

**Geophysical And Fieldwalking Survey On Land
Affected By a Proposed Access Road For
Thistleton Quarry, Thistleton, Rutland
(SK 910 173)**

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**For:
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Quarry, Thistleton, Rutland (SK 910 173)*

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Geophysical Survey And Fieldwalking On Land Affected By A Proposed Access Road At Thistleton Quarry, Thistleton, Rutland (SK 910 173)

Summary

A programme of non-intrusive archaeological survey was carried out in late summer and autumn 2003 over the area of a proposed quarry access road in Thistleton, Rutland (SK 910 173) for East Midlands Quarry Ltd/Mineral Surveying Services. The roadline will run from a proposed quarry extension on the northern side of Thistleton Road eastwards to New Road. The proposed route of the access road crossed to the north of the known site of a Roman Small Town, the site of which exists southwest of the present village. The extent of the small town had not been confirmed and would potentially extend across the proposed roadline.

A corridor of land 50m either side of the proposed access road was field-walked. A light scatter of pottery dating from the Roman through to the modern period was recovered from two large fields south of the village. However, close to the known site of the Roman small town, there were dense concentrations of Roman pottery, tile and slag. Much of the pottery could be dated to the later part of the Roman occupation.

A geophysical survey by magnetic susceptibility and gradiometry of the road corridor was also carried out in 2003 by ULAS for East Midlands Quarry Ltd/Mineral Surveying Services. Areas of unusually high magnetic susceptibility were located, and follow-up gradiometry survey was undertaken. Additional gradiometry survey of the surrounding area was also undertaken by the University of Leicester School of Archaeology and Ancient History as part of an ongoing research project. The survey revealed part of the layout of an extensive settlement dating to the Roman period, which was present over the majority of the western half of the proposed route of the access road. Some features of possible pre-Roman date were also located. The archive will be deposited with Rutland County Museum, Catmose Street, Oakham, Rutland LE15 6HW under the Accession Number A2.2003

1 Introduction

1.1 University of Leicester Archaeological Services were commissioned to carry out a programme of fieldwalking and geophysical survey on land south of Thistleton, Rutland (figure 1). The work was undertaken as part of archaeological field trials in advance of the proposed construction of an access road for the potential extension of the Thistleton Quarry on behalf of Mineral Surveying Services and East Midlands Quarries.

1.2 The site lies approximately 10 km northeast of Oakham, in Thistleton parish, in the county of Rutland (SK 910 173). The proposed access road is located south of Thistleton Road, aligned roughly southwest/northeast and crossing the former

Greetham Road (figure 2). The total length of the proposed access road will be c.2.25km, with a proposed corridor of 4m giving a total area of 0.9 ha.

1.3 The Leicestershire and Rutland Sites and Monuments Record indicates that the proposed site is close to areas where archaeological artefacts have been discovered and is therefore recognised as having high archaeological potential.



Figure 1: Location of site. Scale 1:50000

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1.4 Initial advice from Heritage Services of Leicestershire County Council (HSLCC now referred to as Historic and Natural Environment Team) requested the preparation of an archaeological desk-based assessment to ‘gather sufficient evidence to establish, supplement, improve and make available information about the archaeological resource existing on the site to a level at which the necessary planning recommendations can be made by the Senior Planning Archaeologist as to future treatment of archaeological deposits, in relation to development proposals.’ The desk-based assessment was commissioned from University of Leicester Archaeological Services (ULAS; Clarke 2002) and the results confirmed that the site had significant archaeological potential.

1.5 The work discussed in this document addressed the requirements of the ‘*Brief for Archaeological Evaluation of a Proposed Access Road on Land at Thistleton, Rutland*’ produced by HSLCC 17.10.2002 (hereinafter the ‘brief’). The brief requested fieldwalking and a magnetic susceptibility survey, followed up by targeted gradiometer survey (‘brief’ 9.1–9.3). A detailed methodology was proposed within a Design Specification (dated 21.07.03) by ULAS and approved by HSLCC. The fieldwalking and magnetic susceptibility survey was carried out in August 2003 and the gradiometer survey took place in September and November 2003.

1.6 The Ordnance Survey Geological Survey of Great Britain Sheet 143 indicates that the underlying geology is likely to consist of Upper and Lower Lincolnshire Limestone. The land lies at a height of c.130m O.D.

2 Archaeological and Historical Background

(from the desk based assessment see Clark 2002)

2.1 Evidence indicates that the proposed access road lies within a landscape rich in activity from the prehistoric period onwards. Neolithic flint tools have been recovered from the area and a probable Bronze Age ring ditch (LE5781) is located to the northeast of the proposed access road.

2.2 The Roman town of Thistleton is located to the southwest of the present-day village. Excavations took place in the 1950s and these indicated that it was occupied from the Iron Age through to the 4th century AD. The remains of timber and stone buildings were discovered, including the site of a temple. Evidence suggests that the settlement contained a market. Metalworking activity is demonstrated by 32 shaft furnaces (LE5773), presumably exploiting the iron rich underlying bedrock.

2.3 A number of inhumation burials were also located at the Roman town and the remains of 6 infants were discovered amongst the foundations of excavated buildings. A Roman road was located to the east of the settlement, orientated north-south, on the line of the present Greetham-Thistleton road (LE5345). Another was aligned east-west running between modern-day Thistleton and Market Overton (LE5508). A Roman villa and bathhouse was identified northwest of the proposed access road during quarrying in the 1950s. Excavations suggest that this was in use from the Iron Age until it was demolished in the fourth century AD (Greenfield, Vol.51:175).

2.3 The village of Thistleton, to the north of the proposed access road, was established by the time of the Domesday Book. The earthwork remains of three fishponds are located to the north of the village. There are further earthworks within the medieval core, which indicate that the village was once larger than it is now.

3 Aims

3.1 The Brief prepared by the Senior Planning Archaeologist (LCCHS), as archaeological advisor to the planning authority, states that ‘the potential for medieval remains is also high as Thistleton has a medieval origin and a number of earthworks survive around the village’. The primary objective of the evaluation was to collect and interpret data to establish, supplement, improve and make available information about the archaeological resource existing within the application area to a level at which the Senior Planning Archaeologist can make necessary/appropriate planning recommendations as to the future treatment of archaeological deposits in relation to the development proposals (‘Brief’ 8). The brief requested fieldwalking and a magnetic susceptibility survey, followed up by targeted gradiometer survey (‘brief’ 9.1–9.3). A Design Specification for this stage of evaluation was prepared by ULAS and approved by Stephanie Chettle, Planning Archaeologist.

3.2 The aims of the fieldwalking and geophysical survey were to:

- identify potential archaeological sites beyond those already known, in order to minimise the risk of unforeseen archaeological discoveries during construction work.
- assess the potential impact of the proposed development on any archaeological remains, whether known or postulated.

3.3 All archaeological work adhered to the Institute of Field Archaeologist's (IFA) *Code of Conduct and Standard and Guidance for Archaeological Evaluations* and the *Guidelines and Procedures for Archaeological Work in Leicestershire and Rutland* (Leicestershire Museums, Arts and Records now Leicestershire County Council, Heritage Services).

4 Results: Fieldwalking

4.1 Introduction

4.1.1 The fieldwalking took place between 28th August and 1st September 2003. Fieldwalking is considered to be an appropriate method for non-intrusive archaeological evaluation of arable areas. The aim is to record material that has resulted from the ploughing of sub-surface deposits or that has been discarded onto the ground surface. Analysis of the density and distribution of this material gives an indication land use through time and can help identify potential archaeological sites.

4.2 Methodology and Conditions

4.2.1 The weather was generally fine but cloudy with some outbreaks of rain. Visibility was generally good. The crop was already sown in all 3 fields that were walked, but it was only just through and did not generally inhibit visibility. The soil consisted of a fine sandy loam with frequent limestone fragments and occasional natural flint. At the time of the survey it was not possible to walk fields 4, 5 and 6 because they were either under pasture or still bore the previous crop stubble.

4.2.2 The proposed access road was targeted and a corridor of 50m either side was walked. The transects were walked at 10m intervals and all finds were marked *in situ*. Each find was given a unique number, bagged and removed from the surface and its location was recorded using a Leica TCR307 total station linked to an NRG Psion workabout. Brick and building material that was obviously modern was marked and its location recorded, but it was not collected. A sample amount of what was perceived to be older building material was collected. Bone was not retrieved, as it is not intrinsically dateable and unstratified material provides little useful archaeological information. The finds were later washed, marked with the museum accession code and examined by the appropriate specialists.

4.3 Results

4.3.1 Figure 3 shows the distribution of all finds recovered from the site. The most immediately obvious feature of the fieldwalking results was the contrast between the sheer quantity of material recovered from field 3, as compared with that from fields 1 and 2. The density of finds in field 3 was such that it became necessary to bag all finds within a 2-3m radius together and assign a single group number to them rather than numbering and locating each find individually.

4.3.2 The distribution of pottery finds from all phases is depicted on figure 4. A relatively small number of finds were recovered from fields 1 and 2. As expected, there is a general background scatter of Roman, medieval and post-medieval pottery, as well as ceramic building material. This is likely to have become incorporated into household rubbish and spread on the fields and is unlikely to represent settlement. In support of this theory, there is a distinct absence of tapslag, which might suggest industrial activities and most of the ceramic building material (cbm) is likely to be post-medieval and modern rather than Roman (figures 5 & 6).

4.3.3 The finds from field 3 suggest a radically different picture. The amount of medieval to modern material would be consistent with continued agricultural activity and manuring practices. However, the high density of the Roman material is indicative of intensive settlement, while industrial activity in the form of iron smelting is suggested by the tapslag. A study of the fabric types (N. Cooper Appendix 1) suggested that the site was occupied throughout the Roman period. But the majority of material was from the later Roman period, the 3rd and 4th centuries, perhaps indicating an intensification of activity at this time and providing evidence that the settlement continued right to the end of the Roman period. A single sherd of early Anglo-Saxon material was also recovered. The significance of this is difficult to gauge from such a small sample, however further finds might indicate that occupation continued for a short while beyond the Roman period.

4.3.4 Figure 7 shows the distribution of flint artefacts across the site. It is interesting that although the flint dates from a period well before the Roman town there is still a concentration in field 3, close to the Roman town site. The flint was generally of local type, excepting a single flake of Wolds flint. No chronologically diagnostic tools were recovered. However, it is considered that the assemblage includes some Mesolithic material, but the bulk of the material was later prehistoric (for further details see Appendix 2 by Lynden Cooper).

4.3.5 The work has fortuitously coincided with another programme of fieldwalking carried out by amateur archaeological groups as part of an ongoing research project, under the direction of Jeremy Taylor, School of Archaeology and Ancient History, University of Leicester. This encompassed the whole of field 3. The results show a light scatter of flint covering the whole of the field. A general scatter of post-medieval pottery covered the field as part of a general background agricultural manuring. As with the access road distribution, the Roman-British pottery was heavily concentrated in the north and west of the field, suggesting the south and eastern limits of the Roman town. The distribution pattern of the slag finds covers a similar area to the pottery but in more patchy concentrations.

5 Results: Geophysical Survey

5.1 Introduction

5.1.1 The aim of the geophysical survey was to carry out an initial reconnaissance of the entire site by an appropriate method to show possible areas of archaeological activity for further detailed survey. It was hoped that a volume specific topsoil magnetic susceptibility survey would indicate areas of possible archaeological activity. Archaeological features often have an anomalously higher magnetic susceptibility (MS) than the surrounding subsoil due to burning and biological processes. Where such features exist, the susceptible material becomes mixed with the topsoil through ploughing and other action and over time may enhance the topsoil magnetic susceptibility around the features. These enhanced zones can be detected by an area MS survey, although it should be noted that MS enhancement and depletion can occur through natural environmental processes.

5.2 Methodology

5.2.1 The MS survey was carried out at 20m intervals along 20m spaced transects using a Bartington Instruments MS2D magnetic susceptibility field coil on 1×10^{-5} SI

unit range. A corridor of *c.*100m width was surveyed, centred on the proposed road centre line.

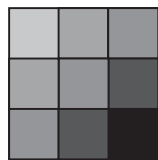
5.2.2 The detailed survey was carried out using a Geoscan Research FM36 fluxgate gradiometer with ST1 sample trigger. Differences in magnetic susceptibility between the subsoil and archaeological features can be detected as changing magnetic flux. Data from this may be mapped at closely spaced regular intervals, to produce an image, which may be interpreted, to locate buried archaeological features.

5.2.3 Prospection was carried out in grids of 30m x 30m along zig-zag traverses spaced at 1m intervals, recording data points every 1.0m x 0.5m (a total of 1800 points in each grid) to a maximum instrument sensitivity of 0.1nT. At regular intervals, the data was downloaded to a notebook personal computer for storage and assessment.

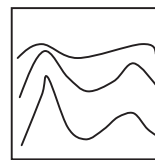
5.2.4 Co-incidentally, the known Roman small town of Thistleton is the subject of a research project under the direction of Jeremy Taylor, School of Archaeology, University of Leicester. The School carried out an extensive gradiometry survey at the same time as this evaluation, and both gradiometry surveys have been combined in this report to show the wider archaeological context of the road line proposals.

5.3 *Data Processing and Presentation*

5.3.1 Following the completion of a survey, processing and analysis took place using Geoscan Research's Geoplot v.3.00 software. The most typical method of visualising the MS and gradiometer data is as a *greyscale* image. In a greyscale, each data point is represented by a shade of grey, from black to white at either extreme of the data range (see Inset 1). Other viewing options for gradiometer data include a *stacked trace plot*, in which each traverse of data points is represented as a line graph showing the full range of the data. Each traverse is then stacked in order to produce a plan of the data (see Inset 2).



Inset 1: Example of a greyscale



Inset 2: Example of a stacked trace plot

5.3.2 A number of standard operations are carried out to process the data, depending on the technique used. Gradiometer data is mathematically adjusted to account for instrument drift over time. The data is analysed 'on-screen' using a variety of viewing parameters and styles. The most useful of these is saved as a *.BMP image and manipulated using Paint Shop Pro v.5.03 software (©JASC, Inc. 1999). A digital map of the survey area is then constructed in TurboCAD Professional v.6 (©IMSI 1999). The greyscale image of the survey results is then overlaid onto the digital map and an interpretative diagram is generalised from the results. Stacked trace plots can be included for reference if appropriate.

5.4 *Results: Magnetic Susceptibility*

5.4.1 In general, the background readings across the survey area were very high compared with most surveys undertaken in Leicestershire. This is presumed to be due to the Lincolnshire Limestone geology, which appears to be very sympathetic to magnetic survey techniques. Note that the scales showing enhancement in the magnetic susceptibility figures are not all the same:

Eastern area (Fields 1 and 2)

5.4.2 **Figure 8:** it was generally noticeable that the higher readings were in areas of where the soil matrix was less stony, with more topsoil. In general, this corresponds to the slight valley running across this field, and probably the higher readings are reflecting deeper topsoil caused by colluviation, rather than archaeological enhancement. The run of high readings either side of the hedge at the south west end are probably not significant.

5.4.3 **Figure 9:** Generally slightly lower susceptibility was noted here than in the fields to the east. Again, there is a run of high readings either side of the hedge to the NE, which is unlikely to be archaeological enhancement. Likewise the area of high readings to the SW corner, which mirrors the topography, and will be colluvial cover in the valley as noted in fig A. There are two areas of slight enhancement not explained by visible causes, circled in fig B.

Western area (Field 3)

5.4.4 **Figure 10:** This showed very high readings. It should be noted that even the low readings on the greyscale are generally higher than the average in figs A, B, and D. There are obvious concentrations at the south-west end south of the hedgeline, and around the right angled field corner further east. In general the readings appear to be slightly lower north of the SW/NE hedgeline than to the south. This is most likely to reflect differing agricultural practice in the past, and it is noticeable that this effect carries over to the east where the field boundary has since been removed.

The area to the west shows high, but gradually diminishing readings as the survey heads NW.

5.4.5 **Figure 11:** Generally a lot lower than in the rest of the survey, there nevertheless exists a patch of higher readings in the NW, near the present road. It should be noted that the ground underfoot on the eastern side of this area appeared to be far more sandy and less stony than other parts of the survey. The lower readings may be reflecting a change in local geology rather than an absence of archaeological enhancement (see also the gradiometry results in this area, below).

5.5 *Results: Gradiometer Survey*

5.5.1 **Figure 12:** The survey fortuitously coincided with a gradiometer survey being undertaken for research purposes by the School of Archaeology at Leicester, and so a larger sample was surveyed than would have been the case otherwise. The long linear striations visible across most of the survey area running north-west to south-east are the remnants of medieval plough furrows.

5.5.2 Although geophysical data is not in itself dateable, the main area of survey shows anomalies typical of Roman settlements. To the southwest, the previously known temple complex (marked F) is represented by a series of rectangular

enclosures. West and north of this, a probable roadway is present (marked E), with building plots coming off it. Heading north is a series of enclosures (marked C). There is a magnetically quiet area in the centre (marked D), and then a very regular enclosure to the east (marked G) in the field corner, with possible buildings on its eastern side. A linear boundary curves up from the south-east (marked H) to this enclosure, and turns north-east towards the modern road.

5.5.3 Near the modern road west of Thistleton, two further areas along the proposed access road were surveyed, to test the extent of the archaeological anomalies. Both areas produced further anomalies. One area (marked B) bears comparison with the anomalies further south-east in alignment and morphology, and probably represents a continuation of the Roman features. The other area to the north (marked A) includes what appears to be an alignment of discrete pit-type anomalies, as well as a strong curvilinear anomaly probably representing a ditch. Pit alignments are not generally associated with the Romano-British period, and this may signify prehistoric occupation of the area; the author observed some struck flint whilst the gradiometry survey was in progress. A corresponding area of high readings is present in the magnetic susceptibility survey. It should be noted that the magnetic response of the plough furrows should remain roughly constant, but is in actual fact diminishing towards the north-east corner of the field; this mirrors both the magnetic susceptibility data, and the increasing sand content visible in the soil matrix. It would appear likely that either a) the sandier areas are less magnetically sensitive than the limestone ones, or b) modern ploughing has had greater destructive effect in the lighter sandy soils.

5.5.4 The quiet area in the middle (marked D) roughly corresponds with a slight topographical depression. This may be colluviated, and thus masking further archaeology, but did not appear to be noticeably less stony than the surrounding higher ground. The abrupt demarcation between the archaeologically active and seemingly quiet areas is probably genuine, given that there is little sign of linear features 'petering out', as should happen if they are merely being masked by deepening colluvium. It should be noted however that a) there appear to be linear features crossing this depression south of the hedgeline; and b) magnetic survey techniques are good at picking up linear features with magnetically enhanced fills, but would have difficulty finding, for example, posthole structures. Another possibility is that a swathe has been quarried away at some time in the past.

5.5.5 The multitude of strongly magnetic, large dark patches with light haloes is problematic, and would need testing by intrusive techniques for interpretation. One possibility is that they are Roman limestone quarry pits, to provide stone for adjacent building construction. They respect the settlement areas, and do not appear to be present in the 'quiet area' in the centre north. The presence of ironstone in this geology, plus the large amount of slag found around the site, also raise the possibility that these pits were also being used for ore roasting (Jeremy Taylor, *pers comm.*). This would explain the high magnetic readings.

6 Conclusion

6.1 The evaluation of the line of the proposed quarry access road at Thistleton has confirmed that archaeological features are present along the western part of its route.

6.2 The archaeological remains encountered include concentrations of finds recovered during field walking. These finds are predominantly of Romano-British date and lie on the western side of the proposed access road route.

6.3 Geophysical survey of the western part of the route of the proposed access road and the surrounding area has demonstrated that numerous archaeological features are present. The form and layout of these features would suggest Romano-British enclosures, building plots, road-lines and farmsteads, with also indications of possible earlier Iron Age pit alignment features in the northern part of the area.

6.4 The proposed access road lies to the north of the previously known Roman small town of Thistleton. Non-intrusive archaeological evaluation by fieldwalking and geophysical survey has confirmed that Roman activity extends to the north of the area of the known town and into of the western part of the proposed access road. The significance of the archaeological remains in this area would be considered to be high.

6.5 The limitations of these non-intrusive forms of evaluation are that the depths of the archaeological levels beneath present ground surface and their state of preservation cannot be accurately assessed. The surveys both suggest that substantial areas of archaeological features are present, but also that they will have been somewhat plough damaged, resulting in the field walked material. As the features have been plough damaged, then it would suggest that they lie fairly close to the present ground surface.

6.6 Far fewer archaeological finds were made beyond the boundaries of the Romano-British settlement as indicated by the gradiometer survey to the east, and the majority of these are probably manuring finds. The evaluation suggests that there is a low potential for archaeological remains to exist within the central and eastern parts of the proposed quarry access road.

6.7 Since the archaeological evaluation was completed and an interim report produced, a number of discussions have been undertaken between ULAS, the Planning Archaeologists at Leicestershire County Council (originally Stephanie Chettle and now Richard Clark) and mark Oldridge of Mineral Surveying Services regarding the construction methodology for the proposed access road and the archaeology. In essence a further evaluation stage of trial trenching would be required along the western part of the route, the aim of which would be to clarify the date, character and extent of the archaeological remains, as well as supply information on the depths at which they lie and their current state of preservation. The high significance of the remains within this western area are such that plans for the roadline would aim to avoid any disturbance of archaeological deposits, leaving them preserved beneath an embanked roadline. A Design Specification for evaluation of the proposed roadline was prepared in consultation with Richard Clark, Planning Archaeologist, which was provisionally approved in March 2004 (see Appendix 2).

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Acknowledgements

James Meek managed the project. Jon Coward and Matt Parker carried out the geophysical survey. The fieldwalking was carried out by Keith Johnson, Matt Parker, Jon Tate, Jon Coward and Jennifer Browning. Analysis of the finds was carried out by Lynden Cooper (flint), and Nick Cooper (prehistoric and Roman pottery, miscellaneous finds) analysed the finds. ULAS would like to thank Mark Oldridge of Mineral Surveying Services, and Stephanie Chettle and Richard Clark of Leicestershire County Council for their assistance.

Appendix 1: Analysis of field walking survey finds from Thistleton, Rutland RA2 2003

Nicholas J. Cooper

A total of 875 finds of Roman to modern date were retrieved during the survey of Fields 1, 2 and 3 (not including flint). Roman pottery was identified according to the Leicestershire Fabric Series (Pollard 1994). A numerical summary by material is presented below and the scatter from each field discussed in turn.

Fields1-3 Material Summary			
Material	Field 1	Field 2	Field 3
RomanPot	6	6	448
AngSPot	0	0	1
Medpot	2	7	11
Lmedpot	0	0	3
PMModpot	17	26	116
Romantile?	1	0	33
Romcoin	0	0	1
Modbrick	3	15	58
Misc	7	3	21
Irontapslag	0	0	90
Total	36	57	782

Fields 1 and 2

The scatters from these two fields are very similar in composition. The proportions of Roman and medieval pottery would be suggestive of low level infield or open field manuring rather than settlement. Notably, in contrast to Field 3, there is no iron tapslag from either field which would most likely be Roman or possibly medieval in date. More intensive agricultural practice is suggested in the post-medieval and modern period.

Field 3

This scatter is very different from the previous fields, not only in terms of the density of finds overall but also the composition chronologically. The majority of the finds are of Roman date including 448 sherds of pottery, 33 fragments of (probably) Roman tile and 90 fragments of iron tapslag. The amount of medieval to modern material would be consistent with continued agricultural manuring, whilst the Roman material indicates intensive settlement and industrial activity in the form of iron smelting.

An analysis of the Roman pottery assemblage from Field 3 is presented below. The spread of fabrics occurring suggests settlement activity throughout the Roman period. There is a single sherd of South Gaulish samian tableware of 1st century date, the remainder of the samian being from Central Gaul and of second century date. The single sherd of Lezoux colour-coated ware would be of later 2nd to early third century date. The overall proportion of imports, at less than 4%, is typical of rural sites and

small towns (Cooper 2000a, fig 8.3), whilst the relatively high proportion of regional imports (40%) to locally supplied pottery (57%), would be typical of such sites in the later Roman period.

Roman Pottery Summary		
Fabric	%Sherds	Sherds
<i>Import</i>		
Samian	3	15
Lezoux	<1	1
Amphora	<1	1
<i>Regional</i>		
Oxfordred	<1	1
NeneVcc	20	88
NVMortaria	1	4
Whiteware	2	8
Oxidised	5	21
NeneVGW	12	53
<i>Local</i>		
Greyware	34	152
Shelltemp	21	95
Grogtemp	2	9
Total	100	448

This apparent bias to the third and fourth century is also supported by the specific wares occurring in the assemblage. In the later Roman period the Lower Nene Valley industry comes to dominate supply in this part of the East Midlands, as exemplified by study of similar site assemblages elsewhere in Rutland such as at Empingham, and the assemblage overall is closest in composition to ceramic phases 3 and 4 at that site (Cooper 2000b, 96, fig 46). The products of this industry, lying 20 miles to the southeast, make up 33% of the assemblage and comprise grey wares (12%), colour-coated wares (20%) and mortaria (1%). The grey wares represent supply in the later second and third century and whilst some of the colour-coats were also supplied during this period, the greater proportion of this assemblage appears to be in the thicker-bodied vessel types typical of the later third and fourth century repertoire when traditionally grey ware vessels were produced with a colour-coating (e.g. Howe, Perrin and Mackreth 1980 nos. 75, 79 and 87). Two other occurrences also suggest that the assemblage stretches to the end of the Roman period namely the instances of Oxford red colour-coated ware (Young 1977) and south midlands shell-tempered ware from Harrold in Bedfordshire (Brown 1994), would not be expected in the area before AD 360. A single sherd of Early Anglo-Saxon pottery was also identified.

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Appendix 2: The Flint

Lynden Cooper.

The flint scatter of 97 pieces included eight cores, 72 flakes, two blades, one shatter fragment, one core tablet and 13 tools (two natural pieces were also recovered but are not quantified with the site total). The raw material was till flint of local type, with the exception of one flake of Wolds flint. There were no chronologically diagnostic tools. Two of the tools used ancient patinated blanks. The straight retouch on one scraper is usually found on Mid-Late Bronze Age examples. Consideration of the technology and surface condition suggest that the scatter includes some Mesolithic, but mostly later prehistoric material, but it is difficult to disentangle this palimpsest.

Find No	Type	Patination	Comments
4	backed blade		
5	2ry flake		
13	2ry flake		
28	2ry flake	*	
36	3ry flake	***	
37	2ry flake	**	
39	2ry flake		
41	3ry flake	*	
42	retouched shatter		
44	core		
46	3ry flake	**	
59	scraper		late - straight retouch. Also on ancient blank
63	core	***	
77	core	**	
78	3ry flake		
107	3ry flake	***	soft hammer
112	End scraper		inverse retouch
112	2ry flake	*	
115	spurred flake		
119	2ry flake	**	
120	2ry flake	**	
123	2ry flake	*	
124	2ry flake		
125	2ry flake	**	
126	core (struck frag)		
127	core		
133	2ry flake	**	
139	2ry flake		
148	2ry flake	**	
159	3ry flake	**	
161	2ry flake		
165	3ry flake	*	
171	core tablet		bladelet technology
179	2ry flake	*	
195	2ry flake	**	
209	2ry flake	**	

Find No	Type	Patination	Comments
216	core (small opposed)		
219	core (small)	**	
234	2ry flake	***	burnt
245	2ry flake	*	
246	3ry flake	**	
247	2ry flake		burnt
248	core (small keeled)	*	
253	2ry flake	**	
255	2ry flake	**	
256	2ry flake		
259	piercer	**	
268	shatter		
275	2ry flake	**	
277	2ry flake	**	
280	3ry flake	**	
281	3ry flake, burnt		
285	natural		
290	2ry flake	**	
293	2ry flake		
298	retouched shatter		
302	?knife	***	
312	2ry flake		
322	2ry flake	*	
323	retouched flake		
326	2ry flake		
330	2ry flake	***	
332	2ry flake		
334	3ry flake	***	
336	3ry flake	**	
338	2ry flake	*	
345	2ry flake		
382	3ry flake		
386	core		
411	retouched flake		
419	3ry flake		
438	3ry flake	*	
456	2ry flake		
1000	2ry flake	*	
1001	3ry flake	**	
1005	2ry flake	*	
1011	3ry flake, burnt		
1014	3ry flake		
1016	retouched flake		
1030	2ry flake		
1031	2ry flake	wolds	
1032	2ry flake		
1039	2ry flake		
1051	2ry flake		

Find No	Type	Patination	Comments
1057	core		
1096	3ry flake		
1100	core		
1103	shatter		
1115	natural		
1047a	2ry flake		
1047b	bladelet core		
1085a	2ry flake		
1085b	3ry flake		
1148a	retouched natural		
1148b	core	*	
us	2ry blade frag	**	
us	3ry flake	**	
us	2ry blade frag	*	
us	retouched 3ry flake		on ancient blank

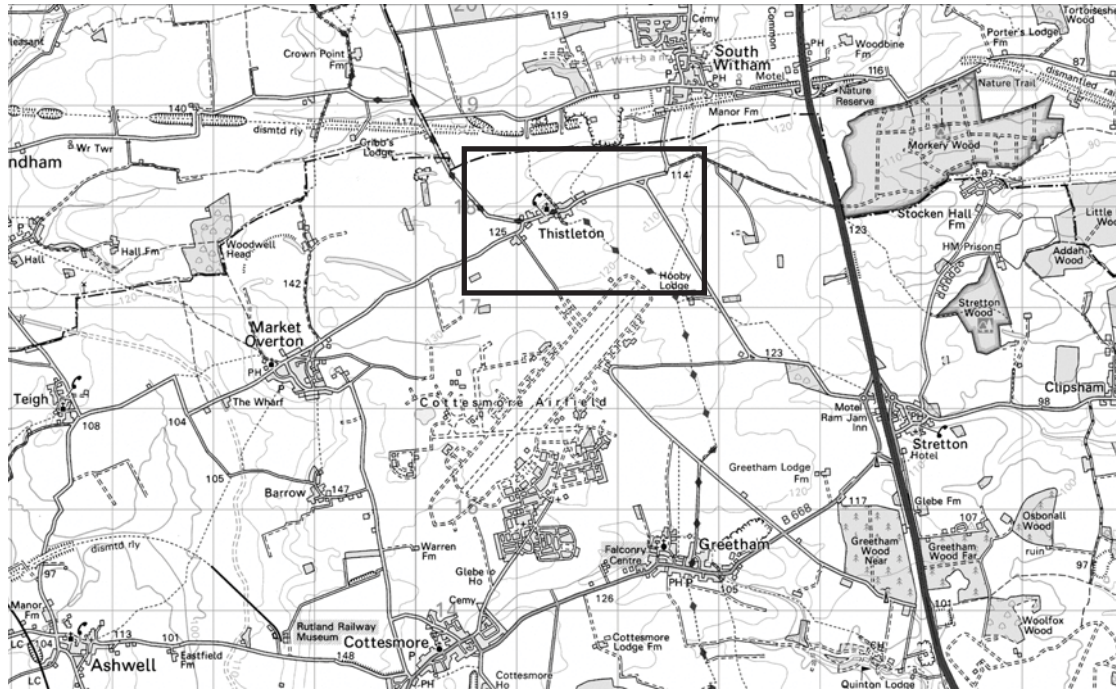
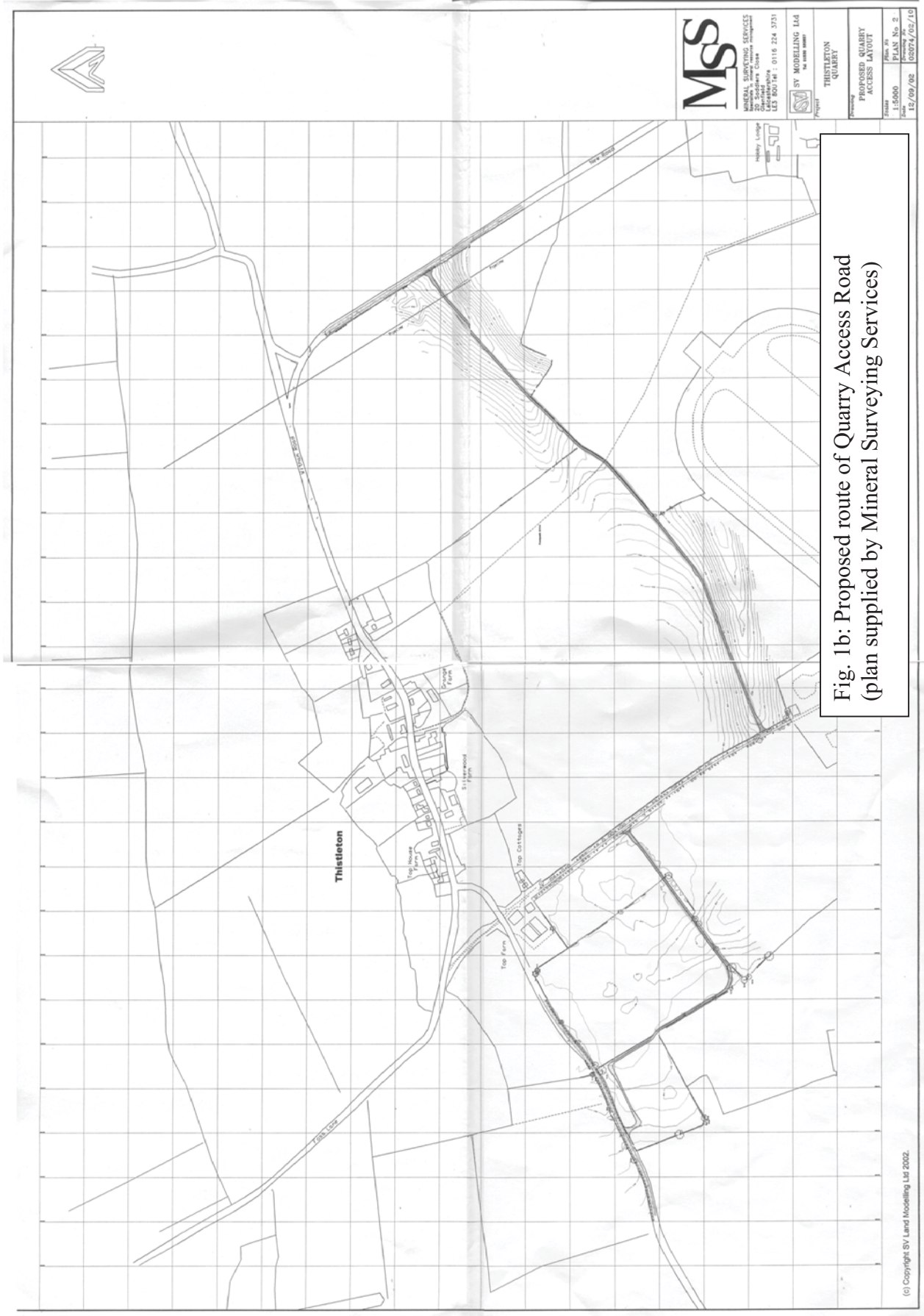


Fig. 1a: Site location

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**Fig. 1b: Proposed route of Quarry Access Road
(plan supplied by Mineral Surveying Services)**

MSS
 MINERAL SURVEYING SERVICES
 QUARRY ACCESS LAYOUT
 LEICESTER
 LE1 2JH
 TEL: 0116 224 3731

SY MODELLING LTD
 QUARRIES
 THISTLETON
 QUARRIES

PROJECT: THISTLETON QUARRIES
 DRAWING: QUARRY ACCESS LAYOUT
 DATE: 12/09/02
 DRAWN BY: [Name]
 CHECKED BY: [Name]
 SCALE: 1:5000
 PROJECT NO.: 02074/02/10

(c) Copyright SY Land Modelling Ltd 2002.

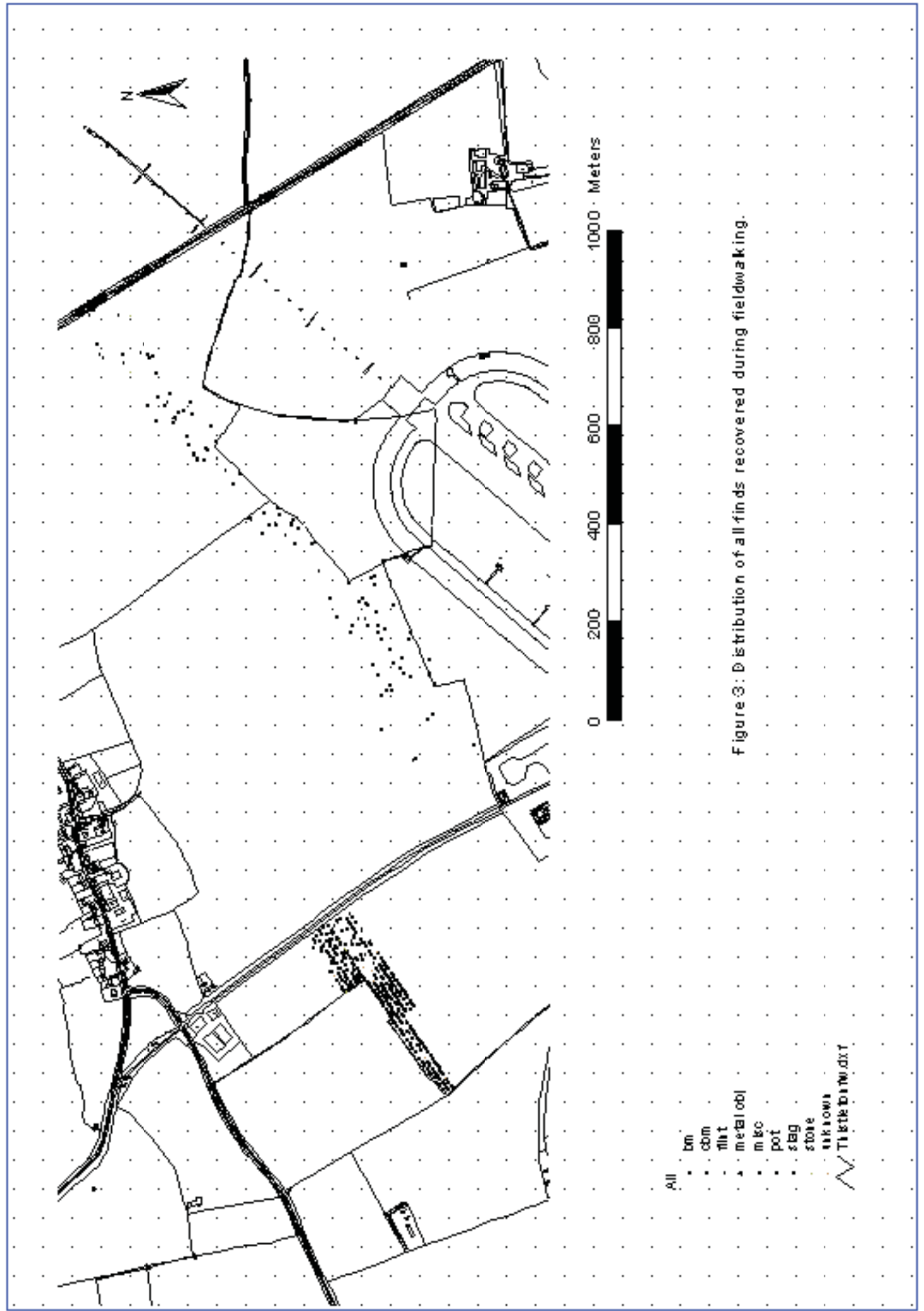


Figure 3: Distribution of all finds recovered during fieldwalking.

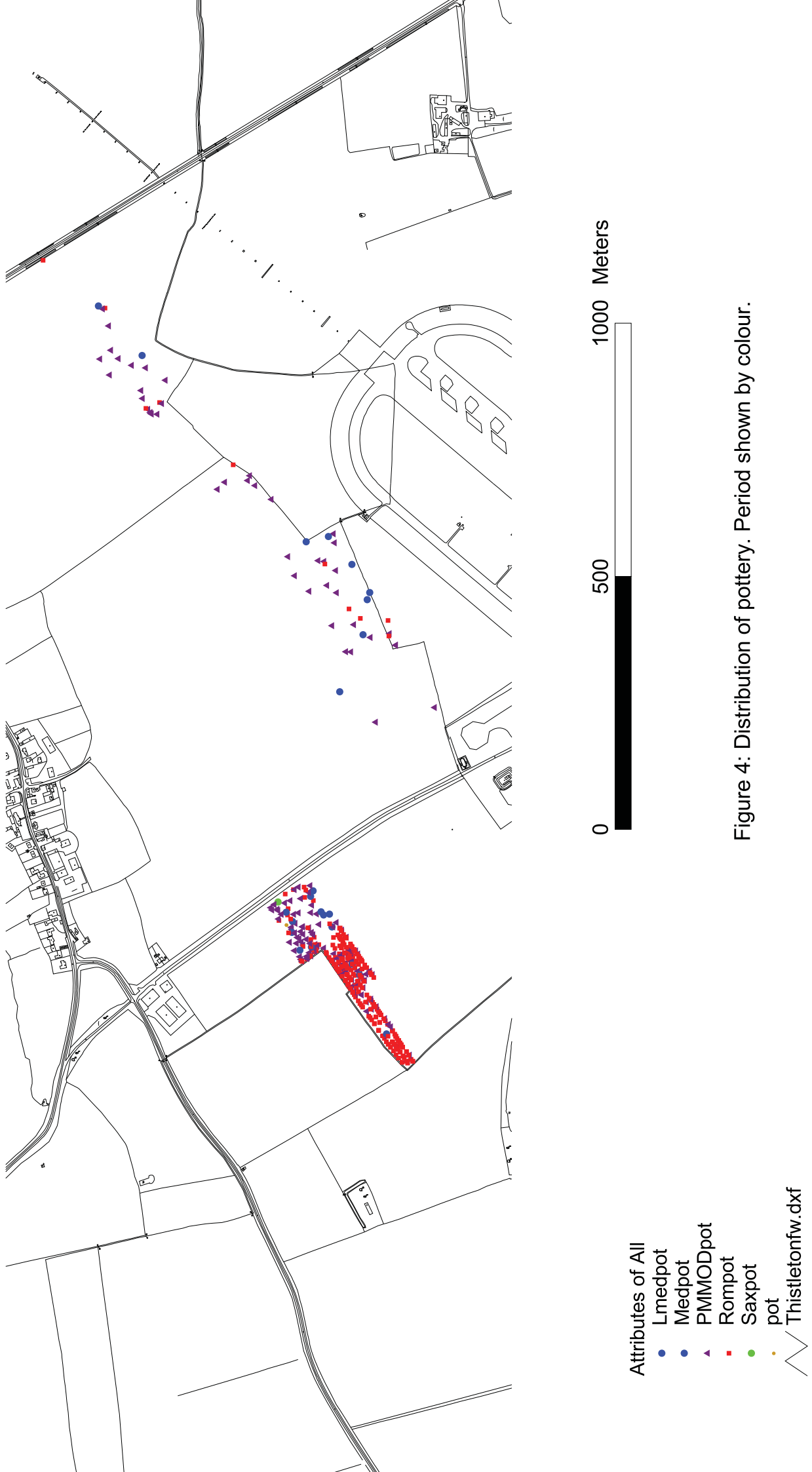
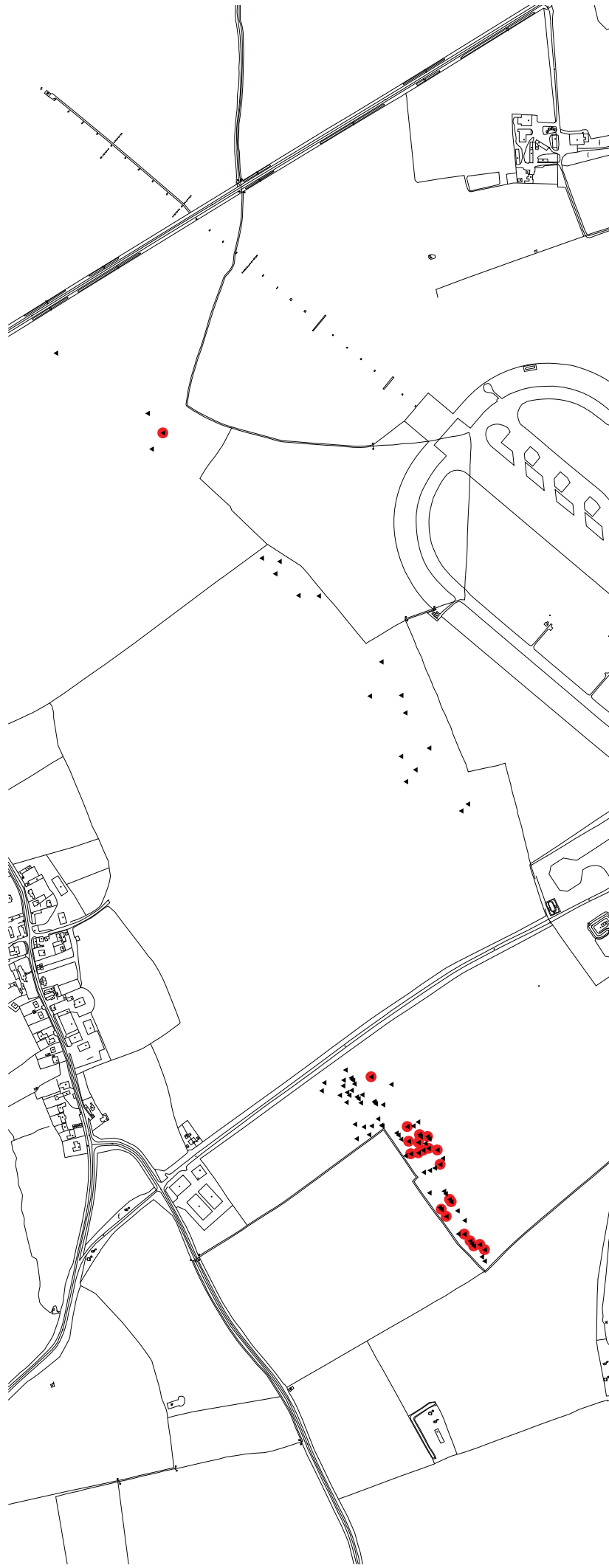
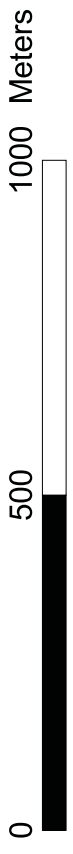
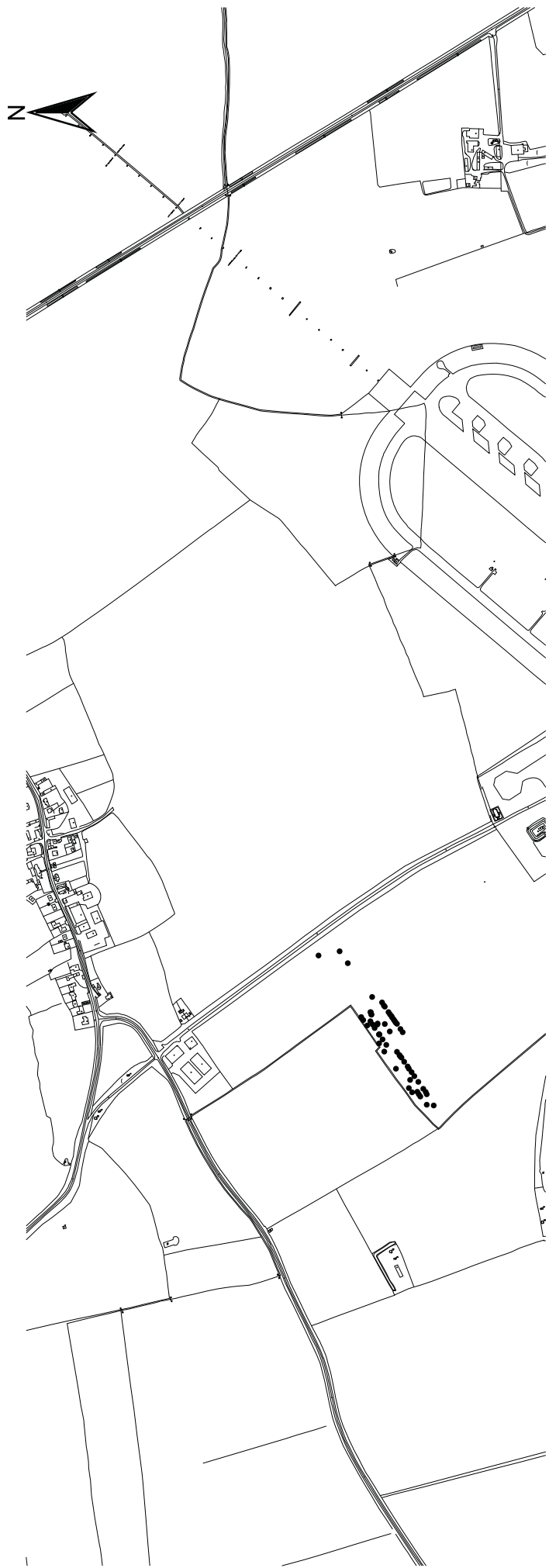


Figure 4: Distribution of pottery. Period shown by colour.



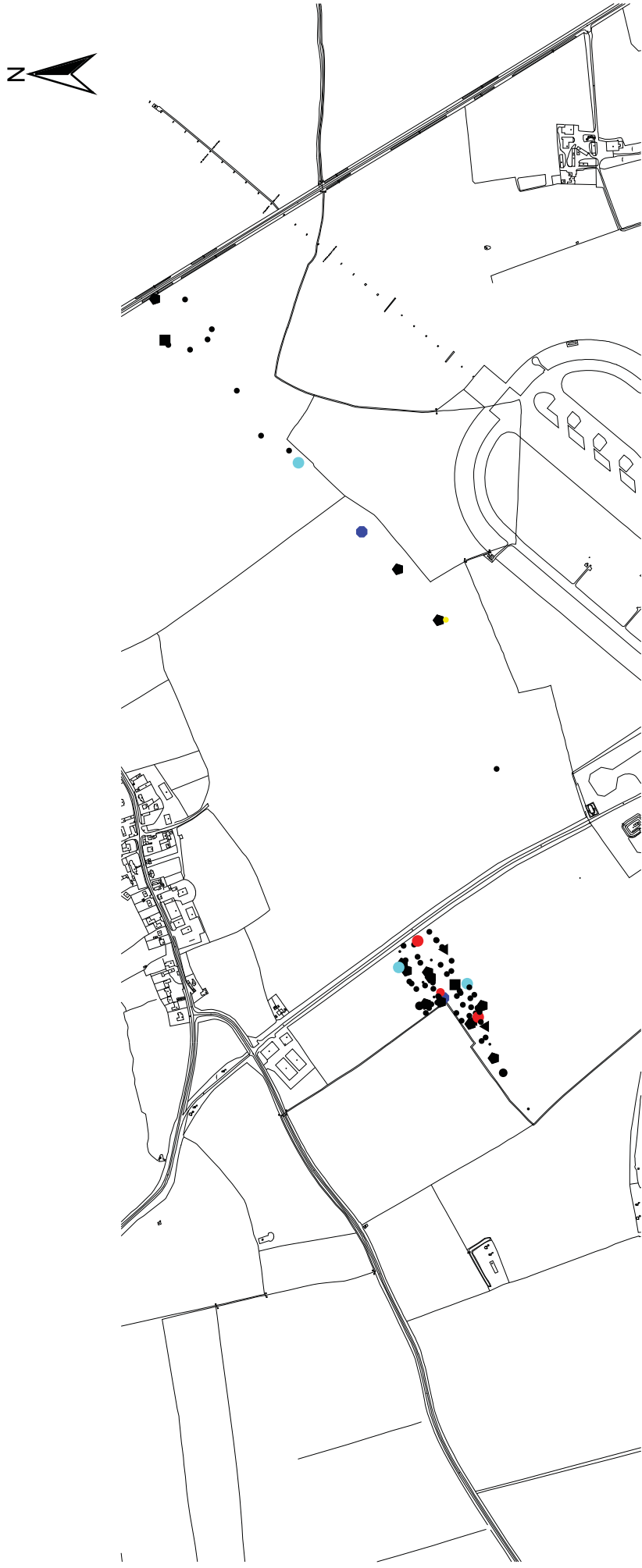
- ▲ All
- △ Thistletonfw.dxf
- Attributes of All
- Roman

Figure 5: Distribution of cbm across fields 1-3. Roman material circled.



- Thistletonfw.dxf
- All
 - bm
 - cbm
 - flint
 - metal obj
 - misc
 - pot
 - slag
 - stone
 - unknown

Figure 6: Distribution of slag across the site, showing concentration in Field 3.



- Attributes of All
- ?knife
 - blade
 - core
 - flake
 - flake, burnt
 - flint
 - natural
 - piercer
 - retouched flake
 - retouched shatter
 - scraper
 - shatter
 - spurred flake
 - unknown
- ∧ ThisIsIctonfwr.dxf

0 500 1000 Meters

Figure 7: Distribution of flint artefacts.

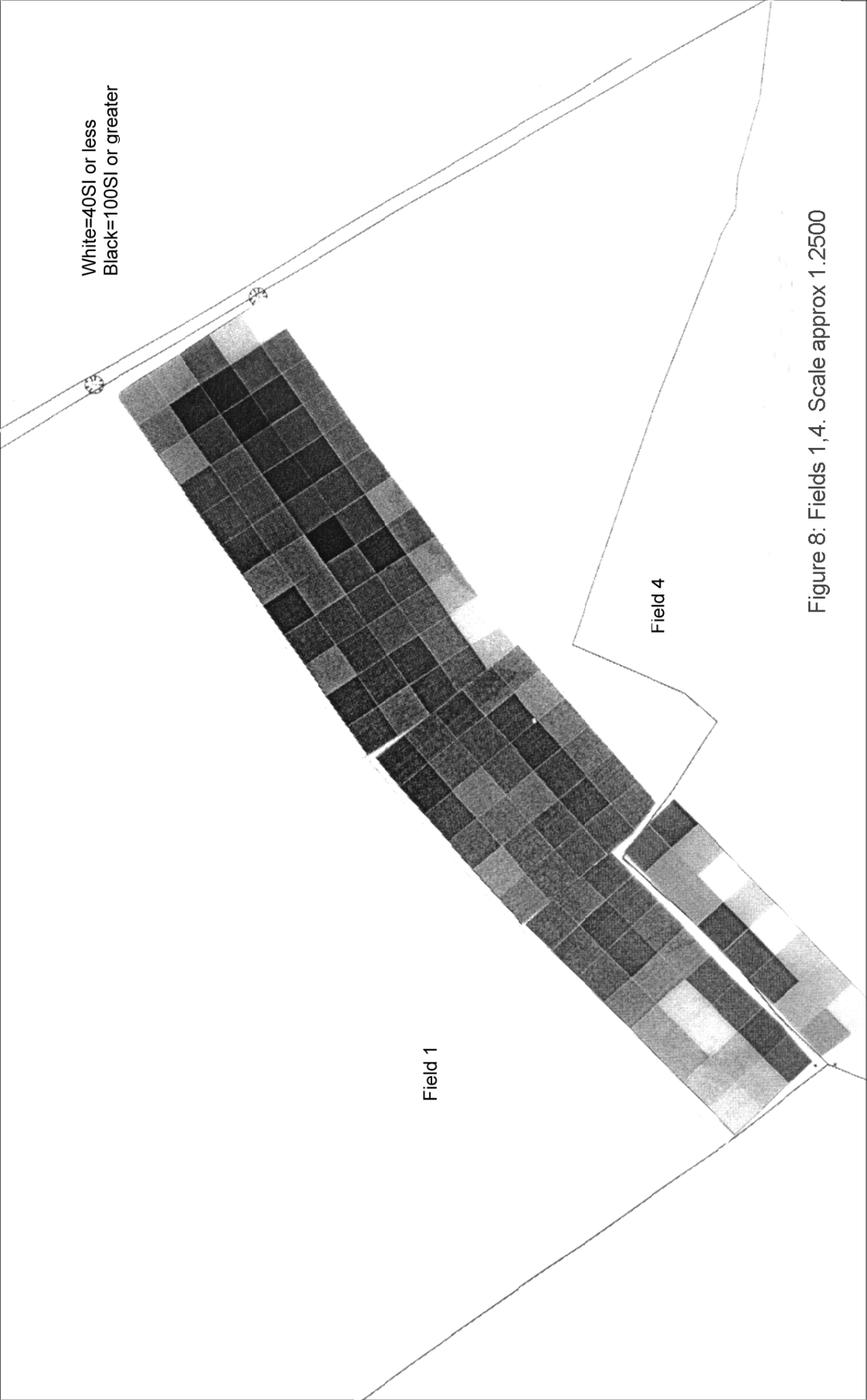


Figure 8: Fields 1, 4. Scale approx 1:2500

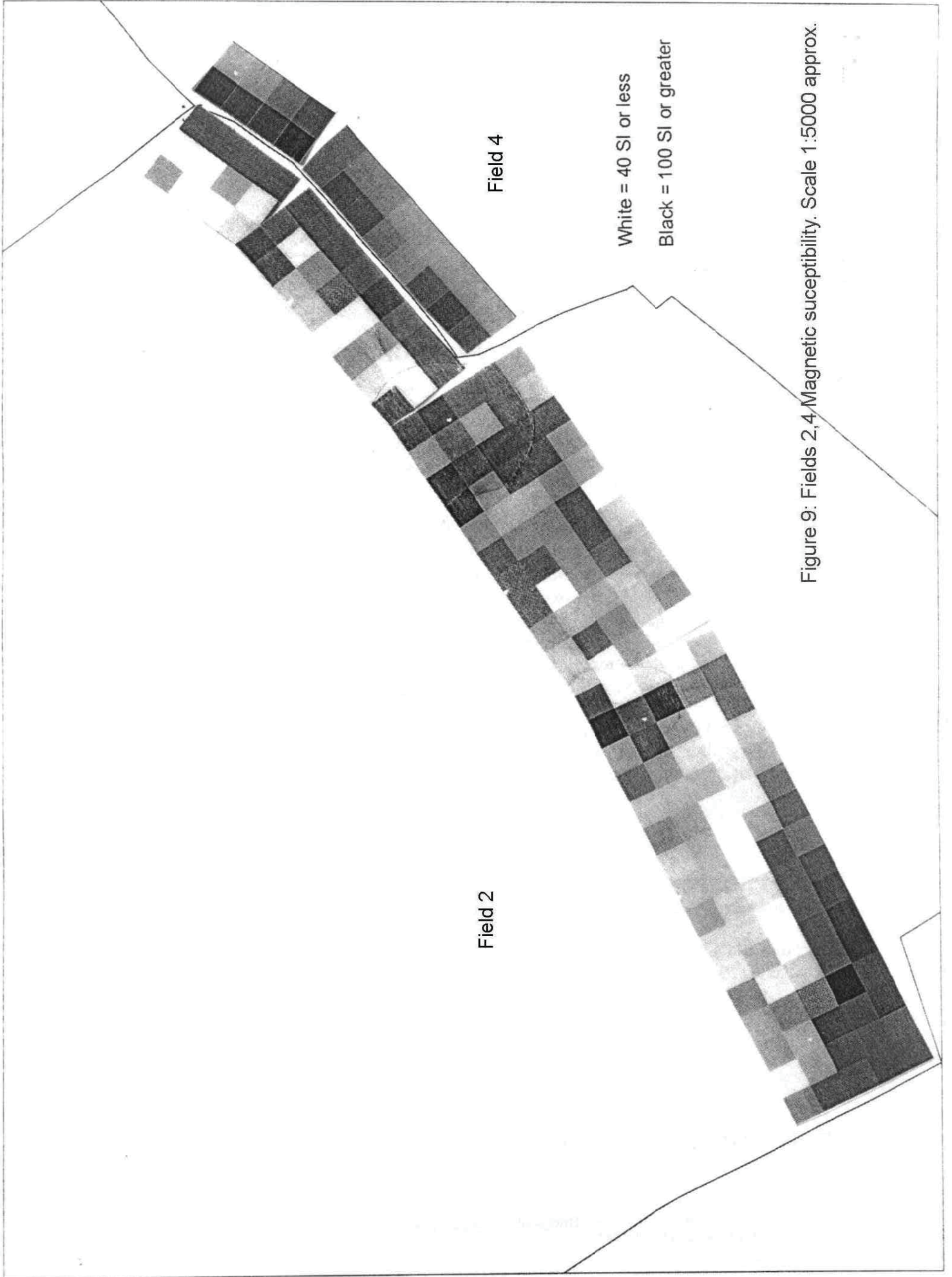
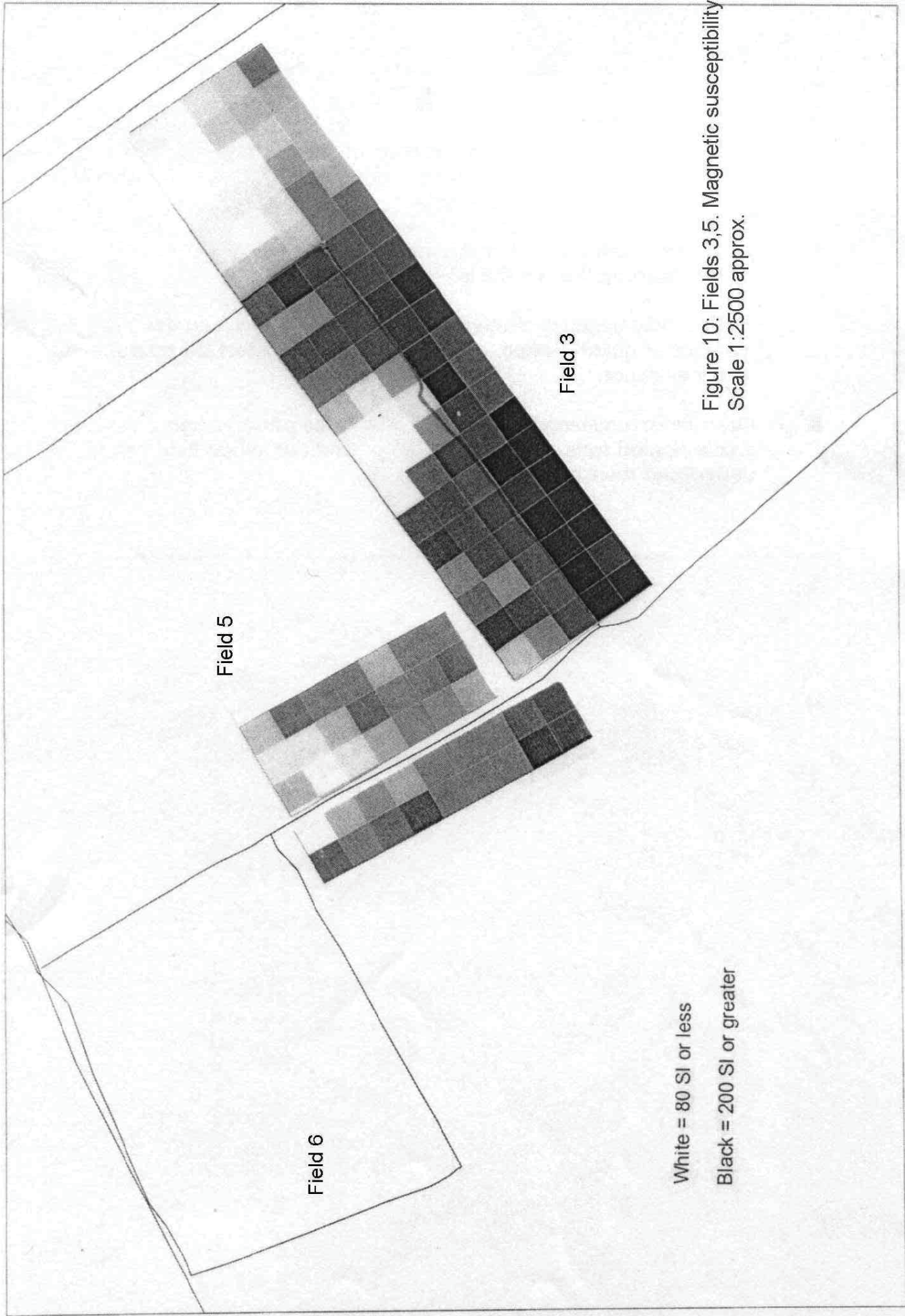


Figure 9: Fields 2,4 Magnetic susceptibility. Scale 1:5000 approx.



Field 5

Field 3

Field 6

White = 80 SI or less
Black = 200 SI or greater

Figure 10: Fields 3,5. Magnetic susceptibility.
Scale 1:2500 approx.

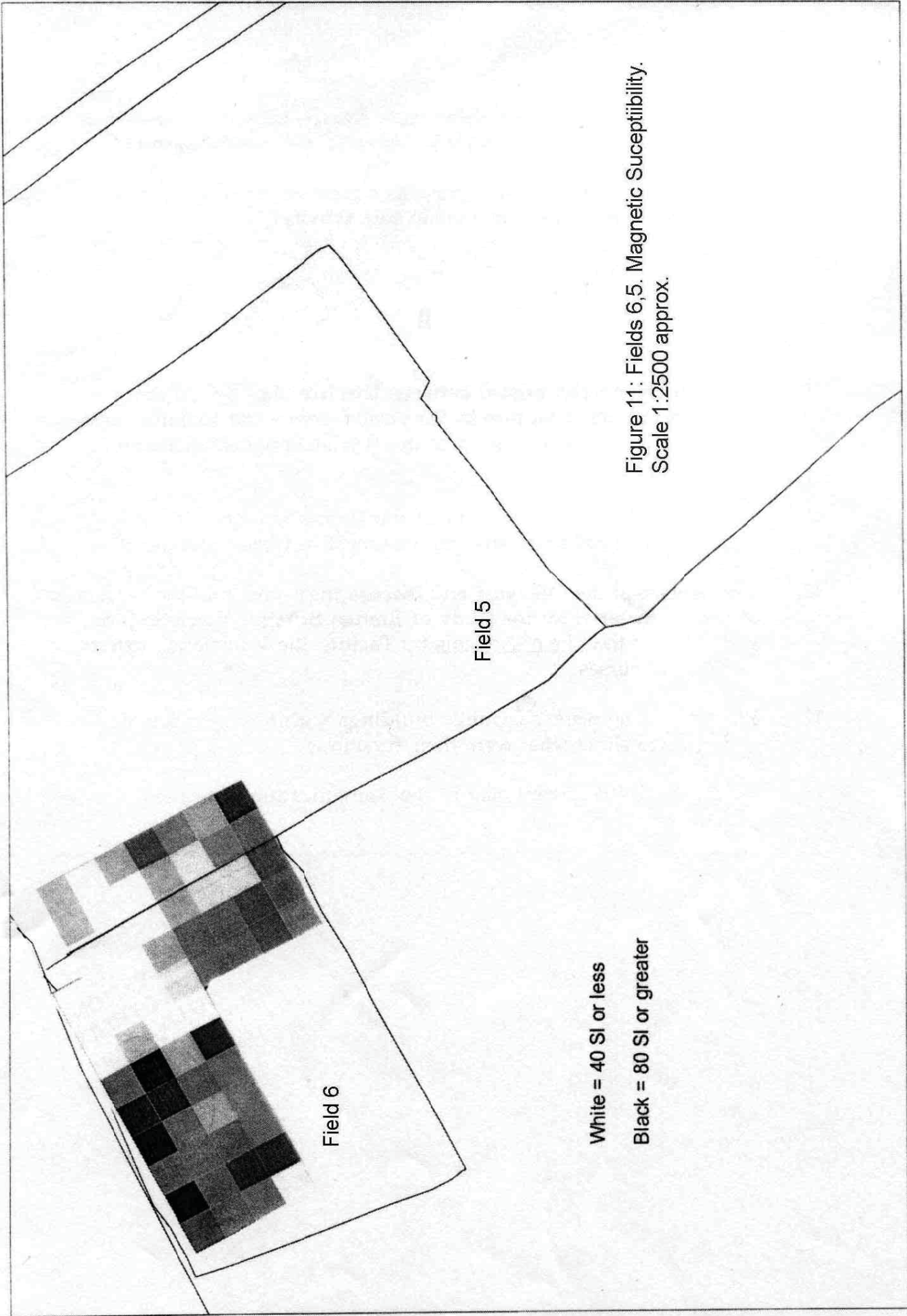


Figure 11: Fields 6,5. Magnetic Suceptibility.
Scale 1:2500 approx.

Field 5

Field 6

White = 40 SI or less
Black = 80 SI or greater

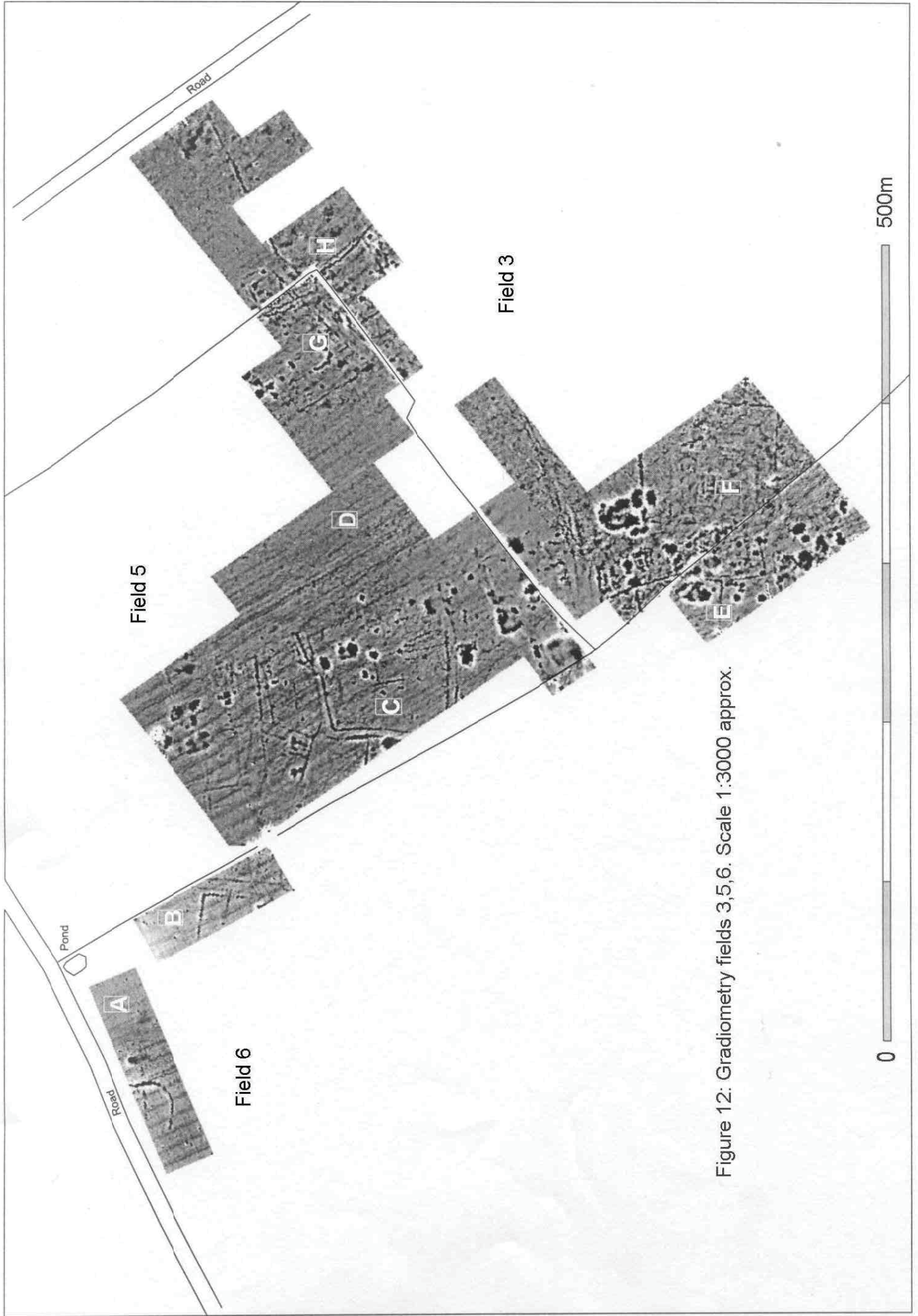


Figure 12: Gradiometry fields 3,5,6. Scale 1:3000 approx.

Appendix 1: UNIVERSITY OF LEICESTER ARCHAEOLOGICAL SERVICES
Design Specification for Archaeological Evaluation by Fieldwalking and Geophysical Survey

Proposed Access Road for Thistleton Quarry, Thistleton, Rutland

NGR: SK 910 173

Client: East Midlands Quarry Ltd./Mineral Surveying Services

Planning Authority: Rutland County Council

1 Introduction

1.1 Definition and scope of the specification

This document is a design specification for a phase of intrusive archaeological field evaluation (AFE) at the above site, in accordance with DOE Planning Policy Guidance note 16 (PPG16, Archaeology and Planning, para.30). The fieldwork specified below is intended to provide preliminary indications of character and extent of any buried archaeological remains in order that the potential impact of the development on such remains may be assessed by the Planning Authority.

1.2 The definition of archaeological field evaluation, taken from the Institute of Field Archaeologists Standards and Guidance: for Archaeological Field Evaluation (IFA S&G: AFE) is a limited programme of non-intrusive and/ or intrusive fieldwork which determines the presence or absence of archaeological features, structures, deposits, artefacts or ecofacts within a specified area or site on land, inter-tidal zone or underwater. If such archaeological remains are present field evaluation defines their character, extent, quality and preservation, and enables an assessment of their worth in a local, regional, national or international context as appropriate.

1.3 The document provides details of the work proposed by ULAS on behalf of the client, and should normally be submitted to the Planning Authority for approval before a costed scheme of archaeological investigation by ULAS is implemented. The scheme includes the following:

- Evaluation by a non-intrusive fieldwalking survey
- Evaluation by a non-intrusive geophysical survey

2. Background

2.1 Context of the Project

2.1.1 The site lies approximately 10 km northeast of Oakham, in Thistleton parish, in the county of Rutland (SK 910 173). The proposed access road is located south of Thistleton Road, aligned roughly southwest/northeast and crossing the former Greetham Road. The total length of the proposed access road will be c.2.25km, with a proposed corridor of 4m giving a total area of 0.9 ha. The Leicestershire Sites and Monuments Record indicates that the proposed site is close to areas where archaeological artefacts have been discovered and is therefore recognised as having archaeological potential.

2.1.2 The area lies at a height of approximately 130m O.D.

2.1.3 Initial advice from Heritage Services of Leicestershire County Council (LCC) requested the preparation of an archaeological desk-based assessment to 'gather sufficient evidence to establish, supplement, improve and make available information about the archaeological resource existing on the site to a level at which the necessary planning recommendations can be made by the Senior Planning Archaeologist as to future treatment of archaeological deposits, in relation to development proposals.' The desk-based assessment was commissioned from University of Leicester Archaeological Services (ULAS) and the results confirmed that the site has archaeological potential.

2.1.4 Following the results of the desk-based assessment the Senior Planning Archaeologist of the LCC Heritage Services Section recommended that initial archaeological field evaluation, using both fieldwalking and geophysical survey, is carried out to assess the possible presence/absence and extent of any archaeological evidence on the development site. A 'Brief for Archaeological Evaluation of a Proposed Access Road on Land at Thistleton, Rutland' detailing the required initial evaluation works has been prepared by the Senior Planning Archaeologist, in her capacity as archaeological advisor to the planning authority, and has been used as the basis for the methodology of this design specification.

2.1.5 The archaeological evaluation is to be undertaken pre-determination of planning permission. 'The results of the surveys will be used to inform whether any trial trenching is required before a planning decision is made.' (LCC Heritage Services Brief, section 9.3).

2.2 ***Geological and Topographical Background***

2.2.1 The Ordnance Survey Geological Survey of Great Britain Sheet 143 indicates that the underlying geology is likely to consist of Upper and Lower Lincolnshire Limestone. The land lies at a height of 130m. OD.

2.3 ***Archaeological and Historical Background*** (from the desk based assessment, Clarke 2002)

2.3.1 *Prehistoric*

Two Neolithic flint tools (LE7319; 7320) were recovered from within the known boundaries of Thistleton Roman town.

A cropmark believed to represent a ring ditch of Bronze Age origin (LE5781) is located 400m to the northeast of the proposed access road.

2.3.2 *Iron Age and Roman*

The Roman town of Thistleton (LE5765) is cut through by a section of the proposed access road.

Excavations of the site during the 1950s/60s outlined an area of approximately 30ha as the limits of the Roman town. The excavations suggested occupation of the site from the Iron Age through to the fourth century, with structural remains of timber and stone buildings uncovered, including the site of a temple (LE5766; LE5767).

Two road systems were found to have serviced Roman Thistleton during the third century, one to the east of the main settlement aligned north-south, on the line of the present Greetham-Thistleton road (LE5345) and the second on an east-west alignment, connecting Thistleton and Market Overton (LE5508).

Structural remains and a scatter of coins indicated the location of a market (LE5772). Local industrial practices were attested to by the presence of a pottery kiln (LE5771) and of 62 shaft furnaces (LE5773), indicating metal-working activity.

A cemetery was located, containing 19 inhumation burials (LE5770). No grave goods were found in association with the burials. The skeletons of 6 infants were discovered amongst the foundations of excavated buildings.

Quarrying during the 1950s uncovered the site of a Roman villa (LE5776) and bath-house 0.6km to the northwest of the application area. Excavations carried out at this time indicated occupation during the Iron Age (LE5775), continuing throughout the Roman period until demolition during the late fourth century (Greenfield, Vol.51; 175).

2.3.3 *Medieval*

The application area lies 0.5km to the southwest of the medieval core of Thistleton village.

The church of St. Nicholas has a tower dating from the fourteenth century (LE5782).

A series of earthwork features believed to represent medieval Thistleton include three fishponds (LE5777) located to the north of the village, 0.6km from the proposed access road. More earthworks located within the village core (LE5779; LE5780) are believed to represent the shrunken village of the later medieval period.

2.3.4 *The Historical background*

Thistleton is referred to in the Domesday Book as land owned by Countess Judith. It is recorded that 'Eric had ½ carucate of land taxable. Land for 1 plough. Hugh has from Countess Judith 1 plough and 6 villagers with 1 plough. Value before 1066, 20s; now 40s.' (Morris, 1980).

The town was noted by Camden in 1586 and visited by Stukeley in 1733, who wrote of 'a place called the Holmes where they find vast quantities of Roman coins....No doubt but this was a Roman town....there is an old well that is never scoured and a foundation of a wall that enclosed a kind of court. It is near Thistleton.' (Le Marchant, 1895. vol. III; 34).

The location of the proposed access road has been superimposed over the 1885 O.S. (maps II.11, II.12, II.15, II.16). The area appears as arable fields with a good network of established field boundaries. There is no building or other development depicted within the application area. Roman artefacts are noted as having been found to the south east of the of the proposed road line.

The 2nd edition O.S. of 1904 (maps II.11, II.12, II.15, II.16) show the application area to have undergone no change since 1885.

The 1983 O.S. (maps SK 91NW, SK 81NE) show no significant changes to have taken place within the application area, with the exception of shifting field boundaries.

2.3.5 The Brief, prepared by the Senior Planning Archaeologist also states that the 'potential for medieval remains is also high as Thistleton has a medieval origin and a number of earthworks survive around the village.'

2.3.6 No archaeological investigation has previously been undertaken within the application area, other than the preparation of the archaeological desk-based assessment.

3. **Archaeological Objectives**

3.1 The main objectives of the evaluation will be:

- To identify the presence/absence of any archaeological deposits. The archaeological evaluation will provide information on the extent, character and date of archaeological deposits within the assessment area.
- The potential impact of the proposed development on any archaeological remains, whether known or postulated, will be assessed.
- These stages of archaeological evaluation, once the above information has been gathered, will serve to determine whether a further trial trenching stage of evaluation will be required prior to decision being made on planning permission.
- To produce an archive and report of any results.

3.2 Within the stated project objectives, the principal aim of the evaluation is to establish the nature, extent and significance of archaeological deposits on the site in order to determine the potential impact upon them from proposed development.

3.3 Fieldwalking will be used as an appropriate evaluation method being a non-intrusive form of evaluation that records material that derives from the ploughing of sub-surface deposits or from the discarding of material onto the ground surface. The recovery and spatial analysis of this material gives some indication of land use through time.

3.4 Geophysical Survey is a non-intrusive form of evaluation that will determine the existence of sub-surface features of potential archaeological origin that may exist within the area. Geophysical survey by magnetic susceptibility is a non-intrusive form of archaeological evaluation. Fired archaeological features such as kilns and hearths, or cut and backfilled features such as ditches and pits, often have an anomalously higher *magnetic susceptibility* (MS) than the surrounding subsoil. This is due to a variety of burning and biological processes forming or reducing the mineral *magnetite* within the soil matrix. Archaeological features are often subject to erosion by ploughing which can mix some of the higher or lower MS material into the topsoil. This variation in MS can be detected over a wide area and the

enhanced or depleted MS topsoil may be mapped at regular intervals, possibly indicating archaeological sites beneath. This method of geophysical survey is a quick method of highlighting areas with archaeological potential that can be targeted with more detailed geophysical survey techniques.

- 3.5 Geophysical survey by fluxgate magnetic gradiometer will be used on the site, which is a non-intrusive form of archaeological evaluation. Research has shown that fired archaeological features such as kilns and hearths, or cut and backfilled features such as ditches and pits, often have an anomalously higher *magnetic susceptibility* than the surrounding subsoil due to burning and biological processes. Differences in magnetic susceptibility within the subsoil and archaeological features can be detected as changing magnetic flux by an instrument such as a fluxgate gradiometer. Data from this may be mapped at closely spaced regular intervals, to produce an image which may be interpreted to locate the buried archaeological features.
- 3.6 These initial non-intrusive techniques of evaluation undertaken on the site should be seen as a first stage of archaeological evaluation. The 'Brief' states that 'the evaluation will provide information in order that one of the following responses may be adopted

4. Methodology

4.1 *General Methodology and Standards*

- 4.1.1 All work will follow the Institute of Field Archaeologists (IFA) Code of Conduct and adhere to their *Standard and Guidance for Archaeological Field Evaluation* (1999).
- 4.1.2 Staffing, recording systems, health and safety provisions and insurance details are included below.
- 4.1.3 Internal monitoring procedures will be undertaken including visits to the site by the project manager. These will ensure that project targets are met and professional standards are maintained. Provision will be made for external monitoring meetings with the Planning authority and the Client, if required.

4.2 *Field Walking*

- 4.2.1 All archaeological material will be collected along traverses of 10m. A base line will be established for each field and traverses set out every 10m. The base line will follow the centre line of the proposed access road, and the survey will cover 50m to either side of this baseline, where achievable. Each traverse will be walked at a constant and measured pace, with the location of any finds recovered along the traverses surveyed using an electronic distance measurer and tied in to the national grid.
- 4.2.2 All finds will be given an individual identification number, bagged and removed from the field surface.

4.3 *Geophysical Survey Methodology*

4.3.1 *Magnetic Susceptibility*

- 4.3.1.1 A magnetic susceptibility survey will be undertaken. This will use a Bartington field coil with readings at 10m or 20m intervals. Areas of enhanced susceptibility will be plotted and a contour plan of variation produced.
- 4.3.1.2 The survey will cover an area 50m to either side of the centre of the proposed roadline, where this is achievable.

4.3.2 *Fluxgate Magnetic Gradiometer Survey*

- 4.3.2.1 The detailed gradiometer survey is carried out by trained operators, utilising a Geoscan Research FM36 fluxgate gradiometer with ST1 sample trigger. A base line will be established along the centre of the proposed access roadline and the survey will cover 50m to either side of this baseline, where achievable.
- 4.3.2.2 Survey is carried out on a series of 30m x 30m grids (900m²) along traverses spaced at 1.0m intervals on readings taken every 0.5m along these. The sample interval may be increased to 0.25m where greater detail is deemed necessary. Instrument sensitivity is set at the maximum of 0.1nT (nano Tesla).

- 4.3.2.3 At regular intervals, the data are downloaded to a notebook personal computer for storage and assessment. Following the completion of the survey, processing and analysis takes place using Geoscan Research Geoplot v.3.00 software. A full report is produced containing detailed descriptions of the magnetic anomalies detected, an interpretation of their likely provenance and relevant diagrams of the results.
- 4.3.2.4 The survey would be undertaken using the standard guidelines as laid out by English Heritage (1995) and in the Institute of Field Archaeologists Technical Paper no. 9 (Gaffney, Gater and Ovendon 1991).
- 4.3.2.5 The location of the surveys will be tied in to existing boundaries using a Topcon GTS303 Total Station Electronic Distance Measurer (EDM) linked to a Psion hand held computer.
- 4.3.2.6 It is unclear how much of the site area will be subject to detailed gradiometer survey, and this will be at the discretion of the Senior Planning Archaeologist. Potentially a *c.*20% sample may be required to be subject to a detailed survey.

5. Finds

- 5.1 The IFA Guidelines for Finds Work will be adhered to.
- 5.2 All antiquities, valuables, objects or remains of archaeological interest, other than articles declared by Coroner's Inquest to be subject to the Treasure Act, discovered in or under the Site during the carrying out of the project by ULAS or during works carried out on the Site by the Client shall be deemed to be the property of ULAS provided that ULAS after due examination of the said Archaeological Discoveries shall transfer ownership of all Archaeological Discoveries unconditionally to Leicestershire County Council's Heritage Services Section for storage in perpetuity.
- 5.3 An Accession number will be obtained from Leicestershire County Council's Heritage Services Section that will be used to identify all records and finds from the site, prior to the commencement of any on-site works.
- 5.4 All identified finds and artefacts are to be retained, although certain classes of building material will, in some circumstances, be discarded after recording with the approval of the Senior Planning Archaeologist. The IFA Guidelines for Finds Work will be adhered to.
- 5.5 All finds and samples will be treated in a proper manner. Where appropriate they will be cleaned, marked and receive remedial conservation in accordance with recognised best-practice. This will include the site code number, finds number and context number. Bulk finds will be bagged in clear self sealing plastic bags, again marked with site code, finds and context numbers and boxed by material in standard storage boxes (340mm x 270mm x 195mm). All materials will be fully labelled, catalogued and stored in appropriate containers.

6. Report and Archive

- 6.1 The full report in A4 format will usually follow within eight weeks of the completion of the fieldwork and copies will be dispatched to the Client (2 copies), Senior Planning Archaeologist/SMR (2 copies) and Rutland County Council Planning Authority (1 copy).
- 6.2 The report will include consideration of:
- The aims and methods adopted in the course of the evaluation.
 - The nature, location and extent of any structural, artefactual and environmental material uncovered.
 - The anticipated degree of survival of archaeological deposits.
 - The anticipated archaeological impact of the current proposals.
 - Appropriate illustrative material including maps, plans, sections, drawings and photographs.
 - Summary.
 - The location and size of the archive.

- A quantitative and qualitative assessment of the potential of the archive for further analysis leading to full publication, following guidelines laid down in *Management of Archaeological Projects* (English Heritage).
- 6.3 A full copy of the archive as defined in *The Guidelines For The Preparation Of Excavation Archives For Long-Term Storage* (UKIC 1990), and *Standards In The Museum: Care Of Archaeological Collections* (MGC 1992) and *Guidelines for the Preparation of Site Archives and Assessments for all Finds* (other than fired clay objects) (Roman Finds Group and Finds Research Group AD 700-1700 1993) will usually be presented to within six months of the completion of fieldwork. This archive will include all written, drawn and photographic records relating directly to the investigations undertaken.

7 Publication and Dissemination of Results

- 7.1 A summary of the work will be submitted to the local archaeological journal, the Transactions of the Leicestershire Archaeological and Historical Society. A larger report will be submitted for inclusion if the results of the evaluation warrant it.

8. Acknowledgement and Publicity

- 8.1 ULAS shall acknowledge the contribution of the Client in any displays, broadcasts or publications relating to the site or in which the report may be included.
- 8.2 ULAS and the Client shall each ensure that a senior employee shall be responsible for dealing with any enquiries received from press, television and any other broadcasting media and members of the public. All enquiries made to ULAS shall be directed to the Client for comment.

9. Copyright

- 9.1 The copyright of all original finished documents shall remain vested in ULAS and ULAS will be entitled as of right to publish any material in any form produced as a result of its investigations.

10. Timetable

- 10.1 There is no confirmed start date for the archaeological works, being dependant upon the removal of the existing crop on the site, the re-ploughing of the fields, weathering time and access being granted to the fields.
- 10.2 The on-site director/supervisor will carry out the post-excavation work, with time allocated within the costing of the project for analysis of any artefacts found on the site by the relevant in-house specialists at ULAS.

11. Health and Safety

- 11.1 ULAS is covered by and adheres to the University of Leicester Archaeological Services Health and Safety Policy and Health and Safety manual with appropriate risks assessments for all archaeological work. A draft Health and Safety statement for this project is attached as Appendix 1. The relevant Health and Safety Executive guidelines will be adhered to as appropriate. The HSE has determined that archaeological investigations are exempt from CDM regulations.
- 11.2 A Risks assessment form will be completed prior to work commencing on-site, and updated as necessary during the site works.
- 11.3 The location of services within the area is unknown at present. Information on the known location of any services or other constraints will need to be supplied by the Client, prior to the commencement of works on the site.

12 Insurance

- 12.1 All employees, consultants and volunteers are covered by the University of Leicester public liability insurance, £20m cover with Gerling Insurance Service Co. Ltd. and others (leading policy no. 62/99094/D). Professional indemnity insurance is with Royal and Sun Alliance, £10m cover, policy no. 03A/SA 001 05978. Employer's Liability Insurance is with Eagle Star, cover £25m. Copies of the certificates are attached.

13. Monitoring arrangements

- 13.1 Unlimited access to monitor the project will be available to both the Client and his representatives and Senior Planning Archaeologist subject to the health and safety requirements of the site. Notice will be given to the Leicestershire Senior Planning Archaeologist before the commencement of the archaeological evaluation in order that monitoring arrangements can be made.
- 13.2 All monitoring shall be carried out in accordance with the IFA *Standard and Guidance for Archaeological Field Evaluations*.
- 13.3 Internal monitoring will be carried out by the ULAS project manager.

14. Contingencies and unforeseen circumstances

- 14.1 In the unlikely event, due to the non-intrusive nature of the evaluation techniques being employed, that unforeseen archaeological discoveries are made during the project, ULAS shall inform the site agent/project manager, Client and the Senior Planning Archaeologist and Planning Authority and prepare a short written statement with plan detailing the archaeological evidence. Following assessment of the archaeological remains by the Senior Planning Archaeologist, ULAS shall, if required, implement an amended scheme of investigation on behalf of the client as appropriate.

15. Bibliography

- Clarke, S., 2002 *An Archaeological Desk-based Assessment of the impact of a proposed access road on land at Thistleton, Rutland (SK 910 173)*, ULAS Report No. 2002-146
- MAP 2 The management of archaeological projects 2nd edition English Heritage 1991
- MGC 1992 Standards in the Museum Care of Archaeological Collections 1992 (Museums and Galleries Commission)
- RFG/FRG 1993 Guidelines for the preparation of site archives (Roman Finds Group and Finds Research Group AD 700-1700 1993)
- SMA 1993 Selection, retention and Dispersal of Archaeological Collections. Guidelines for use in England, Wales and Northern Ireland 1993 (Society of Museum Archaeologists)

JEM

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UNIVERSITY OF LEICESTER ARCHAEOLOGICAL SERVICES**Design Specification for Archaeological Evaluation by Trial Trench*****Proposed Access Road for Thistleton Quarry, Thistleton, Rutland*****NGR: SK 910 173****Client: *East Midlands Quarry Ltd./Mineral Surveying Services*****Planning Authority: *Rutland County Council*****1 Introduction****1.1 *Definition and scope of the specification***

This document is a design specification for a phase of intrusive archaeological field evaluation (AFE) at the above site, in accordance with DOE Planning Policy Guidance note 16 (PPG16, Archaeology and Planning, para.30). The fieldwork specified below is intended to provide preliminary indications of character and extent of any buried archaeological remains in order that the potential impact of the development on such remains may be assessed by the Planning Authority.

1.2 The definition of archaeological field evaluation, taken from the Institute of Field Archaeologists Standards and Guidance: for Archaeological Field Evaluation (IFA S&G: AFE) is a limited programme of non-intrusive and/ or intrusive fieldwork which determines the presence or absence of archaeological features, structures, deposits, artefacts or ecofacts within a specified area or site on land, inter-tidal zone or underwater. If such archaeological remains are present field evaluation defines their character, extent, quality and preservation, and enables an assessment of their worth in a local, regional, national or international context as appropriate.

1.3 The document provides details of the work proposed by ULAS on behalf of the client, and should normally be submitted to the Planning Authority for approval before a costed scheme of archaeological investigation by ULAS is implemented. The scheme includes the following:

- Evaluation by archaeological trial trench

2. Background**2.1 *Context of the Project***

2.1.1 The site lies approximately 10 km northeast of Oakham, in Thistleton parish, in the county of Rutland (SK 910 173). The proposed access road is located south of Thistleton Road, aligned roughly southwest/northeast and crossing the former Greetham Road. The total length of the proposed access road will be c.2.25km, with a proposed corridor of 4m giving a total area of 0.9 ha. The Leicestershire Sites and Monuments Record indicates that the proposed site is close to areas where archaeological artefacts have been discovered and is therefore recognised as having archaeological potential.

2.1.2 The area lies at a height of approximately 130m O.D.

2.1.3 Initial advice from Heritage Services of Leicestershire County Council (LCC) requested the preparation of an archaeological desk-based assessment to 'gather sufficient evidence to establish, supplement, improve and make available information about the archaeological resource existing on the site to a level at which the necessary planning recommendations can be made by the Senior Planning Archaeologist as to future treatment of archaeological deposits, in relation to development proposals.' The desk-based assessment was commissioned from University of Leicester Archaeological Services (ULAS) and the results confirmed that the site has archaeological potential.

2.1.4 Following the results of the desk-based assessment the Senior Planning Archaeologist of the LCC Heritage Services Section recommended that initial archaeological field evaluation,

using both fieldwalking and geophysical survey, is carried out to assess the possible presence/absence and extent of any archaeological evidence on the development site. University of Leicester Archaeological Services undertook this survey during August 2003. At the same time as this survey was being undertaken, Jeremy Taylor of the University of Leicester School of Archaeology and Ancient History was carrying out research funded geophysical survey of the Thistleton Roman small town. The results of the two separate surveys were amalgamated to achieve a far more coherent understanding of the archaeology of the area, and better ascertain the potential impact of the proposed hall road.

2.2 ***Geological and Topographical Background***

2.2.1 The Ordnance Survey Geological Survey of Great Britain Sheet 143 indicates that the underlying geology is likely to consist of Upper and Lower Lincolnshire Limestone. The land lies at a height of 130m. OD.

2.3 ***Archaeological and Historical Background*** (from the desk based assessment, Clarke 2002)

2.3.1 *Prehistoric*

Two Neolithic flint tools (LE7319; 7320) were recovered from within the known boundaries of Thistleton Roman town.

A cropmark believed to represent a ring ditch of Bronze Age origin (LE5781) is located 400m to the northeast of the proposed access road.

2.3.2 *Iron Age and Roman*

The Roman town of Thistleton (LE5765) is cut through by a section of the proposed access road.

Excavations of the site during the 1950s/60s outlined an area of approximately 30ha as the limits of the Roman town. The excavations suggested occupation of the site from the Iron Age through to the fourth century, with structural remains of timber and stone buildings uncovered, including the site of a temple (LE5766; LE5767).

Two road systems were found to have serviced Roman Thistleton during the third century, one to the east of the main settlement aligned north-south, on the line of the present Greetham-Thistleton road (LE5345) and the second on an east-west alignment, connecting Thistleton and Market Overton (LE5508).

Structural remains and a scatter of coins indicated the location of a market (LE5772). Local industrial practices were attested to by the presence of a pottery kiln (LE5771) and of 62 shaft furnaces (LE5773), indicating metal-working activity.

A cemetery was located, containing 19 inhumation burials (LE5770). No grave goods were found in association with the burials. The skeletons of 6 infants were discovered amongst the foundations of excavated buildings.

Quarrying during the 1950s uncovered the site of a Roman villa (LE5776) and bath-house 0.6km to the northwest of the application area. Excavations carried out at this time indicated occupation during the Iron Age (LE5775), continuing throughout the Roman period until demolition during the late fourth century (Greenfield, Vol.51; 175).

2.3.3 *Medieval*

The application area lies 0.5km to the southwest of the medieval core of Thistleton village.

The church of St. Nicholas has a tower dating from the fourteenth century (LE5782).

A series of earthwork features believed to represent medieval Thistleton include three fishponds (LE5777) located to the north of the village, 0.6km from the proposed access road. More earthworks located within the village core (LE5779; LE5780) are believed to represent the shrunken village of the later medieval period.

2.3.4 *The Historical background*

Thistleton is referred to in the Domesday Book as land owned by Countess Judith. It is recorded that 'Eric had ½ carucate of land taxable. Land for 1 plough. Hugh has from

Countess Judith 1 plough and 6 villagers with 1 plough. Value before 1066, 20s; now 40s.' (Morris, 1980).

The town was noted by Camden in 1586 and visited by Stukeley in 1733, who wrote of ' a place called the Holmes where they find vast quantities of Roman coins....No doubt but this was a Roman town....there is an old well that is never scoured and a foundation of a wall that enclosed a kind of court. It is near Thistleton.'(Le Marchant, 1895. vol. III; 34).

The location of the proposed access road has been superimposed over the 1885 O.S. (maps II.11, II.12, II.15, II.16). The area appears as arable fields with a good network of established field boundaries. There is no building or other development depicted within the application area. Roman artefacts are noted as having been found to the south east of the of the proposed road line.

The 2nd edition O.S. of 1904 (maps II.11, II.12, II.15, II.16) show the application area to have undergone no change since 1885.

The 1983 O.S. (maps SK 91NW, SK 81NE) show no significant changes to have taken place within the application area, with the exception of shifting field boundaries.

2.3.5 The geophysical survey and fieldwalking evaluations undertaken as part of the planning application for the proposed hall road were carried out in August 2003 by University of Leicester Archaeological Services. These surveys were undertaken almost concurrently with research funded geophysical survey of the small town area undertaken by Jeremy Taylor of University of Leicester School of Archaeology and Ancient History.

2.3.6 The results of the geophysical survey was summarised as follows: "*A geophysical survey by magnetic susceptibility and gradiometry was carried out in 2003 by ULAS and the School of Archaeology, University of Leicester, over land affected by a proposed access road for Thistleton Quarry, Rutland, (SK 910 173) for East Midlands Quarry Ltd/Mineral Surveying Services. Areas of unusually high magnetic susceptibility were located, and follow-up gradiometry survey revealed part of the layout of an extensive settlement dating to the Roman period. Some features of possible pre-Roman date were also located. The archive will be deposited with Rutland County Museum, Catmose Street, Oakham, Rutland LE15 6HW under accession number R.A2.2003.* (Coward 2003, see fig. 3).

2.3.7 The interim results of the fieldwalking survey were as follows: "*A programme of fieldwalking was carried out on land south of Thistleton village, Rutland, between 28th August and 1st September 2003. The work was undertaken on behalf of Mineral Surveying Services, as part of evaluative archaeological field trials in advance of the proposed construction of an access road for a proposed quarry extension.*

Fieldwalking was carried out along the line of the proposed road, except where the field conditions were unsuitable. The two fields at the north-western end of the proposed road had not been ploughed at the time of the survey and were therefore not suitable for fieldwalking and could not be included in this initial part of the survey. It was understood by ULAS that all fields had been ploughed and were ready for fieldwalking prior to the commencement of the survey.

A 100m corridor along the route was defined (50m to either side of the proposed access road) and was walked at 10m intervals. All finds were marked on the ground and these were subsequently bagged, labelled and their location recorded using a Total Station. The results are illustrated on the attached figure. It is very evident that there is a very dense scatter of finds at the western end of the access road, especially as compared with the relatively sparse finds over the rest of the area. Although these finds have not yet been washed and formally identified, it is clear that the majority of the material is Roman in date, consisting predominantly of pottery and tile. This part of the proposed access road is located over the known Roman remains of the Roman small town at Thistleton, parts of which were excavated in the near vicinity during the 1950s.

The remainder of the area, located to the east of the former Greetham Road, would appear to demonstrate far less archaeological activity. Finds were relatively scarce and although these have not yet been properly identified, the initial impression is that these largely consist of post-medieval and modern pottery and brick. These are probably derived from manuring

scatters for agricultural purposes. Occasional sherds of earlier pottery and flint were also recovered." (Browning 2003, see fig. 4)

- 2.3.8 The more extensive geophysical survey results are shown on Fig. 3, including both those undertaken by ULAS as part of the planning application for the access road, and the larger research funded survey undertaken by University of Leicester School of Archaeology and Ancient History. The plan clearly demonstrates that the site area to the west of Fosse Lane contains significant remains of the Thistleton Roman small town. This includes the presence of apparent buildings and within rectangular plot boundaries on either side of two roughly north-south aligned roads across the majority of the central part of the area. The known site of the temple at Thistleton is also apparent in the southern part of the survey. A possible villa or farm complex exists on the eastern side of this area, with associated field boundaries. An area between the town and the villa appears devoid of archaeological features, and may represent the presence of a former water course (as shown by an extant dip in the topography corresponding with this area). Potentially features may be present here sealed beneath a build up of soil masking it from the geophysical survey. In the two smaller survey areas to the north-west, the dense features seen within the small town begin to fade out, although a curvilinear feature and possible pit alignment are present and these features are more likely to date from the Iron Age, and may indicate earlier settlement activity within the area.

3. Archaeological Objectives

- 3.1 The main objectives of the trial trench evaluation on the western side of Fosse Lane, within the area of the known Roman small town will be:
- The archaeological evaluation will provide information on the depth, state of preservation, extent, character and date of archaeological deposits within the route of the proposed access road, whilst ensuring as little disturbance to these remains as possible.
 - To achieve an understanding of the depths of these deposits below existing ground level along the proposed roadline, and thus ascertain a clearer understanding of the potential impact of the proposed development on the archaeological remains. The information will be used to formulate a mitigation strategy in respect of the archaeological remains.
 - To produce an archive and report of any results.
- 3.2 The main objectives of the trial trench evaluation on the eastern side of Fosse Lane will be:
- To identify the presence/absence of any archaeological deposits. The archaeological evaluation will provide information on the depth, state of preservation, extent, character and date of archaeological deposits, if present, within the assessment area.
 - The potential impact of the proposed development on any archaeological remains, whether known or postulated, will be assessed.
 - To produce an archive and report of any results.
- 3.3 The strategy for evaluation has been formulated in consultation with the Senior Planning Archaeologist of Leicestershire County Council Heritage Services. The results of this stage of work will be used in the planning application for the proposed roadline.

4. Methodology

4.1 *General Methodology and Standards*

- 4.1.1 All work will follow the Institute of Field Archaeologists (IFA) Code of Conduct and adhere to their *Standard and Guidance for Archaeological Field Evaluation* (1999).
- 4.1.2 Staffing, recording systems, health and safety provisions and insurance details are included below.
- 4.1.3 Internal monitoring procedures will be undertaken including visits to the site by the project manager. These will ensure that project targets are met and professional standards are

maintained. Provision will be made for external monitoring meetings with the Planning authority and the Client, if required.

4.1.4 It has been agreed after consultation with the Senior Planning Archaeologist at Leicestershire County Council Heritage Services that two different trial trench sampling strategies will be adopted for the roadline.

4.1.4.1 *Strategy for evaluation to west of Fosse Lane*

- For the roadline to the west of Fosse Lane, over the known archaeological remains, trial trenching will sample 20% of its proposed length. The roadline is c.940m in length, and a total length of 160m of trial trench will be evaluated. This will entail the excavation of eight 20m long and 1.5m wide trenches.
- Trenches will be positioned to partly target known geophysical hotspots, as well as evaluating the archaeologically blank area coinciding with the natural dip across the centre of the area. A reasonably consistent coverage of the full length of the roadline will be attempted with the location of the evaluation trenches.
- Trenches will expose archaeology in order to assess the depth, state of preservation, character, extent and date of the deposits, but will not entail excavation, unless indications of paleoenvironmental survival are indicated and can be assessed by limited excavation and sampling. The intention is to get as clear an understanding of the depth and character of the deposits along the length of the roadline, whilst causing the least disturbance to these deposits.

4.1.4.2 *Strategy for evaluation to east of Fosse Lane*

- For the roadline to the east of Fosse Lane, where no clear indication of archaeological deposits have so far been revealed, it is intended to carry out a 4% sample of the entire area of the roadline. The roadline length is c.1300m, and its width is to be 4m, giving a total area of 5200 sq m. A 2% sample of this will require the evaluation of a total area of 210 sq m, or the equivalent of seven 20m x 1.5m trenches.
- Trenches will be excavated down to the top of any surviving archaeological deposits, or onto undisturbed natural ground, whichever is reached first.
- A sample of any features revealed will be excavated to further characterise and date any existing deposits.

4.2 ***General Trial Trenching Methodology***

4.2.1 Prior to any machining of trial trenches general photographs of the site areas may be taken.

4.2.2 Topsoil and overburden will be removed carefully in level spits, under continuous archaeological supervision by JCB 3C or equivalent using a toothless ditching bucket. Trenches will be excavated to a width of 1.5m and down to the top of archaeological deposits or natural undisturbed ground, whichever is reached first.

4.2.3 The proposed locations of the trenches have been laid out on Fig. 4 for the western side of Fosse Lane and on Fig. 5 for the eastern side.

4.2.5 Trenches will be examined by hand cleaning and any archaeological deposits located will be planned at an appropriate scale. On the western side of Fosse Lane further archaeological investigation will be kept to a minimum, only targeting areas where an indication of survival of paleoenvironmental evidence or similar is suggested. To the east of Fosse Lane archaeological deposits will be sample-excavated by hand as appropriate to establish the stratigraphic and chronological sequence. All plans will be tied into the Ordnance Survey National Grid. Relative spot heights will be taken as appropriate.

4.2.6 Sections of any excavated archaeological features will be drawn at an appropriate scale. At least one longitudinal face of each trench will be recorded. All sections will be levelled and tied to the Ordnance Survey Datum, or a permanent fixed benchmark.

4.2.7 Trench locations will be recorded using an electronic distance measurer. These will then be tied in to the Ordnance Survey National Grid.

4.2.8 Any human remains will initially be left *in situ* and will only be removed if necessary for their protection, under a Home Office Licence and in compliance with relevant environmental health regulations.

4.3 **Recording Systems**

4.3.1 The ULAS recording manual will be used as a guide for all recording.

4.3.2 Individual descriptions of all archaeological strata and features excavated or exposed will be entered onto pro-forma recording sheets.

4.3.3 A site location plan based on the current Ordnance Survey 1:1250 map (reproduced with the permission of the Controller of HMSO) will be prepared. This will be supplemented by a trench plan at appropriate scale, which will show the location of the areas investigated in relationship to the investigation area and OS grid.

4.3.4 A record of the full extent in plan of all archaeological deposits encountered will be made. Sections including the half-sections of individual layers of features will be drawn as necessary. The relative height of all principal strata and features will be recorded.

4.3.5 A photographic record of the investigations will be prepared illustrating in both detail and general context the principal features and finds discovered. The photographic record will also include 'working shots' to illustrate more generally the nature of the archaeological operation mounted.

4.3.6 This record will be compiled and checked during the course of the excavations.

5. **Finds**

5.1 The IFA Guidelines for Finds Work will be adhered to.

5.2 All antiquities, valuables, objects or remains of archaeological interest, other than articles declared by Coroner's Inquest to be subject to the Treasure Act, discovered in or under the Site during the carrying out of the project by ULAS or during works carried out on the Site by the Client shall be deemed to be the property of ULAS provided that ULAS after due examination of the said Archaeological Discoveries shall transfer ownership of all Archaeological Discoveries unconditionally to Leicestershire County Council's Heritage Services Section for storage in perpetuity.

5.3 An Accession number will be obtained from Leicestershire County Council's Heritage Services Section that will be used to identify all records and finds from the site, prior to the commencement of any on-site works.

5.4 All identified finds and artefacts are to be retained, although certain classes of building material will, in some circumstances, be discarded after recording with the approval of the Senior Planning Archaeologist. The IFA Guidelines for Finds Work will be adhered to.

5.5 All finds and samples will be treated in a proper manner. Where appropriate they will be cleaned, marked and receive remedial conservation in accordance with recognised best-practice. This will include the site code number, finds number and context number. Bulk finds will be bagged in clear self sealing plastic bags, again marked with site code, finds and context numbers and boxed by material in standard storage boxes (340mm x 270mm x 195mm). All materials will be fully labelled, catalogued and stored in appropriate containers.

6. **Report and Archive**

6.1 The full report in A4 format will usually follow within eight weeks of the completion of the fieldwork and copies will be dispatched to the Client (2 copies), Senior Planning Archaeologist/SMR (2 copies) and Rutland County Council Planning Authority (1 copy).

6.2 The report will include consideration of:

- The aims and methods adopted in the course of the evaluation.
- The nature, location and extent of any structural, artefactual and environmental material uncovered.

- The anticipated degree of survival of archaeological deposits.
 - The anticipated archaeological impact of the current proposals.
 - Appropriate illustrative material including maps, plans, sections, drawings and photographs.
 - Summary.
 - The location and size of the archive.
 - A quantitative and qualitative assessment of the potential of the archive for further analysis leading to full publication, following guidelines laid down in *Management of Archaeological Projects* (English Heritage).
- 6.3 A full copy of the archive as defined in *The Guidelines For The Preparation Of Excavation Archives For Long-Term Storage* (UKIC 1990), and *Standards In The Museum: Care Of Archaeological Collections* (MGC 1992) and *Guidelines for the Preparation of Site Archives and Assessments for all Finds* (other than fired clay objects) (Roman Finds Group and Finds Research Group AD 700-1700 1993) will usually be presented to within six months of the completion of fieldwork. This archive will include all written, drawn and photographic records relating directly to the investigations undertaken.

7 Publication and Dissemination of Results

- 7.1 A summary of the work will be submitted to the local archaeological journal, the Transactions of the Leicestershire Archaeological and Historical Society. A larger report will be submitted for inclusion if the results of the evaluation warrant it.

8. Acknowledgement and Publicity

- 8.1 ULAS shall acknowledge the contribution of the Client in any displays, broadcasts or publications relating to the site or in which the report may be included.
- 8.2 ULAS and the Client shall each ensure that a senior employee shall be responsible for dealing with any enquiries received from press, television and any other broadcasting media and members of the public. All enquiries made to ULAS shall be directed to the Client for comment.

9. Copyright

- 9.1 The copyright of all original finished documents shall remain vested in ULAS and ULAS will be entitled as of right to publish any material in any form produced as a result of its investigations.

10. Timetable

- 10.1 There is no confirmed start date for the archaeological works.
- 10.2 The on-site director/supervisor will carry out the post-excavation work, with time allocated within the costing of the project for analysis of any artefacts found on the site by the relevant in-house specialists at ULAS.

11. Health and Safety

- 11.1 ULAS is covered by and adheres to the University of Leicester Archaeological Services Health and Safety Policy and Health and Safety manual with appropriate risks assessments for all archaeological work. A draft Health and Safety statement for this project is attached as Appendix 1. The relevant Health and Safety Executive guidelines will be adhered to as appropriate. The HSE has determined that archaeological investigations are exempt from CDM regulations.

- 11.2 A Risks assessment form will be completed prior to work commencing on-site, and updated as necessary during the site works.
- 11.3 The location of services within the area is unknown at present. Information on the known location of any services or other constraints will need to be supplied by the Client, prior to the commencement of any archaeological groundworks works on the site.

12 Insurance

- 12.1 All employees, consultants and volunteers are covered by the University of Leicester public liability insurance, £20m cover with Gerling Insurance Service Co. Ltd. and others (leading policy no. 62/99094/D). Professional indemnity insurance is with Royal and Sun Alliance, £10m cover, policy no. 03A/SA 001 05978. Employer's Liability Insurance is with Eagle Star, cover £25m. Copies of the certificates are attached.

13. Monitoring arrangements

- 13.1 Unlimited access to monitor the project will be available to both the Client and his representatives and Senior Planning Archaeologist subject to the health and safety requirements of the site. Notice will be given to the Leicestershire Senior Planning Archaeologist before the commencement of the archaeological evaluation in order that monitoring arrangements can be made.
- 13.2 All monitoring shall be carried out in accordance with the IFA *Standard and Guidance for Archaeological Field Evaluations*.
- 13.3 Internal monitoring will be carried out by the ULAS project manager.

14. Contingencies and unforeseen circumstances

- 14.1 In the unlikely event, due to the non-intrusive nature of the evaluation techniques being employed, that unforeseen archaeological discoveries are made during the project, ULAS shall inform the site agent/project manager, Client and the Senior Planning Archaeologist and Planning Authority and prepare a short written statement with plan detailing the archaeological evidence. Following assessment of the archaeological remains by the Senior Planning Archaeologist, ULAS shall, if required, implement an amended scheme of investigation on behalf of the client as appropriate.

15. Bibliography

- Browning, J., 2003 *Interim Report On Fieldwalking and Geophysical Survey South Of Thistleton Village, Rutland*. - Unpublished Developer Report
- Clarke, S., 2002 *An Archaeological Desk-based Assessment of the impact of a proposed access road on land at Thistleton, Rutland (SK 910 173)*, ULAS Report No. 2002-146
- Coward, J., 2003 *A Geophysical Survey on land affected by a proposed access road for Thistleton Quarry, Thistleton, Rutland (SK 910 173) 2003* – Unpublished Developer report
- MAP 2 The management of archaeological projects 2nd edition English Heritage 1991
- MGC 1992 Standards in the Museum Care of Archaeological Collections 1992 (Museums and Galleries Commission)
- RFG/FRG 1993 Guidelines for the preparation of site archives (Roman Finds Group and Finds Research Group AD 700-1700 1993)
- SMA 1993 Selection, retention and Dispersal of Archaeological Collections. Guidelines for use in England, Wales and Northern Ireland 1993 (Society of Museum Archaeologists)

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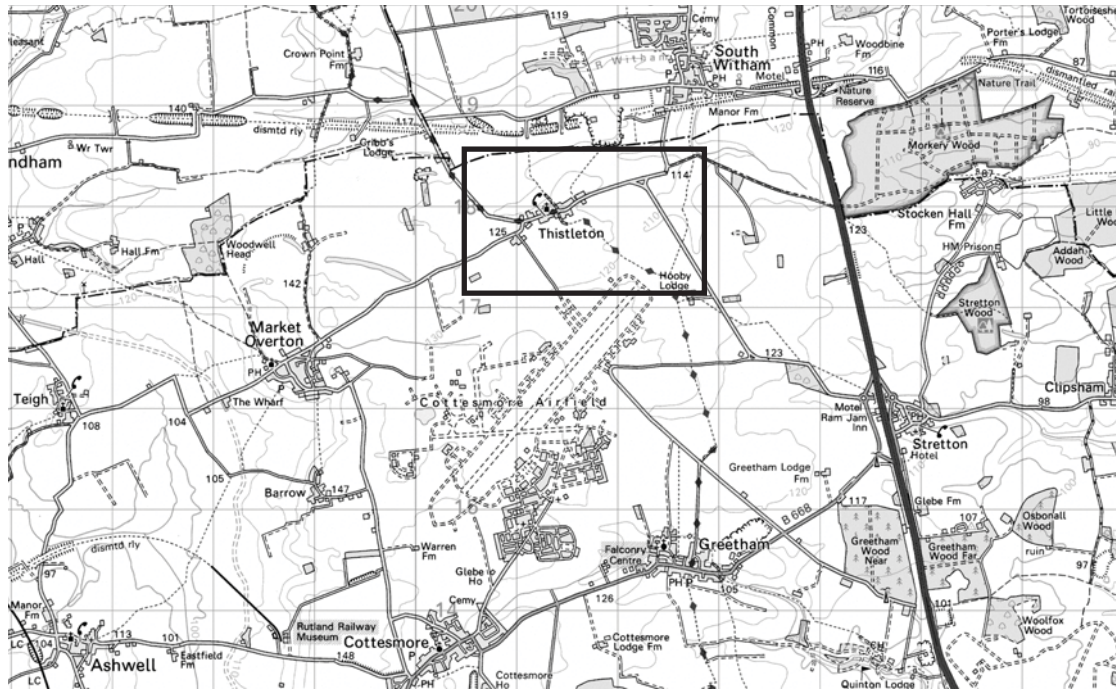
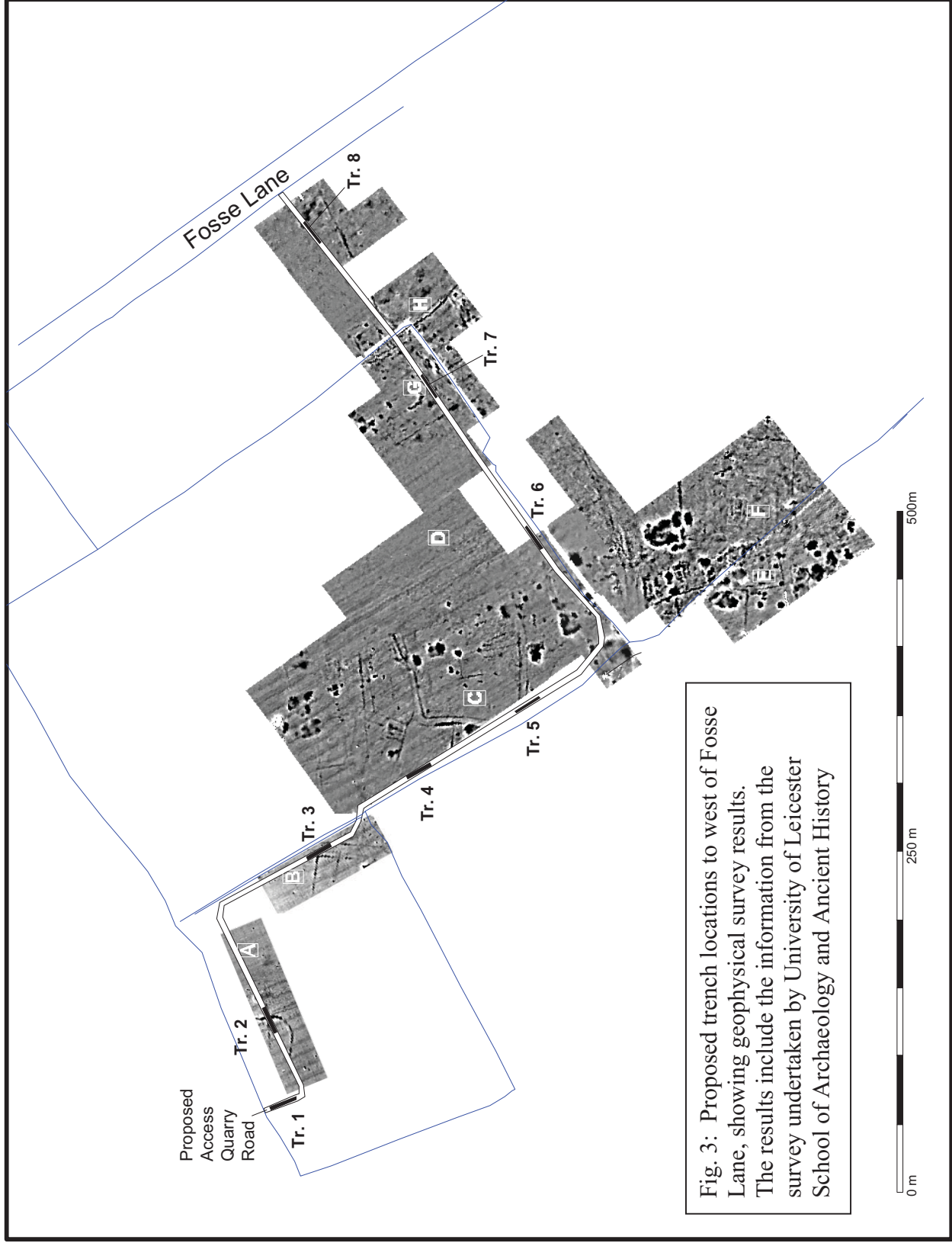


Fig. 1: Site location

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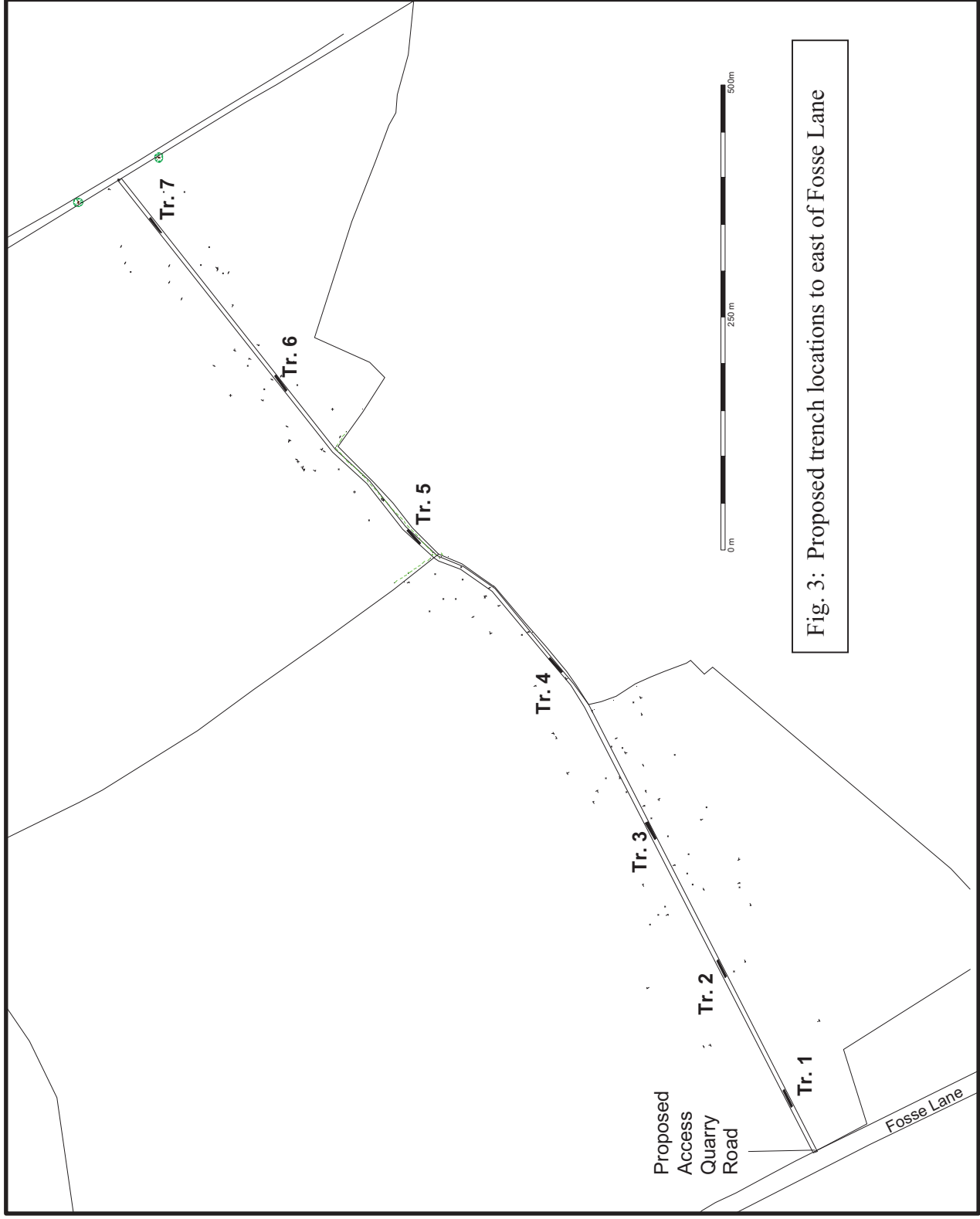


Fig. 3: Proposed trench locations to east of Fosse Lane