

GEOPHYSICAL SURVEY REPORT

# STRATASCAN™



Project name:  
**Kelvedon, Essex**

Client:  
**Cotswold Archaeology**

**May 2013**

Job ref:  
**J3337**

Report author:  
**Bryony P Marsh BA**

# GEOPHYSICAL SURVEY REPORT

Project name:

**Kelvedon, Essex**

Client:

**Cotswold Archaeology**



Job ref:

**J3337**

Field team:

**Sean Parker** BSc (Hons)

**Aiden Rossiter** BA (Hons)

**Joshua Jones** BSc (Hons)

**Robert Knight** BA (Hons)

**Andy Bateman**

Techniques:

**Detailed magnetic survey –  
Gradiometry**

Project manager:

**Simon Haddrell** BEng(Hons) AMBCS PIFA

Survey date:

**April 2013**

Report written By:

**Bryony P Marsh** BA

Site centred at:

**TL 874 174**

CAD illustrations by:

**Bryony P Marsh** BA

Post code:

**CO5 9ST**

Checked by:

**David Elks** MSc AIFA

## TABLE OF CONTENTS

<b>LIST OF FIGURES.....</b>	<b>2</b>
<b>1 SUMMARY OF RESULTS .....</b>	<b>3</b>
<b>2 INTRODUCTION .....</b>	<b>3</b>
2.1 Background synopsis.....	3
2.2 Site location .....	3
2.3 Description of site .....	3
2.4 Geology and soils .....	3
2.5 Site history and archaeological potential .....	4
2.6 Survey objectives .....	4
2.7 Survey methods .....	4
2.8 Processing, presentation and interpretation of results.....	4
2.8.1 Processing .....	4
2.8.2 Presentation of results and interpretation.....	5
<b>3 RESULTS.....</b>	<b>5</b>
3.1 Probable Archaeology.....	5
3.2 Possible Archaeology .....	6
3.3 Other Anomalies .....	6
<b>4 CONCLUSION .....</b>	<b>7</b>
<b>5 REFERENCES .....</b>	<b>8</b>
<b>APPENDIX A – METHODOLOGY &amp; SURVEY EQUIPMENT .....</b>	<b>9</b>
<b>APPENDIX B – BASIC PRINCIPLES OF MAGNETIC SURVEY .....</b>	<b>10</b>
<b>APPENDIX C – GLOSSARY OF MAGNETIC ANOMALIES.....</b>	<b>11</b>

## LIST OF FIGURES

Figure 1	1:1500	Site location and survey area & referencing
Figure 2	1:1500	Colour plot of minimally processed gradiometer data showing extreme magnetic values
Figure 3	1:1500	Plot of minimally processed gradiometry data
Figure 4	1:1500	Abstraction and interpretation of gradiometer anomalies

## 1 SUMMARY OF RESULTS

A detailed gradiometry survey was conducted over approximately 36.5 hectares of agricultural land located to the south east of Kelvedon in Essex. The data collected has identified linear responses typically associated with former field boundaries, some of which are evident on the 1875 Ordnance Survey mapping of the site. A series of anomalies are also noted in the south east of the site which appear to correlate with the location of a post-medieval gravel quarry and field system identified through cropmark analysis. Modern activity on the site is evident through magnetic disturbance and debris associated with ferrous materials and anomalies indicative of modern ploughing. Amorphous magnetic variation is also evident across much of the site and is of natural origin, associated with variations within the geology or pedology of the region.

## 2 INTRODUCTION

### 2.1 *Background synopsis*

Stratascan were commissioned to undertake a geophysical survey of an area outlined for development. This survey forms part of an archaeological investigation being undertaken by Cotswold Archaeology.

### 2.2 *Site location*

The site is located close to the village of Inworth, situated between Kelvedon and Tiptree in Essex at OS ref. TL 874 174.

### 2.3 *Description of site*

The survey area is approximately 36.5ha of agricultural land divided across five fields, all of which were in agricultural use at the time of survey.

### 2.4 *Geology and soils*

The underlying geology is London Clay formation – Clay, silt, and sand (British Geological Survey website). The drift geology mapping of the site identifies pockets of Glaciofluvial deposits across the area consisting of sands and gravels (British Geological Survey website).

The overlying soils are known as Windsor which are typical pelo-stagnogley soils. These consist of slowly permeable, seasonally waterlogged, clayey soils, most with brown subsoils (Soil Survey of England and Wales, Sheet 4 Eastern England).

## 2.5 **Site history and archaeological potential**

The following extract is taken from the 'Land at Highfield Farm, Kelvedon, Essex; Written Scheme of Investigation for a Geophysical Survey' prepared by Richard Morton on behalf of Cotswold Archaeology:

*The heritage desk-based assessment identified cropmark evidence at the east end of the site for gravel quarrying of probable post-medieval date. Aerial photographs also indicate heavily obscured linear features which may be of an earlier date than the quarries. The cropmarks are visible across an area of the site characterised by gravel geology which probably accounts for their visibility in this region, and may possibly be part of a more extensive field system. The boundaries could potentially date from the Late Iron Age or Roman period (part of a field system within the agricultural hinterland of the Roman settlement at Canonium) as they are on a different alignment to the current post-medieval layout of fields. In the wider region, kiln sites are known from the Roman period.*

## 2.6 **Survey objectives**

The objective of the survey was to locate any features of possible archaeological origin in order that they may be assessed prior to development.

## 2.7 **Survey methods**

This report and all fieldwork have been conducted in accordance with both the English Heritage guidelines outlined in the document: *Geophysical Survey in Archaeological Field Evaluation, 2008* and with the Institute for Archaeologists document *Standard and Guidance for Archaeological Geophysical Survey*.

Detailed magnetic survey (gradiometry) was used as an efficient and effective method of locating archaeological anomalies. More information regarding this technique is included in the Methodology section below and in Appendix A.

## 2.8 **Processing, presentation and interpretation of results**

### 2.8.1 **Processing**

Processing is performed using specialist software. This can emphasise various aspects contained within the data but which are often not easily seen in the raw data. Basic processing of the magnetic data involves 'flattening' the background levels with respect to adjacent traverses and adjacent grids. Once the basic processing has flattened the background it is then possible to carry out further processing which may include low pass filtering to reduce 'noise' in the data and hence emphasise the archaeological or man-made anomalies.

The following schedule shows the basic processing carried out on all minimally processed gradiometer data used in this report:

1. *Destripe* (Removes striping effects caused by zero-point discrepancies between different sensors and walking directions)

2. *Destagger* (Removes zigzag effects caused by inconsistent walking speeds on sloping, uneven or overgrown terrain)

### 2.8.2 Presentation of results and interpretation

The presentation of the data for each site involves a print-out of the minimally processed data both as a greyscale plot and a colour plot showing extreme magnetic values. Magnetic anomalies have been identified and plotted onto the 'Abstraction and Interpretation of Anomalies' drawing for the site.

## 3 RESULTS

The detailed magnetic gradiometer survey conducted at Kelvedon has identified a number of anomalies that have been characterised as being either of a *probable* or *possible* archaeological origin.

The difference between *probable* and *possible* archaeological origin is a confidence rating. Features identified within the dataset that form recognisable archaeological patterns or seem to be related to a deliberate historical act have been interpreted as being of a probable archaeological origin.

Features of possible archaeological origin tend to be more amorphous anomalies which may have similar magnetic attributes in terms of strength or polarity but are difficult to classify as being archaeological or natural.

The following list of numbered anomalies refers to numerical labels on the interpretation plots (Figure 4).

### 3.1 Probable Archaeology

- 1-3** Positive linear anomalies have been identified across the Kelvedon site and are indicative of former cut features such as ditches. These three anomalies are seen to correlate with historic field boundaries documented on the 1875 Ordnance Survey mapping of the site.
- 4-21** A series of further positive linear responses are identified across much of the site and are similar in character to those listed above. These do not appear on historic mapping and have therefore been categorised separately as probable former field boundaries.

### 3.2 *Possible Archaeology*

- 22-31** A complex arrangement of positive linear responses are noted in the east of the site, alongside two weak positive areas and a single negative linear anomaly. These are indicative of former cut and banked features and appear to correlate with the location of cropmark evidence associated with a post-medieval gravel quarry and potentially further field systems (HER 8461). These anomalies are slightly amorphous in nature and have therefore been categorised as of possible rather than probable archaeological origin.
- 32-35** Further positive linear anomalies are identified across the site and may also be associated with former cut features such as ditches.
- 36-39** Several areas of linear magnetic debris have been identified across the site and are of uncertain origin.
- 40** Discrete positive anomalies possibly associated with in-filled pits are seen in two locations in the west and east of the site.
- 41-42** Two negative linear responses are seen in the west of the survey area and may be associated with former banked features of possible archaeological origin.

### 3.3 *Other Anomalies*

- 43** Areas of magnetic disturbance are the result of substantial nearby ferrous metal objects such as fences and underground services. These effects can mask weaker archaeological anomalies, but on this site have not affected a significant proportion of the area.
- 44** A number of magnetic 'spikes' (strong focussed values with associated antipolar response) can be seen scattered across the survey area and indicate ferrous metal objects. These are likely to be modern debris.
- 45** Several areas of closely spaced parallel linear responses are seen across the centre of the site and are indicative of modern agricultural activity such as ploughing.
- 46** A high amplitude linear response can be seen crossing the site from west to east and continuing to both the north and south. This response is associated with a modern service crossing the area.
- 47** Two areas of magnetic debris are identified in the west and north east of the site.
- 48** Much of the Kelvedon site shows evidence of amorphous magnetic variation, typically associated with a natural origin, particularly variations within the geology or pedology of the site. The drift geology of this area highlights pockets

of sands and gravels across the site (hence the post-medieval quarrying activity in the east of the survey area) and therefore this variation in superficial deposits may be associated with these effects.

## 4 CONCLUSION

The detailed magnetic gradiometer survey was carried out at land at Kelvedon in Essex with the aim of identifying if any anomalies of probable archaeological significance were evident across the site. The data collected has identified responses which are likely to be associated with former field boundaries, some of which correlate with those recorded on historic mapping of the site. A complex arrangement of responses are noted in the east of the site, in the location (documented in the HER) of post-medieval gravel extraction activity and possible former field systems. The responses are rather fragmented in form and have therefore been classified as of possible rather than probable archaeological origin.

Modern activity on this site is evident through magnetic disturbance and debris and a large modern service is seen to cross through the centre of the area. Much of the site also displays background magnetic variation which is typically associated with changes in the geology or pedology of the site.

## 5 REFERENCES

British Geological Survey South Sheet, 1977. *Geological Survey Ten Mile Map, South Sheet First Edition (Quaternary)*. Institute of Geological Sciences.

British Geological Survey, 2001. *Geological Survey Ten Mile Map, South Sheet, Fourth Edition (Solid)*. British Geological Society.

British Geological Survey, n.d., *website*:  
(<http://www.bgs.ac.uk/opengeoscience/home.html?Accordion1=1#maps>) Geology of Britain viewer.

Soil Survey of England and Wales, 1983. *Soils of England and Wales, Sheet 4 Eastern England*.

English Heritage, 2008. *Geophysical Survey in Archaeological Field Evaluation*.

Institute For Archaeologists. *Standard and Guidance for Archaeological Geophysical Survey*.  
<http://www.archaeologists.net/sites/default/files/nodefiles/Geophysics2010.pdf>

## APPENDIX A – METHODOLOGY & SURVEY EQUIPMENT

### ***Grid locations***

The location of the survey grids has been plotted together with the referencing information. Grids were set out using a Leica 705auto Total Station and referenced to suitable topographic features around the perimeter of the site or a Leica Smart Rover RTK GPS.

An RTK GPS (Real-time Kinematic Global Positioning System) can locate a point on the ground to a far greater accuracy than a standard GPS unit. A standard GPS suffers from errors created by satellite orbit errors, clock errors and atmospheric interference, resulting in an accuracy of 5m-10m. An RTK system uses a single base station receiver and a number of mobile units. The base station re-broadcasts the phase of the carrier it measured, and the mobile units compare their own phase measurements with those they received from the base station. A SmartNet RTK GPS uses Ordnance Survey's network of over 100 fixed base stations to give an accuracy of around 0.01m.

### ***Survey equipment and gradiometer configuration***

Although the changes in the magnetic field resulting from differing features in the soil are usually weak, changes as small as 0.2 nanoTeslas (nT) in an overall field strength of 48,000nT, can be accurately detected using an appropriate instrument.

The mapping of the anomaly in a systematic manner will allow an estimate of the type of material present beneath the surface. Strong magnetic anomalies will be generated by buried iron-based objects or by kilns or hearths. More subtle anomalies such as pits and ditches can be seen if they contain more humic material which is normally rich in magnetic iron oxides when compared with the subsoil.

To illustrate this point, the cutting and subsequent silting or backfilling of a ditch may result in a larger volume of weakly magnetic material being accumulated in the trench compared to the undisturbed subsoil. A weak magnetic anomaly should therefore appear in plan along the line of the ditch.

The magnetic survey was carried out using a dual sensor Grad601-2 Magnetic Gradiometer manufactured by Bartington Instruments Ltd. The instrument consists of two fluxgates very accurately aligned to nullify the effects of the Earth's magnetic field. Readings relate to the difference in localised magnetic anomalies compared with the general magnetic background. The Grad601-2 consists of two high stability fluxgate gradiometers suspended on a single frame. Each gradiometer has a 1m separation between the sensing elements so enhancing the response to weak anomalies.

### ***Sampling interval***

Readings were taken at 0.25m centres along traverses 1m apart. This equates to 3600 sampling points in a full 30m x 30m grid.

### ***Depth of scan and resolution***

The Grad 601-2 has a typical depth of penetration of 0.5m to 1.0m, though strongly magnetic objects may be visible at greater depths. The collection of data at 0.25m centres provides an optimum methodology for the task balancing cost and time with resolution.

### ***Data capture***

The readings are logged consecutively into the data logger which in turn is daily down-loaded into a portable computer whilst on site. At the end of each site survey, data is transferred to the office for processing and presentation.

## APPENDIX B – BASIC PRINCIPLES OF MAGNETIC SURVEY

Detailed magnetic survey can be used to effectively define areas of past human activity by mapping spatial variation and contrast in the magnetic properties of soil, subsoil and bedrock.

Weakly magnetic iron minerals are always present within the soil and areas of enhancement relate to increases in *magnetic susceptibility* and permanently magnetised *thermoremanent* material.

Magnetic susceptibility relates to the induced magnetism of a material when in the presence of a magnetic field. This magnetism can be considered as effectively permanent as it exists within the Earth's magnetic field. Magnetic susceptibility can become enhanced due to burning and complex biological or fermentation processes.

Thermoremanence is a permanent magnetism acquired by iron minerals that, after heating to a specific temperature known as the Curie Point, are effectively demagnetised followed by re-magnetisation by the Earth's magnetic field on cooling. Thermoremanent archaeological features can include hearths and kilns and material such as brick and tile may be magnetised through the same process.

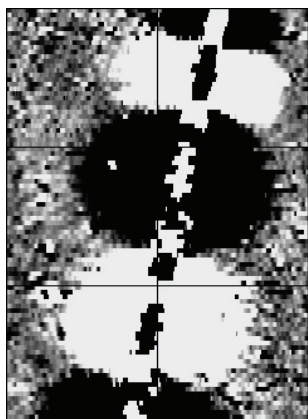
Silting and deliberate infilling of ditches and pits with magnetically enhanced soil creates a relative contrast against the much lower levels of magnetism within the subsoil into which the feature is cut. Systematic mapping of magnetic anomalies will produce linear and discrete areas of enhancement allowing assessment and characterisation of subsurface features. Material such as subsoil and non-magnetic bedrock used to create former earthworks and walls may be mapped as areas of lower enhancement compared to surrounding soils.

Magnetic survey is carried out using a fluxgate gradiometer which is a passive instrument consisting of two sensors mounted vertically 1m apart. The instrument is carried about 30cm above the ground surface and the top sensor measures the Earth's magnetic field whilst the lower sensor measures the same field but is also more affected by any localised buried field. The difference between the two sensors will relate to the strength of a magnetic field created by a buried feature, if no field is present the difference will be close to zero as the magnetic field measured by both sensors will be the same.

Factors affecting the magnetic survey may include soil type, local geology, previous human activity, disturbance from modern services etc.

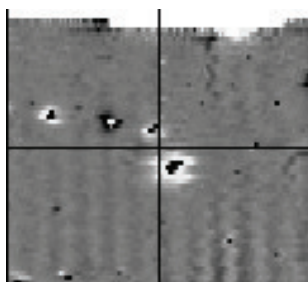
## APPENDIX C – GLOSSARY OF MAGNETIC ANOMALIES

### Bipolar



A bipolar anomaly is one that is composed of both a positive response and a negative response. It can be made up of any number of positive responses and negative responses. For example a pipeline consisting of alternating positive and negative anomalies is said to be bipolar. See also dipolar which has only one area of each polarity. The interpretation of the anomaly will depend on the magnitude of the magnetic field strength. A weak response may be caused by a clay field drain while a strong response will probably be caused by a metallic service.

### Dipolar

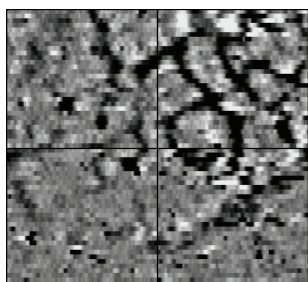


This consists of a single positive anomaly with an associated negative response. There should be no separation between the two polarities of response. These responses will be created by a single feature. The interpretation of the anomaly will depend on the magnitude of the magnetic measurements. A very strong anomaly is likely to be caused by a ferrous object.

### Positive anomaly with associated negative response

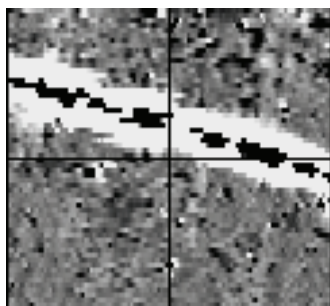
See bipolar and dipolar.

### Positive linear



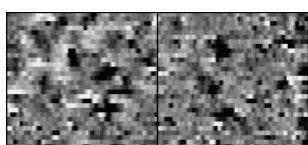
A linear response which is entirely positive in polarity. These are usually related to in-filled cut features where the fill material is magnetically enhanced compared to the surrounding matrix. They can be caused by ditches of an archaeological origin, but also former field boundaries, ploughing activity and some may even have a natural origin.

### Positive linear anomaly with associated negative response



A positive linear anomaly which has a negative anomaly located adjacently. This will be caused by a single feature. In the example shown this is likely to be a single length of wire/cable probably relating to a modern service. Magnetically weaker responses may relate to earthwork style features and field boundaries.

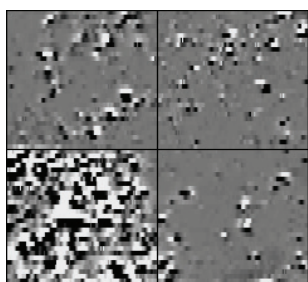
### Positive point/area



depressions in the ground.

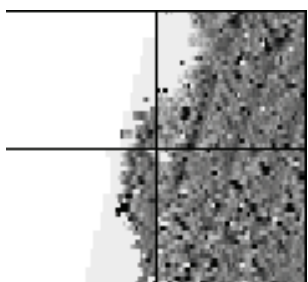
These are generally spatially small responses, perhaps covering just 3 or 4 reading nodes. They are entirely positive in polarity. Similar to positive linear anomalies they are generally caused by in-filled cut features. These include pits of an archaeological origin, possible tree bowls or other naturally occurring

### Magnetic debris



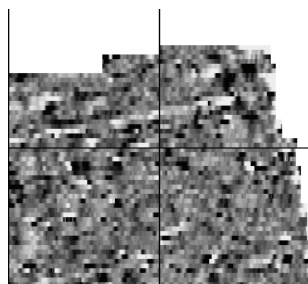
Magnetic debris consists of numerous dipolar responses spread over an area. If the amplitude of response is low ( $\pm 3\text{nT}$ ) then the origin is likely to represent general ground disturbance with no clear cause, it may be related to something as simple as an area of dug or mixed earth. A stronger anomaly ( $\pm 250\text{nT}$ ) is more indicative of a spread of ferrous debris. Moderately strong anomalies may be the result of a spread of thermoremanent material such as bricks or ash.

### Magnetic disturbance



Magnetic disturbance is high amplitude and can be composed of either a bipolar anomaly, or a single polarity response. It is essentially associated with magnetic interference from modern ferrous structures such as fencing, vehicles or buildings, and as a result is commonly found around the perimeter of a site near to boundary fences.

### Negative linear

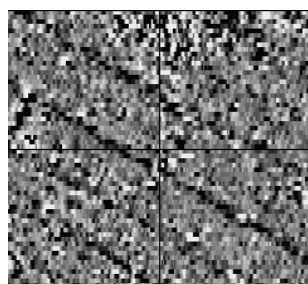


A linear response which is entirely negative in polarity. These are generally caused by earthen banks where material with a lower magnetic magnitude relative the background top soil is built up. See also ploughing activity.

### Negative point/area

Opposite to positive point anomalies these responses may be caused by raised areas or earthen banks. These could be of an archaeological origin or may have a natural origin.

### Ploughing activity



Ploughing activity can often be visualised by a series of parallel linear anomalies. These can be of either positive polarity or negative polarity depending on site specifics. It can be difficult to distinguish between ancient ploughing and more modern ploughing, clues such as the separation of each linear, straightness, strength of response and cross cutting relationships can be used to aid this, although none of these can be guaranteed to differentiate between different phases of activity.

### Polarity

Term used to describe the measurement of the magnetic response. An anomaly can have a positive polarity (values above 0nT) and/or a negative polarity (values below 0nT).

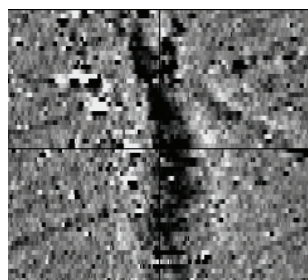
### Strength of response

The amplitude of a magnetic response is an important factor in assigning an interpretation to a particular anomaly. For example a positive anomaly covering a 10m<sup>2</sup> area may have values up to around 3000nT, in which case it is likely to be caused by modern magnetic interference. However, the same size and shaped anomaly but with values up to only 4nT may have a natural origin. Colour plots are used to show the amplitude of response.

### Thermoremanent response

A feature which has been subject to heat may result in it acquiring a magnetic field. This can be anything up to approximately +/-100 nT in value. These features include clay fired drains, brick, bonfires, kilns, hearths and even pottery. If the heat application has occurred in situ (e.g. a kiln) then the response is likely to be bipolar compared to if the heated objects have been disturbed and moved relative to each other, in which case they are more likely to take an irregular form and may display a debris style response (e.g. ash).

### Weak background variations



Weakly magnetic wide scale variations within the data can sometimes be seen within sites. These usually have no specific structure but can often appear curvy and sinuous in form. They are likely to be the result of natural features, such as soil creep, dried up (or seasonal) streams. They can also be caused by changes in the underlying geology or soil type which may contain unpredictable distributions of magnetic minerals, and are usually apparent in several locations across a site.

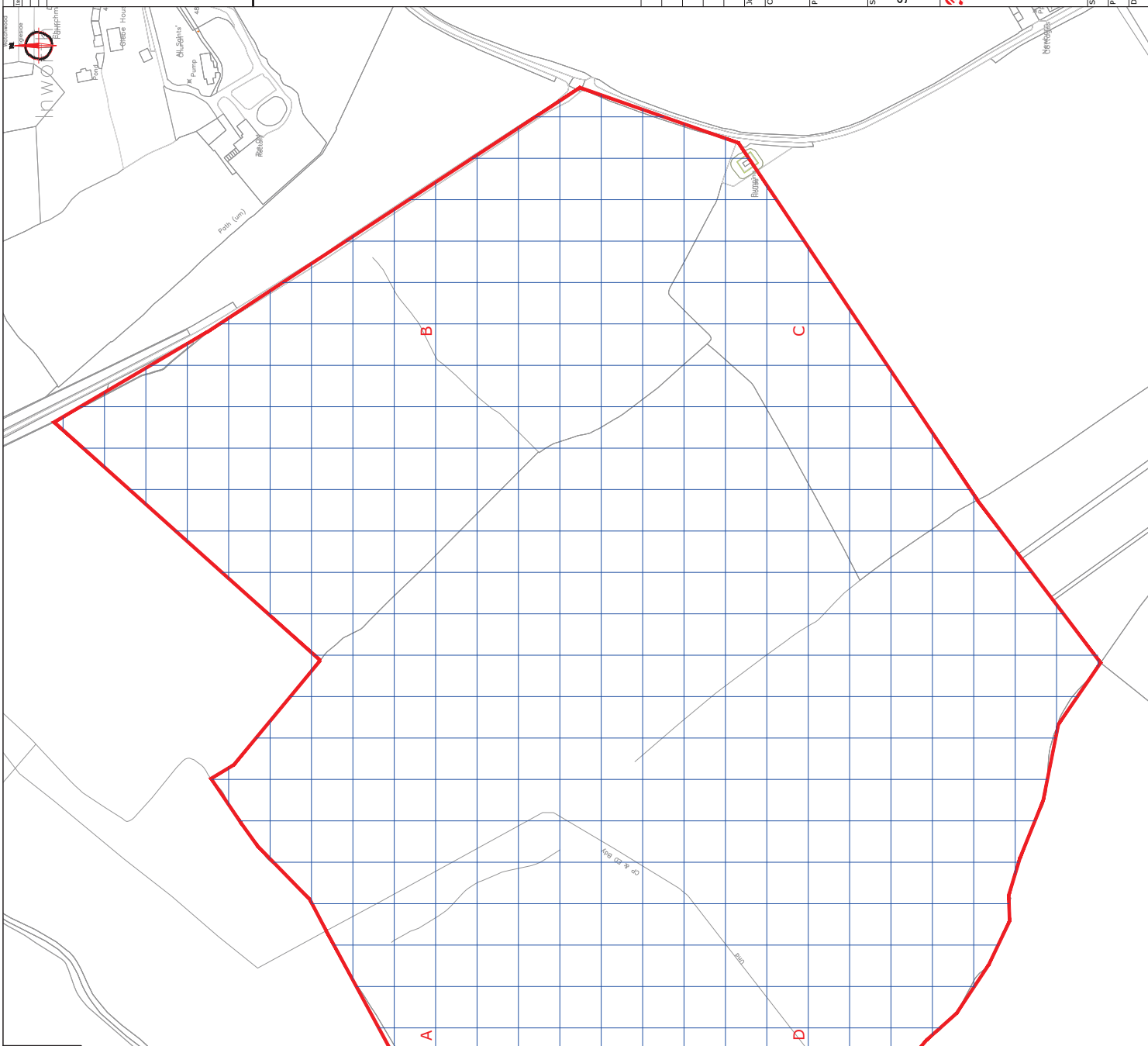
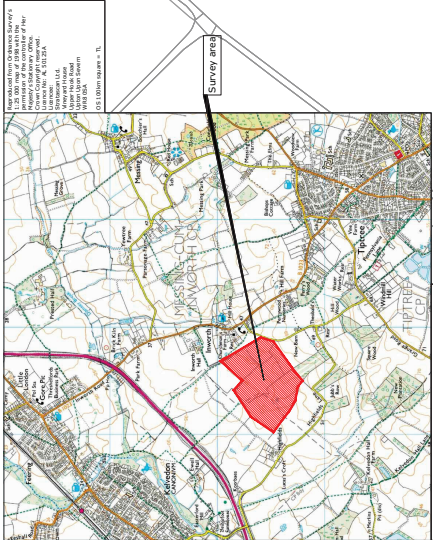
# STRATASCAN™



**STRATASCAN LTD**

Vineyard House Upper Hook Road Upton upon Severn  
Worcestershire WR8 0SA United Kingdom

T: 01684 592266 F: 01684 594142  
info@stratascan.co.uk www.stratascan.co.uk



**Amendments**

Date	Drawn	Checked

© STRATACON LTD. 2013

Site entered on NPS Tl. 874-174

Survey area

**OS REFERENCING INFORMATION**

A	587230.46, 217685.93
B	587740.46, 217685.93
C	587740.46, 217415.93
D	587230.46, 217415.93

Job No. **J3337**  
 Survey Date **APR 2013**  
 Client

**COTSWOLD ARCHAEOLOGY**  
 Project Title  
**GEOPHYSICAL SURVEY -  
 KELVEDON, ESSEX**

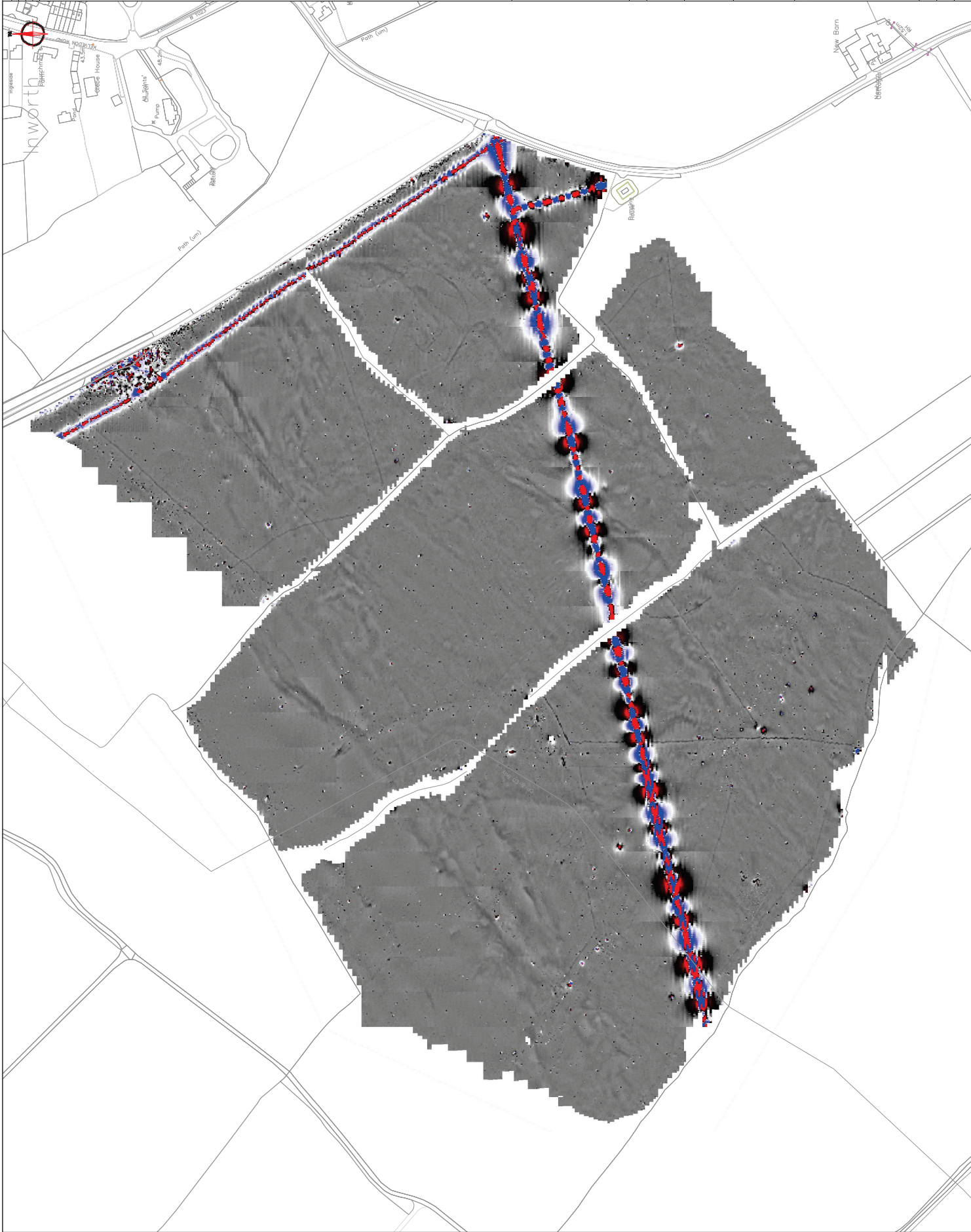
Subject  
**SITE LOCATION AND SURVEY  
 AREA & REFERENCING**

**STRATACON**  
 GEOPHYSICAL SURVEYING  
 AND ENGINEERING  
 VINEYARD HOUSE  
 UPTON UPON SEVERN E: info@stratacon.co.uk  
 W8 USA www.stratacon.co.uk

**GPS**  
 SURVEY GROUP  
 MEMBER

Scale 1:1500  
 Plot A1  
 Date MAY 13  
 Checked by DGE  
 Drawn by BPM  
 Issue No. 01  
 Figure No. 01

Amendments	Drawn	Date



Plotting parameters  
 Maximum +100nT (red)  
 Minimum -100nT (blue)




Job No. J3337  
 Survey Date APR 2013

Client  
 COTSWOLD ARCHAEOLOGY

Project Title  
 GEOPHYSICAL SURVEY -  
 KELVEDON, ESSEX

Subject  
 COLOUR PLOT OF MINIMALLY  
 PROCESSED GRADIOMETER  
 DATA SHOWING EXTREME  
 VALUES

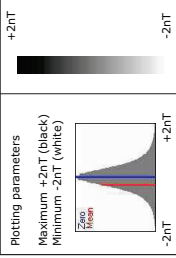
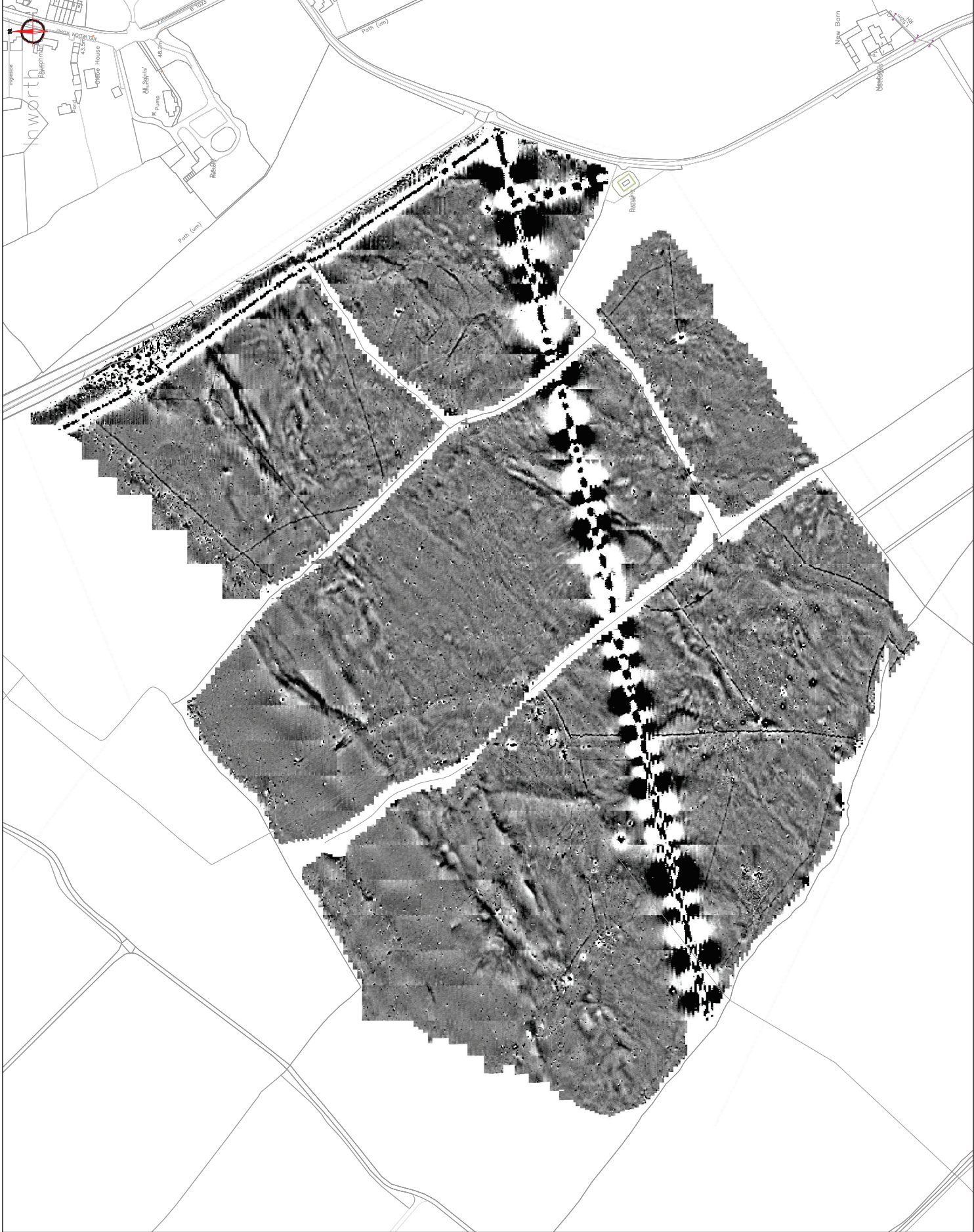
GEOPHYSICAL SURVEY AND ENGINEERING  
 VINEYARD HOUSE  
 UPTON UPON SEVERN  
 W8 USA  
 T: 01684 992266  
 E: info@stratacan.co.uk  
 www.stratacan.co.uk

Scale: 1:1500  
 Date: MAY 13  
 Checked by: DGE  
 Drawn by: BPM  
 Issue No: 01  
 Figure No: 02

Amendments	Drawn	Date	Description

© STRATACON LTD. 2013



Job No. J33337

Survey Date: APR 2013

Client: COTSWOLD ARCHAEOLOGY

Project Title: GEOPHYSICAL SURVEY - KELVEDON, ESSEX

Subject: PLOT OF MINIMALLY PROCESSED GRADIOMETER DATA

STRATACON LTD  
 GEOPHYSICAL SURVEY AND LOGGING  
 AND ENGINEERING  
 VINEYARD HOUSE  
 UPTON UPON SEVERN  
 W88 0SA  
 T: 01684 992266  
 E: info@stratcon.co.uk  
 www.stratcon.co.uk

**GPS**  
 SURVEY GROUP MEMBER

Scale: 1:1500  
 Plot: A1  
 Date: MAY 13  
 Checked by: DGE  
 Drawn by: BPM  
 Issue No: 01  
 Figure No: 03

Amendments	
Drawn No.	Date

KEY	
<b>PROBABLE ARCHAEOLOGY</b>	
	Positive linear anomaly - probable former field boundary (recovered on 1874 OS Mapping)
	Weak linear anomaly - probable former field boundary
	Negative anomaly / weak negative anomaly - probable bank or earthwork of archaeological origin
	Linear anomaly - probable bank or earthwork of archaeological origin
	Moderate strength discrete anomaly - probable thermomagnetic feature
	Strong linear anomalies - probably related to ridge-and-furrow
<b>POSSIBLE ARCHAEOLOGY</b>	
	Positive anomaly / weak positive anomaly - possible cut
	Feature of archaeological origin - anomaly - possible bank or earthwork of archaeological origin
	Moderate strength discrete anomaly - possible thermomagnetic feature
	Scattered linear magnetic debris of uncertain origin
<b>OTHER ANOMALIES</b>	
	Magnetic spike - probable ferrous object
	Linear anomaly - probable linear structure - possibly related to agricultural activity such as ploughing or other modern service
	Linear anomaly - possibly related to land drain
	Magnetic disturbance associated with nearby metal ground
	Strong magnetic debris - possible disturbed or made ground
	Scattered magnetic debris
	Area of anomalous magnetic variation - probable natural (e.g. geological or pedological) origin

Client: **J3337** Survey Date: **APR 2013**

Project Title: **COTSWOLD ARCHAEOLOGY**

Subject: **GEOPHYSICAL SURVEY - KELVEDON, ESSEX**

**ABSTRACTION & INTERPRETATION OF GRADIOMETER ANOMALIES**

**STRATA**  
GEOPHYSICAL SURVEY TECHNOLOGY AND ENGINEERING

VINEYARD HOUSE  
UPTON UPON SEVERN  
W8 USA  
T: 01684 992266  
E: info@stratacan.co.uk  
www.stratacan.co.uk

**GPS**  
SURVEILLANCE  
MEMBER

Scale: 1:1500  
Checked by: **DGE** Issue No: **01**  
Date: **MAY 13** Drawn by: **BPM** Figure No: **04**

