The Friends of
Corhampton
Saxon Church

LOTTERY FUNDED

A Geophysical Survey at Storey's Meadow West Meon, Hampshire

February 28th – March 1st 2014

Liss Archaeological Group Ref: SM-14

Carried out by Liss Archaeological Group
on behalf of -
The Friends of Corhampton Saxon Church
&
The Saxons in the Meon Valley Project

By Carl Raven
Liss Archaeological Group
(edited by Nick Stoodley, Saxons in the Meon Valley)

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ENGLISH
HERITAGE

SUMMARY

Liss Archaeological Group were asked by The Friends of Corhampton Saxon Church and the Meon Valley Saxons Project to carry out a geophysical survey using both magnetometry and resistivity at Storey's Meadow, West Meon, Hampshire. The survey was carried out immediately north of a known Anglo-Saxon cemetery sited around a Bronze Age ring ditch. The cemetery and corresponding ring ditch had been excavated by Thames Valley Archaeological Services (TVAS) in 2011 prior to a housing development by Drew Smith Ltd over the lower (southerly) end of the field. A total of 49 Anglo-Saxon graves were excavated. In 2012 the site was designated a Scheduled Ancient Monument (SAM 1409204).

The purpose of the survey was to try to identify if any archaeological features survived within the boundary of the Schedule so a decision could be made whether it should remain in place.

A number of anomalies were identified by the resistivity survey: three small objects, possible graves, just outside the limit of the 2011 excavation and a faint linear feature, possibly an early boundary, running across the upper half of the field from south-east to north-west. The magnetometry result shows the same large square feature that appears within the TVAS magnetometry survey of the area in 2011.

INTRODUCTION

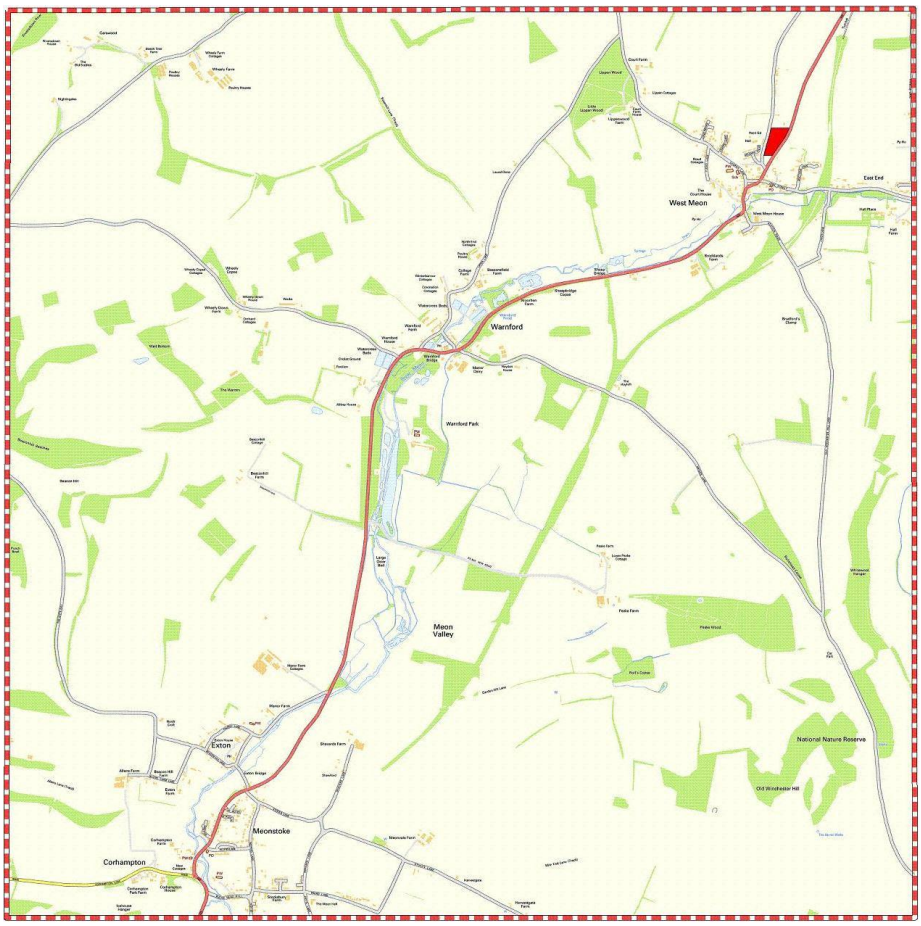


Fig. 1 Site location (SU 6425 2425) (backdrop map contains Ordinance Survey data crown copyright 2014).

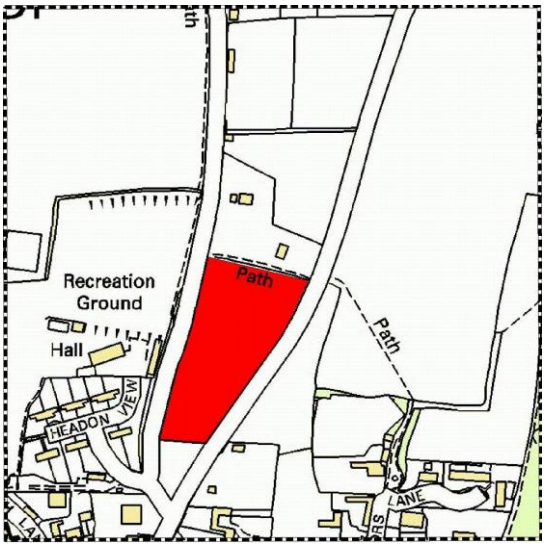


Fig. 2 Detailed location of the Survey site.

The survey site (Fig. 1), highlighted in red (Fig. 2), is located at the head of the Meon Valley just north of West Meon. The site was allocated the code: STM14. The A32 Gosport to Alton road defines the eastern edge of the field. The southern end of the survey field was excavated by Thames Valley Archaeological services (TVAS) in 2011 in advance of a planned housing development by Drew Smith Ltd (TVAS 2011a & b). TVAS excavated an early Bronze Age ring ditch measuring 29 metres in diameter, plus 49 Anglo-Saxon burials which surrounded the ditch. The area surveyed is the field to the north of the development, which has been arable since 2012 but at the time of the survey was laid to grass. Since the completion of the housing the field has been protected as a Scheduled Ancient Monument (SAM 1409204). A section 42 licence was granted to allow the geophysical survey work to take place from the 28th Feb - 1st March 2014.

The objectives of the survey were twofold:
1) to determine whether the early Anglo-Saxon cemetery located in the southern sector of the field continued further toward the north;
2) to introduce local community volunteers and interested parties to the various techniques employed in geophysical surveying through the Saxons in the Meon Valley Project.

Both resistivity and magnetometry were employed in order to maximise the potential of detecting further graves. Resistivity was employed to detect grave cuts, while the magnetometry could identify metal artefacts that had been interred with the burials. Used together the techniques increases the possibility of detecting these small and difficult to identify features.

The weather over the survey dates was fair with mostly sunny intervals interspersed with light hail showers. Although a large amount of rain had fallen over the preceding weeks, the ground conditions were favourable due to good soil drainage.

GEOLOGY

The local bedrock is 'Newhaven Chalk Formation' (NCK) and is composed of soft to medium hard, smooth white chalks with numerous marl seams and flint bands, including abundant zoophycos flints (notably at levels near the base). The formation is known to contain distinct phosphatic chalks of limited lateral extent.

The superficial or drift is 'Head' polymict deposit comprising of gravel, sand and clay depending on upslope source. These are poorly sorted and poorly stratified deposits formed mostly by solifluction and/or hill wash and soil creep and essentially comprises sand and gravel locally with lenses of silt, clay or peat and organic material (NERC 2014). The geology within the survey area should have little to no effect on the results of either the magnetometry or the resistivity results.

METHODS

Grid location

An 82m, east to west, base line was established across the field (Fig. 3) from which a 20m x 20m grid was laid out, aligned north to south. The base line was aligned and set using a Francis Barker M88 prismatic compass before measuring in the grid using surveying tapes; the grid was then checked for accuracy again using a Francis Barker M88 compass. Two 5cm x 5cm yellow topped wooden posts were left in-situ at both ends of the base line. The western one (post-1, SU 64205 24285) is situated at the base of a telegraph pole that lies within the boundary of the field and along the western hedgerow adjacent to the field's main entrance. The eastern post (post-2, SU 64287 24285) is located at the base of the south gate post of a smaller entrance along the eastern edge of the survey field. (NB: post O/S grid references were taken with a Garmin etrex Vista hand held GPS receiver).

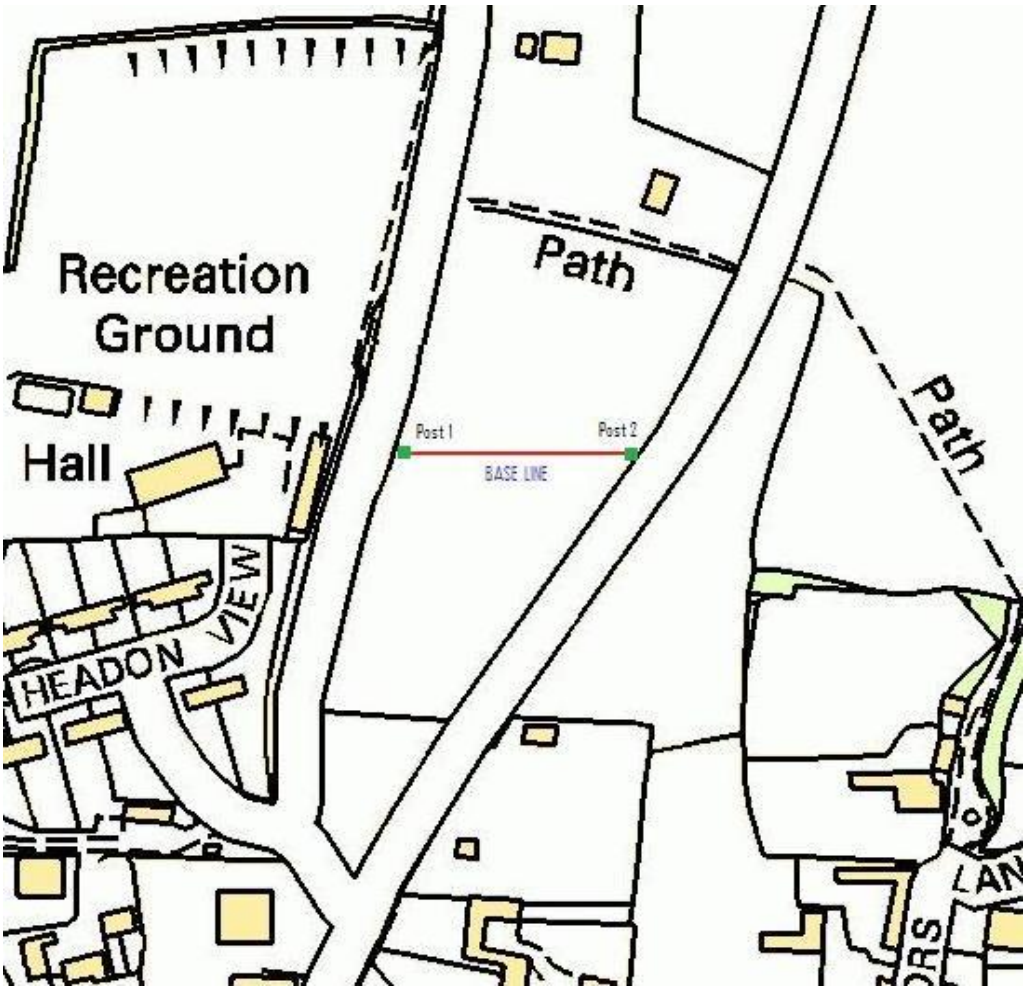


Fig. 3 Location of the base line.

Grid

A 20m by 20m grid was used as this was the most effective way of covering the area using a high resolution sampling interval (both magnetometer and resistivity). Grid origin was Post-1 and all other base line and grid measurements were taken from that point. The grid was subdivided into 15 grids laid out both north and south of the base line, with each being designated its own unique identification code (Figs 4 & 5).

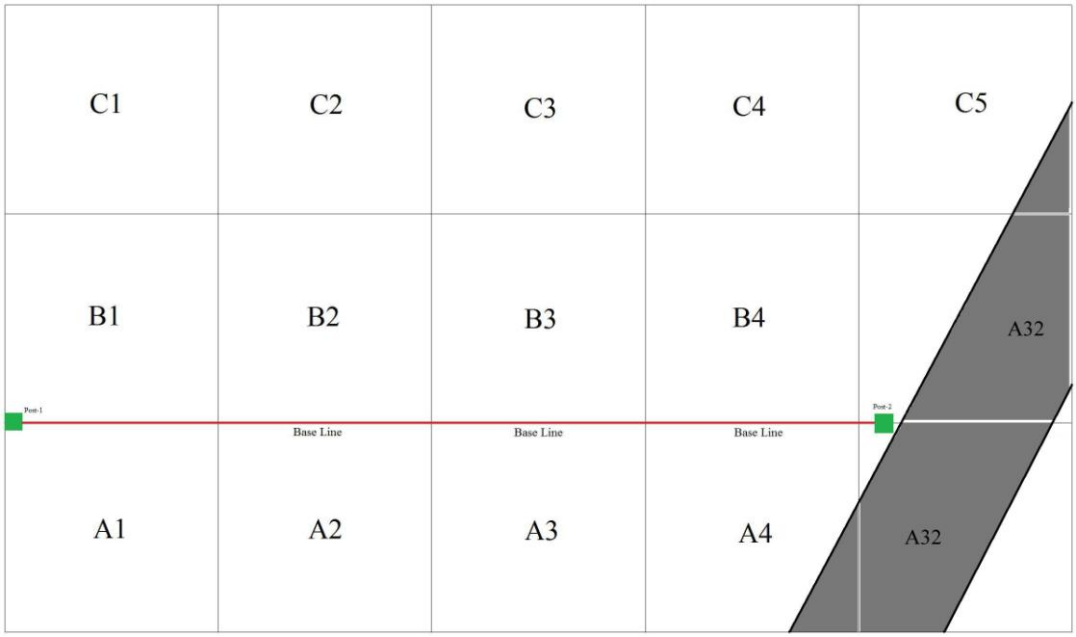


Fig. 4 Grid square identification codes, base line and permanent posts.

Only 11 grids were surveyed using the magnetometer: A1 A2 A5 and B5 were omitted due to their close proximity to metal fencing and gates. Eight grids were surveyed using resistivity, omitting grids A1 A2 A5 B1 B5 C1 and C5. There was insufficient time to complete all 15 grids so the grids surveyed by resistivity were selected on their position closest to the known archaeology.

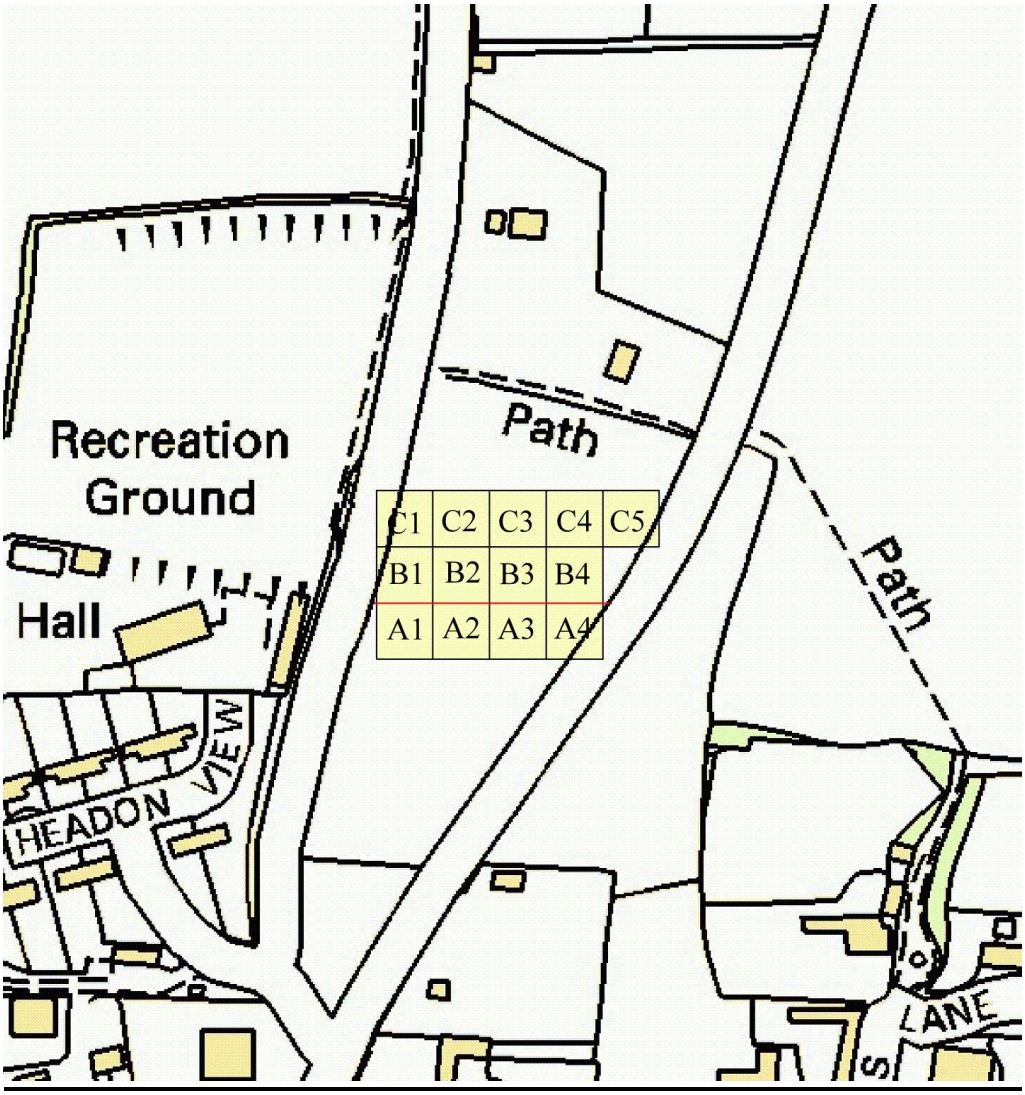


Fig. 5 Grid layout and position in relation to survey field.

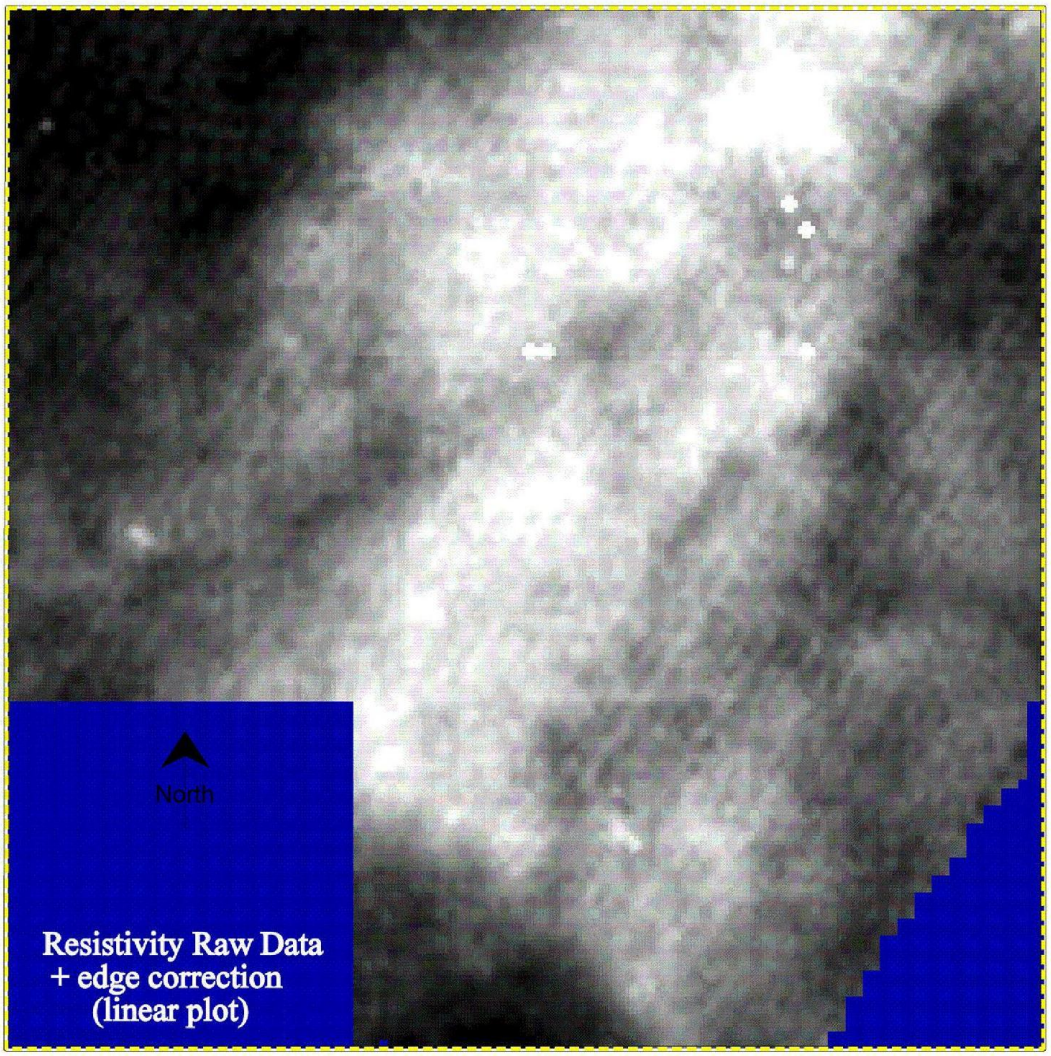
Instrument settings

The survey was conducted using both magnetometry and resistivity in tandem to maximise the potential of finding any remaining buried features north of the TVAS excavation. A Geoscan Research FM-36 fluxgate magnetometer loaned by English Heritage was used and was set for a 20m grid square. Readings were taken at a sampling interval of 0.25m with a 0.5m traverse walked in zig zag formation along a north/south axis. Resistivity used a Geoscan Research RM-85 resistance meter owned by Liss Archaeological Group. The instrument was set for a 20m grid square with a sampling interval of 0.5m and a 0.5m traverse walked in zig zag formation with a current setting of 1ma and the gain set at x10.

DATA PROCESSING

Resistivity

The raw geophysical data was processed using Snuffler version 1.11 geophysics data processing software on a Packard Bell computer running Windows Vista Home premium software (Figs 6-7).



Scale: Metres

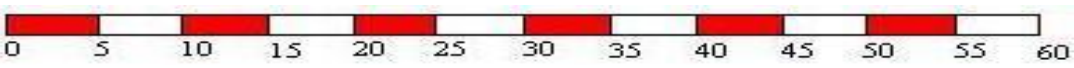


Fig. 6 Resistivity result in raw un-processed linear plot format with edge correction.

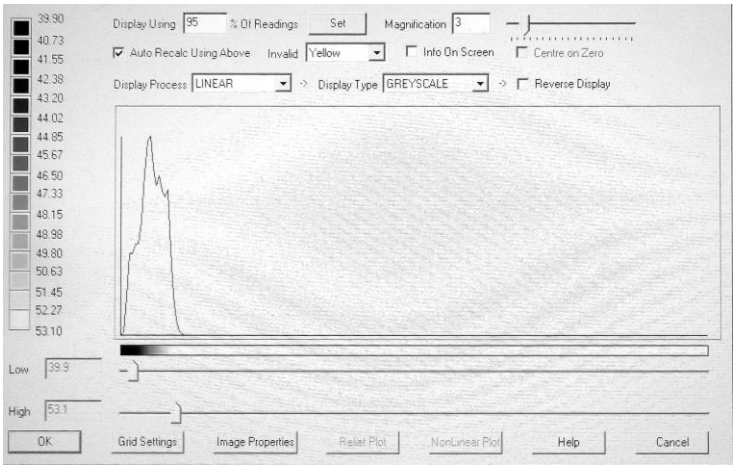


Fig. 7 Data settings for above raw resistivity plot.

The raw data was down loaded to 'Snuffler'; the data was processed from the raw state by using :-

1. Edge correction
2. Convert display from linear plot to relief plot
3. De-spike
4. Interpolate
5. De stripe horizontally

The following plots displays the final processed Resistivity survey result (Figs 8-10).

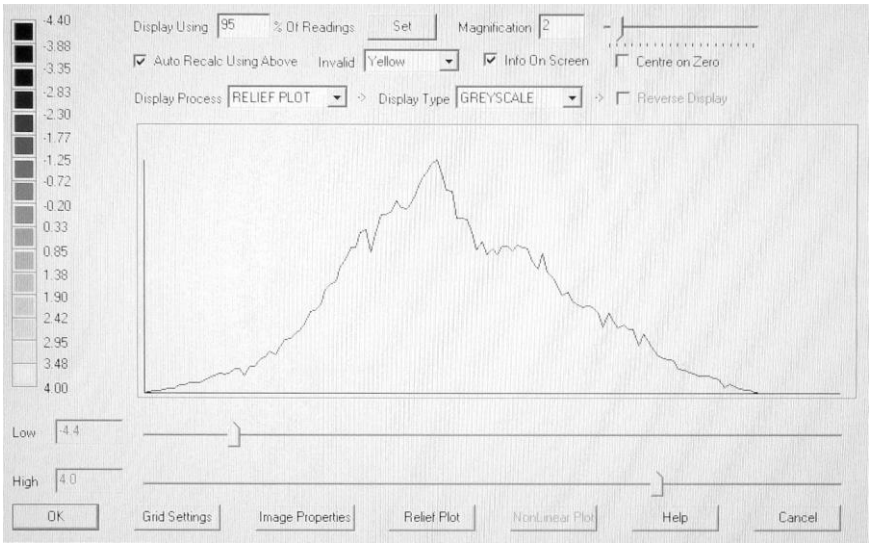


Fig. 8 Data settings for above processed resistivity plot.

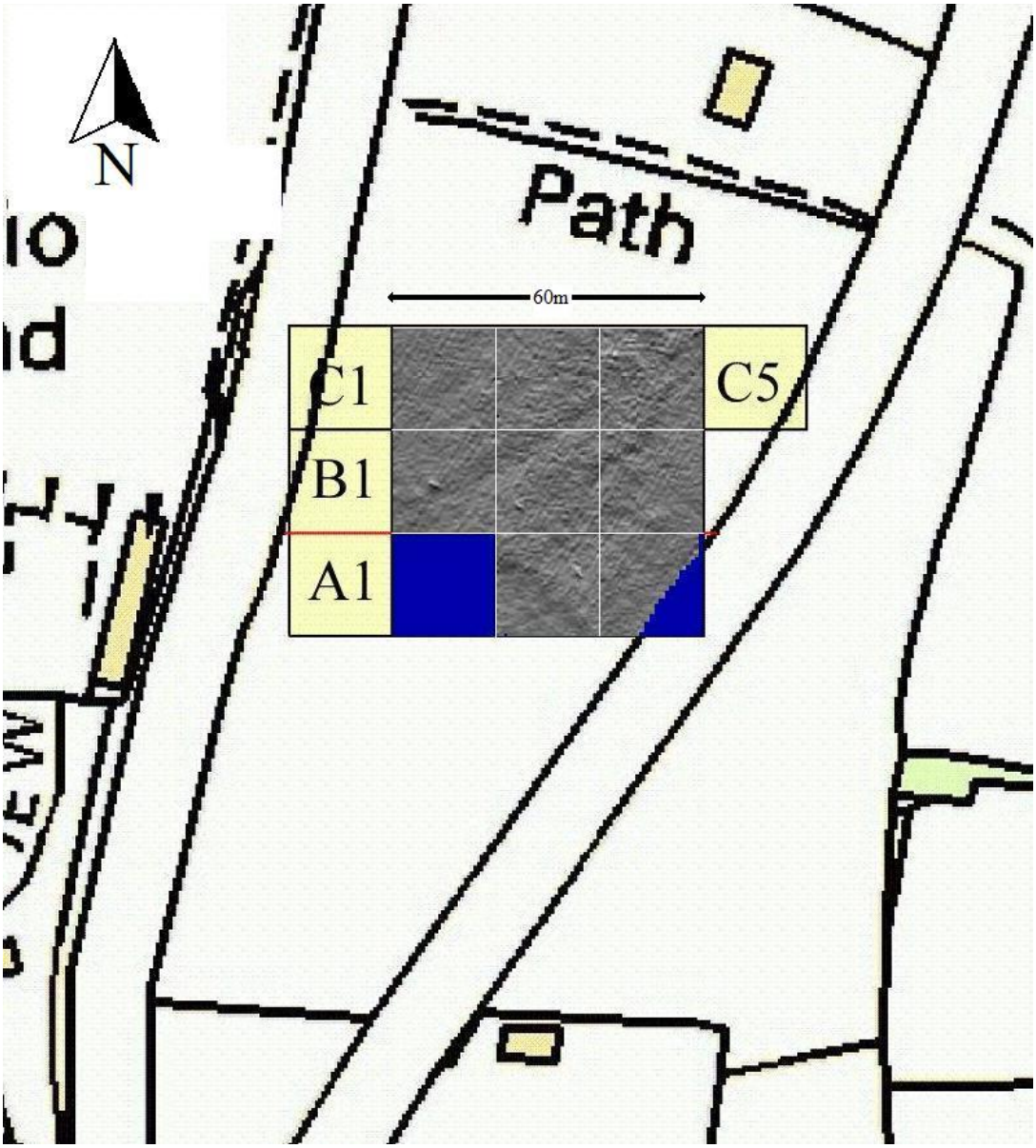


Fig. 9 Processed resistivity result shown overlaid onto map and grid in relief plot.

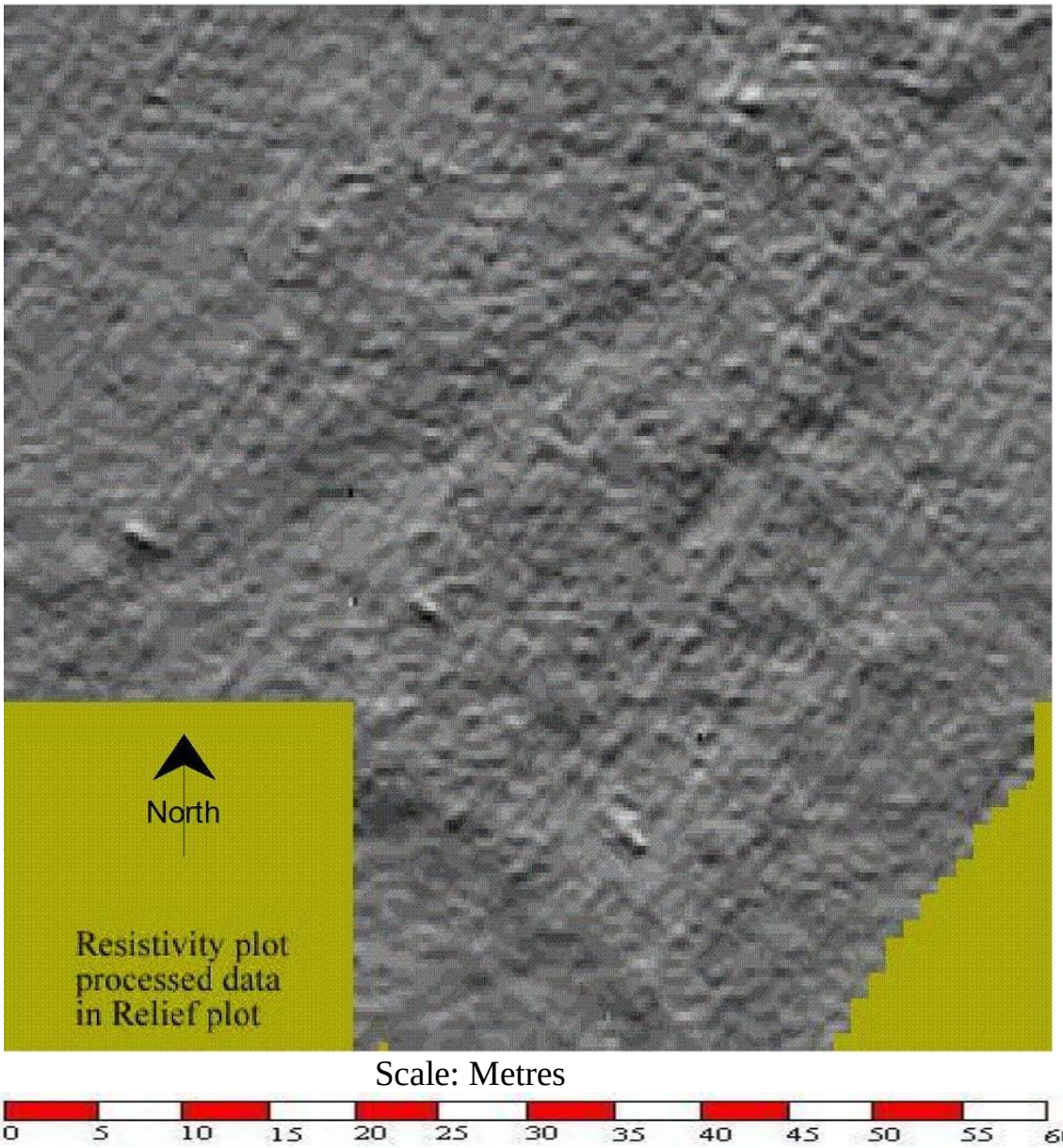


Fig. 10 Detail of processed resistivity result.

Magnetometry

The raw geophysical survey data was processed using 'Snuffler' version 1.11 on a Packard Bell personal desk top computer running Windows Vista Home Premium software (Figs 11-12).

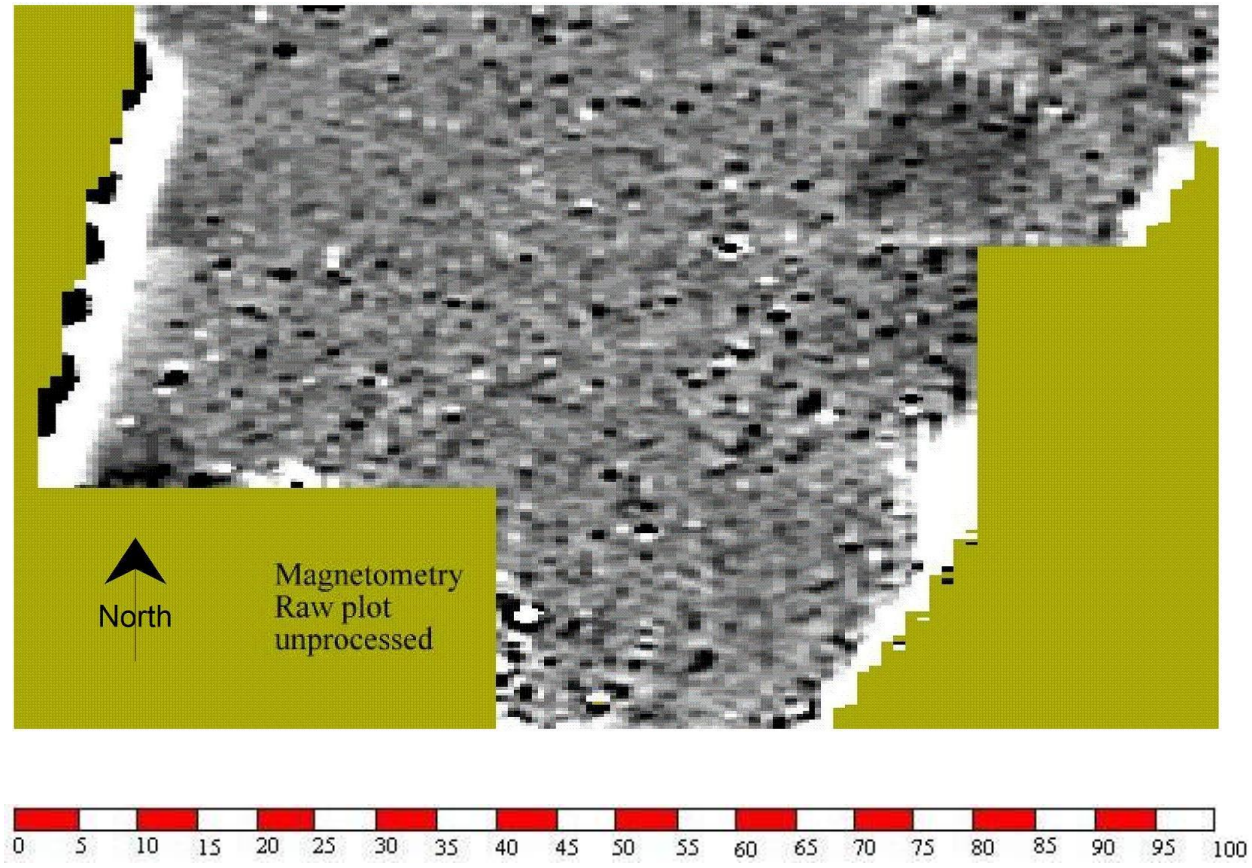


Fig. 11 Magnetometry plot in raw un-processed linear plot format. Scale: metres.

Fig. 12 Data settings for above raw magnetometry plot.

No data processing enhancement improved the magnetometry result so the final plot is presented in a raw and unprocessed linear plot state (Figs 13-14).

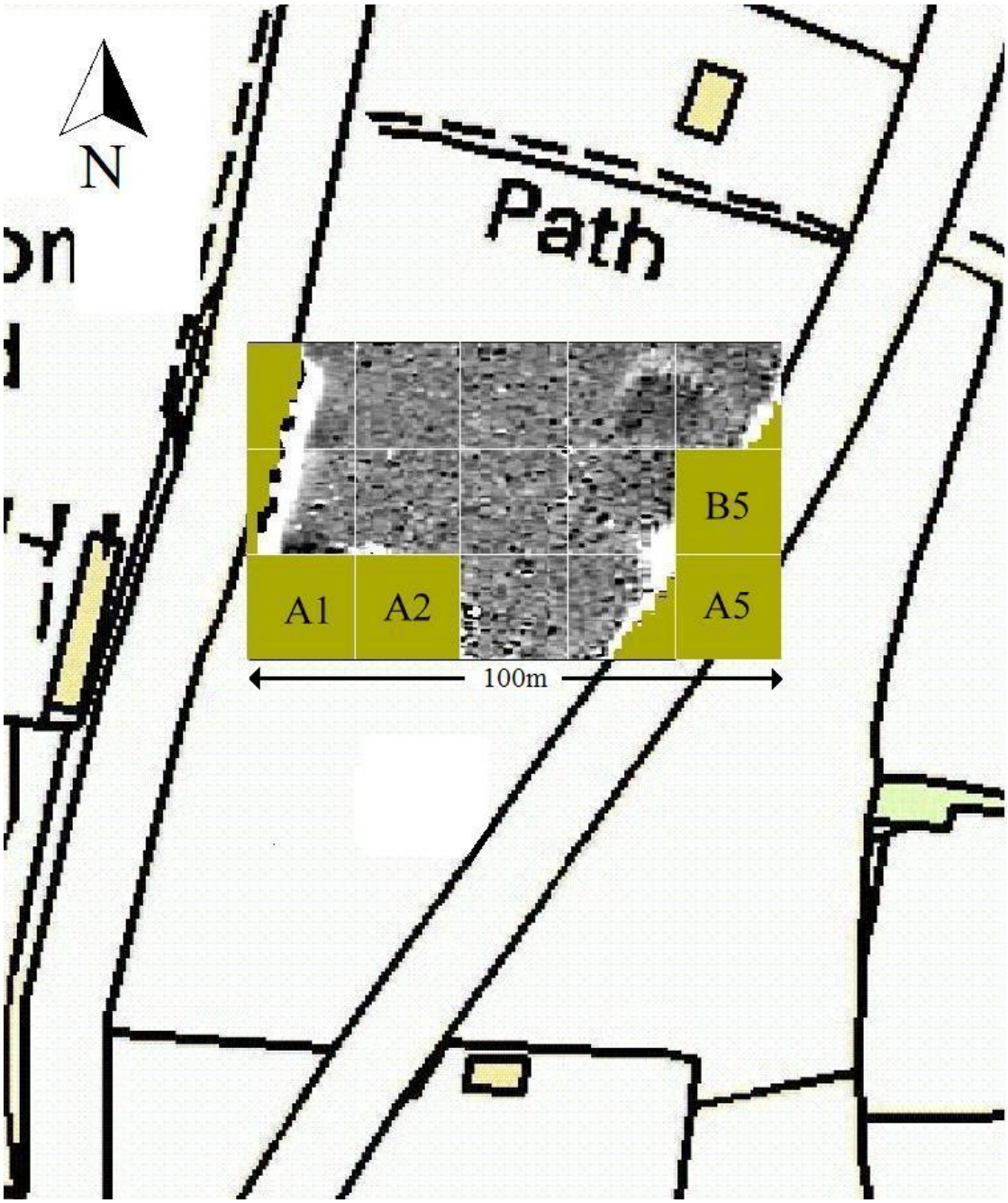


Fig. 13 Magnetometry plot overlaid onto map of the survey field with the 20m grid located.

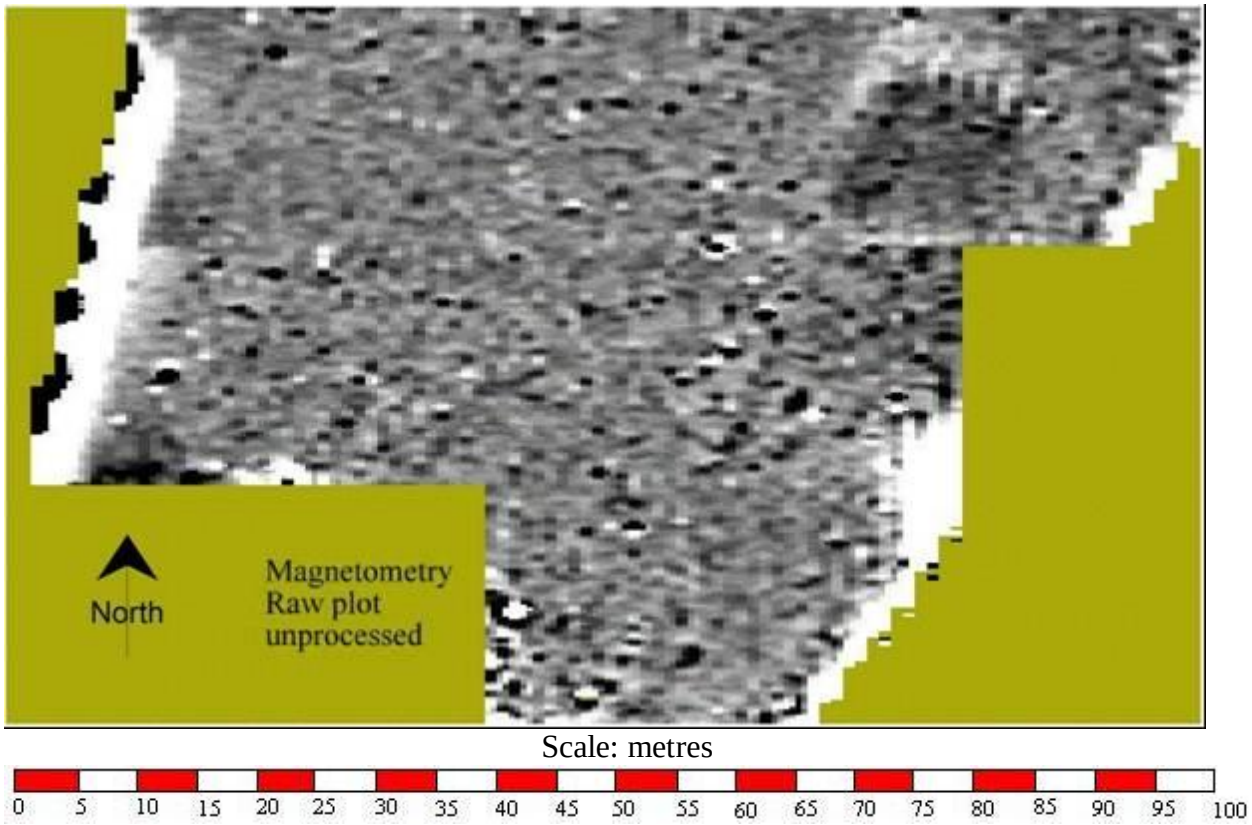


Fig. 14 Detail of magnetometry result.

RESULTS

Resistivity

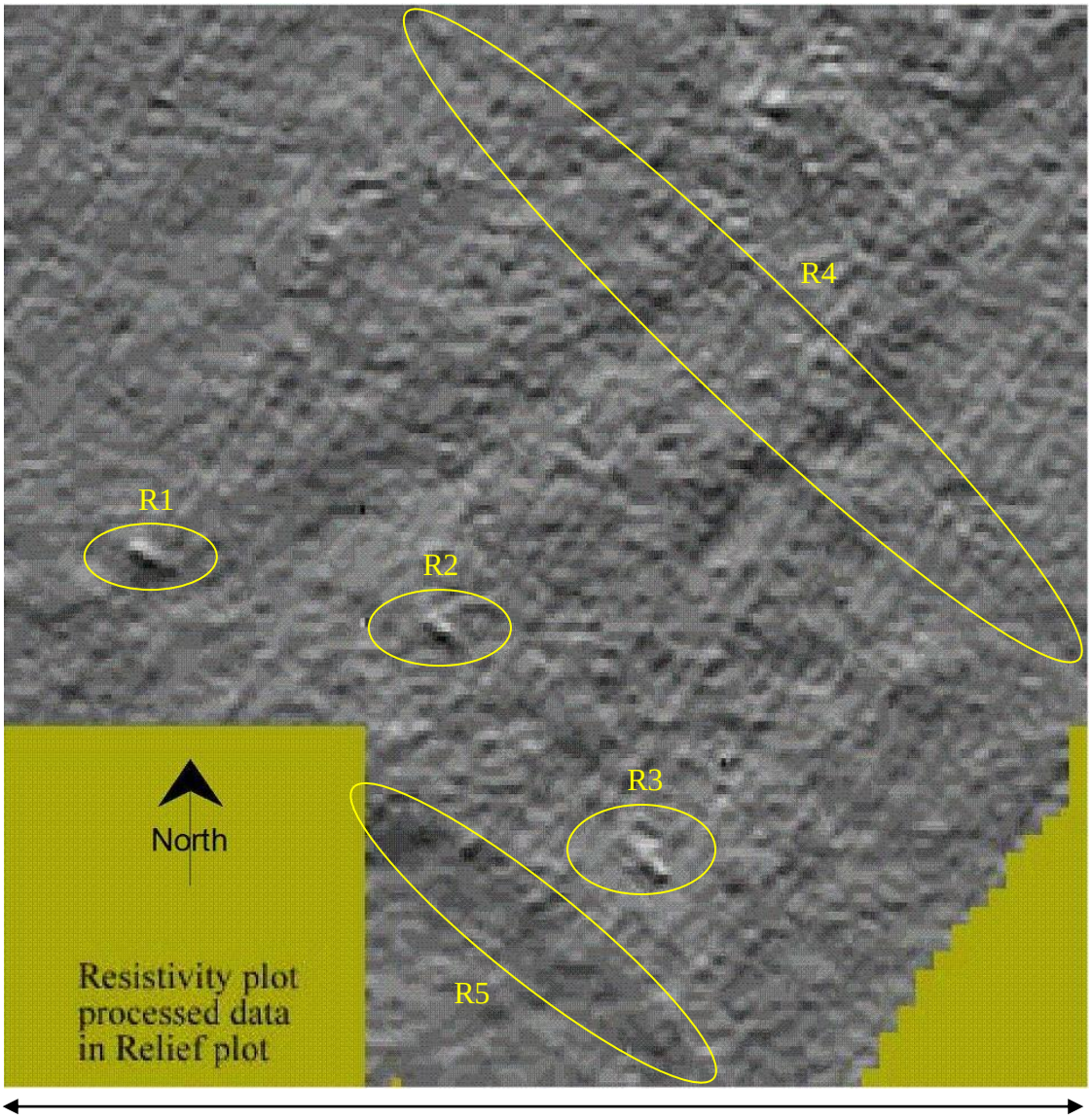


Fig. 15 Resistivity results.

Description
Anomalies relating to the resistivity plot (Fig. 15).

R1 appears to be oval to rectangular in shape, roughly 2 to 3m in length and around 1 to 1.5m in width, aligned roughly north-west to south-east.
R2 similar to R1: appears to be oval to rectangular in shape, around 2 to 3m in length, maybe slightly shorter, about 1 to 1.5m wide and aligned roughly north-west to south east, about 17m east/south-east of R1.

R3 similar to R1 and R2: oval to rectangular in shape, roughly 2 to 3m in length, 1 to 1.5m wide, aligned north-west to south east and about 17m south west of R2 and 34m south west of R1.

R4 is a long faint linear anomaly about 55m long aligned north-west to south-east down the slope of the survey field toward the gate on its eastern edge.
R5 is a linear anomaly about 28m long aligned south-east to north-west located close to the area of the 2011 excavation and is particularly visible because of the absence of plough lines south of the feature.

Magnetometry

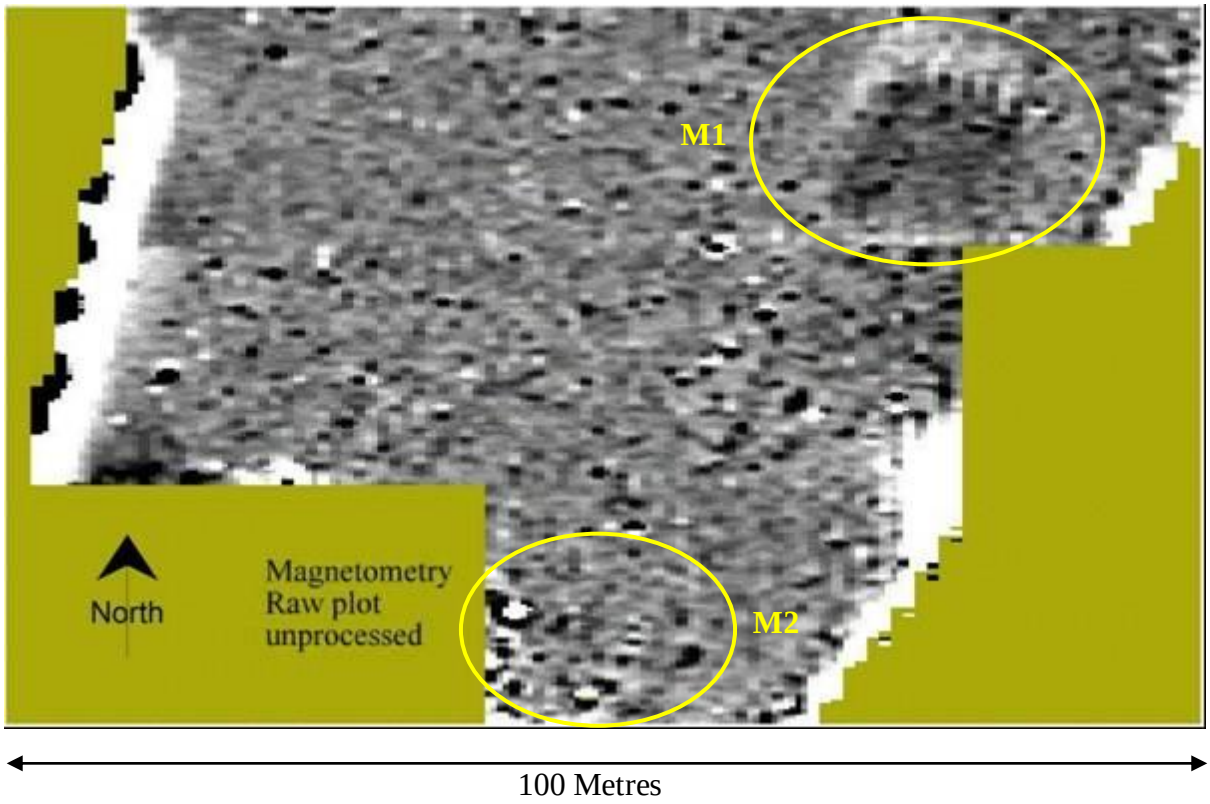


Fig. 16 Magnetometry results.

Description
Anomalies relating to the magnetometry plot (Fig. 16).

M1 appears to be a large anomaly, roughly circular or a rounded square, approximately 18m in diameter. The feature gave a negative magnetic response which could indicate a deposit of material which is masking the background magnetic readings close to the surface.
M2 is an area of magnetic disturbance close to the area of the excavation in the southern part of the survey field.

Interpretation

Resistivity anomalies
R1- appears to be consistent in both size and shape to an inhumation grave, and given its proximity to a known early Anglo-Saxon cemetery, this is a probable interpretation. The same interpretation applies to both R2 and R3. That the latter is located only 8m north-east of the excavated early Anglo-Saxon burials supports the interpretation.
R4- this faint linear feature runs down slope traversing the whole survey area in a south-easterly direction towards the entrance along the field's eastern edge. It could represent a field drainage channel or an earlier track way leading from this entrance to the upper north-east corner of the field.
R5- this anomaly appears to represent the northern limit of the TVAS excavation and conforms to the area marked on the excavation plans. The plough lines that are visible throughout the rest of the resistance plot appear to terminate at this point suggesting that the disturbance was recent and certainly post ploughing.

Magnetometry anomalies
M1- this area of magnetic disturbance is approximately 18m in diameter but its shape is hard to determine because it appears to be following the direction of the plough. It may be a deposit of material close to the surface that has been distorted as the plough moves it around. It could have derived from a ploughed out Bronze Age barrow or is a deposit associated with the construction or maintenance of the A32. It does not show on the resistivity survey. The same feature is however shown on the TVAS magnetometer survey from 2011.

M2- this magnetic disturbance is the same anomaly identified through resistivity (R5). Its position corresponds to the limit of the excavation so probably represents soil disturbance and metallic material within the soil.

CONCLUSION

The survey was a success with regards to achieving its objectives. A geophysical survey of the remaining part of the field at Storey's Meadow in all likelihood determined that the early Anglo-Saxon cemetery extended north of the area previously excavated. The survey has also brought to light an intriguing anomaly which could benefit from further investigation.

ACKNOWLEDGEMENTS

I would like to thank the Friends of Corhampton Saxon Church and the Saxons in the Meon Valley Project for providing the opportunity to carry out this survey on their behalf. I would also like to thank Dr Nick Stoodley for his help both on and off site during the survey. Gratitude is also extended to the volunteers from West Meon for their assistance during the survey. Thank you to the volunteers from Liss Archaeological Group, John Broadbent, Neville Haskins, Lyn Pease, Peter Page and Juliet Smith, who all shared their knowledge and expertise throughout. Thanks must also go to South Downs National park authority and English Heritage for their support, and to Andy Payne of English Heritage for the loan of the magnetometer.

REFERENCES

NERC 2014, *The BGS Lexicon of Named Rock Units - Result Details*, http://www.bgs.ac.uk/lexicon/lexicon.cfm?pub=NCK.

TVAT, 2014a *Monuments to the Dead: excavations at West Meon. The Background to the excavations and the details of the ring ditch*, http://www.tvas.co.uk/downloads/WestMeon_poster1.pdf

TVAT, 2014b *Monuments to the Dead: excavations at West Meon. The Saxon Cemetery,* http://www.tvas.co.uk/downloads/WestMeon_poster1.pdf