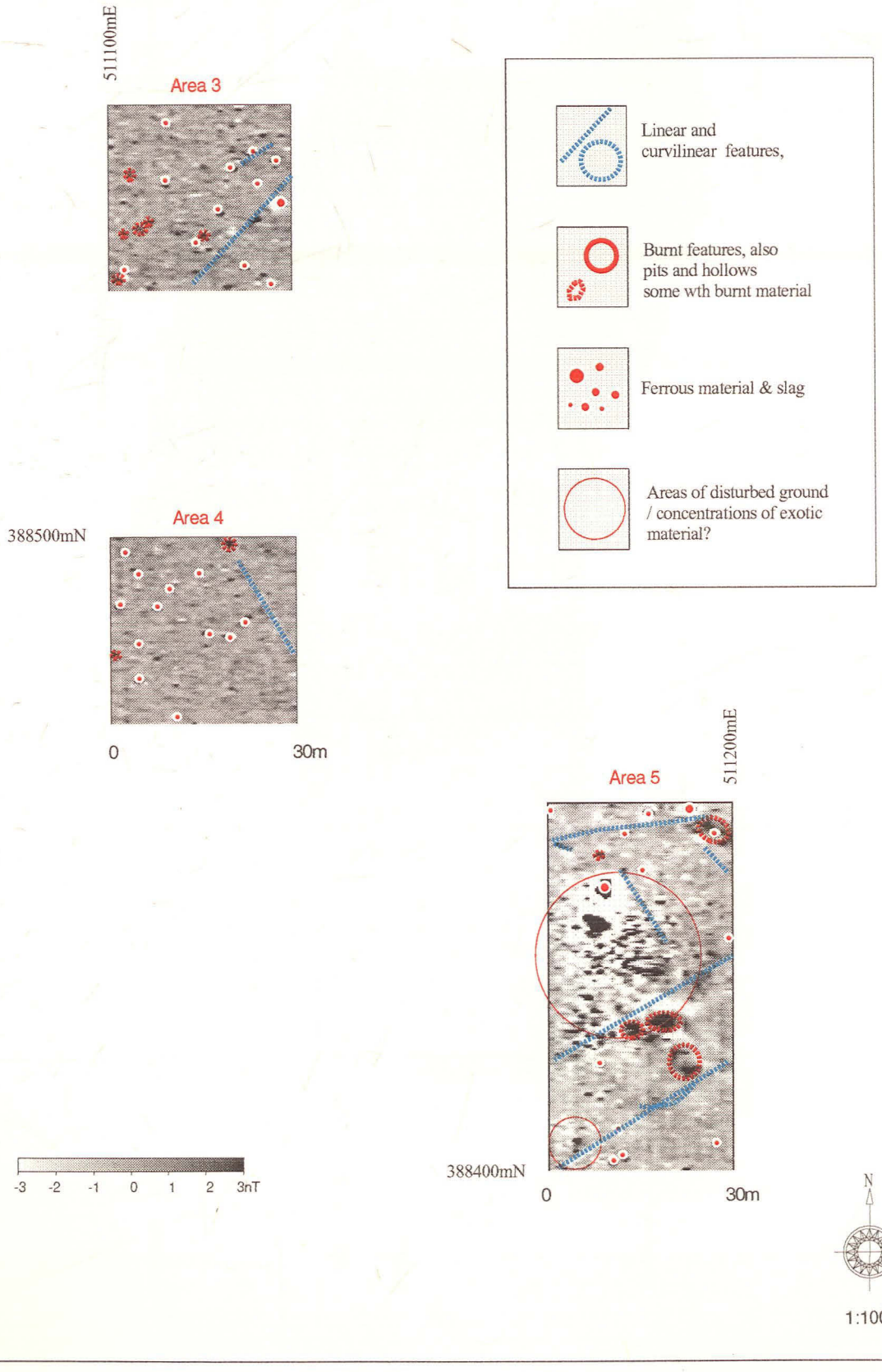
FIG. 8

Land East of Linwood Road, Market Rasen, Lincolnshire

Topsoil magnetic susceptibility & magnetometer survey

Gradiometer grey shade plot: Areas 3, 4 & 5: interpretation



OXFORD ARCHAEOTECHNICS FIG. 9

Land East of Linwood Road, Market Rasen, Lincolnshire

Topsoil magnetic susceptibility: overview

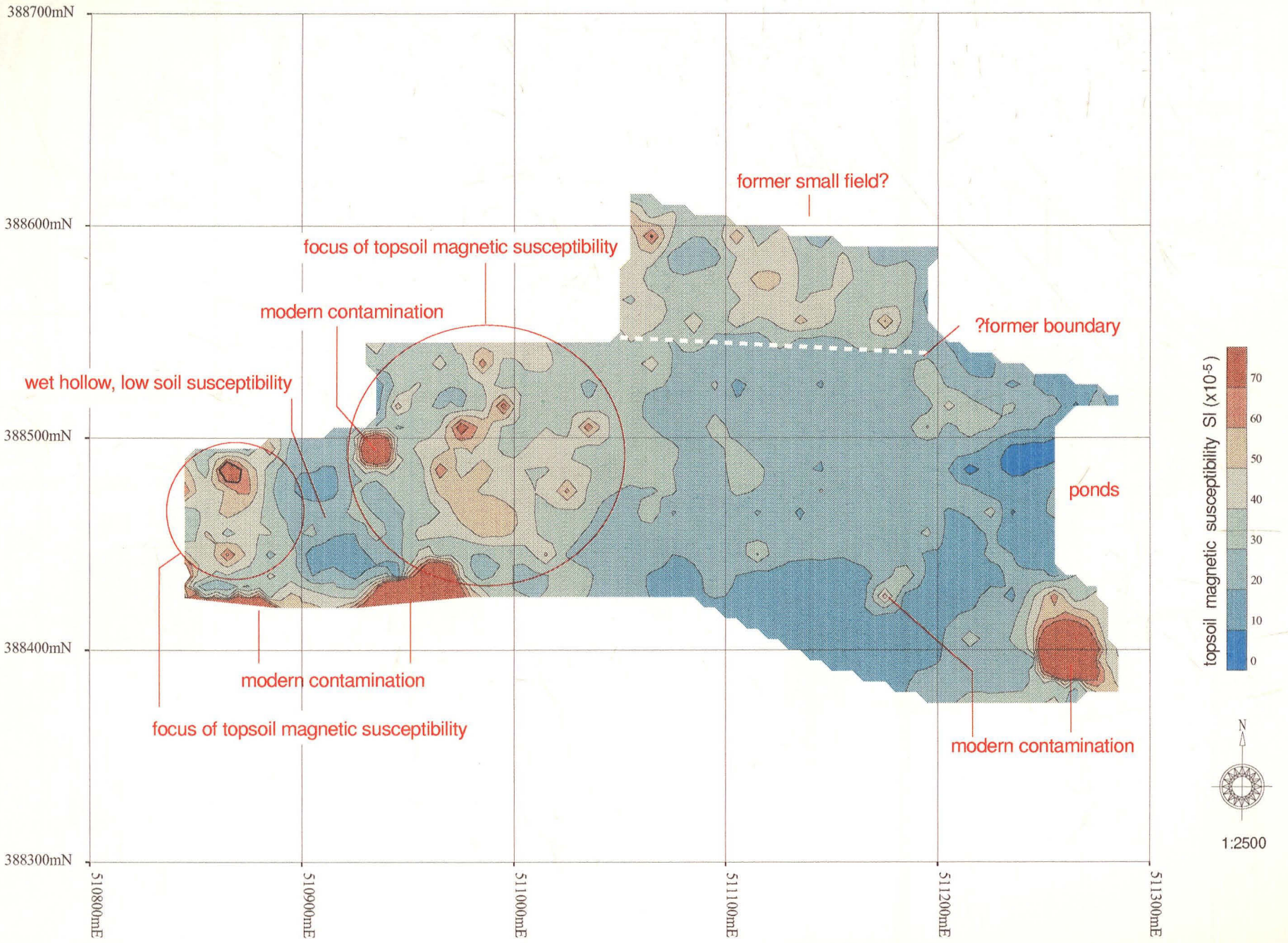


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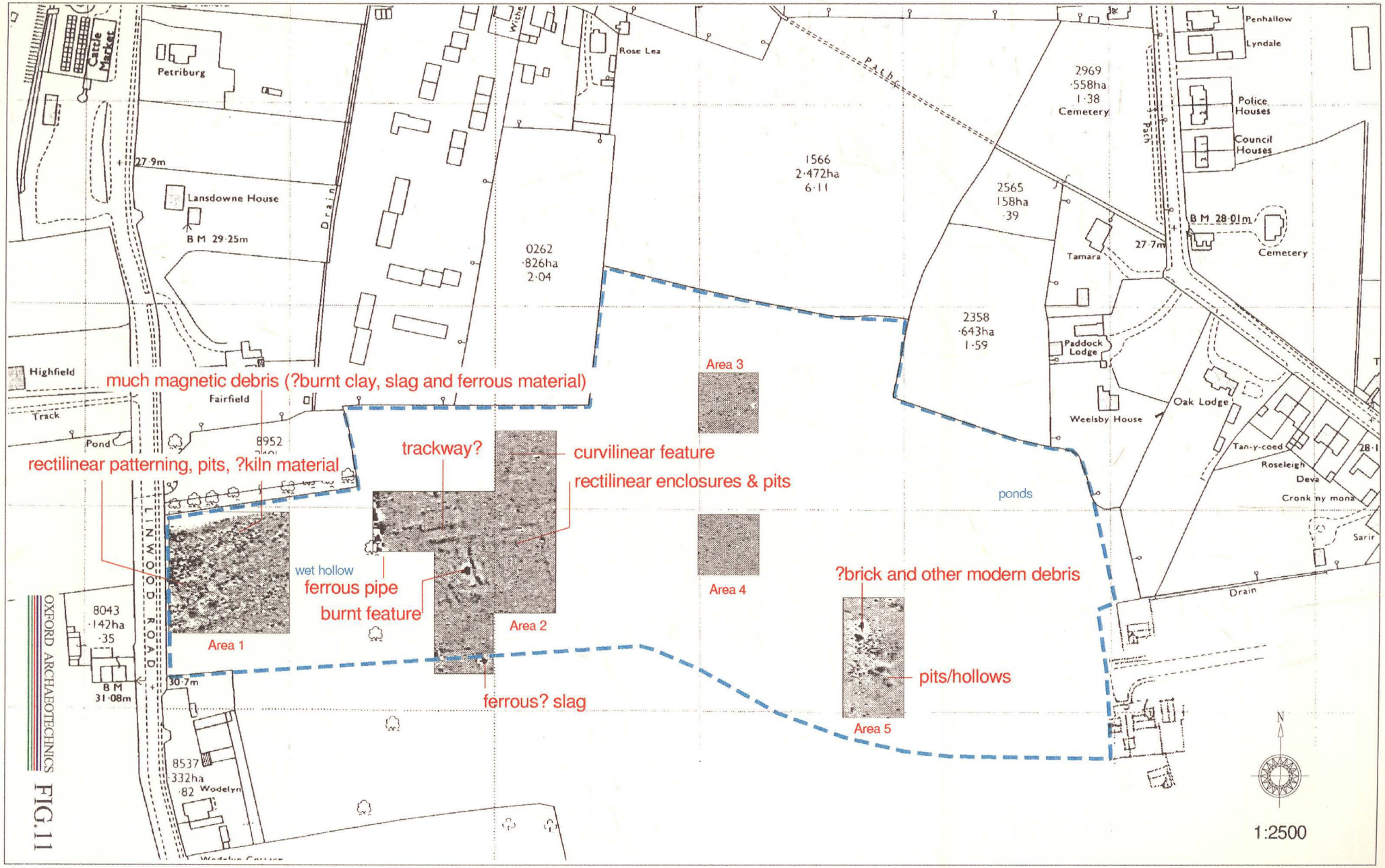
FIG.10

Land East of Linwood Road, Market Rasen, Lincolnshire

Magnetometer survey: overview: principal features



Specialist Archaeological Field Evaluation

INTERNAL QUALITY CHECK

Survey Reference	1341297/MRL1PCA	
Primary Author	HJ	Date 9/1/98
Checked By	APJ	Date 9-1-98
Checked By		Date
Further Corrections		Date

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July. 1997