

# **Durham Tees Valley Airport, Northside**

# geophysical surveys

on behalf of **Scott Wilson** 

Report 2079 September 2008

Archaeological Services Durham University South Road Durham DH1 3LE Tel: 0191 334 1121 Fax: 0191 334 1126 archaeological.services@durham.ac.uk www.durham.ac.uk/archaeological.services

## **Durham Tees Valley Airport, Northside**

## geophysical surveys

## Report 2079

September 2008

Archaeological Services Durham University

on behalf of

Scott Wilson West One, Wellington Street, Leeds, LS1 1BA

## Contents

1.	Summary	•	•	•	•	1
2.	Project backgrou	ınd	•	•	•	2
3.	Archaeological and historical background					2
4.	Landuse, topography and geology .				•	3
5.	Geophysical surv	vey			•	3
6.	Conclusions	•	•	•	•	6
7.	Sources .	•	•			6
Appendix: Project specification .					7	

Figures (inside back cover)

Figure 1: Site location

Figure 2: Geophysical survey

Figure 3: Geophysical interpretation

Figure 4: Archaeological interpretation

Figure 5: Trace plots of geomagnetic data

## 1. Summary

## The project

- 1.1 This report presents the results of geophysical surveys conducted in advance of proposed development at Durham Tees Valley Airport. The works comprised the geomagnetic survey of two areas.
- 1.2 The works were commissioned by Scott Wilson and conducted by Archaeological Services Durham University.

## Results

- 1.3 Two diffuse positive magnetic anomalies were detected in Area A; these could reflect soil-filled features such as ditches.
- 1.4 A number of intense dipolar magnetic anomalies were detected in Area B which could reflect buried tanks or bunkers, possibly associated with the former RAF bomber station.

## 2. Project background

## *Location* (Figure 1)

2.1 The survey area was located northwest of Durham Tees Valley Airport, 6km east-southeast of Darlington (NGR centre: NZ 364 133). The site is bounded to the west and north by an access road to the airport, to the east by trees and to the south by the car park for the airport.

## Development proposal

2.2 The development proposal is for the construction of Durham Tees Valley Airport Hotel and associated car parking.

## Objective

2.3 The principal aim of the surveys was to assess the nature and extent of any subsurface features of potential archaeological significance within the proposed development area, so that an informed decision may be made regarding the nature and scope of any further scheme of archaeological works that may be required in advance of development.

## Methods statement

2.4 The surveys have been undertaken in accordance with a specification provided by Scott Wilson (Appendix) and approved by Durham County Council Archaeology Section.

## Dates

2.5 Fieldwork was undertaken on 15<sup>th</sup> September 2008. This report was prepared between 16<sup>th</sup> and 18<sup>th</sup> September 2008.

## Personnel

2.6 Fieldwork was conducted by Janice Adams and Natalie Swann (Supervisor). This report was prepared by Natalie Swann with illustrations by David Graham, and edited by Duncan Hale, the Project Manager.

## Archive/OASIS

2.7 The site code is **DTV08**, for **D**urham Tees Valley 2008. The survey archive will be supplied on CD to the client for deposition with the project archive in due course. Archaeological Services is registered with the **O**nline AccesS to the Index of archaeological investigationS project (OASIS). The OASIS ID number for this project is **archaeol3-48390**.

## 3. Archaeological and historical background

3.1 There is evidence of prehistoric activity within the wider landscape including a possible Iron Age enclosure and field systems to the south of the airport. Also to the south of the airport there is evidence of Romano-British field systems. Local place-name evidence suggests Anglo-Saxon and Anglo-Scandinavian influence.

- 3.2 There were a number of villages situated near the site in the medieval period, including Middle Middleton and the deserted medieval villages of West Hartburn, Middleton Low and Newsham.
- 3.3 The area remained largely undeveloped through the post-medieval period until the construction of the Stockton to Darlington Railway between 1822 and 1825 and the Middleton St George bomber station in 1939.

## 4. Landuse, topography and geology

- 4.1 At the time of survey the proposed development area comprised three fields of scrubland. It was not possible to collect data in the northern part of the site (Area C) due to overgrown weeds and brambles. The eastern edge of the site was also overgrown with the result that the survey could not be extended out to the field boundaries.
- 4.2 Between Areas A and B was a gravel track leading to a small sub-station and communications mast. Ridge and furrow cultivation of Area B was evident as upstanding earthworks, seen most clearly at the northern end of the survey area. A drainage ditch ran east-west across the centre of Area B. Both fields contained very wet, boggy ground.
- 4.3 The survey area was predominantly level with an elevation of 35m to 40m OD.
- 4.4 The underlying solid geology of the area comprises Sherwood Sandstone Group which is overlain by boulder clay and undifferentiated drift.

## 5. Geophysical survey

## Standards

5.1 The surveys and reporting were conducted in accordance with English Heritage guidelines, *Geophysical survey in archaeological field evaluation 2<sup>nd</sup> edition* (David, Linford & Linford 2008); the Institute of Field Archaeologists Technical Paper No.6, *The use of geophysical techniques in archaeological evaluations* (Gaffney, Gater & Ovenden 2002); and the Archaeology Data Service *Geophysical Data in Archaeology: A Guide to Good Practice* (Schmidt 2001).

## Technique selection

5.2 Geophysical survey enables the relatively rapid and non-invasive identification of sub-surface features of potential archaeological significance and can involve a variety of complementary techniques such as magnetometry, earth electrical resistance, ground-penetrating radar and electromagnetic survey. Some techniques are more suitable than others in particular situations, depending on a variety of site-specific factors including the nature of likely targets; depth of likely targets; ground conditions; proximity of buildings, fences or services and the local geology and drift.

- 5.3 In this instance, based previous work, it was considered likely that cut features such as ditches and pits might be present on the site, and that other types of feature such as trackways, wall foundations and fired structures (for example kilns and hearths) might also be present.
- 5.4 Given the anticipated shallowness of targets and the non-igneous geological environment of the study area a geomagnetic technique, fluxgate gradiometry, was considered appropriate for detecting the types of feature mentioned above. This technique involves the use of hand-held magnetometers to detect and record anomalies in the vertical component of the Earth's magnetic field caused by variations in soil magnetic susceptibility or permanent magnetisation; such anomalies can reflect archaeological features.

## Field methods

- 5.5 A 20m grid was established across each survey area and tied-in to known, mapped Ordnance Survey points using a Trimble Pathfinder Pro XRS global positioning system (GPS) with real-time correction providing sub-metre accuracy. Two survey pegs were left in the ground for each survey area, as shown in Figures 2-4; the peg coordinates are shown on Figure 4.
- 5.6 Measurements of vertical geomagnetic field gradient were determined using Bartington Grad601-2 dual fluxgate gradiometers. A zig-zag traverse scheme was employed and data were logged in 20m grid units. The instrument sensitivity was set to 0.1nT, the sample interval to 0.25m and the traverse interval to 1.0m, thus providing 1600 sample measurements per 20m grid unit.
- 5.7 Data were downloaded on site into a laptop computer for initial processing and storage and subsequently transferred to a desktop computer for processing, interpretation and archiving.

## Data processing

- 5.8 Geoplot v.3 software was used to process the geophysical data and to produce both continuous tone greyscale images and trace plots of the raw (unfiltered) data. The greyscale images and interpretations are presented in Figures 2-4; the trace plots are provided in Figure 5. In the greyscale images, positive magnetic anomalies are displayed as dark grey and negative magnetic anomalies as light grey. A palette bar relates the greyscale intensities to anomaly values in nanoTesla.
- 5.9 The following basic processing functions have been applied to each dataset:

clip	clips, or limits data to specified maximum or minimum values; to eliminate large noise spikes; also generally makes statistical calculations more realistic.
zero mean traverse	sets the background mean of each traverse within a grid to zero; for removing striping effects in the traverse direction and removing grid edge discontinuities.

*interpolate* increases the number of data points in a survey to match sample and traverse intervals. In this instance the data have been interpolated to 0.25 x 0.25m intervals.

## Interpretation: anomaly types

5.10 A colour-coded geophysical interpretation plan is provided in Figure 3. Two types of geomagnetic anomaly have been distinguished in the data:

positive magnetic	regions of anomalously high or positive magnetic field gradient, which may be associated with high magnetic susceptibility soil-filled structures such as pits and ditches.
dipolar magnetic	paired positive-negative magnetic anomalies, which typically reflect ferrous or fired materials (including fences and service pipes) and/or fired structures such as

#### Interpretation: features

5.11 Colour-coded archaeological interpretations are provided in Figure 4.

kilns or hearths.

#### **General comments**

5.12 Small, discrete dipolar magnetic anomalies have been detected in both survey areas. These almost certainly reflect items of near-surface ferrous and/or fired debris, such as horseshoes and brick fragments (as noted on the ground, especially in the north of Area B), and in most cases have little or no archaeological significance. A sample of these is shown on the geophysical interpretation plan, however, they have been omitted from the archaeological interpretation plan and the following discussion.

#### Area A

- 5.13 Two very weak diffuse positive magnetic anomalies have been detected in this area, one is aligned northeast-southwest and the other northwest-southeast. These could possibly reflect the remains of soil-filled features such as ditches.
- 5.14 Several linear positive magnetic anomalies have been detected in the south of the area; these are likely to reflect field drains.
- 5.15 Two large dipolar magnetic anomalies on the western edge of the survey area reflect lamp posts adjacent to the survey.
- 5.16 The large dipolar magnetic anomaly along the southern edge of the survey reflects a large steel fence around the airport car park.

#### Area B

5.17 A number of large intense dipolar magnetic anomalies were detected in the southern half of this area. It is probable that these reflect large buried ferrous or fired structures, possibly storage tanks or bunkers.

## 6. Conclusions

- 6.1 Geophysical survey was undertaken at Durham Tees Valley Airport prior to the development of a hotel and associated car parking.
- 6.2 Two diffuse positive magnetic anomalies were detected in Area A; these could reflect soil-filled features such as ditches. A number of probable field drains were also detected.
- 6.3 A number of intense dipolar magnetic anomalies were detected in Area B which may reflect buried storage tanks or bunkers, possibly associated with the former RAF bomber station.

## 7. Sources

- David, A, Linford, N, & Linford, P, 2008 Geophysical survey in archaeological field evaluation, 2<sup>nd</sup> edition, English Heritage
- Gaffney, C, Gater, J, & Ovenden, S, 2002 *The use of geophysical techniques in archaeological evaluations*, Technical Paper **6**, Institute of Field Archaeologists

Schmidt, A, 2001 *Geophysical Data in Archaeology: A Guide to Good Practice*, Archaeology Data Service, Arts and Humanities Data Service

## **Appendix: Project specification**



Durham Tees Valley Airport Ltd

## Durham Tees Valley Airport, Northside

Specification for Magnetometry Survey

Report July 2008



#### **Revision Schedule**

#### Specification for Magnetometry Survey

July 2008

Rev	Date	Details	Prepared by	Reviewed by	Approved by
01	July 08	Draft	Louise Robinson BA Graduate Archaeologist	Neil Macnab BA MIFA Principle Archaeologist	Annette Roe MA MIFA Technical Director
02	July 08	Draft	Louise Robinson BA Graduate Archaeologist	Neil Macnab BA MIFA Principle Archaeologist	Annette Roe MA MIFA Technical Director
03	July 08	Final	Louise Robinson BA Graduate Archaeologist	Neil Macnab BA MIFA Principle Archaeologist	Annette Roe MA MIFA Technical Director

Scott Wilson WEST ONE Wellington Street Leeds LS1 1BA

Tel: +44 (0)113 204 5000 Fax: +44 (0)113 204 5001

This document has been prepared in accordance with the scope of Scott Wilson's appointment with its client and is subject to the terms of that appointment. It is addressed to all for any set of the indication of oct Wilson's elect. South Wilson's accepts no stated in the document, for which it was prepared and provided. No preson oher than the client may copy (in whole or in part) use or rely on the contents of this document, without the prover withen permissions of the Company Screetary of Scott Wilson Ut any advice, opinions, or recommendations within this document shuld be read and relied upon only in the content of the document is a whole. The contents of this document are not to be construed as providing legal, business or tax advice or opinion.

© Scott Wilson Group PLC 2006

## Wilson

#### Table of Contents

1	Introduction	1
2	Site Description and Location	1
3	Archaeological and Historical Background	1
4	Project Objectives	2
5	Survey Areas	2
6	Methodology	3
7	Reporting	4
8	Dissemination	5
9	Archive Deposition	5
10	Monitoring	5
11	Confidentiality and Publicity	6
12	Copyright	6
13	Resources and Timetable	6
14	Insurances and Health and Safety	6
15	Access Arrangements and Site Information	7
16	General Provisions	7

#### Figures

Figure 1: Site Location Figure 2: Magnetometry Survey Locations

#### Appendices

Appendix 1: Archaeological Standards and Guidance



#### 1 Introduction

1.1 Scott Wilson has been commissioned by Durham Tees Valley Airport Ltd to undertake a magnetometry survey of the site of the proposed Durham Tees Valley Airport Hotei and associated car parking. The survey will also encompass adjoining areas of land to the north and south. The programme of investigation will contribute to the provision of mitigation strategies in advance of development in consultation with Lee White, Assistant Archaeological Officer for Durham County Council.

#### 2 Site Description and Location

- 2.1 Durham Tees Valley Airport is located c. 6km east-southeast of Darlington. The Northside development is centred about National Grid Reference NZ 364 133 and is situated within Durham Tees Valley Airport (Figure 1).
- 2.2 The development site consists of three irregular shaped areas of land, situated just to the northwest of the existing airport. The western site boundary abuts one of the main access roads into the airport, the eastern boundary is defined by a row of trees and the southern boundary abuts the car park of the current airport.
- 2.3 The development area currently lies within an area of scrubland. The northern extent has been landscaped to accommodate a roundabout, leaving an embankment running around the northern tip. The remainder of the development site is relatively flat.
- 2.4 The geology of the area is made up of glacial boulder clay and undifferentiated drift. Laminated clay is present beneath this. Solid strata of the Sherwood Sandstone Group, comprising shales, mudstones and grey and red sandstone bands lie below the clays (Roscoe Capita Environmental 2003).

#### 3 Archaeological and Historical Background

- 3.1 There is evidence of prehistoric activity within the wider landscape. A possible Iron Age enclosure and field systems were identified on aerial photographs c. 1km to the south of Durham Tees Valley Airport near Trafford Hill. Approximately c. 2km to the northwest of the airport at High Field Farm, c. 2.3km to the north-west at Fighting Cocks, and c. 2.5km to the south at Newsham Grange further evidence of prehistoric activity can be seen.
- 3.2 The Romans conquered the area in *c*. 71 AD. Romano-British field systems were recorded during excavation along the route of a pipeline to the south of the airport, southeast of Aisalby Grange.
- 3.3 Place-name evidence suggests occupation of the area within the early medieval period. 'Neasham' and 'Middleton' could infer an Anglo-Saxon influence. Similarly Dinsdale, Aisalby

D119050/Specification for Magnetometry Survey



and Girsby indicate to possible Anglo-Scandinavian influence. Situated *c*. 300m to the south of the development area is the Church of St. George's. This church has probable Anglo-Saxon origins. Four round columns which resemble Anglo-Saxon ballister shafts are built into the north and west walls and an Anglo-Saxon sundial or Mass dial, dated *c*. 850 AD was once situated near the pricet's door.

- 3.4 A number of villages, dating to the medieval period were situated in the vicinity of the development area. These included Middle Middleton (now Middleton One Row Robinson unpub) situated c. 500m to the west; West Hartburn, now a Deserted Medieval Village (DMV), situated c. 750m to the north-west; Middleton Low DMV c. 875m to the south and Newsham DMV, situated c. 2km to the south-east.
- 3.5 The area remained a largely undeveloped rural landscape during the post-medieval period, until the construction of Middleton St George bomber station in 1939. The bomber station is known to have encompassed two farms, Newsham Grange and Middleton St. George. These farms were certainly in existence during the post-medieval period. It is possible that these have earlier origins. Prior to the construction of the bomber station the only major change in the landscape was the construction of the Stockton and Darlington railway between 1822 and 1825. The line of the railway runs northwest-southeast along the northern boundary of the airport.

### 4 Project Objectives

- 4.1 The objectives of the detailed magnetometer survey are:
  - to establish the presence or absence of any archaeological anomalies within the areas of proposed development;
  - to define the extent of any such anomalies;
  - · to characterise, if possible, any such anomalies; and
  - to provide supporting information in order to detail the future archaeological strategy for the development, where appropriate and necessary.

#### 5 Survey Areas

- 5.1 The detailed magnetometer survey will cover the areas defined in Figure 2. To enable the accurate positioning of survey grids, the co-ordinates for each corner of the grid have been provided. The total area to be surveyed measures 0.92ha.
- 5.2 If there are any areas that cannot be surveyed the Archaeological Contractor will inform Scott Wilson immediately and details of these will be provided in the report.

D119050/Specification for Magnetometry Survey

2



#### 6 Methodology

- 6.1 The specification defines the methodologies to be used and adhered to. It has been produced in consultation with Lee White (Assistant Archaeological Officer, Durham County Council). All work shall be carried out in accordance with the Standards and Guidance and Code of Conduct of the Institute of Field Archaeologists (1999), guidelines outlined in *Geophysical Survey in Archaeological Field Evaluation* (English Heritage 1995), and other current and relevant best practice and standards and guidance (Appendix 1).
- 6.2 A detailed magnetometer survey will be carried out over the designated survey areas using either a Geoscan FM 36 Fluxgate Gradiometer or a Bartington GRAD 601 Fluxgate Gradiometer (or similar electronic instrument). Readings should be taken at 0.25m intervals on traverses 1m apart within 20m by 20m grids.
- 6.3 The data should be downloaded at regular intervals on site onto a laptop computer for initial processing and storage. This will ultimately be transferred to a desktop computer for further processing, interpretation and archiving. Geoplot v.3 software (or comparable) will be used to interpolate the data to form an array of regularly spaced values at 0.25m x 0.25m intervals. Continuous tone greyecale images of raw data and an x/y trace plot will also be produced. Palette bars relating the greyscale intensities to anomaly values in ohms will be included with the images. Any algorithms used in processing the data should be detailed within the report.
- 6.4 The raw and processed data will be presented in the report. The processed drawings should be accurately located and presented in relation to the Ordnance Survey base plan for the site and the survey markers should be accurately plotted to aid in the laying out of subsequent evaluation or excavation areas, if deemed necessary. Interpretation plots will be included in the report.
- 6.5 An experienced operator will undertake the survey in order to provide consistent results with regard to pattern recognition and to provide initial screening of noise resulting from recent ferrous disturbance and local magnetic pollution.
- 6.6 During the survey a record should be made of surface conditions and sources of modern geophysical interference that may have a bearing on subsequent interpretation of field data.
- 6.7 The survey grid/transects must be established by electronic means (using an EDM Total station or similar instrument). This must be accurately tied in with the National Grid. This should be internally accurate to ± 10 cm, and the grid locatable on the 1: 2500 Ordnance Survey map.
- 6.8 The Archaeological Contractor will place survey markers at the site such that the location of the survey can be easily re-established.

D119050/Specification for Magnetometry Survey

3



### 7 Reporting

- 7.1 Verbal progress reports will be provided to Scott Wilson on request and upon completion of the archaeological works. An interim plot and statement of results will be submitted to Scott Wilson within 48 hours of completing the survey. This interim report will include a grey scale plot and a brief summary of the results.
- An assessment report will be submitted within 2 weeks of the completion of fieldwork. The report will include the following and will follow those guidelines set by English Heritage (1995, 5):
  - a non-technical summary;
  - site location;
  - archaeological and historical background;
  - methodology;
  - aims and objectives;
  - results (to include full description, assessment of condition, quality and significance of results identified);
  - general and detailed plans showing the location of the surveyed areas accurately positioned on an Ordnance Survey map base (to a known scale);
  - colour/grey scale plots to aid interpretation. The plots will be contoured (if appropriate) to allow trends to be shown superimposed over data without obscuring it;
  - · an interpretative plot;
  - statement of potential with recommendations for future survey; and
  - conclusions.
- 7.3 One copy of the complete report will be submitted to Scott Wilson as a draft. In finalising the report the comments of Scott Wilson will be taken into account.
- 7.4 Seven bound hard copies, one unbound master-copy and a digital version of the report and illustrations will be produced within one week of the receipt of comments on the draft report. The digital report shall comprise a CD containing a complete version of the report in PDF format and separate digital text (in Microsoft Word format) and CAD mapping files (in ESRI GIS or AutoCAD format) and any other illustrations or plates.
- 7.5 The raw and processed data will be presented in the report. The processed drawings will be accurately located and presented in relation to the Ordnance Survey base plan for the area and the survey markers should be accurately plotted to aid in the laying out of subsequent surveys.

4

D119050/Specification for Magnetometry Survey



#### 8 Dissemination

- 8.1 Durham County Council supports the Online Access to Index of Archaeological Investigations (OASIS) Project. The overall aim of the OASIS project is to provide an online index to the mass of archaeological grey literature that has been produced as a result of the advent of large-scale developer funded fieldwork.
- 8.2 The Archaeological Contractor must therefore complete the online OASIS form at http://ads.ahds.ac.uk/project/oasis/ within 3 months of completion of the work. When filling out the form the Archaeological Contractor must make reference to the Regional Research Framework. The Archaeological Contractor is advised to ensure that adequate time and costings are built into their tenders to allow the forms to be filled in.
- 8.3 Technical advice should be sought in the first instance from OASIS (oasis@ads.ahds.ac.uk) and not from Durham County Council.
- 8.4 Once a report has become a public document by submission to or incorporation into the Sites and Monuments Record, Durham County Council Sites and Monument Record Team will validate the OASIS form thus placing the information into the public domain on the OASIS website.

### 9 Archive Deposition

9.1 The Archaeological Contractor will liaise with an appropriate museum to obtain agreement in principle of the acceptance of the documentary archive for long term storage and curation. The archive will be produced to the standards outlined by Management of Archaeological Projects Second Edition (MAP2) (English Heritage 1991) and Management of Research Projects in the Historic Environment (English Heritage 2006).

#### 10 Monitoring

- 10.1 The Archaeological Contractor will be subject to regular monitoring by Scott Wilson who will be given full access to site records or any other information.
- 10.2 Scott Wilson will liaise with Lee White (Assistant Archaeological Officer, Durham County Council) to inform her of the commencement of site works and to offer her the opportunity to visit and monitor the work in progress.

5

D119050/Specification for Magnetometry Survey



#### 11 Confidentiality and Publicity

- 11.1 All communication regarding this project is to be directed through Scott Wilson. The Archaeological Contractor will refer all inquiries to Scott Wilson without making any unauthorised statements or comments.
- 11.2 The Archaeological Contractor will not disseminate information or images associated with the project for publicity or information purposes without the prior written consent of Scott Wilson.

#### 12 Copyright

- 12.1 The Archaeological Contractor will assign copyright in all reports and documentation/images produced as part of this project to Scott Wilson. The Archaeological Contractor retains the right to be identified as the author/originator of the material. This applies to all aspects of the project.
- 12.2 The Archaeological Contractor may apply in writing to use/disseminate any of the project archive or documentation (including images). Such permission will not be unreasonably withheld.
- 12.3 The results of the survey will be submitted to Lee White (Assistant Archaeological Officer, Durham County Council) in hard-copy format by Scott Wilson and will ultimately be made available for public access.

#### 13 Resources and Timetable

- 13.1 All archaeological personnel involved in the project should be suitably qualified and experienced professionals. The Archaeological Contractor will provide Scott Wilson with staff details including CVs of the Project Manager, Site Supervisor and Site Assistants.
- 13.2 The fieldwork will take place during the week commencing 6<sup>th</sup> August 2008, or shortly there after, and fieldwork will be completed within one working day. The date for submission of the final report will be 21<sup>st</sup> August 2008. Scott Wilson should be informed at the earliest opportunity if this is not achievable.

#### 14 Insurances and Health and Safety

14.1 The Archaeological Contractor will provide Scott Wilson with details of public and professional indemnity insurance prior to fieldwork commencing.

6

D119050/Specification for Magnetometry Survey



- 14.2 The Archaeological Contractor will have their own Health and Safety policies compiled using national guidelines and which conform to all relevant Health and Safety legislation. A copy of the Health and Safety policy will be submitted to Scott Wilson in advance of fieldwork.
- 14.3 The Archaeological Contractor will undertake a risk assessment detailing project specific Health and Safety requirements. The risk assessment shall be submitted to Scott Wilson in advance of commencement of site work. If amendments are made to the assessment during the works, Scott Wilson must be provided with the amended version at the earliest opportunity. Health and Safety will take priority over archaeological issues.
- 14.4 Scott Wilson will provide information regarding the approximate location of known services within the area of investigation. The Archaeological Contractor will, however, be responsible for identifying any buried or overhead services and taking the necessary precautions to avoid damage to such services, prior to investigation.

#### 15 Access Arrangements and Site Information

15.1 Scott Wilson will arrange access to the survey areas, and provide contact details for on-site personnel as necessary.

#### 16 General Provisions

16.1 The Archaeological Contractor will undertake the works to the specification issued by Scott Wilson and in any subsequent written variations. No variation from, or changes to, the specification will occur except by prior agreement with Scott Wilson who will consult with Lee White (Assistant Archaeological Officer, Durham County Council).

7

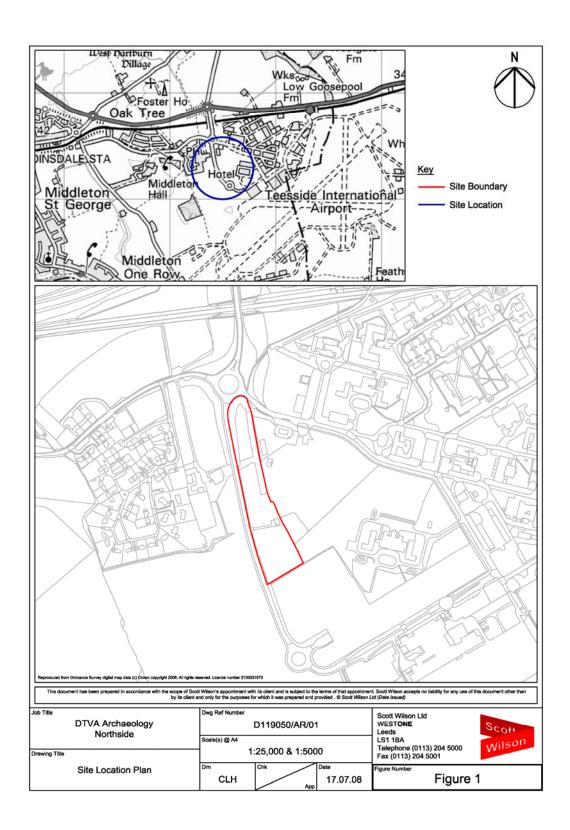
16.2 All communication on archaeological matters will be directed through Scott Wilson.

D119050/Specification for Magnetometry Survey

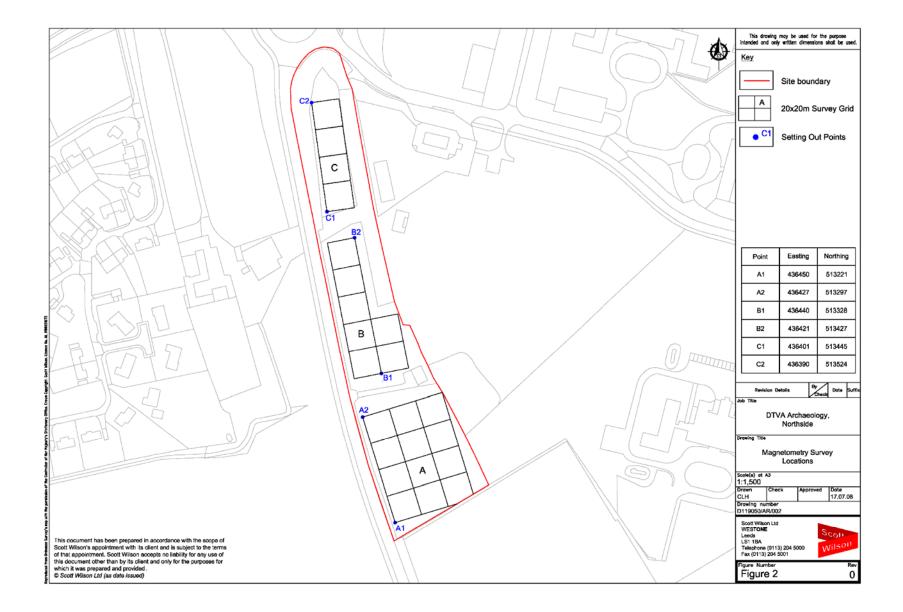


Figures

D119050/Specification for Magnetometry Survey



Archaeological Services Durham University





Appendix 1 Archaeological Standards and Guidelines

D119050/Specification for Magnetometry Survey

July 2008

Archaeological Services Durham University



#### Archaeological Standards and Guidelines

Darvill, T & Atkins, M 1991 Regulating Archaeological Works by Contract (IFA Technical Paper No 8)

English Heritage 1991 The Management of Archaeological Projects Second Edition (MAP2)

English Heritage 1995 Geophysical Survey in Archaeological Field Evaluation (EH Research and Professional Services Guidelines No 1)

Gaffney, C & Gater, J with Ovenden, S 1991 The Use of Geophysical Techniques in Archaeological Evaluations (IFA Technical Paper No 9)

Garratt-Frost, S 1992 The Law and Burial Archaeology (IFA Technical Paper No 11)

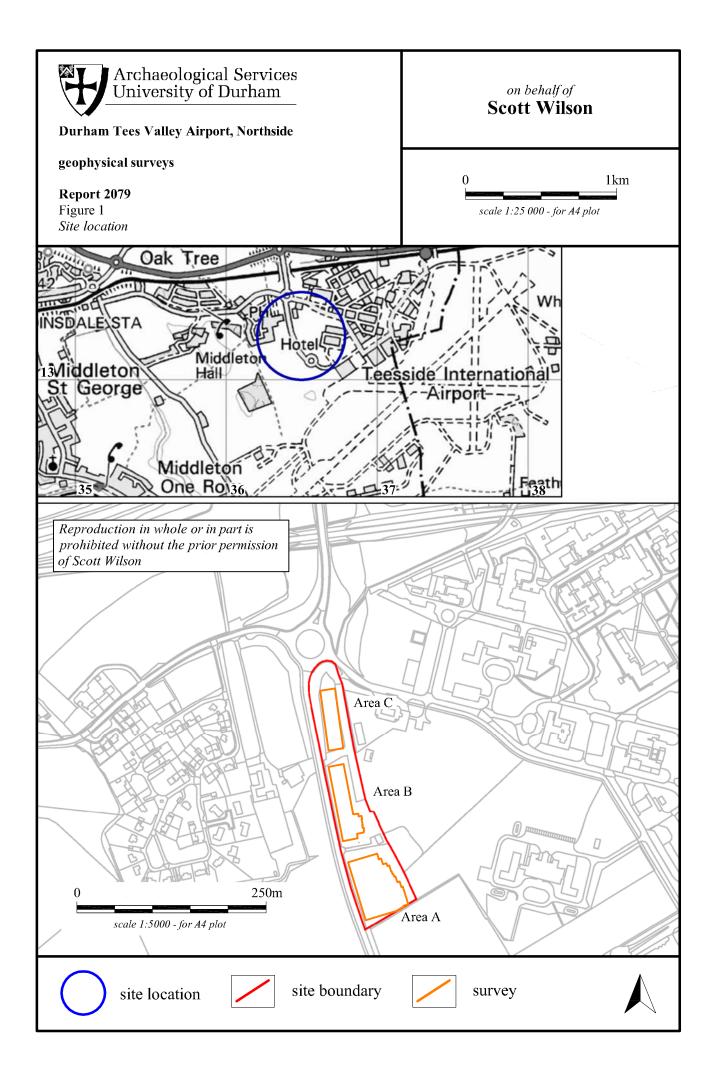
Handley, M 1999 Microfilming Archaeological Archives (IFA Paper No 2)

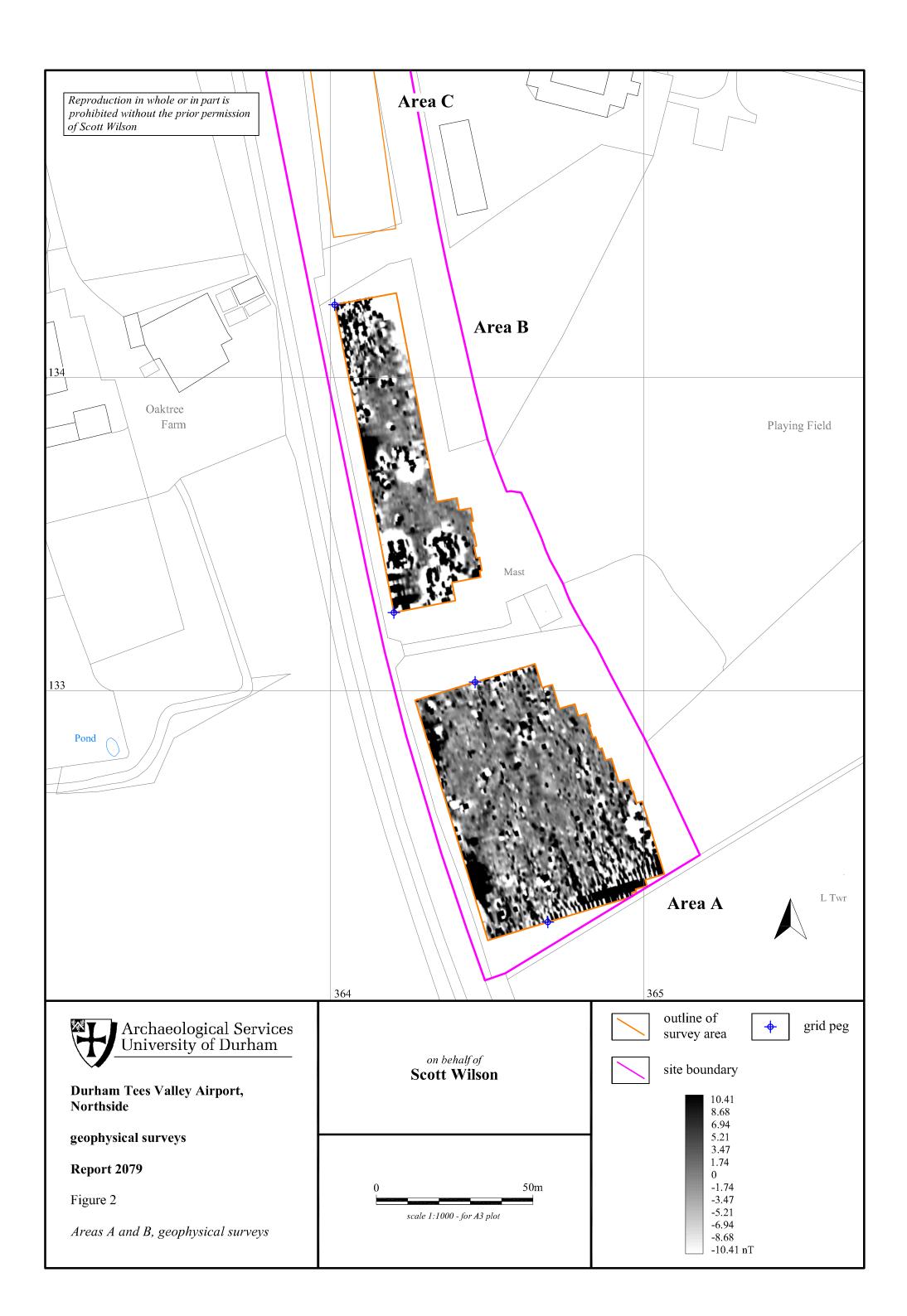
Institute of Field Archaeologists 1997 Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology (and subsequent revisions)

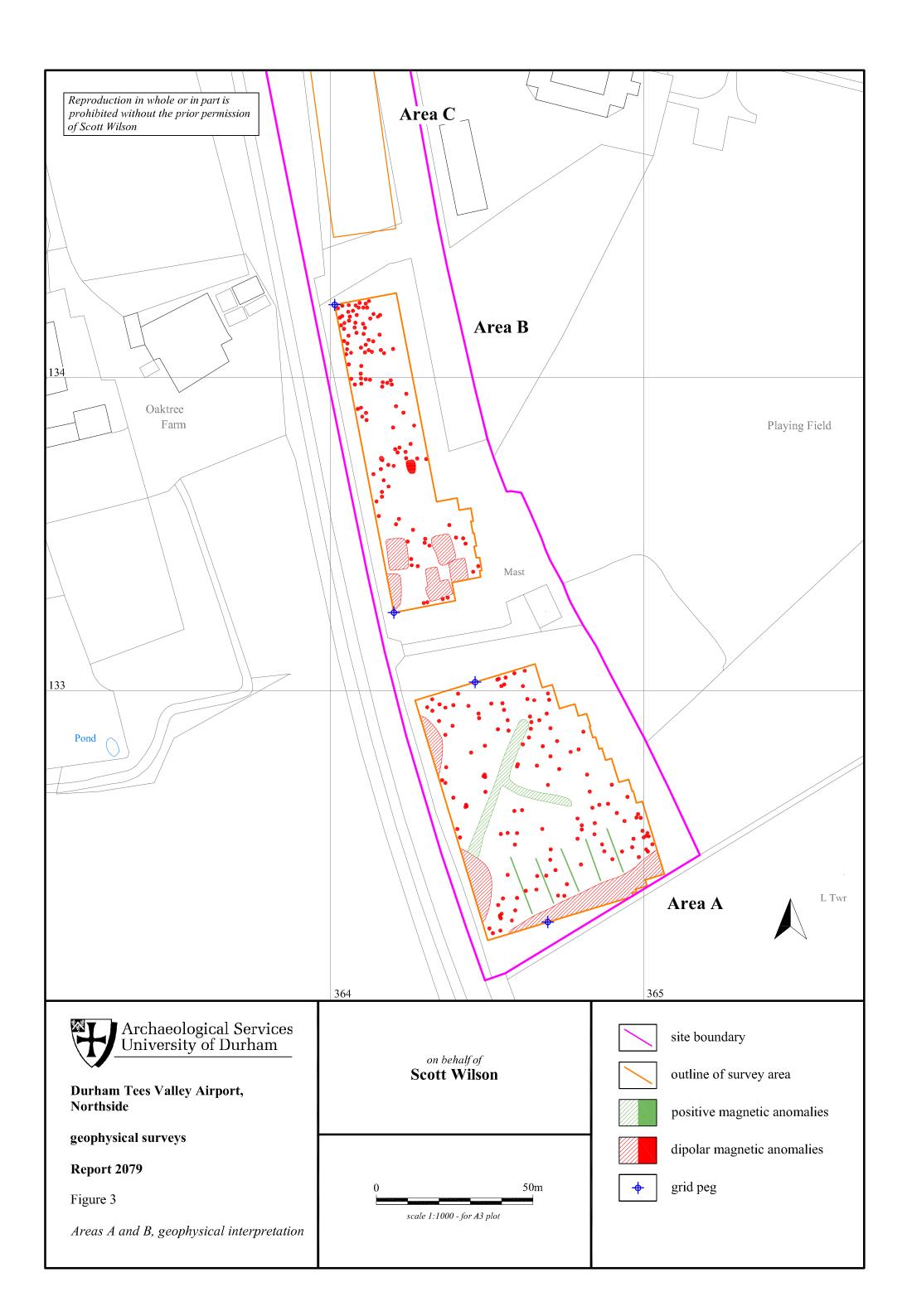
Institute of Field Archaeologists 1999 Standard and Guidance for Archaeological Field Evaluation (and subsequent revisions)

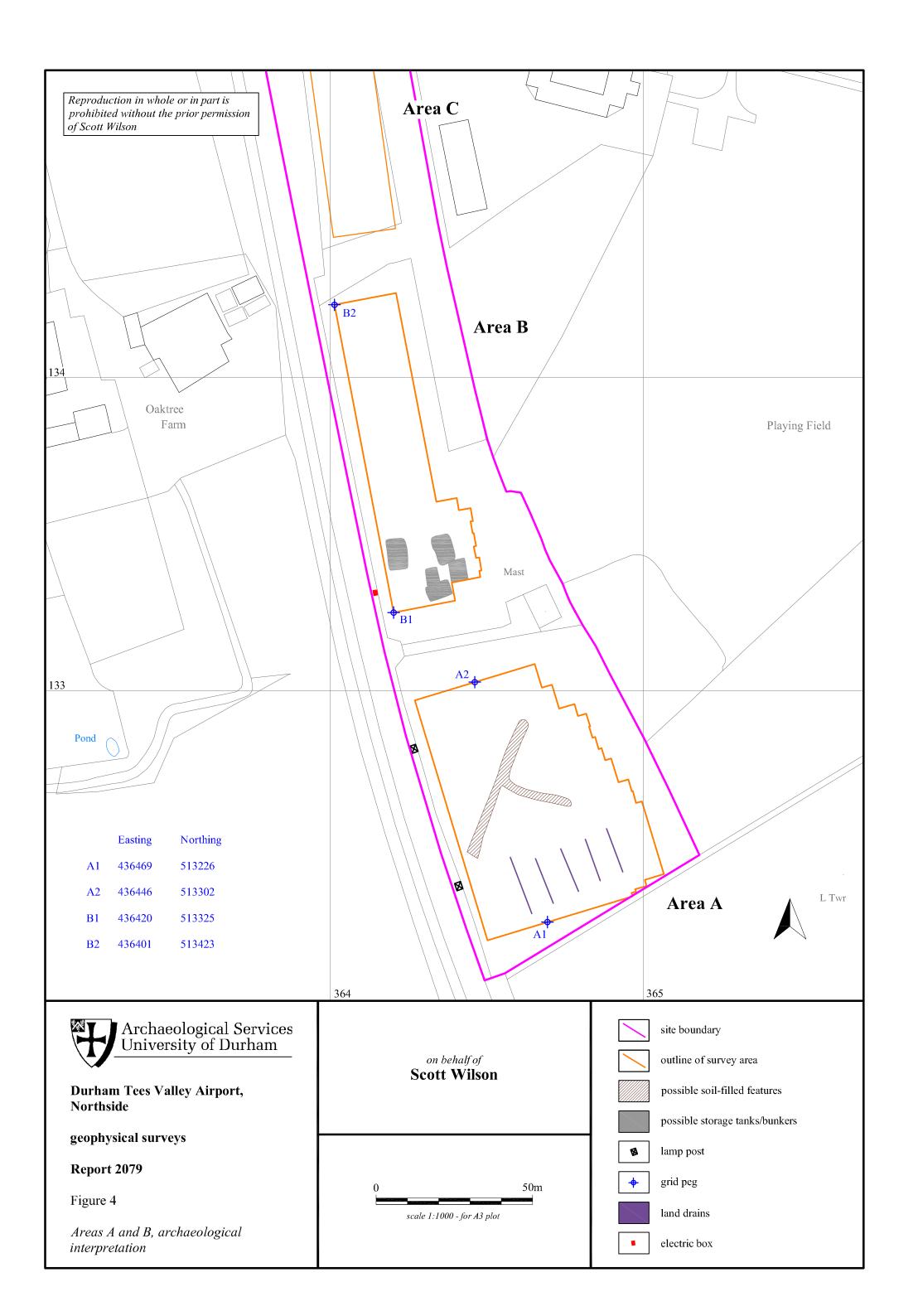
Society of Museum Archaeologists 1995 Towards an Accessible Archaeological Archive - the Transference of Archaeological Archives to Museums: Guidelines for use in England, Northern Ireland, Scotland and Wales

D119050/Specification for Magnetometry Survey









## Figure 5: Trace plots of geophysical data

