$$
\begin{aligned}
& \text { THAMES VALLEY } \\
& \text { ARCHAEOLOCLCAL } \\
& \text { SERVVGES } \\
& \text { SOUTY }
\end{aligned}
$$

# Land north of Old Guildford Road, Broadbridge Heath, Horsham, West Sussex 

Geophysical Survey (Magnetic)
by Rebecca Constable and Tim Dawson

# Land north of Old Guildford Road, Broadbridge Heath, Horsham, West Sussex 

Geophysical Survey (Magnetic) Report<br>For M J Gleeson Group plc

by Rebecca Constable and Tim Dawson
Thames Valley Archaeological Services Ltd

## Summary

Site name: Land north of Old Guildford Road, Broadbridge Heath, Horsham, West Sussex
Grid reference: TQ 15203170
Site activity: Magnetometer survey
Date and duration of project: $7^{\text {th }}-10^{\text {th }}$ September 2015
Project manager: Sean Wallis
Site supervisor: Tim Dawson
Site code: BHH 12/173
Area of site: 9.3ha
Summary of results: A variety of magnetic anomalies were identified, several of which may represent buried features of archaeological origin. In addition to these, several strong anomalies were recorded which match with field boundaries plotted on $19^{\text {th }}$ century maps of the area. Another anomaly of note was a large circular area with a strong magnetic reading located towards the centre of the site which represents a bomb crater dating to the Second World War.

Location of archive: The archive is presently held at Thames Valley Archaeological Services, Reading in accordance with TVAS digital archiving policies.

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# Land north of Old Guildford Road, Broadbridge Heath, Horsham, West Sussex A Geophysical Survey (Magnetic) 

by Rebecca Constable and Tim Dawson

Report 12/173b

## Introduction

This report documents the results of a geophysical survey (magnetic) carried out on an irregular plot of land to the north of Old Guildford Road, Broadbridge Heath, Horsham, West Sussex (TQ 1520 3170) (Fig. 1). The work was commissioned by Mr Mark Jackson of M J Gleeson Group plc, Sentinel House, Harvest Crescent, Ancells Business Park, Fleet, Hampshire GU51 2UZ.

Planning permission (DC/13/2408) has been gained on appeal (APP/Z3825/A/14/2224668) from Horsham District Council to construct new housing and a care home on across an area currently occupied by two fields. As subject to a condition which requires the implementation of a programme of archaeological work, consisting of geophysical survey and subsequent targeted trenching. This is in accordance with the Department for Communities and Local Government's National Planning Policy Framework (NPPF 2012), and the District's policies on archaeology. The field investigation was carried out to a specification approved by Mr Martin Brown, Principal Archaeologist at WYG. The fieldwork was undertaken by Tim Dawson, Anna Ginger, Naomi Humphreys, David Sanchez and Clara Schonfeld between $7^{\text {th }}$ and $10^{\text {th }}$ September 2015 and the site code is BHH 12/173.

The archive is presently held at Thames Valley Archaeological Services, Reading in accordance with TVAS digital archiving policies.

## Location, topography and geology

The development area is irregular in plan, covering an area of c.9.3 ha, and is centred on NGR TQ 15203170 (Fig. 2). It is bounded to the south-west and south by residential housing and the Shelley Arms public house, and to the west, north and east by farmland and woodland. There is a stream just beyond the northern boundary. The site is largely composed of two arable fields, which are separated by a north-south footpath. This footpath follows a former parish boundary, and a hedge and ditch were noted to the side of it. Most of the site is surrounded by hedges which are interspersed with mature trees. A rectangular area at the southern end of the site, which fronts onto Horsham Road, currently consists of overgrown vegetation. The site generally slopes down towards the north-west, and the height above Ordnance Datum varies from about 48 m in the south-east
corner to 35 m in the north-west corner. According to the British Geological Survey (BGS 1972), the underlying geology consists of Horsham Stone formation of the Wealden clay.

The weather during the survey period was dry and sunny although it had rained during the preceding week, leaving the ground soft and wet although this soon dried out.

## Site history and archaeological background

The site itself was the subject of a desk-based assessment (Wallis 2012) which, in summary, concluded that it lies within an immediate area of apparently modest archaeological potential where there are no previously recorded archaeological sites or finds. However, it is considered likely that this absence reflects an absence of investigation rather than necessarily an absence of past human activity.

The site, along with surrounding areas consisting of underlying Wealden clay geology, is not believed to have been exploited or settled extensively until Medieval times (Brandon 1978). It is unclear as to whether this belief is founded from a genuine lack of pre-Medieval occupation, a geology not conducive to the formation of crop marks, or, as mentioned above, due to a lack of systematic investigation being undertaken. The presence of possible archaeological anomalies would be unexpected in the case of a lack of pre-Medieval settlement, in contrast to the presence of $c .19$ th century field boundaries. While the West Sussex Historic Environment Record (HER) does not record the presence of finds or features of any period within 1 km of the site the Horsham area is noted for its Mesolithic finds (Holgate 2003; 29-35), and it has an extensive distribution of iron-working sites, particularly of the Roman and Saxon periods, with a notable concentration around Crawley. Cartographic evidence suggests that the site area itself has been farmland since the 19 th century, meaning any sub-surface archaeological finds are not likely to have been disturbed, and should have survived.

## Methodology

## Sample interval

Data collection required a temporary grid to be established across the survey area using wooden pegs at 20 m intervals with further subdivision where necessary. Readings were taken at 0.25 m intervals along traverses 1 m apart. This provides 1600 sampling points across a full $20 \mathrm{~m} \times 20 \mathrm{~m}$ grid (English Heritage 2008), providing an appropriate methodology balancing cost and time with resolution. The survey grids for the two fields were aligned with the major axis of each area, and as such differ slightly in comparison. The grid was successfully laid
out across the site area without any obstructions, excepting a small rectangular area on the southern site boundary which could not be accessed, and subsequently the area could not be surveyed (Fig. 2).

The Grad 601-2 has a typical depth of penetration of 0.5 m to 1.0 m . This would be increased if strongly magnetic objects have been buried in the site. Under normal operating conditions it can be expected to identify buried features $>0.5 \mathrm{~m}$ in diameter. Features which can be detected include disturbed soil, such as the fill of a ditch, structures that have been heated to high temperatures (magnetic thermoremnance) and objects made from ferro-magnetic materials. The strength of the magnetic field is measured in nano Tesla ( nT ), equivalent to $10^{-9}$ Tesla, the SI unit of magnetic flux density.

## Equipment

The purpose of the survey was to identify geophysical anomalies that may be archaeological in origin in order to inform a targeted archaeological investigation of the site prior to development. The survey and report generally follow the recommendations and standards set out by A Schmidt's in his Guide to Good Practice (Schmidt 2011), English Heritage (2008) and the Chartered Institute for Archaeologists (2002, 2011, 2014).

Magnetometry was chosen as a survey method as it offers the most rapid ground coverage and responds to a wide range of anomalies caused by past human activity. These properties make it ideal for the fast yet detailed surveying of an area.

The detailed magnetometry survey was carried out using a dual sensor Bartington Instruments Grad 601-2 fluxgate gradiometer. The instrument consists of two fluxgates mounted 1 m vertically apart with a second set positioned at 1 m horizontal distance. This enables readings to be taken of both the general background magnetic field and any localised anomalies with the difference being plotted as either positive or negative buried features. All sensors are calibrated to cancel out the local magnetic field and react only to anomalies above or below this base line. On this basis, strong magnetic anomalies such as burnt features (kilns and hearths) will give a high response as will buried ferrous objects. More subtle anomalies such as pits and ditches, can be seen from their infilling soils containing higher proportions of humic material, rich in ferrous oxides, compared to the undisturbed subsoil. This will stand out in relation to the background magnetic readings and appear in plan following the course of a linear feature or within a discrete area.

A Trimble Geo7x handheld GPS system with sub-decimetre real-time accuracy was used to tie the site grid into the Ordnance Survey national grid. This unit offers both real-time correction and post-survey processing; enabling a high level of accuracy to be obtained both in the field and in the final post-processed data.

Data gathered in the field was processed using the TerraSurveyor software package. This allows the survey data to be collated and manipulated to enhance the visibility of anomalies, particularly those likely to be of archaeological origin. The table below lists the processes applied to this survey, full survey and data information is recorded in Appendix 1.

## Process

Clip from -1.8 to 2.2 nT

Interpolate: $y$ doubled

De-stripe: median, all sensors

De-spike: threshold 1 , window size $3 \times 3$

De-stagger: all grids, both by -1 intervals

## Effect

Enhance the contrast of the image to improve the appearance of possible archaeological anomalies.

Increases the resolution of the readings in the $y$ axis, enhancing the shape of anomalies.
Removes the striping effect caused by differences in sensor calibration, enhancing the visibility of potential archaeological anomalies.

Compresses outlying magnetic points caused by interference of metal objects within the survey area.

Cancels out effects of site's topography on irregularities in the traverse speed.

Once processed, the results are presented as a greyscale plot shown in relation to the site (Fig. 3), followed by a second plan to present the abstraction and interpretation of the magnetic anomalies (Fig. 4). Anomalies are shown as colour-coded lines, points and polygons. The grid layout and georeferencing information (Fig. 2) is prepared in EasyCAD v.7.58.00, producing a .FC7 file format, and printed as a .PDF for inclusion in the final report.

The greyscale plot of the processed data is exported from TerraSurveyor in a georeferenced portable network graphics (.PNG) format, a raster image format chosen for its lossless data compression and support for transparent pixels, enabling it to easily be overlaid onto an existing site plan. The data plot is combined with grid and site plans in QGIS 2.6.1 Brighton and exported again in .PNG format in order to present them in figure templates in Adobe InDesign CS5.5, creating .INDD file formats. Once the figures are finalised they are exported in .PDF format for inclusion within the finished report.

## Results

Various magnetic anomalies were found spanning the entire site area, ranging from strong positive anomalies of probable agricultural origin to weaker positive anomalies of probable archaeological origin [Fig. 5]. Positive anomalies commonly represent buried cut features, such as pits and ditches. These can be of archaeological or agricultural origin.

## Western Field:

Numerous magnetic anomalies were recorded in the western field. The most striking anomalies [Fig. 5:1-5] form a series of parallel and perpendicular linears on an approximate SW-NE [1 and 3]/SE-NW [4 and 5] and W-E
[2] alignment. These are most likely of agricultural origin and suggest the outline of individual field boundaries. The linear anomalies recorded were compared to a 19th century tithe map of the area [Fig. 6]; the general alignment of the anomalies lines up reasonably with the field boundaries shown on the map.

Three positive anomalies in the western field form lines parallel to the probable field boundaries [8-9], suggesting that they may be chronologically associated with the boundaries, and, as such, are likely also of agricultural origin. It is reasonable to assume that the anomalies were formed by agricultural furrows caused by ploughing, rather than deliberately cut archaeological features, due to their alignment with the field boundaries.

Numerous positive anomalies were recorded in the western field that seem to represent archaeological cut features. Two anomalies [12 and 14] are particularly interesting, as they are irregular in shape (incomplete, sub/semi circular respectively) and do not seem to correspond with the linear anomalies representing the field boundaries. It is probable that these irregular anomalies were earlier cut features, and as such may be of archaeological interest.

Three other linear positive anomalies appear to be of probable archaeological, not agricultural, origin [7, 13 and 16]. As with the anomalies [12 and 14], discussed above, these probable archaeological anomalies do not appear to be aligned with the field boundaries. It is likely, then, that they represent earlier buried cut features of archaeological origin, rather than agricultural anomalies. Two of these anomalies are linear, on a W-E [16] and SW-NE [13] alignment respectively, and could represent the outline of earlier boundaries or enclosures. The third [7] is also a linear anomaly, aligned SSW to NNE, but is capped at its northern end by another linear anomaly on a WNW-ESE alignment. As with the above anomalies, it is likely that this is an earlier archaeological feature, likely outlining the corner of an enclosure or boundary.

In the area where two positive anomalies representing field boundaries intersect [2 and 5], there appear to be two linear anomalies representing a small enclosure in the corner of a field [10 and 11]. One of these linears appears as a strong positive anomaly [10], whereas the other [11] appears as a weaker positive anomaly. The anomalies do not meet, and, therefore, may not actually be associated, although they appear to represent an enclosure.

A weak positive anomaly is also present towards the south-west corner of the site [15]. This anomaly appears to represent a small enclosure, as it is comprised of three short linears forming an incomplete square. This is seemingly not aligned or associated with any of the other anomalies. Due to the lack of association with the anomalies of known agricultural origin, and also the shape of this anomaly, it may be of archaeological origin.

In the north-west corner of the site is a weak linear positive anomaly [6] that is on a similar alignment to the anomalies representing the field boundaries. As such, it would appear to be associated. However, there is no evidence of this linear anomaly on the 19th century tithe map, suggesting that it may have been from an earlier date, and had been removed by the time the map was created.

Four discrete positive anomalies were also recorded in the western field [17, 18, 19 and 20]. These discreet anomalies are small and circular in shape. It is likely that they are of archaeological origin, and are most likely buried pits.

There are a number of areas in the western field that have been subject to magnetic disturbance caused by nearby metal objects or services [22 and 23]. One of these areas [22] of disturbance is thought to be a bomb crater described by locals as having been caused by a stray German bomb dropped during the Second World War, which would explain the high concentration of magnetic disturbance. It is likely that the other area of disturbance [23] was caused by the excavation of a geotechnical test pit immediately prior to the geophysical survey.

The final positive anomaly in the western field, along the northern end of the site, appears to be of geological origin [21]. This anomaly is an irregular linear shape that is unlikely to have been man-made. The shape of the anomaly suggests that it was a geological or natural feature, such as a stream, that had a higher organic content and therefore a stronger magnetic signature than the background magnetic field.

Numerous ferrous spikes can be seen distributed across the western field. These ferrous spikes are caused by ferrous objects found in the surface layer, or sub-surface, of the site. Common ferrous objects include human waste, such as broken metal from old ploughs; highly possible on sites such as this, which have been used as farmland for a prolonged period of time.

## Eastern Field:

In comparison to the western field, the eastern field did not have many positive anomalies, of either geological, agricultural or archaeological origin. As with the western field, though to a lesser degree, the eastern field shows a number of ferrous spikes, indicating the presence of metal objects either on or just below the surface of the site.

Two sets of positive anomalies were recorded in the southern part of the eastern field [27 and 28], which are parallel to each other. These anomalies are on a different alignment to the field boundaries represented in the western field, but are similar in size and appearance to some of the positive anomalies of archaeological origin previously discussed [6, 7, 8 and 9]. Therefore, it is possible that the anomalies in the eastern field are
also archaeological in origin. However, as the anomalies of in the eastern field are on a different alignment to those in the western field, they are probably not associated,

At the northern end of the eastern field are two intersecting linear positive anomalies, which form a Tshape [24 and 25]. These anomalies appear to be buried cut features of archaeological origin, but do not appear to be associated with those in the western field, and as such are probably of a different date. They do not appear to be on a similar alignment to the previously mentioned linear positive anomalies, and so are not likely to be associated with them.

The final positive anomaly in the eastern field is also a linear [26], but is on an entirely different alignment to the other linear anomalies in both fields. This is likely to be a buried cut feature of probable archaeological origin.

A large area of magnetic disturbance was recorded in the south-western corner of the field. This is likely caused by the close proximity of steel field gates and the fencing which separated the field from the adjacent property.

## Conclusion

Despite the expected low archaeological potential of the site, numerous positive anomalies were recorded in both the western and eastern fields. A number of the linear anomalies match the placement of field boundaries on a 19th century tithe map, and so, consequently, can be attributed to the modern era. However, a large percentage of the anomalies cannot be seen on the tithe map, and are not aligned with the positive anomalies representing the field boundaries. It is likely that these anomalies are from an earlier date, and are buried cut features of archaeological origin. An anomaly of note is a large area of magnetic disturbance, likely to be a bomb crater dating to the Second World War. Also recorded were several areas of magnetic disturbance, which commonly indicates the presence of buried or nearby ferrous objects. It is possible that these areas may mask weaker anomalies of archaeological origin.

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## Appendix 1. Survey and data information

| Programme: |  | 44 Col:5 Row:12 grids $160 . x \mathrm{xd}$ |
| :---: | :---: | :---: |
| Name: | TerraSurveyor | 45 Col:6 Row:0 grids $333 . x \mathrm{xgd}$ |
| Version: | 3.0.25.0 | 46 Col:6 Row:1 grids $334 . x$ dd |
|  |  | 47 Col:6 Row:2 grids $136 . x \mathrm{xg}$ |
| Western Field: |  | 48 Col:6 Row:3 grids $137 . x$ xd |
| Raw data |  | 49 Col:6 Row:4 grids $38 . x$ xd |
|  |  | 50 Col:6 Row:5 gridsl39.xgd |
| Northwest corner: | 515015.15, 131819.61 m | 51 Col:6 Row:6 grids $40 . x \mathrm{xg}$ |
| Southeast corner: | $515315.15,131539.61 \mathrm{~m}$ | 52 Col:6 Row:7 grids $411 . x g d$ |
| Direction of 1st Traverse: 92.74 deg |  | 53 Col:6 Row:8 grids $42 . x$ xd |
| Collection Method: $\quad$ ZigZag |  | 54 Col:6 Row:9 grids $43 . x$ xd |
| Sensors: | 2 @ 1.00 m spacing. | 55 Col:6 Row:10 grids $444 . x \mathrm{gd}$ |
| Dummy Value: | 2047.5 | 56 Col:6 Row:11 grids $45 . \mathrm{xg}$ d |
|  |  | 57 Col:6 Row:12 grids $446 . x \mathrm{gd}$ |
| Dimensions |  | 58 Col:7 Row:0 gridsl61.xgd |
| Composite Size (readings): $1200 \times 280$ |  | 59 Col:7 Row:1 grids $162 . x g d$ |
| Survey Size (meters): $\quad 300 \mathrm{mx} 280 \mathrm{~m}$ |  | 60 Col:7 Row:2 grids $163 . \mathrm{xgd}$ |
| Grid Size: | 20 mx 20 m | 61 Col:7 Row:3 grids $164 . x$ xd |
| X Interval: | 0.25 m | 62 Col:7 Row:4 grids $165 . x \mathrm{xg}$ |
| Y Interval: | 1 m | 63 Col:7 Row:5 gridsl66.xgd |
|  |  | 64 Col:7 Row:6 gridsl67.xgd |
| Stats |  | 65 Col:7 Row:7 grids $168 . x$ xd |
| Max: | 97.32 | 66 Col:7 Row:8 gridsl69.xgd |
| Min: | -100.00 | 67 Col:7 Row:9 grids $770 . \mathrm{xgd}$ |
| Std Dev: | 6.87 | 68 Col:7 Row:10 gridsı71.xgd |
| Mean: | -0.43 | 69 Col:7 Row:11 grids $772 . x \mathrm{xg}$ |
| Median: | -0.35 | 70 Col:7 Row:12 grids $73 . \mathrm{xgd}$ |
| Composite Area: | 8.4 ha | 71 Col:8 Row:0 grids $477 . x$ xd |
| Surveyed Area: | 5.3949 ha | 72 Col:8 Row:1 grids $448 . x$ xd |
|  |  | 73 Col:8 Row:2 grids $49 . x$ xd |
| Source Grids: 157 |  | 74 Col: 8 Row:3 grids $174 . x$ xd |
| 1 Col:0 Row:2 grids 01 w .xgd |  | 75 Col:8 Row:4 grids $175 . \mathrm{xgd}$ |
| 2 Col:0 Row:3 gri | grids 02 -a.xgd | 76 Col:8 Row:5 grids $176 . \mathrm{xgd}$ |
| 3 Col:0 Row:4 gri | grids $03 . \mathrm{xgd}$ | 77 Col:8 Row:6 gridsl77.xgd |
| 4 Col:0 Row:5 gris | grids $04 . \mathrm{xgd}$ | 78 Col:8 Row:7 grids $178 . x$ xd |
| 5 Col:0 Row:6 gr | grids $005 . x \mathrm{xg}$ | 79 Col:8 Row:8 grids $179 . \mathrm{xgd}$ |
| 6 Col:1 Row:2 gri | grids $106 . x g d$ | 80 Col:8 Row:9 gridsl80.xgd |
| 7 Col:1 Row:3 gri | grids $007 . \mathrm{xgd}$ | $81 \mathrm{Col}: 8 \mathrm{Row}$ :10 grids\81.xgd |
| 8 Col:1 Row:4 grid | grids $008 . x$ xd | $82 \mathrm{Col}: 8$ Row:11 grids $182 . \mathrm{xgd}$ |
| 9 Col:1 Row:5 gris | gridsl09.xgd | $83 \mathrm{Col}: 8$ Row:12 grids $183 . \mathrm{xgd}$ |
| 10 Col:1 Row:6 g | grids $10 . \mathrm{xgd}$ | 84 Col:9 Row:1 grids $995 . x \mathrm{xd}$ |
| 11 Col:2 Row:2 g | grids $111 . \mathrm{xgd}$ | 85 Col:9 Row:2 grids $96 . \mathrm{xgd}$ |
| 12 Col 22 Row 3 3 | grids $12 . \mathrm{xgd}$ | 86 Col:9 Row:3 grids $977 . \mathrm{xgd}$ |
| 13 Col:2 Row:4 gri | grids $13 . \mathrm{xgd}$ | 87 Col:9 Row:4 grids $998 . x$ xd |
| 14 Col:2 Row:5 gri | grids $14 . \mathrm{xg}$ d | 88 Col:9 Row:5 grids $199 . x$ xd |
| 15 Col:2 Row:6 gri | grids $115 . \mathrm{xgd}$ | 89 Col :9 Row:6 grids 1100.xgd |
| 16 Col:3 Row:2 gri | grids $16 . \mathrm{xgd}$ | $90 \mathrm{Col}: 9$ Row:7 grids 101.xgd |
| 17 Col:3 Row:3 gri | grids $17 . \mathrm{xgd}$ | $91 \mathrm{Col}: 9$ Row:8 grids 1102.xgd |
| 18 Col:3 Row:4 gri | grids $118 . \mathrm{xgd}$ | 92 Col:9 Row:9 grids 103 xgd |
| 19 Col:3 Row:5 gr | grids $19 . \mathrm{xg}$ d | 93 Col:9 Row:10 grids $\backslash 104 . x$ gd |
| 20 Col:3 Row:6 gri | grids/20.xgd | 94 Col:9 Row:11 grids $1105 . x \mathrm{xd}$ |
| 21 Col:4 Row:1 g | grids $21 . \mathrm{xgd}$ | 95 Col:9 Row:12 grids $1106 . x g d$ |
| 22 Col:4 Row:2 | grids $22 . \mathrm{xgd}$ | 96 Col 110 Row:2 grids $184 . \mathrm{xgd}$ |
| 23 Col:4 Row:3 | grids $123 . \mathrm{xgd}$ | 97 Col 110 Row:3 grids $185 . \mathrm{xg}$ d |
| $24 \mathrm{Col}: 4$ Row:4 | grids $24 . \mathrm{xgd}$ | 98 Col 110 Row:4 grids\86.xgd |
| $25 \mathrm{Col}: 4 \mathrm{Row}: 5$ | grids125.xgd | 99 Col 110 Row:5 grids $187 . \mathrm{xgd}$ |
| 26 Col:4 Row:6 | grids/26.xgd | 100 Col 110 Row:6 grids $188 . \mathrm{xgd}$ |
| $27 \mathrm{Col}: 4$ Row:7 | grids127.xgd | 101 Col:10 Row:7 grids $889 . x \mathrm{xg}$ |
| 28 Col:4 Row:8 | grids/28.xgd | $102 \mathrm{Col}: 10$ Row:8 grids $190 . \mathrm{xgd}$ |
| $29 \mathrm{Col}: 4 \mathrm{Row}: 9$ g | grids129.xgd | $103 \mathrm{Col}: 10$ Row:9 grids $91 . \mathrm{xgd}$ |
| 30 Col:4 Row:10 | grids $330 . \mathrm{xgd}$ | 104 Col:10 Row:10 gridsl92.xgd |
| 31 Col:4 Row:11 | 1 grids $131 . x \mathrm{xd}$ | 105 Col:10 Row:11 grids $933 . x \mathrm{gd}$ |
| $32 \mathrm{Col}: 4$ Row: 12 | grids $32 . \mathrm{xgd}$ | 106 Col:10 Row:12 grids $94 . \mathrm{xgd}$ |
| $33 \mathrm{Col}: 5$ Row:1 | grids $35 . \mathrm{xgd}$ | $107 \mathrm{Col}: 11$ Row:1 grids $107 . \mathrm{xgd}$ |
| 34 Col:5 Row:2 | grids $150 . \mathrm{xgd}$ | $108 \mathrm{Col}: 11$ Row:2 grids $108 . x \mathrm{xgd}$ |
| $35 \mathrm{Col}: 5$ Row:3 | grids $151 . x \mathrm{xd}$ | $109 \mathrm{Col}: 11$ Row:3 grids $109 . x \mathrm{xgd}$ |
| 36 Col:5 Row:4 | grids $152 . \mathrm{xgd}$ | $110 \mathrm{Col}: 11$ Row:4 grids $1110 . x \mathrm{xd}$ |
| 37 Col:5 Row:5 | grids $53 . \mathrm{xgd}$ | 111 Col:11 Row:5 grids $1111 . x \mathrm{xd}$ |
| $38 \mathrm{Col}: 5 \mathrm{Row}: 6$ | grids $154 . x$ gd | $112 \mathrm{Col}: 11$ Row:6 grids 1112 xgd |
| $39 \mathrm{Col:5}$ Row:7 | grids $155 . \mathrm{xgd}$ | $113 \mathrm{Col}: 11$ Row:7 grids $1113 . x \mathrm{xg}$ |
| $40 \mathrm{Col}: 5 \mathrm{Row}: 8$ | grids $56 . \mathrm{xgd}$ | 114 Col:11 Row:8 grids $1114 . x$ xg |
| $41 \mathrm{Col}: 5 \mathrm{Row}: 9$ g | grids $57 . \mathrm{xgd}$ | $115 \mathrm{Col}: 11$ Row:9 grids $1115 . \mathrm{xgd}$ |
| $42 \mathrm{Col}: 5$ Row:10 | grids $158 . x \mathrm{gd}$ | 116 Col:11 Row:10 gridsl116.xg |

43 Col:5 Row:11 grids $\backslash 59 . x g d$

117 Col:11 Row:11 grids $\backslash 117 . x g d$ 118 Col:11 Row:12 grids $1118 . x g d$ 119 Col:12 Row:1 grids $\backslash 140 . x g d$ 120 Col:12 Row:2 grids $1141 . x g d$ $121 \mathrm{Col}: 12$ Row:3 grids $\backslash 142 . x g d$ 122 Col:12 Row: 4 grids $\backslash 143 . x g d$ 123 Col:12 Row:5 grids $\backslash 144 . x g d$ 124 Col:12 Row: 6 grids $\backslash 145 . x g d$ 125 Col:12 Row:7 grids $\backslash 146 . x g d$ 126 Col:12 Row:8 grids $1147 . x g d$ $127 \mathrm{Col}: 12$ Row:9 grids $\backslash 148 . x g d$ 128 Col:12 Row:10 grids $1449 . x g d$ $129 \mathrm{Col}: 12$ Row: 11 grids $\backslash 150$.xgd $130 \mathrm{Col}: 12$ Row:12 grids $\backslash 151 . x g d$ $131 \mathrm{Col}: 12$ Row: 13 grids $152 . x g d$ 132 Col:13 Row:1 grids $1119 . x g d$ 133 Col:13 Row:2 grids $1120 . x g d$ 134 Col:13 Row:3 grids $\backslash 121$.xgd 135 Col:13 Row:4 grids $\backslash 122 . x g d$ 136 Col:13 Row:5 grids $\backslash 123$ xgd 137 Col:13 Row:6 grids $\backslash 124 . x g d$ 138 Col:13 Row:7 grids $\backslash 125 . x$ xd 139 Col:13 Row:8 grids $\backslash 126 . x g d$ 140 Col:13 Row:9 grids $127 . x g d$ 141 Col:13 Row:10 grids $\backslash 128 . x g d$ 142 Col:13 Row:11 grids $\backslash 129 . x g d$ 143 Col:13 Row:12 grids)130.xgd 144 Col:13 Row:13 grids $1331 . x g d$ 145 Col:14 Row:1 grids $\backslash 153 . x g d$ 146 Col:14 Row:2 grids $\backslash 154 . x g d$ 147 Col:14 Row:3 grids $\backslash 155 . x g d$ 148 Col:14 Row:4 grids $\backslash 156$.xgd 149 Col:14 Row:5 grids $\backslash 157 . x g d$ 150 Col:14 Row:6 grids $\backslash 132 . x g d$ 151 Col:14 Row:7 grids $\backslash 133 . x g d$ 152 Col:14 Row:8 grids $\backslash 134 . x g d$ 153 Col:14 Row:9 grids $1135 . x$.xd 154 Col:14 Row: 10 grids $\backslash 136 . x g d$ 155 Col:14 Row:11 gridsl137.xgd 156 Col:14 Row:12 grids $\backslash 138 . x g d$ 157 Col:14 Row:13 grids)139.xgd

## Processed data

| Stats |  |
| :--- | :---: |
| Max: | 2.20 |
| Min: | -1.80 |
| Std Dev: | 0.86 |
| Mean: | 0.04 |
| Median: | 0.01 |
| Composite Area: | 8.4 ha |
| Surveyed Area: | 5.382 ha |

Processes: 6
Base Layer
DeStripe Median Sensors: All
De Stagger: Grids: All Mode: Both By: -3 intervals
Despike Threshold: 1 Window size: $3 \times 3$
Interpolate: Y Doubled.
6 Clip from -1.80 to 2.20 nT

## Eastern Field:

## Raw Data

Northwest corner: $\quad 515401.2,131448.92 \mathrm{~m}$
Southeast corner: $\quad 515501.2,131168.92 \mathrm{~m}$
Direction of 1st Traverse: 265.06 deg
Collection Method: ZigZag
Sensors:
Dummy Value: $\quad 2$ @ 1.00 m spacing.
2047.5

Dimensions
Composite Size (readings): $400 \times 280$
Survey Size (meters): $100 \mathrm{~m} \times 280 \mathrm{~m}$


## Processed Data

| Stats |  |
| :--- | ---: |
| Max: | 2.20 |
| Min: | -1.80 |
| Std Dev: | 0.67 |


| Mean: | 0.02 |
| :--- | ---: |
| Median: | 0.00 |
| Composite Area: | 2.8 ha |
| Surveyed Area: | 1.9434 ha |

Processes: 5
Base Layer
DeStripe Median Sensors: All
De Stagger: Grids: All Mode: Both By: -2 intervals
Despike Threshold: 1 Window size: $3 \times 3$
5 Clip from -1.80 to 2.20 nT



Land north of Old Guildford Road,
Broadbridge Heath, West Sussex, 2015 Geophysical Survey (Magnetic)

Figure 2. Survey grid layout.







Plate 1. West field, looking north-west from south-eastern corner.


Plate 3. East field, looking north from southern edge.


Plate 2. West field, looking west from north-eastern corner.


Plate 4. East field, looking south from north-western corner.

Land north of Old Guildford Road, Broadbridge Heath, West Sussex, 2015 Geophysical Survey (Magnetic)

Plates 1-4.


## TIME CHART

## Calendar Years

Modern ..... AD 1901
Victorian ..... AD 1837
Post Medieval ..... AD 1500
Medieval ..... AD 1066
Saxon ..... AD 410
Roman ..... AD 43
Iron Age Iron Age __ 750 BCBC/AD
Bronze Age: Late ..... 1300 BC
Bronze Age: Middle ..... 1700 BC
Bronze Age: Early ..... 2100 BC
Neolithic: Late 3300 BC
Neolithic: Early ..... 4300 BC
Mesolithic: Late 6000 BC
Mesolithic: Early ..... 10000 BC
Palaeolithic: Upper 30000 BC
Palaeolithic: Middle ..... 70000 BC
Palaeolithic: Lower ..... 2,000,000 BC


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[^1]:    Report edited/checked by: Steve Ford $\checkmark$ 05.11.15

