Battlefields Lane, Holbeach

Written Scheme of Investigation
for an Archaeological Geophysical Survey

Accession Number: LCNCC: 2024.48
Report Ref.: 283572.02
February 2025

wessexarchaeology

Portway House
Old Sarum Park
Salisbury
Wiltshire
SP4 6EB

www.wessexarch.co.uk

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Document Information

Document title:	Battlefields Lane, Holbeach
Document subtitle:	Written Scheme of Investigation for an Archaeological Geophysical Survey
Document reference:	283572.02
Client name:	Ken Parke Planning Consultants Limited (Bournemouth)
Address:	Anniversary House, 23 Abbott Road, Bournemouth, BH9 1EU
Site location:	Land off of Battlefields Lane South, Holbeach, Spalding, PE12 7PG
County:	Lincolnshire
National grid reference	536947 325302
Planning authority	South Holland District Council
Museum name	Lincoln Museum
Accession number	LCNCC:2024.48
WA project code	283572
Date of fieldwork	TBC
Project management by	Chris Breeden
Document compiled by	Brett Howard
Graphics by	Brett Howard

Quality Assurance

Issue	Date	Author	Approved by
1	24/10/2024	BH	(ADT)
2	12/02/2025	BH	(ADT)

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1 INTRODUCTION

1.1 Project and planning background

1.1.1 Wessex Archaeology has been commissioned by Ken Parke Planning Consultants ('the client'), to produce a written scheme of investigation (WSI) for a proposed archaeological geophysical survey over 6.1 ha across two parcel of land located in Land off Battlefields Lane South, Holbeach, Spalding, Lincolnshire, PE12 7PG. The evaluation area is centred on NGR 536947 325302 (**Figure 1**).

1.1.2 The area comprises land for a proposed hybrid application for 158 dwellings, comprised of:

- Full planning permission for the erection of 62 dwellings, associated landscaping and infrastructure; and
- Outline planning permission for the erection of approximately 96 dwellings (some matters reserved)

1.1.3 A planning application was submitted to Lincolnshire County Council, was granted 15 June 2023, subject to conditions. The following conditions relate to archaeology:

11 *No development shall take place until a written scheme of archaeological investigation has been submitted to and approved in writing by the Local Planning Authority. This scheme should include the following and should be in accordance with the archaeological brief supplied by the Lincolnshire County Council Historic Environment advisor on behalf of the Local Planning Authority:*
1. An assessment of significance and proposed mitigation strategy (i.e. preservation by record, preservation in situ or a mix of these elements).
2. A methodology and timetable of site investigation and recording
3. Provision for site analysis
4. Provision for publication and dissemination of analysis and records
5. Provision for archive deposition
6. Nomination of a competent person/organisation to undertake the work
7. The scheme to be in accordance with the Lincolnshire Archaeological Handbook.
The archaeological site work shall only be undertaken in accordance with the approved writing.

Reason: To ensure the preparation and implementation of an appropriate scheme of archaeological mitigation in accordance with national guidance contained in Section 16 of the National Planning Policy Framework, 2021. This issue is integral to the development and therefore full details need to be finalised prior to the commencement of works.
This Condition is imposed in accordance with Policy 29 of the South East Lincolnshire

Local Plan, 2019.

***12** The applicant shall notify the Lincolnshire County Council Historic Environment Department in writing of the intention to commence at least fourteen days before the start of archaeological work required in connection with Condition 11 above in order to facilitate adequate monitoring arrangements.*

1.1.4 The geophysical survey will comprise a gradiometer survey over all practicable elements of 6.1 ha of land.

1.1.5 This geophysical survey is part of staged approach in determining the archaeological potential of the site, and follows other non-intrusive archaeological work, including a previous geophysical survey performed by Stratascan in 2006, which produced little evidence of archaeology, though only sampled the site.

1.2 Scope of document

1.2.1 This WSI sets out the aims of the geophysical survey, and the methods and standards that will be employed. In format and content, it conforms to current best practice, as well as to the guidance outlined in *Management of Research Projects in the Historic Environment* (MoRPHE, Historic England 2015), the Chartered Institute for Archaeologists' (CIfA) *Standards and guidance for archaeological geophysical survey* (CIfA 2014; revised 2020), Europae Archaeologiae Consilium recommendations (Schmidt *et al.* 2015) and Historic England *Thesauri* (English Heritage 2014).

1.2.2 This document will be submitted to the County Archaeologist for Lincolnshire County Council, archaeological advisor to the Local Planning Authority (LPA), for approval, prior to the start of the geophysical survey.

1.3 Location, topography, and geology

1.3.1 The site comprises two contiguous parcels of land in Holbech, 10.6 km north-east of Spalding, Lincolnshire.

1.3.2 The site comprises 6.1 ha of agricultural land. It is bounded by residential housing to the north-east, north-west, south-east, and south-west, with scrubland in the southern portion of the site, and Battlefields Lane to the north.

1.3.3 The site is relatively flat at 3 m above Ordnance Datum (aOD).

1.3.4 The bedrock geology is classified as the Ampthill Clay formation, a pale grey slightly silty Mudstone. Superficial deposits are recorded as unconsolidated Tidal Flat Alluvium of clay, silt, sand, and gravel deposited around the Wash (BGS 2024).

1.3.5 The soils underlying the site are likely to consist of calcareous alluvial gley soils of the 812b (Wisbech) association (SSEW SE Sheet 4 1983). Soils derived from such geological parent material have been shown to produce magnetic contrasts acceptable for the detection of archaeological remains through magnetometer survey.

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

2.1 Introduction

2.1.1 The archaeological and historical background was assessed in a prior Written Scheme of Investigation (WSI) (Wessex Archaeology, 2024) for an archaeological watching brief, which considered the recorded historic environment resource within a 1 km study area of the proposed development. The WSI used information from the Lincolnshire Historic Environment Record (HER) and the National Heritage List for England (NHLE). Additional sources of information are referenced, as appropriate.

2.2 Archaeological and historical context

Listed buildings

2.2.1 There are 25 listed buildings recorded within the 1 km search radius of site. Of these, one is a Grade I building related to All-saints Holbeach church (NHLE:1064486) 925 m south-west of the site. The remainder of the buildings relate to 19th and 20th century dwellings or residential buildings such as former schools.

Prehistoric

2.2.2 Prehistoric evidence in the area is sparse but 2.5 km north of the site a possible Bronze Age barrow has been identified in aerial photographs, and 2.5 km south-east residual Iron Age pottery has been reported within later medieval contexts (MLI 23005).

Post medieval

2.2.3 There are some suggestions of early medieval material in the area; During development works at the William Stukeley Primary School 1.4 km south-west, a probable pit was seen containing redeposited slag debris which has been suggested as Anglo-Saxon (Clay and Allen 2002), unfortunately, nothing can be said on this with any certainty. Additionally, anomalies seen within a geophysical survey conducted 2 km to the west were interpretated as possibly Anglo-Saxon (Smith 2015), although these were never further investigated.

2.2.4 As with many settlements, the Domesday Survey is our earliest historical reference to Holbeach, or Holbech, Holeben, Holobech and Holobec as it was spelt in various entries. The name is believed to derive from the Old English; *hol* meaning ‘hollow’ and *Baec* meaning ‘back’; topographically meaning *hollow* or *concave ridge* (KEPN 2024). These records show that area was reasonably wealthy and there is some suggestion that just south of Fleet, 2.5 km south-east, a tumulus marked on early OS mapping represents a motte (MLI 22265), possibly itself reusing an earlier barrow and potentially even representing an Anglo-Saxon manorial site.

2.2.5 To the south of the town are several fen banks, ranging in date from probable Anglo-Saxon to the 13th century (Cope-Faulkner 1997), and it has been suggested that Roman Bank to the north-west represents the probable Saxon coastline (MLI 89892). The presence of Fen banks speaks to a population large enough to have maintained these structures.

2.2.6 By 1241 Common Dyke, the last of the large medieval dykes, had been completed, finally draining the fenlands up to the Cambridgeshire border (Hallam 1954 cited in Cope-Faulkner 1997). Indeed, there are a number of medieval find spots across the town, including pottery, coins, and iron work, and several antiquarian references to Guilds, implying the presence of a guildhall (Cope-Faulkner 1997). The surrounding fields are a combination of irregular enclosures of early medieval origin and, as mentioned, the area has long been a centre of salt production, which appears to have boomed from the 12th or 13th century, with many salterns recorded to the north of the town. By 1252 the town was clearly growing as the

Lord of Holbeach, Thomas De Multon, obtained a license for a market and a fair, and by the 14th century a free grammar school was founded.

2.2.7 The name of the road the site adjoins, Battlefield Lane South, is in reference to the fields immediately across the road to the north, which are labelled as Battle Fields, on early OS maps. Traditionally this is thought to be in reference to a Skirmish which may have taken place here in 1461, during the Wars of the Roses. However, no definitive evidence for this has ever been forthcoming.

Cartographic

2.2.8 The name of the road the site adjoins, Battlefield Lane South, is in reference to the fields immediately across the road to the north, which are labelled as Battle Fields, on early OS maps. Traditionally this is thought to be in reference to a Skirmish which may have taken place here in 1461, during the Wars of the Roses. However, no definitive evidence for this has ever been forthcoming.

2.2.9 The existence of post medieval field boundaries is apparent on historical mapping from the 19th and 20th centuries. It suggests the land was widely used as an agricultural resource, later being enclosed and then some boundaries being removed.

2.3 Previous investigations related to the development

Geophysical survey (2006)

2.3.1 Linear anomalies were identified across all three areas surveyed and may suggest agricultural activity. Furthermore, each area contains anomalies (possible pits) and as well as possible archaeological ditches.

Fieldwalking survey (2006)

2.3.2 The survey revealed 2 sherds of Roman period pottery in the south-western corner of the development area and abundant post-medieval pottery, ceramic building material, coins and clay pipes were found across the site. This was against a site wide backdrop of medieval pottery.

3 AIMS AND OBJECTIVES

3.1 Project aims

3.1.1 The aims (or purpose) of the geophysical survey, in compliance with the CIfA' *Standards and guidance for archaeological geophysical survey* (CIfA 2014a; revised 2020), are:

- To determine, as far as is reasonably possible, the nature of the detectable archaeological resource within a specified area using appropriate methods and practices; and
- To inform either the scope and nature of any further archaeological work that may be required; or the formation of a mitigation strategy (to offset the impact of the development on the archaeological resource); or a management strategy.

3.2 Project objectives

3.2.1 In order to achieve the above aims, the objectives of the geophysical survey are:

- To conduct a geophysical survey covering as much of the specified area as possible, allowing for on-site obstructions;
- To clarify the presence/absence of anomalies of archaeological potential; and

- Where possible, to determine the general nature of any anomalies of archaeological potential.

4 SURVEY METHODS

4.1 Introduction

4.1.1 All works will be undertaken in accordance with the detailed methods set out within this WSI. Any significant variations to these methods will be agreed in writing with the County Archaeologist for Lincolnshire County Council and the client, prior to being implemented.

4.1.2 An accession code, **LCNCC: 2024.48** was obtained for the geophysical survey.

4.2 Access

4.2.1 The client will make all access arrangements for the geophysical survey works, Wessex Archaeology will not deal directly with any landowners etc. unless instructed to do so by the client.

4.2.2 Any areas which are not accessible during the survey, or which are deemed by Wessex Archaeology staff to be unsafe to access, will not form a part of this survey work. Any such areas will be documented for future reference.

4.3 Service location and other constraints

4.3.1 The client will provide information regarding the presence of any below/above-ground services, and any ecological, environmental, or other constraints.

4.1 Survey specification

4.1.1 The navigation display on the gradiometer cart-based system provides real time positioning enabling full site coverage without the need to set up individual grid nodes across the site. However, in order to ensure survey accuracy, the boundaries of the survey extent will be established using an RTK GNSS instrument.

4.1.2 All survey data will be recorded in OS National Grid coordinates and heights above OD (Newlyn), as defined by OSGM15 and OSTN15, with a horizontal precision of at least 50 mm.

4.1.3 Digital mapping and archaeological information gathered during any previous work by Wessex Archaeology on the site will be used to support the interpretation of the geophysical data.

4.1.4 An interpretation of the geophysical anomalies will be presented identifying likely and possible archaeological features, along with linear trends and areas of increased magnetic response.

4.1.5 Further details of the geophysical and survey equipment, methods, processing, and interpretation are described in **Appendix 1** and **2**.

4.2 Instrument specification

4.3 Gradiometer survey specification

4.3.1 The gradiometer survey will be conducted using a hand-pushed non-magnetic cart fitted with four Sensys FGM650/03 gradiometers mounted at 1 m intervals with an effective sensitivity of 0.03 nT over a ±100 nT range.

4.3.2 Data will be collected at 0.01 m intervals along transects spaced 1 m apart, in accordance with Europae Archaeologiae Consilium recommendations (Schmidt *et al.* 2015). Data will be collected in the zigzag method.

4.3.1 Where necessary, data from the survey will be subject to minimal correction processes. The precise steps required will be determined after data collection but would typically comprise a zero-mean traverse function (±5 nT thresholds) to correct for variations in the calibration between the SenSYS sensors used and a de-step function to account for variations in traverse position due to varying ground cover and topography. The data will be processed using in-house software which allows greyscale and trace plots to be produced. Interpretation will be conducted within the latest version of ESRI ArcGIS Pro. All efforts will be made during data collection to limit required processing and no further filtering will be applied.

5 REPORTING

5.1 General

5.1.1 Following completion of the fieldwork and the processing and assessment of the data, a draft report will be submitted for approval to the client, for comment. Once approved, a digital (.pdf) final version will be submitted.

5.1.2 The report will include the following elements:

- A non-technical summary;
- Introductory statements including location and NGR of surveyed area, background to the project (and any references/event numbers as supplied by the client), site description with geology, and summarised archaeological background;
- Aims and objectives;
- Methods;
- Results;
- Conclusions in relation to the project aims and objectives;
- Archive preparation and deposition arrangements;
- Appendices;
- Plans and plots (including location plan); and
- References

5.1.3 The report will be prepared within three weeks of completion of all fieldwork, and submitted to the client for approval. If required interim reporting can be completed following fieldwork, subject to variation.

5.1.4 Digital copies of the raw data, report text, figures and electronic drawings will be made available upon request (subject to copyright).

5.2 OASIS

5.2.1 An OASIS online record (http://oasis.ac.uk/pages/wiki/Main) will be created, with key fields completed, and a .pdf version of the final report submitted. Subject to any contractual requirements on confidentiality, copies of the OASIS record will be integrated into the

relevant local and national records and published through the Archaeology Data Service (ADS) ArchSearch catalogue.

6 ARCHIVE STORAGE AND CURATION

6.1 Preparation of archive

6.1.1 If provision is made in the contract, the complete project archive will be prepared in accordance with *A Guide to Good Practice: Geophysical Data in Archaeology* (Schmidt *et al*. 2001) and ADS guidelines (ADS 2015), and any requirements of the relevant Historic Environment Record (HER).

6.1.2 A high quality geo-rectified TIFF will be produced from the processed data, with the raw data stored as ASCII pre-processed composite files. The archive will usually be deposited within 6–12 months of the project's completion.

7 COPYRIGHT

7.1 Archive and report copyright

7.1.1 The full copyright of the written/illustrative/digital archive relating to the project will be retained by Wessex Archaeology under the *Copyright, Designs and Patents Act* 1988 with all rights reserved. The client will be licenced to use each report for the purposes that it was produced in relation to the project as described in the specification. The museum, however, will be granted an exclusive licence for the use of the archive for educational purposes, including academic research, providing that such use conforms to the *Copyright and Related Rights Regulations* 2003. In some instances, certain regional museums may require absolute transfer of copyright, rather than a licence; this should be dealt with on a case-by-case basis.

7.1.2 Information relating to the project will be deposited with the Historic Environment Record (HER) where it can be freely copied without reference to Wessex Archaeology for the purposes of archaeological research, or development control within the planning process.

7.2 Third party data copyright

7.2.1 This document, the evaluation report and the project archive may contain material that is non-Wessex Archaeology copyright (e.g., Ordnance Survey, British Geological Survey, Crown Copyright), or the intellectual property of third parties, which Wessex Archaeology are able to provide for limited reproduction under the terms of our own copyright licences, but for which copyright itself is non-transferable by Wessex Archaeology. Users remain bound by the conditions of the *Copyright, Designs and Patents Act* 1988 with regard to multiple copying and electronic dissemination of such material.

8 WESSEX ARCHAEOLOGY PROCEDURES

8.1 External quality standards

8.1.1 Wessex Archaeology is registered as an archaeological organisation with the Chartered Institute for Archaeologists (CIfA) and fully endorses its *Code of conduct* (CIfA 2014b) and *Regulations for professional conduct* (CIfA 2014c). All staff directly employed or subcontracted by Wessex Archaeology will be of a standard approved by Wessex Archaeology, and archaeological staff will be employed in line with the CIfA codes of practice, and will normally be members of the CIfA.

8.2 Personnel

Project specific

8.2.1 The fieldwork will be directed and supervised by an experienced member of Wessex Archaeology's geophysics team. This will likely comprise geophysicists from our Sheffield Office, who will be on site at all times for the length of archaeological fieldwork as required. The overall responsibility for the conduct and management of the project will be held by one of Wessex Archaeology's project managers, who will visit the fieldwork as appropriate to monitor progress and to ensure that the scope of works is adhered to. Where required, monitoring visits may also be undertaken by Wessex Archaeology's Health and Safety manager. The appointed project manager and fieldwork director will be involved in all phases of the investigation through to its completion.

8.2.2 The following key staff are proposed:

- Chris Breeden
- Cameron Lane

8.2.3 Wessex Archaeology reserves the right, due to unforeseen circumstances (e.g., annual leave, sick leave, maternity, retirement etc) to replace nominated personnel with alternative members of staff of comparable expertise and experience.

Wessex Archaeology's geophysical capabilities

8.2.4 Wessex Archaeology has a unique track record in undertaking archaeological geophysics investigations in land, coastal and marine environments. Both in the UK and abroad, Wessex Archaeology delivers professional archaeological geophysical services. A practical and pragmatic approach to carrying out investigations is matched by a proven ability to place the results within their proper archaeological context.

8.2.5 Wessex Archaeology's expertise in geophysical surveys is fully integrated with its archaeological services, ensuring a seamless, professional approach with direct access to in-house computing, illustration, finds and environmental analysis, and scholarly and popular publication.

8.2.6 Wessex Archaeology's geophysics team comprises specialist staff at all grades from Geophysicist to Technical Manager, and is overseen by the Director of Geoservices. This team is supplemented by archaeologists with geomatics and geoarchaeological experience from Wessex Archaeology's wider staff and further experienced staff can be brought in on contract to meet project requirements.

8.2.7 In addition to its in-house expertise, Wessex Archaeology routinely employs the services of a range of eminent geoarchaeological, palaeoenvironmental, and finds specialists. The contribution of these specialists to specific projects is managed through a relevant technical manager. Further details of external specialists employed by Wessex Archaeology can be provided on request.

8.3 Internal quality standards

8.3.1 Wessex Archaeology is an ISO 9001 accredited organisation (certificate number FS 606559), confirming the operation of a Quality Management System which complies with the requirements of ISO 9001:2015 – covering professional archaeological and heritage advice and services. The award of the ISO 9001 certificate, independently audited by the British Standards Institution (BSI), demonstrates Wessex Archaeology's commitment to providing quality heritage services to our clients. ISO (the International Organisation for

Standardisation) is the most recognised standards body in the world, helping to drive excellence and continuous improvement within businesses.

8.3.2 Wessex Archaeology operates a computer-assisted project management system. Projects are assigned to individual project managers who are responsible for the successful completion of all aspects of the project. This includes monitoring project progress and quality; controlling the project budget from inception to completion; and all aspects of Health and Safety for the project. At all stages, the project manager will carefully assess and monitor performance of staff and adherence to objectives, timetables, and budgets, while the manager's performance is monitored in turn by the team leader or regional director.

8.3.3 All work is monitored and checked whilst in progress on a regular basis by the project manager, and all reports and other documents are checked (where applicable) by the team leader/technical manager, or regional director, before being issued. A series of guideline documents or manuals form the basis for all work. The technical managers in the Graphics, Finds & Analysis, GeoServices, and IT sections provide additional assistance and advice.

8.3.4 All staff are responsible for following Wessex Archaeology's quality standards but the overall adherence to and setting of these standards is the responsibility of the senior management team in consultation with the team leaders/regional directors who also ensure projects are adequately programmed and resourced within Wessex Archaeology's portfolio of project commitments.

8.4 Health and Safety

8.4.1 Health and Safety considerations will be of paramount importance in conducting all fieldwork. Safe working practices will override archaeological considerations at all times. Wessex Archaeology will supply trained, competent, and suitably qualified staff to perform the tasks and operate the equipment used on site. All work will be carried out in accordance with the *Health and Safety at Work Act* 1974 and the *Management of Health and Safety at Work Regulations* 1999, and all other applicable Health and Safety legislation, regulations, and codes of practice in force at the time.

8.4.2 Wessex Archaeology will supply a copy of the company's Health and Safety Policy and a Risk Assessment to the client before the commencement of the evaluation. The Risk Assessment will have been read, understood, and signed by all staff attending the site before any fieldwork commences. Wessex Archaeology staff will comply with the Personal Protective Equipment (PPE) requirements for working on the site, and any other specific additional requirements of the principal contractor.

8.5 Insurance

8.5.1 Wessex Archaeology has both Public Liability (£15,000,000) and Professional Indemnity Insurance (£15,000,000).

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APPENDICES

Appendix 1: Survey equipment and data processing - Gradiometer

The magnetic data for this project will be acquired using a non-magnetic cart fitted with four SenSys FGM650/3 magnetic gradiometers. The instrument has multiple sensor assemblies fixed horizontally 1 m apart allowing four traverses to be recorded simultaneously. Each sensor contains two fluxgate magnetometers arranged vertically with a 0.6 m separation and measures the difference between the vertical components of the total magnetic field within each sensor array. This arrangement of magnetometers suppresses any diurnal or low frequency effects.

The gradiometers have an effective resolution of ±8 µT over ±1000 nT range. All of the data are then relayed to a CS35 tablet, running the MONMX program, which is used to record the survey data from the array of FMG650/3 probes at a rate of 20 Hz – 100 Hz. The program also receives measurements from a GPS system, which is fixed to the cart at a measured distance from the sensors, providing real time locational data for each data point.

The cart-based system relies upon accurate GPS location data which is collected using a Leica Captivate system, or using a GNSS Carlson BRx7 system. This receives corrections from a network of reference stations operated by Ordnance Survey and, depending on the system used, Leica Geosystems, allowing positions to be determined with a precision of 0.02 m in real-time and therefore exceed the level of accuracy recommended by Europae Archaeologiae Consilium recommendations (Schmidt et al. 2015) for geophysical surveys.

Post-processing

The magnetic data collected during the survey is downloaded from the system for processing and analysis using both commercial and in-house software. This software allows for both the data and the images to be processed in order to enhance the results for analysis; however, it should be noted that minimal data processing is conducted so as not to distort the anomalies.

Typical data and image processing steps may include:

- GPS DeStripe – Determines the median of each transect and then subtracts that value from each datapoint in the transect within the defined window. May be used to remove the striping effect seen within a survey caused by directional effects, drift, etc.
- Discard Overlaps - Intended to eliminate a track(s) that have been collected too close to one another. Without this, the results of the interpolation process can be distorted as it tries to accommodate very close points with potentially differing values.
- GPS Base Interpolation – Sets the X & Y interval of the interpolated data and the track radius (area around each datapoint that is included in the interpolated result).

Typical displays of the data used during processing and analysis:

- Greyscale – Presents the data in plan view using a greyscale to indicate the relative strength of the signal at each measurement point. These plots can be produced in colour to highlight certain features but generally greyscale plots are used during analysis of the data.

Appendix 2: Geophysical interpretation

The interpretation methodology used by Wessex Archaeology separates the anomalies into four main categories: archaeological, modern, agricultural, and uncertain or geological origin.

The archaeological category is used for features when the form, nature, and pattern of the anomaly are indicative of archaeological remains. Further sources of information such as aerial photographs may also have been incorporated in providing the final interpretation. This category is further sub-divided into two groups, implying a decreasing level of confidence:

- Archaeology – used when there is a clear geophysical response and anthropogenic pattern.
- Possible archaeology – used for features which give a response but which form no discernible pattern or trend.

The modern category is used for anomalies that are presumed to be relatively modern in date:

- Ferrous – used for responses caused by ferrous material. These anomalies are likely to be of modern origin.
- Modern service – used for responses considered relating to cables and pipes; most are composed of ferrous/ceramic material although services made from non-magnetic material can sometimes be observed.

The agricultural category is used for the following:

- Former field boundaries – used for ditch sections that correspond to the position of boundaries marked on earlier mapping.
- Agricultural ditches – used for ditch sections that are aligned parallel to existing boundaries and former field boundaries that are not considered to be of archaeological significance.
- Ridge and furrow – used for broad and diffuse linear anomalies that are considered to indicate areas of former ridge and furrow.
- Ploughing – used for well-defined narrow linear responses, usually aligned parallel to existing field boundaries.
- Drainage – used to define the course of ceramic field drains that are visible in the data as a series of repeating bipolar (black and white) responses.

The uncertain origin/geological category is used for features when the form, nature and pattern of the anomaly are not sufficient to warrant a classification as an archaeological feature. This category is further sub-divided into:

- Increased magnetic response – used for areas dominated by indistinct anomalies which may have some archaeological potential.
- Trend – used for low amplitude or indistinct linear anomalies.
- Superficial geology – used for diffuse edged spreads considered to relate to shallow geological deposits. They can be distinguished as areas of positive, negative, or broad bipolar (positive and negative) anomalies.

Wessex Archaeology Ltd registered office Portway House, Old Sarum Park, Salisbury, Wiltshire SP4 6EB
Tel: 01722 326867 Fax: 01722 337562 info@wessexarch.co.uk www.wessexarch.co.uk