

MARDEN BARROWS AND WILSFORD HENGES, WILTSHIRE REPORT ON GEOPHYSICAL SURVEYS, SEPTEMBER 2012

Neil Linford, Paul Linford and Andrew Payne



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MARDEN BARROW CEMETERY AND WILSFORD HENGE, WILTSHIRE

REPORT ON GEOPHYSICAL SURVEYS, SEPTEMBER 2012 AND MARCH 2013

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SUMMARY

A geophysical survey was conducted as part of the Marden Environs NMP enhancement project (RASMIS 6302) over an area of approximately 20ha, encompassing a barrow cemetery and henge, both known from previous aerial photography, found on the parish boundary between the villages of Marden and Wilsford, Wiltshire. It was hoped that geophysical survey might enhance the archaeological record of the site and, in particular, examine any relationship between these monuments and Marden henge immediately to the north. The results of the vehicle-towed, caesium magnetometer survey identified all of the known monuments within the Marden barrow cemetery and provided some additional detail within the rectilinear enclosures to the north of the site. An interior circuit of pit or post-holes was also found within the Wilsford henge together with evidence for an adjacent, previously unrecognised Roman settlement, which appears to pass beneath the raised causeway running through the centre of the site.

CONTRIBUTORS

The field work was conducted by Neil Linford, Paul Linford and Andy Payne from the English Heritage Geophysics Team.

ACKNOWLEDGEMENTS

The authors wish to express their thanks to Mr Peter Shaw and Mr and Mrs James Lucas for allowing access to their land for the surveys to take place, and to Mr Charles Lucas, of Chesterton Humberts, who arranged similar permissions through his clients to cover the Wilsford henge. We also thank Mr and Mrs Tim Fowle for providing facilities that greatly assisted us during the fieldwork, and to the many local dog walkers who supplied us with both useful background information to the site and very welcome refreshments.

ARCHIVE LOCATION

Fort Cumberland.

DATE OF FIELDWORK AND REPORT

The fieldwork was conducted between 10-14th September 2012 and 12th March 2013. The report was completed on 16th May 2013. The cover photograph shows the vehicle towed caesium magnetometer survey in progress over the site of Wilsford henge.

CONTACT DETAILS

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INTRODUCTION

The Marden barrow cemetery and Wilsford henge sites are situated on a low north-south ridge, approximately 500m to the south of Marden henge and Hatfield earthworks, separated by the course of the Avon river valley in between (Field *et al.* 2009). These sites represent a rare example of a Neolithic/Bronze Age funerary complex in a valley location off the chalk downs, with the cemetery comprising five possible round barrows defined by ring ditches of varying sizes visible as cropmarks that appear to be arranged roughly parallel to the ridge. At the northern end of the barrow cemetery, perpendicular to the ridge, there are two possible oblong cropmarks, possibly representing the remains of mortuary enclosures, but these have only been photographed once, so it was unclear if they genuinely represented sub-surface remains.

Wilsford henge is situated to the south-east of the Marden barrow cemetery, on the east side of the ridge and within the parish of Wilsford. The monument is defined in the aerial photography by a broad and very irregular penannular ditch with a gap, which faces north-east, roughly in the direction of the River Avon. A line of external pits curves around part of the enclosure, facing the possible entrance. This site appears regularly as a cropmark and has already been noted as a possible henge (Harding and Lee 1987). It has possible parallels with the large henge enclosure at Marden as both are defined by irregular ditches and both seem to face the river.

The aim of the geophysical survey was to determine the level of threat to these sites, indicate the likely preservation of the sub-surface remains (some only photographed c50 years ago, Figure 7) and establish if there is any other significant activity in the surrounding area. This work forms part of the Marden Environs NMP enhancement project (RASMIS 6302) examining a series of sites identified in the upper Avon valley and their possible relationship to the Marden henge (Winton and Linford 2012).

The site lies over a transition between gravel and Upper Greensand giving way to West Melbury Marly chalk in the southernmost extents of the survey coverage (British Geological Survey 1967). Soils of the Ardington 571h association, have developed over the site consisting of cretaceous glauconitic sand, loam and clay, some variation in the sand content of the topsoil was notable in the field during the survey (Soil Survey of England and Wales 1983). Areas of the site to the west of the raised causeway that bisects the survey along the parish boundary (see Figure 1) were fallow at the time of the survey following the harvest, although surface conditions in the southern strip were quite rough. The field to the east, containing the Wilsford henge, had been re-drilled immediately prior to the survey providing very even surface conditions. Weather conditions during the field work were generally good with no significant rainfall.

METHOD

The magnetometer data was collected along the instrument swaths shown on Figure 1, using an array of four specially modified high sensitivity Scintrex SM4 caesium vapour sensors mounted on a non-magnetic platform (Linford *et al.* 2007). This platform was towed behind a low impact, all-terrain vehicle (ATV) that also provided the power supply and housed the data logging electronics. Readings were collected at intervals of 0.5m x 0.125m along successive swaths, separated by approximately 2m, using a Trimble 4700 series GPS receiver mounted on the sensor platform to provide continual positional control. Sensor output and survey location was monitored during acquisition to ensure data quality and minimise the risk of gaps in the coverage due to the use of a grid-less system.

The median value of each instrument traverse was adjusted to zero, calculated from a 20 to 30m 1D window, to correct for slight biases added to the measurements owing to the diurnal variation of the earth's magnetic field and any directional sensitivity of the sensors. Where the response appeared to be degraded by this process, for example over the Wilsford henge, a directional cosine filter was applied in the frequency domain to an extract of the data set to suppress the directional bias orthogonal to the instrument traverses.

A linear greyscale image of the combined magnetic data is shown superimposed over the base Ordnance Survey (OS) mapping on Figure 2. The same minimally processed data is shown as a traceplot following range truncation (± 50 nT) in Figure 3 and as a histogram equalised greyscale with the removal of intense responses due to near-surface ferrous litter (Figure 4). An extract of the survey from over the Wilsford henge is shown as a minimally processed traceplot (Figure 5(A)), a greyscale image following reduction to the pole (Figure 5(B); Blakely 1995) and combined with an image of the fluxgate magnetometer data from the ditches and entrance to Woodhenge (Figure 5(C); Payne 2004).

RESULTS

A graphical summary of the significant magnetic anomalies [m1-38] discussed in the following text, superimposed on the base OS map data, is provided in Figure 6.

i) General response

The background magnetic response appears to reflect the geological variation over the survey area, particularly over the Greensand to the north of the site where it is more difficult to discriminate significant archaeological anomalies. Linear anomalies at [m1] and [m2] may well represent recent field drains together with the extant field boundary [m3]. A number of additional linear anomalies, [m4-7], are found to coincide with the location of former field boundaries and trackways recorded by the historic mapping (OS Historic

County Mapping Series: Wiltshire, 1887 and 1900), some broader responses, [m8] distributed across the survey area may be indicative of earlier ridge and furrow cultivation. A narrow negative linear anomaly [m9] may, perhaps, be due to a non-ferrous service trench, possibly an agricultural water supply.

ii) The Wilsford henge and adjacent Roman settlement

The Wilsford henge, previously recorded by aerial photography (NMR SU0957/16 4653/39, 17 July 1990), appears as an irregular, sub-circular anomaly [m10] demonstrating an enhanced magnitude of response over the ditch terminals at the NE facing entrance causeway (approximately 5 nT compared to <3 nT for the main circumference of the ditch). Comparing the Wilsford results to a previous survey at Woodhenge suggest an almost identical form, in terms of the diameter of the sub-circular anomalies (50m) and orientation and width (10m) of the apparent entrances (Figure 5(C); Payne 2004).

The external arc of pits encircling the henge, identified by aerial photography and possibly screening the entrance, have been partially reproduced as discrete magnetic anomalies [m11] to the N, but appear incomplete to the E (Figure 7). However, the geophysical survey has revealed an internal sub-circular group of pit or post-type anomalies [m12] within the henge, particularly visible around the southern arc. Whilst there is no evidence for concentric rings of post settings, such as those at Woodhenge (Cunnington 1929; Payne 2004), or revealed by magnetic survey at Stanton Drew (David *et al.* 2004), parallels may be drawn to the response recorded over the presumed Bronze age barrows, Amesbury 9 and 50 on Stonehenge Down, now thought to have possibly developed from a Neolithic, hengiform phase (Gaffney *et al.* 2012; Linford *et al.* 2012).

A series of single [m13-16] and double parallel [m17-19] linear anomalies form a group of sub-rectangular ditched enclosures, interpreted as a previously unrecognised Roman settlement abutting the Wilsford henge. The distribution of the enclosures is similar to the Roman villa site in the neighbouring parish of Charlton St. Peter, although the magnetic data at Wilsford suggests a less sophisticated settlement with, perhaps, only timber structures at [m20 and m21] and no evidence for more elaborate masonry buildings (cf. Corney *et al.* 1994; Linford *et al.* 2013). The main focus of occupation activity appears to be within the enclosures at [m17] and [m21] that contain clusters of more localised positive responses.

iii) The Marden barrow group

To the west of the central causeway a group of weakly defined anomalies (0.7 to 1.5 nT above background levels) correlate with the location of the three larger [m22-24] (diameters between 36 and 40m) and two smaller [m25 and 26] (25m in diameter) plough-levelled barrows observed by previous aerial photography. The data does not suggest the presence of any additional barrows within the survey area nor indicate any

anomalies within the recorded ring-ditches. To the N of the barrows the magnetic data confirms the location of two possible mortuary enclosures, although these have only been photographed as cropmarks once (Winton and Linford 2012). The magnetic anomalies consist of a broken curvilinear response [m27] and a longer rectilinear enclosure with rounded corners [m28], extending across the causeway, containing some pit-type responses and a possible internal sub-division.

A number of linear anomalies (e.g. [m29]) are also present and, from their orientation, possibly represent an extension of the Roman settlement activity to the SE that cuts through the earlier barrow cemetery, perhaps, the enclosures at [m28] may also be associated with this later phase. Despite the presence of ferrous interference from the field boundary [m28] appears to represent a rectilinear ditch with dimensions of 110m x 30m, possibly representing a large longitudinal mortuary type enclosure. A number of linear anomalies (e.g. [m29]) are also present and, from their orientation, possibly represent an extension of the Roman settlement activity to the SE that cuts through the earlier barrow cemetery, perhaps, the enclosures at [m28] may also be associated with this later phase.

DISCUSSION

The Roman settlement appears to pass across both the ditches of the Wilsford henge and beneath the raised causeway running through the centre of the survey area. The juxtaposition of the henge and the Roman settlement is probably due to the favourable topographic location offered by the slight ridge both are sited upon. However, the slightly increased magnitude of response (5nT) over the SW side of [m10] may well suggest the deposition of enhanced magnetic material from the Roman settlement within partially extant sections of the henge ditch (Figure 5). Whilst the precise date of the raised causeway is unknown, the current survey suggests a post-Roman origin, although it may well have developed from an earlier routeway indicated by the linear anomalies at [m30] and [m31] that share a similar NS orientation.

The extent of the Roman settlement appears to be limited immediately N and E of the henge. However, a number of fragmented ditch-type anomalies [m32-36] are scattered throughout the survey area and do not, necessarily, share the orientation of the Roman settlement, suggesting evidence for additional phases of occupation at the site. Some more amorphous areas of raised magnetic response (for example [m37] and [m38]) may be related to geomorphological variation across the site. One of the more linear of these, at [m37], is replicated in the aerial photography and, perhaps coincidentally, appears to run N from the Wilsford henge towards river valley and the southern entrance of the Marden henge.

CONCLUSION

The geophysical survey has successfully located anomalies consistent with all of the known prehistoric monuments at the site, previously identified through aerial photography, and confirmed their survival under the current agricultural regime. In addition, the survey supports and enhances evidence for the two enclosures to the N of the barrow cemetery which have only appeared as cropmarks once, and also indicated an internal arc of post-pit type anomalies within the Wilsford henge. Whilst there are distinct similarities between the form of the Wilsford henge and Woodhenge, situated 1.5km to the S, there is no evidence for concentric post-rings such as those found through magnetic survey at Stanton Drew. However, perhaps the most surprising revelation has been the discovery of previously unrecognised Roman activity at the site, interpreted as a small farmstead settlement. Although no negative magnetic anomalies were evident, potentially indicative of masonry buildings, additional earth resistance or ground penetrating radar survey would be recommended to confirm this more fully. This demonstrates the value geophysical survey can offer to augment the aerial photographic record, particularly where site conditions limit the visibility of archaeological activity as regularly appearing cropmarks.

LIST OF ENCLOSED FIGURES

- Figure 1* Location of the caesium magnetometer survey instrument swaths, September 2012, superimposed over the base OS mapping data (1:2500).
- Figure 2* Linear greyscale image of the caesium magnetometer survey superimposed over the base OS mapping data (1:2500).
- Figure 3* Traceplot of the minimally processed caesium magnetometer data, alternate survey lines have been removed to improve clarity (1:1750).
- Figure 4* Histogram equalised greyscale image of the caesium magnetometer data following suppression of intense responses due to near-surface ferrous litter (1:1750).
- Figure 5* (A) Traceplot of the minimally processed caesium magnetometer data over the Wilsford henge and (B) an equal area greyscale image following suppression of intense responses and reduction to the pole, together with an overlay of the aerial photographic transcription manually positioned to best fit the corresponding magnetic anomalies. A synthetic greyscale image (C) is also presented combining results from the fluxgate gradiometer survey previously conducted at Woodhenge with the Wilsford data (1:000).
- Figure 6* Graphical summary of significant magnetic anomalies superimposed over the base Ordnance Survey mapping (1:2500).
- Figure 7* Comparison between the magnetic and aerial photographic anomalies superimposed over the base Ordnance Survey mapping (1:2500).

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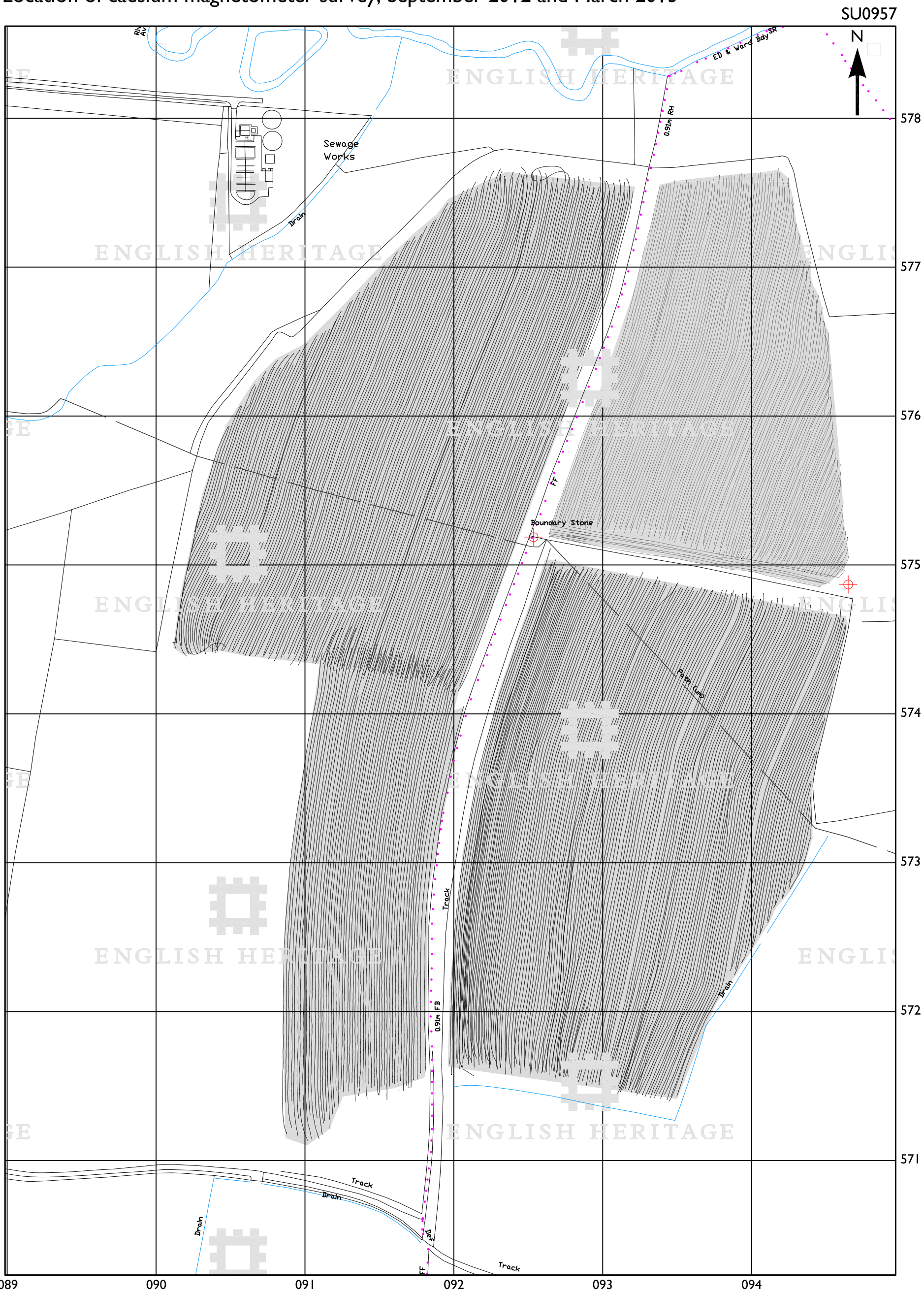
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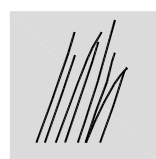
MARDEN BARROW CEMETERY AND WILSFORD HENGE, WILTSHIRE

Location of caesium magnetometer survey, September 2012 and March 2013



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0 90m
1:2500



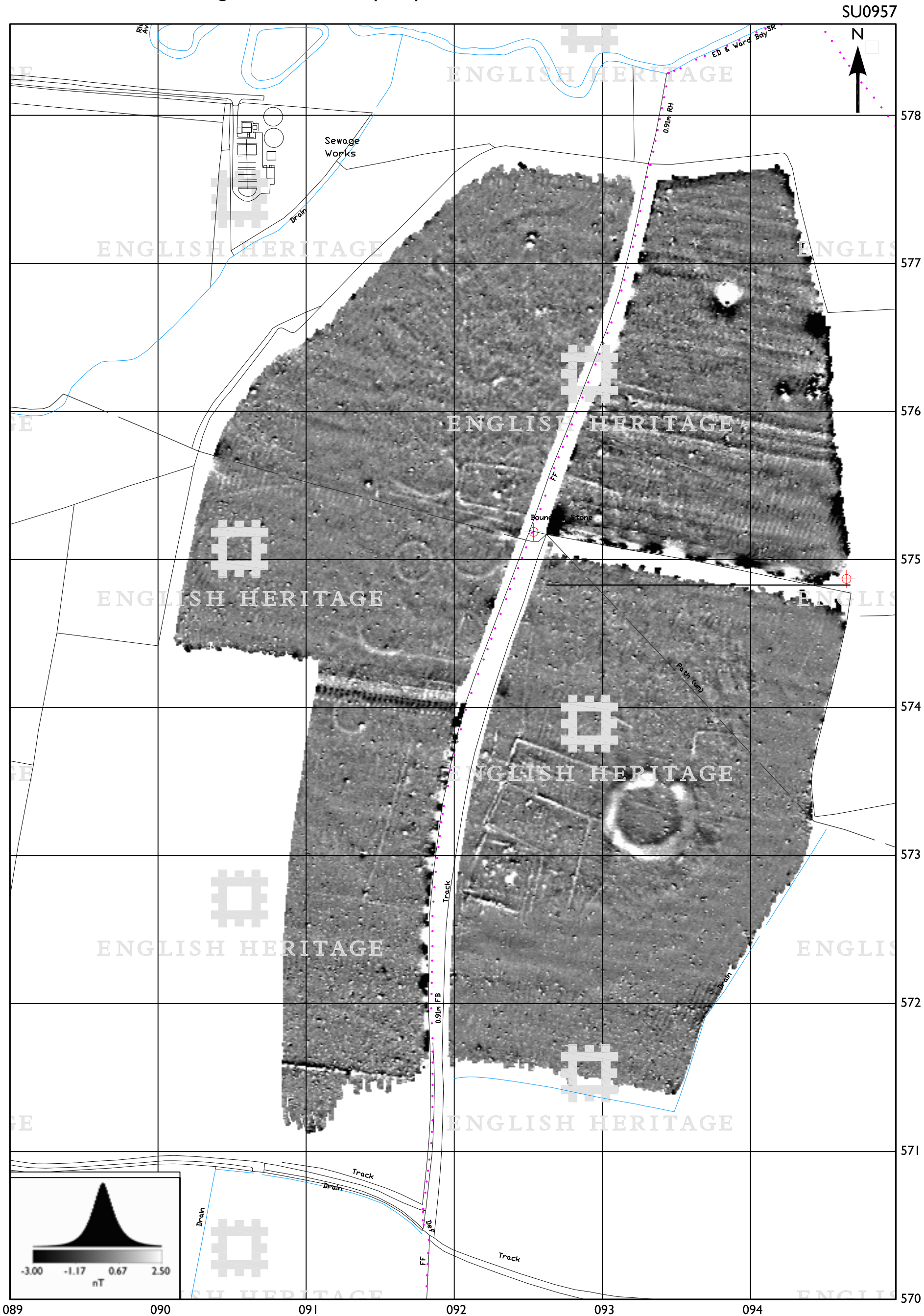
magnetometer survey swaths



ENGLISH HERITAGE

Figure 2

MARDEN BARROW CEMETERY AND WILSFORD HENGE, WILTSHIRE
Location of caesium magnetometer survey, September 2012 and March 2013



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0 90m
1:2500

MARDEN BARROW CEMETERY AND WILSFORD HENGE, WILTSHIRE
Caesium magnetometer survey, September 2012 and March 2013

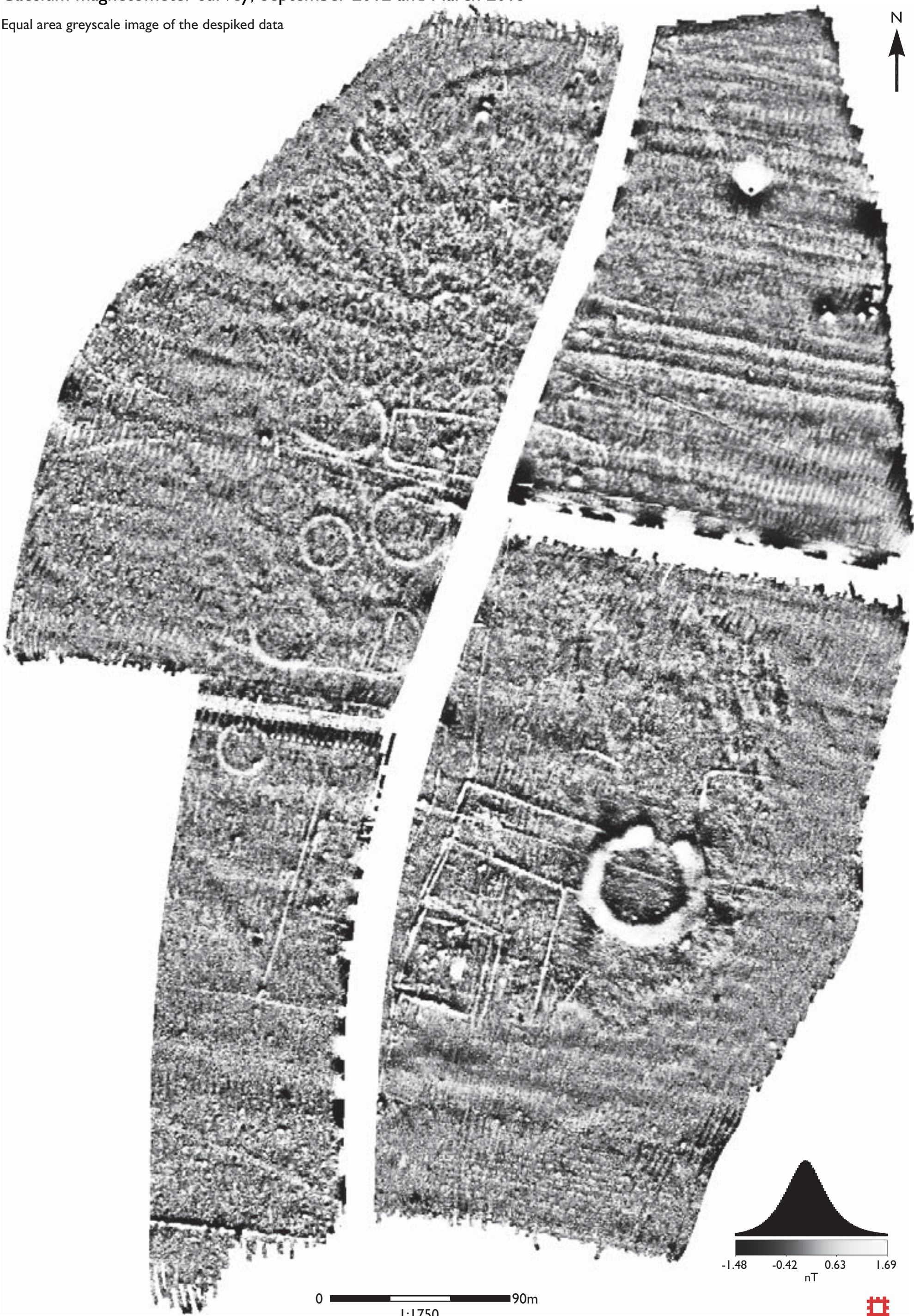
Traceplot of the minimally processed data



MARDEN BARROW CEMETERY AND WILSFORD HENGE, WILTSHIRE
Caesium magnetometer survey, September 2012 and March 2013

Equal area greyscale image of the despiked data

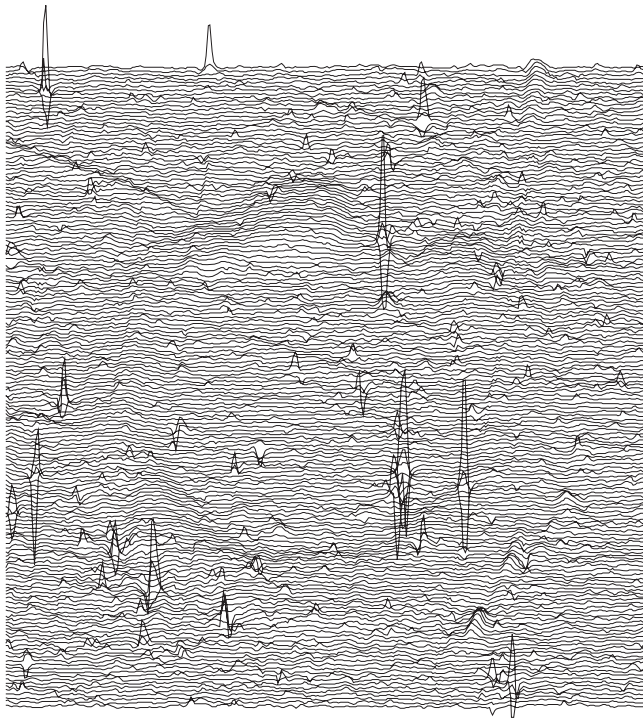
Figure 4



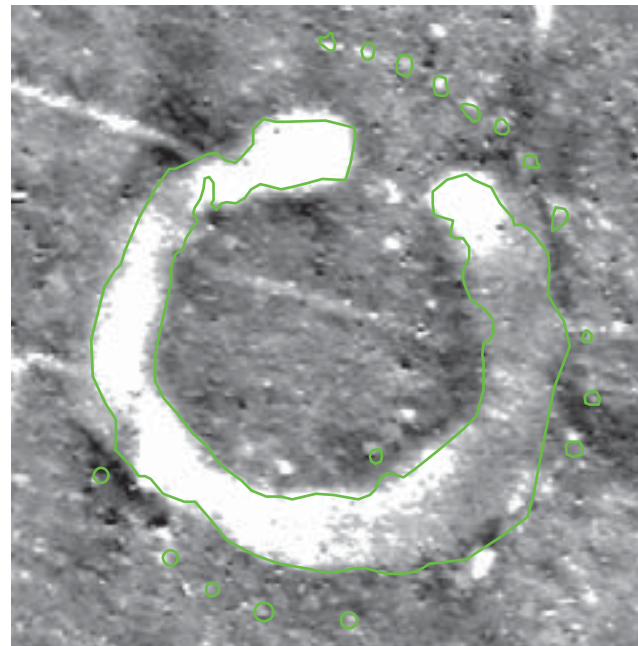
MARDEN BARROW CEMETERY AND WILSFORD HENGE, WILTSHIRE

Comparison between magnetic data from Wilsford henge and Woodhenge.

(A) Traceplot of minimally processed caesium data



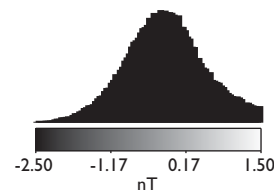
(B) Greyscale image of caesium data following reduction to the pole



(C) Synthetic greyscale image showing superimposed fluxgate gradiometer data from Woodhenge



[40 nT

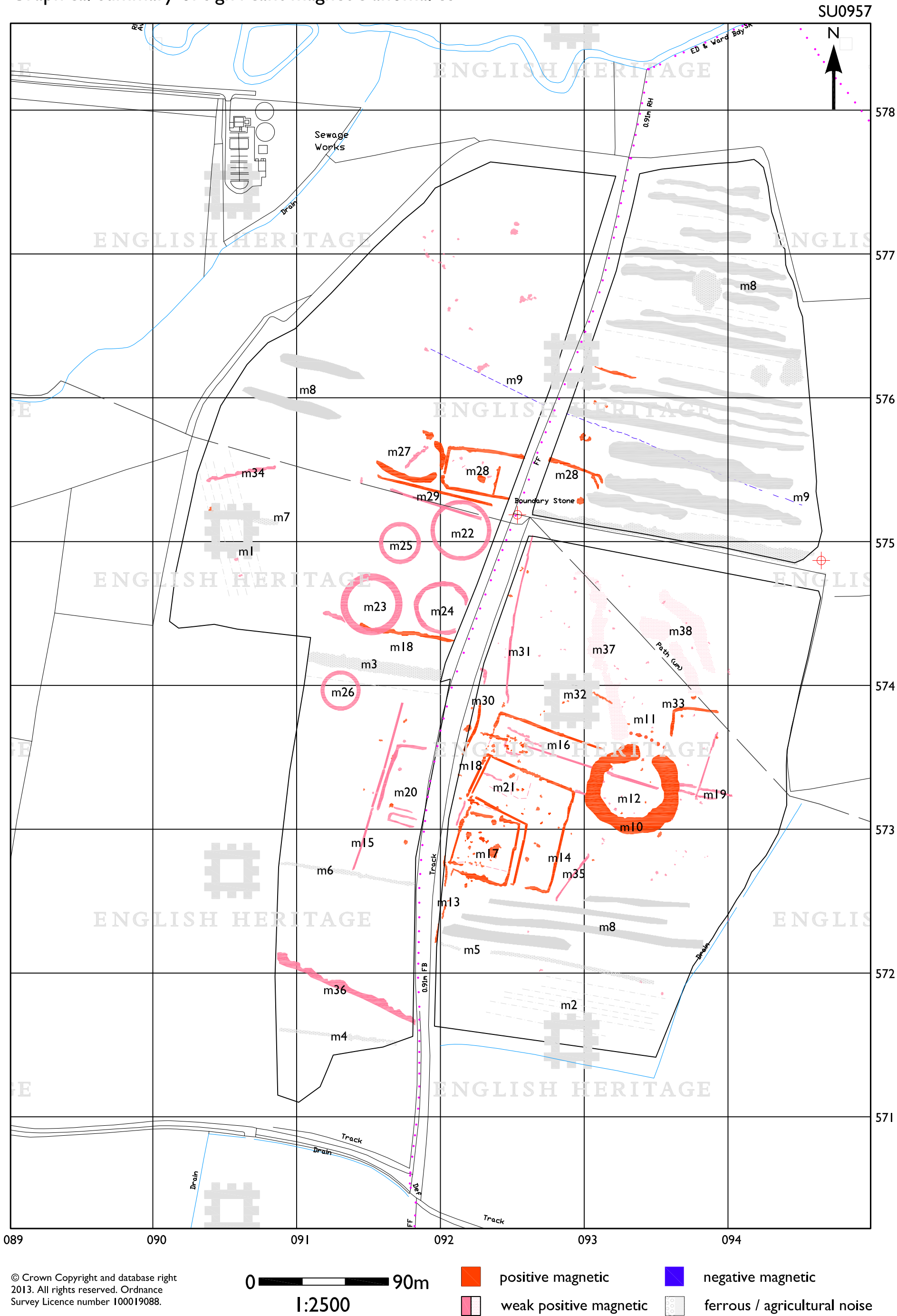


Approximate location of AP interpretation

Woodhenge fluxgate data, April 2004.

0 60m
1:1000

MARDEN BARROW CEMETERY AND WILSFORD HENGE, WILTSHIRE
Graphical summary of significant magnetic anomalies



MARDEN BARROW CEMETERY AND WILSFORD HENGE, WILTSHIRE
Comparison between magnetic and aerial photographic anomalies



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0 90m
1:2500



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