9. Field-walking at Syndale

In technical terms field-walking may be defined as the recording of artifacts exposed on the surface of cultivated soil horizons. In any large-scale field survey the results of field-walking programmes have an important input into our academic understanding of landscape archaeology beyond the limits of individual sites and, moreover, can provide the basis of strategic decisions about the management and protection of buried archaeological monuments (Gerrard 1990: 9-15).

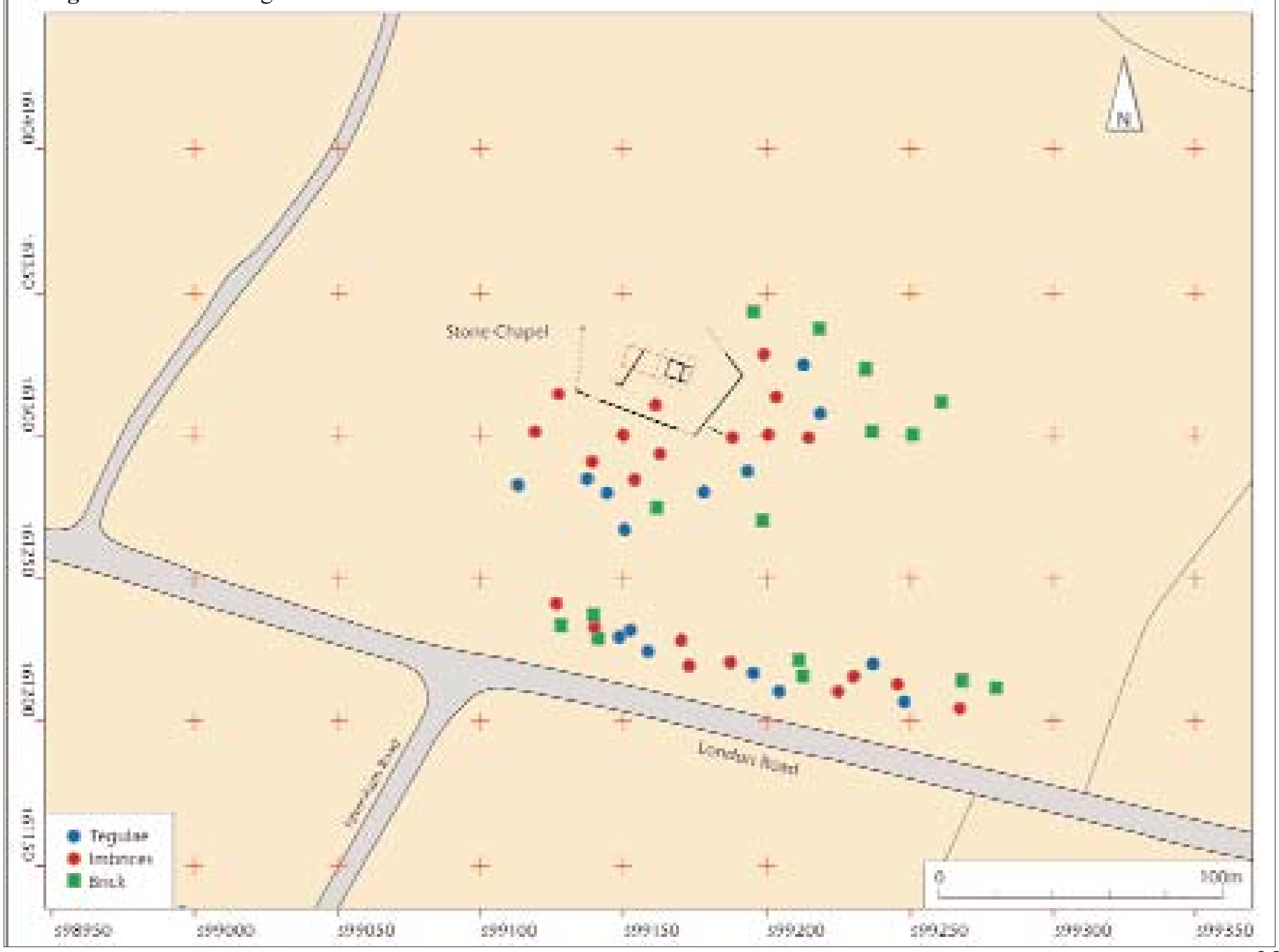
Field-walking lies at the heart of any field survey (**Fig. 34**), as indeed it does with so much British archaeology aimed at landscape investigation. One recent commentator called this approach 'quintessentially British' (Jones, 1985, in Gerrard 1990). But many of the methodological advances in surveying have been made around the Mediterranean Basin (Keller and Rump, 1983, Barker and Lloyd, 1991), often in multi-national projects of impressive scale (MacReady and Thompson 1985). Here and elsewhere sophisticated numerical texts and sampling strategies have been introduced to guide research design and improve analytical techniques and presentations.

Increasing awareness of site formation processes at work in the landscape has also drawn our attention to the effects of ploughing, alluvial and colluvial activity upon artifact scatters (Schiffer, 1987; Gaffney et al, 1991).

The aim of field-walking

The aim of field-walking is threefold. The first is to locate areas of possible archaeological activity, to calculate the size of area and artifact density and to characterise the assemblage composition.
The second is to examine differential manuring patterns and changing land use in conjunction with

Fig. 34 Field-walking: Roman brick and tile



cartographic and documentary sources.
The third is to develop and refine collection strategies and our understanding of the data produced.

Line-walking
Systematic field-walking is based on either line-walking or grid walking.
The normal collection procedure of line-walking is that walkers collect all cultural material from the ground surface whilst walking down 1.5 metre (5ft) 'runs' 25 metres (27yds) apart. This will amount to about a 6% sample of any given field area.
All material that is considered alien to the field is collected and deposited at collection points for finds every 25 metres. All finds of all periods are collected; this enables voluntary labour of varying expertise to be used and ensures that a range of material from all periods is represented. Any field in any given study area must be field-walked in a standard fashion if we are to have comparable data. Only then can the density data of any given artifact be assessed in the same way as those for all the other artifacts.

This initial type of field-walking is occasionally called 'traverse and stint' but more properly it is 'systematic sampling', falling under the banner of 'probabilistic sampling'. The intention is to collect reliable, comprehensive statistical data, and not simply to follow our instincts as to where sites may be located.

To do this a number of collection strategies could have been utilised: by dividing the study area into topographic blocks, say on the basis of known or modern land utilisation, and then walking a representative number of strips 'stratified random sampling' or we might have mixed our systematic sampling system with random sampling 'stratified systematic unaligned sampling'.

It is sometimes said that ploughed fields, preferably after some days of rain, are the only areas that can be field-walked. If followed this practice would mean that a large part of any study area would be removed from the data collection matrix, and so other types of field-walking and data-collection have been utilised for the Syndale Survey of which the Stone Chapel Field survey is part.

Grid-walking
Grid-walking is based on a 10-metre (33ft) square unit with a number of people collecting for 20 minutes. This strategy was used because of field tests early on in the history of the Shapwick Project in Somerset (Aston and Gerrard, 1988-99). At Shapwick results showed this technique far outweighed others for a greater collection of artifacts, and during the Syndale Survey grid-walking is the preferred method of artifact collection from ploughed fields.

Standard line-walking will give about a 6% sample of any given field area, whilst grid-walking will give about 90%. It must also be remembered that only about 3% of artifacts residing in the ploughsoil zone are visible at any one time. Surveys elsewhere (Gerrard, 1990; Barker, 1991) have shown that the amount of material and the types of material collected on the same site year after year show enormous variations but that the shape and size and chronological range of material remain constant (Ammerman and Feldman 1987).

The major processes affecting artifact collection are post-depositional, that is, the dynamics of ploughsoil artifacts. Controlled experiments have shown that artifacts can be displaced from 20cm to 10 metres (7.2 in to 33ft) by ploughing and the most recent studies indicate that the level of displacement will be specific to soil types and different land uses (Clark and Schofield 1991).
Unfortunately, movement of the artifacts is not the only problem. What is on the surface of the topsoil- again figures can be as low as 3% (Clark and Schofield 1991) and up to 16-17% (Reynolds, 1982)- may not represent what is under it and being disturbed by the plough. The material found on the surface is also not a reliable guide to the location of buried deposits.

It may be that Roman and Medieval artifacts were introduced by manuring or may be dumped archaeological material from sites cleared by the landowner. Most of the ceramic material collected from field-walking has been ploughed in and not ploughed out. The reasons for this are numerous- artifacts accidentally lost, dumps of post-medieval material near gates or crossings, agricultural activities such as herding, firewood collection; discrete concentrations of artifacts smeared by agricultural machinery and erosion across the landscape, and finally household rubbish incorporated with animal and human excrement and used as a fertiliser on the fields. (Cherry et al, 1991

Field-walking results

The collection of artifacts from the ploughsoil inevitably creates a distorted impression of the range of materials present on any site, whether it be prehistoric, Roman or Medieval. For late prehistoric and historic times, pottery is fortunately a very useful indicator of date. Flint is prevalent until the later Bronze Age but is less susceptible to close dating. Objects of other materials are much rarer, but do occur from time to time mingled with dense concentrations of pottery on 'sites'.

Other factors to take into consideration include the differential destruction of material through the interaction of cultivation and weather conditions. Roman and medieval pottery is durable, but pre-Iron Age ceramic is much more fragile and exposure on the surface of the ground coupled with frost can fragment a prehistoric potsherd beyond recognition in a year to two years. Similarly briquetage from salt manufacture is also rapidly degraded and, without plentiful fragments, Roman salterns may go unrecognised.

For the Stone Chapel Field all material was collected which was considered alien to the field.
This included all stone, flints of unusual shape and/or worked, all pottery, all iron, all brick and tile.
In spite of statements to the contrary in archaeological literature (Cherry et al, 1991), this did not slow down the rate of coverage; rather than going down the route of pick-up, inspect, and keep or discard, all material was kept to be processed by field-work specialists. This avoided the possibility that Saxon pottery had been mistaken for coal, Roman brick and tile for Victorian, Roman Samian ware for modern, Iron Age pottery for burnt Victorian flower pots.

The information thus recorded was entered on to dedicated A4 sheets with an annotated hand-drawn map of the area of Stone Chapel Field walked. Special features were noted, and find spots highlighted and marked with an O.S. eight digit locater.

The finds were processed at regular intervals by Canterbury Archaeological Trust and latterly by Malcolm Lyne. The detailed analysis of the groups of material, including a breakdown of pottery types, their weight and number, has not been included in this interim report, but can be consulted in the Project Archive which will be deposited with the Kent Archaeological Field School at Faversham after future research. The artifact class is by necessity divided by the dates or periods of the material collected, and this analysis by date and density is the core of understanding how the landscape functioned through the prehistoric and historic periods.
Densities range from 204 finds (for Roman pottery) per 100 metres (109yds) walked at Stone Chapel Field (**Fig. 34**) to four finds (Roman pottery) per 100 metres walked at Syndale Motel site. However, before the landscape analysis can be complete consideration must be given to geological and climatic changes which have, in some areas, dramatically changed the landscape and hidden from field-workers archaeological features, sites, and buried monuments under many metres of deposited soil or mud. Whilst it is possible to identify a Roman site, such as at Stone Chapel Field, from the Roman material found in the top-ridge ploughsoil, it will not be possible to locate buried features such as the postulated quays and landing places in the valley below without resorting to excavation.

Conclusions

What activities are represented by the patterns we have identified? There are a number of important points which need to be made. Initially the Research Design was for a 'rapid walk-over survey.

Certainly, initially, line-walking was the norm, whilst in the final year focused grid-walking on chosen areas of the field offered greater potential for collection and interpretation. Both these factors are so varied that they will be dealt with in their particular chapters.

Preliminary interpretation indicates that many Roman sites have now been located by ‘haloes’ of material around these buried monuments. Also is has been possible to gauge the extent and status of such buried monuments by the amount of Roman building ceramics found in their close locality. However, it is suspected, many other, lower status Roman buildings still await discovery by focused field-work.
By various criteria it has also been possible to define the function and status of a particular building and by date analysis of pottery sherds some indication of the life of that particular site.

Field-walking has also enabled us to give an educated guess to the extent of the possible Roman settlement, and through pottery collection and analysis, what part of the field had been manured and therefore were at some stage arable in the Roman period. Distribution of arable in the medieval period may possibly also be assessed. For the post-medieval period land use pedigrees could be compared profitably against map and documentary evidence. The overall densities provide a useful means of calibrating how much material can be expected from any field walked in the future.

However, we have resisted using rigid quantitative criteria to define any given ‘site’. It has been necessary to employ a range of methods such as shoveltesting, geophysical data, aerial survey to carry our investigation forward. It must be remembered that variations in the supply and use of pottery at different periods would mean that different threshold densities, indicating possible ‘sites’, would have to be calculated for each period. (Millett 1991).

Shoveltesting and metal-detecting
Shoveltesting was the technique used in the Stone Chapel Field to define and confirm the extent of potential sites. Shoveltesting is in some ways similar to test pitting, which involves the excavation of a number of small trenches.

However, shoveltesting is the controlled examination of topsoil and does not attempt to investigate layers below that. A standard sample of soil is sieved from each location to be tested. Two buckets full of soil are sieved, the volume of each bucket being 15 litres. In each 10 metre (33ft) square five tests are carried out and thus 150 litres of soil are sieved.

If one assumes that the soil has been disturbed by ploughing to about 20 cm (7.8in), a 150 litre sample is about a 0.15% sample of a 10 metre square.
The aims of shoveltesting are three fold, and have been formulated by Professor M.A. Aston at the Shapwick Project in Somerset (Aston and Gerrard, 1995).

The first is to assess its effectiveness in locating concentrations of artifacts, second, to test areas which could not be field-walked, for example, because they were under woodland or pasture. And third to test the

Fig. 35 Metal detector survey of Stone Chapel Field

reliability of field-walking results, given the problems and biases of field-walking.
Shoveltesting was pioneered in the northeast of the United States by Kayt Smith and by Nick Thorpe at Shapwick, Somerset.

Academic literature shows that shoveltesting consistently locates large sites with dense concentrations of artifacts. The tests also prove that shoveltesting finds a large percentage of smaller, less dense sites and activity areas. More importantly, the tests, when made over a large area, give a consistent and quantifiable sample of the distribution of small sites and other activity areas critical to a settlement pattern (Smith and Thorpe 1995).

The results show it to be the preferred method of locating sites, both large and small and indicate it is a more controlled, more cost-effective and more productive approach than digging large trenches with a JCB and watching for what can be damaged archaeological features.

Metal detector survey
A number of controlled metal detector surveys were carried out at Stone Chapel Field by Andy Stephney *et al* **(Fig. 35)** both before, during and after the 2005 investigations. Concerns had been expressed in the archaeological community that illicit detecting was happening at Stone Chapel Field.

This is a major concern for archaeologists since illegally recovered finds are not recorded and once removed are permanently lost from their archaeological context. The material recovered by the controlled use of metal detectors in a planned survey at Stone Chapel Field will be available for future study and research. Further, it was possible that any finds recovered from the survey may represent evidence for underlying archaeological features currently subject to damage by ploughing. It was also deemed appropriate to recover portable finds from the plough-soil where they were deteriorating due to natural corrosion processes and modern farming techniques.

The survey
The metal detecting search of the survey area was restricted to the 10 metre gridded areas set up for field-walking and both surveys were run in tandem. All metal detector finds were evaluated on site, recorded by triangulation from the alpha-numeric grids, labelled, bagged and recorded with a small finds number. Some 183 significant finds were located and these will be listed in the Final Report CD Appendix where a detailed description and photographic record of each of the single finds is provided. Post-1700 finds, after evaluation, were returned to the field in the exact area they were initially detected. The recording strategy used at Stone Chapel Field means that any significant metal detectorist find is located to within 5cm anywhere on the site.

The survey recovered mostly Roman coins and other artefacts and these were found in close proximity to Stone Chapel and in a strip alongside Watling Street (A2). This material alongside Watling Street may be the result of gas main laying in the strip alongside Watling Street with the subsequent exposure of material from the trenching.
The controlled search methods used at Stone Chapel Field were different from the usual methods employed by detectorists who profess to a ‘feel’ for a site and are able to focus in to hot-spots in a field in a very short time and then concentrate upon these areas of potential.

At Stone Chapel Field it was shown that detectorists can work in smaller, more controlled zones, and this should become the norm in future fieldwork.
It is important to develop systematic search and recording patterns in metal detecting in order to allow for a better appreciation of the spatial distribution of finds.

In the pre-excavation survey of Stone Chapel Field and the subsequent searches through the spoil heaps the contribution of ‘Andy the detectorist’ was immense and has added profoundly to our understanding and knowledge of this unique site.

10. Geophysical survey

Geophysical survey should be considered as one of the main techniques of site evaluation and interpretation. Its potential contribution to field survey must always be considered.
The most important geophysical survey technique for amateur archaeologists is resistivity, followed closely by magnetometry. Geophysical specialists favour magnetometry above resistivity. The reasons are that it is the fastest method of rapidly covering very large areas to evaluate their archaeological content quickly.

Magnetometry also responds to a wider range of archaeological features, so it is a very good general-purpose detection method. However, if the purpose of the geophysical survey is specifically to target the continuation underground of the partially exposed walls of a monastic or castle site then resistivity would be the first choice, but for general purpose site exploration magnetometry would be the preferred method. Other techniques that can be used are ground-penetrating radar, acoustic reflection, thermal sensing, dowsing and probing.

Resistivity works on the principle that soils which contain water conduct electricity more effectively than natural rocks like granite, ragstone and chalk. As you pass a small electrical current through the ground, these rocks will resist more than the damp soil.
This pattern of variable resistivity can be measured and recorded with a purpose-built meter.
Amateur groups usually use resistivity because the equipment is somewhat cheaper.

The purpose of the geophysical survey at Stone Chapel Field conducted by David and Karen with students of the Kent Archaeological Field School (KAFS) was to attempt to trace unexcavated archaeological features extending beyond the Scheduled Area and also to look for postulated features relating to the temple complex, such as a *temenos* wall and ditch.

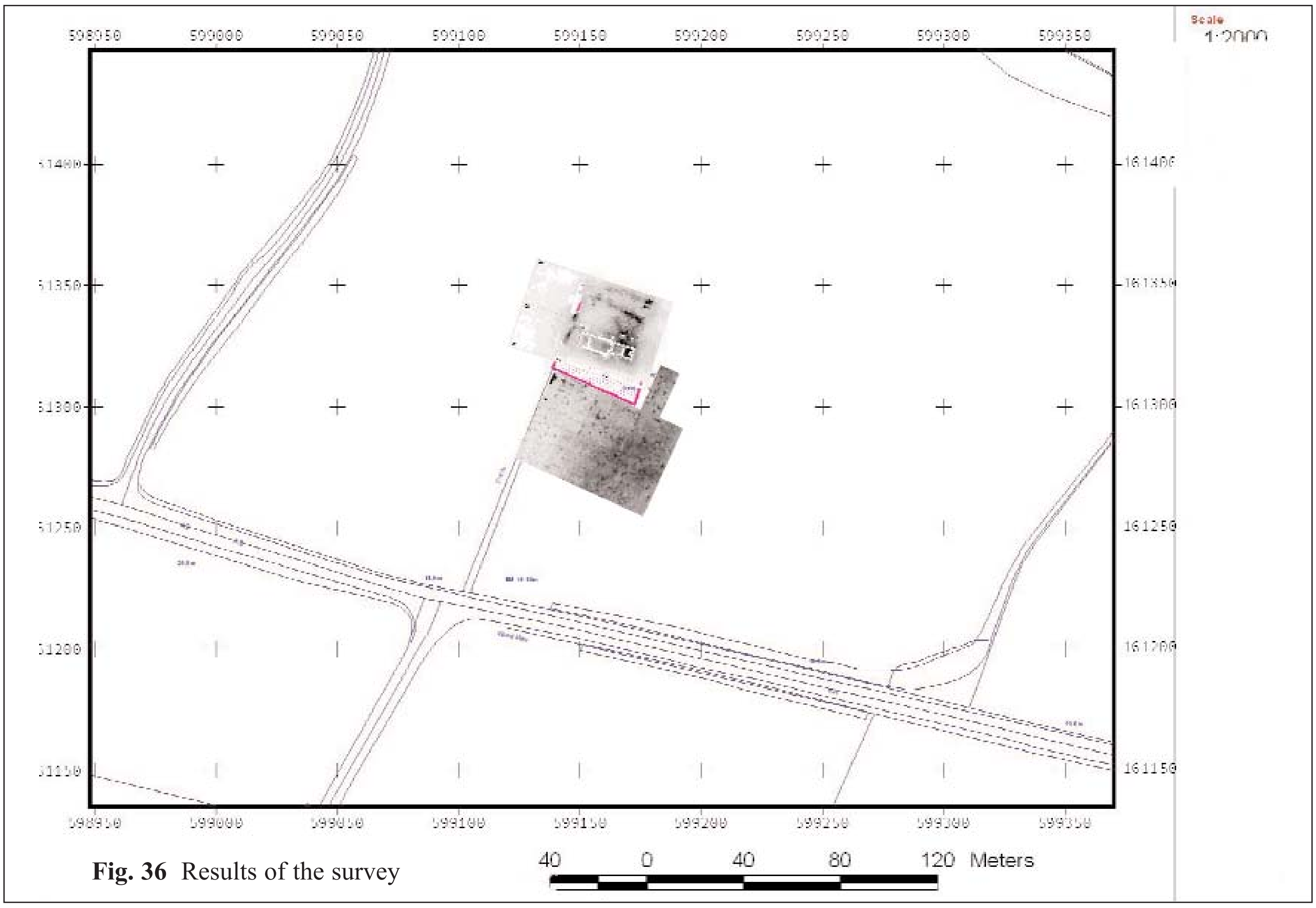
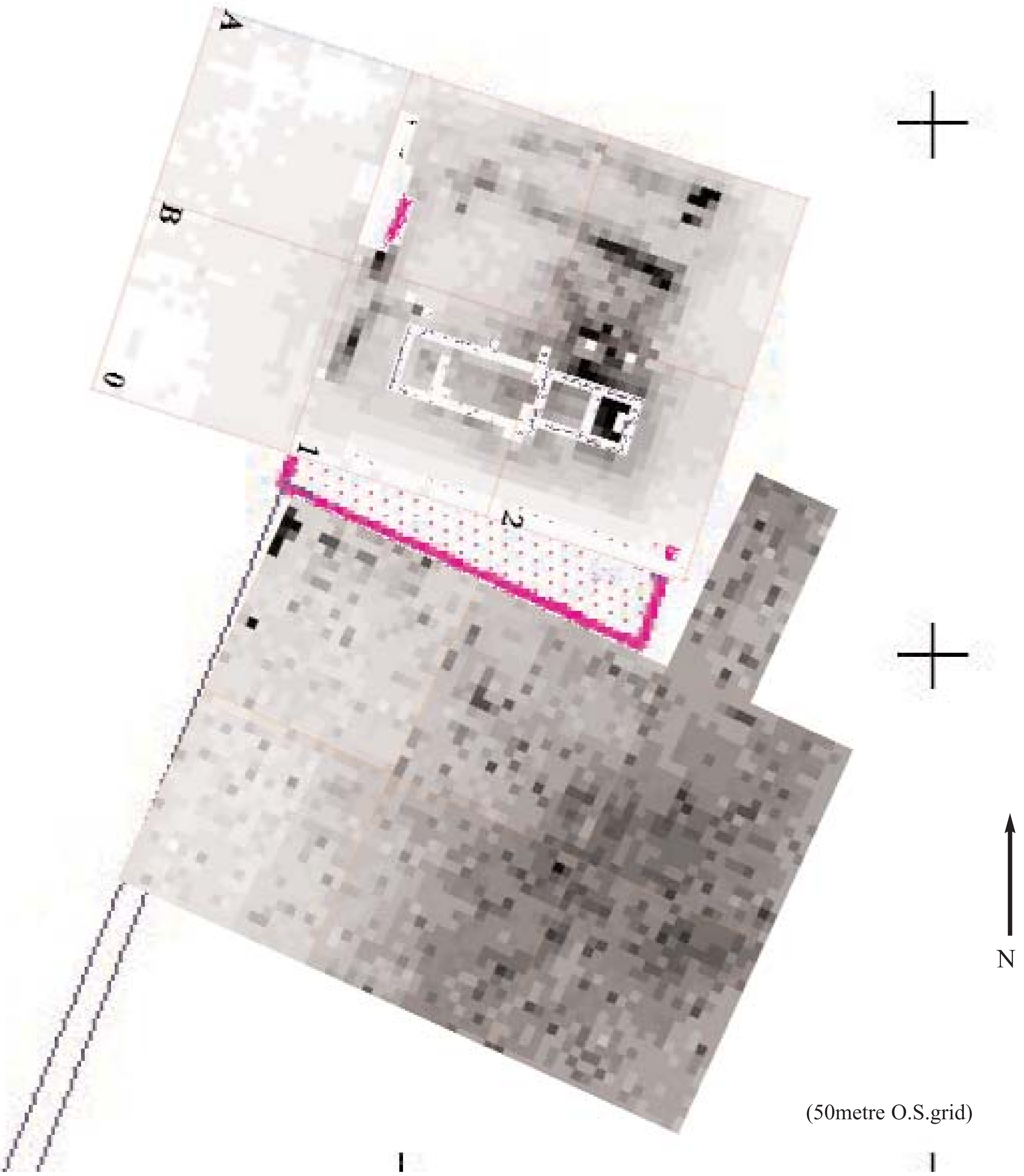


Fig. 36 Results of the survey

Fig. 37 The geophysical survey of Stone Chapel Field highlighted some interesting areas of investigation. To the north of the Roman building high resistance may suggest an additional building inside the Scheduled Area whilst other areas of high readings south of the Chapel could suggest a 'cloud' of plough damaged building material with the Roman buildings still surviving underneath.



In addition the survey was designed to look further afield for any other indications of buried remains which might add to the understanding of the archaeological context of the site under evaluation. Resistivity surveys were undertaken following the establishment of a 10m grid across the field locked into the 50m OS grid.

Summary of findings:
A0 and B0 contain values that are generally lower than the site average **(Figs. 36, 37)**. Towards the eastern edge of these squares there is an area where the resistance is around site average.

Z1 and Z2 (half squares) are also below site average although there is a trend towards slightly higher values towards the west of Z2

A1 Here it was not possible to survey most of the western edge due to the density of trees and undergrowth. However, at the southern edge of this square the higher than average readings indicate a continuation of the linear feature which can be seen to the western edge of square B1. This is in the vicinity of the visible wall but on a different alignment.

There are two bands running approximately east west showing higher than average readings for the site. These features also appear to continue in a westerly direction into square A2.

A2 contains some of the highest readings taken in the survey. Some of these form the continuation of the linear features in square A1 as mentioned above. Towards the south western corner of the square there is an area of higher than average readings which just crosses into square A1.

The eastern third of the square contains readings which are at site average and below and mark the transition from grass area to plough land as the edge of this square is not within the Monument Site.
B1 and B2 contain the Chapel ruins which can be seen as an area where readings could not be taken.

To the western edge of square B1 there is a linear feature running approximately north south parallel to the western edge of the monument but not aligned with the visible, detached, wall.
Most of the remaining area of these two squares contain readings of site average or above apart from the strip to the southern edge, which is off the Monument Site proper, where readings are below site average.

In square B2, to the north of the Chapel, there is an area of higher than average readings which appear to relate to the readings in the south western corner of square A2. The two isolated white blocks indicate trees which prevented readings being taken. The high readings within the Chapel are most likely due to the proximity of the visible stone.

Summary of training day at Stone Chapel Field, site background
The squares to the south of the monument were surveyed as part of a training day in the summer of 2005. A team of students were supervised using the resistivity equipment to produce a survey complementing the squares on the monument site. They completed 6.5 squares within the time available. The site was very overgrown with weeds, many over one metre high and these were trampled down to facilitate survey.

Summary of findings:
The squares surveyed are bounded by a path to their west. This can be seen in the north-west corner of the plot – the small area of high resistance coincides with the end of the path approaching the monument. There are a number of high resistance targets running along the northern most 8 – 10m of the plot. The more general area of high resistance may be due to the landscape which dips down to a hollow at this point.