



Northamptonshire Archaeology

Archaeological Geophysical Survey on land at Peace Hill, Bugbrooke Northamptonshire



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**Northamptonshire
County Council**

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Report 11/119

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QUALITY CONTROL

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OASIS REPORT FORM

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| PROJECT DETAILS | | |
| Project name | Archaeological Geophysical Survey at Peace Hill, Bugbrooke, Northamptonshire | |
| Short description | Northamptonshire Archaeology was commissioned by Bellway Homes to carry out a magnetometer survey on 1ha of land at Peace Hill, Bugbrooke, Northamptonshire. The application area has extant ridge and furrow of medieval field cultivation surviving as earthworks. A possible ditch was recorded in the southern part of the site. | |
| Project type | Geophysical survey | |
| Site status | None | |
| Previous work | Cultural Heritage Technical Appraisal (Gifford 2009) | |
| Current Land use | Pasture | |
| Future work | Unknown | |
| Monument type/ period | Medieval ridge and furrow earthworks, undated linear feature | |
| Significant finds | None | |
| PROJECT LOCATION | | |
| County | Northamptonshire | |
| Site address | Peace Hill, Bugbrooke, Northamptonshire | |
| Study area | 1ha | |
| OS Easting & Northing | 467281 257010 | |
| Height OD | 90m | |
| PROJECT CREATORS | | |
| Organisation | Northamptonshire Archaeology (NA) | |
| Project brief originator | - | |
| Project Design originator | NA | |
| Director/Supervisor | Carol Simmonds | |
| Project Manager | Adrian Butler | |
| Sponsor or funding body | Bellway Homes | |
| PROJECT DATE | | |
| Start date | 23/5/2011 | |
| End date | 23/5/2011 | |
| ARCHIVES | Location | Content |
| Physical | | |
| Paper | NA | Site survey records |
| Digital | NA | Geophysical survey & GIS data |
| BIBLIOGRAPHY | Journal/monograph, published or forthcoming, or unpublished client report | |
| Title | Archaeological Geophysical Survey at Peace Hill, Bugbrooke, Northamptonshire | |
| Serial title & volume | NA report 11/119 | |
| Author(s) | C Simmonds | |
| Page numbers | 10 pages text and illustrations | |
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Contents

| | |
|----------|-----------------------|
| 1 | INTRODUCTION |
| 2 | BACKGROUND |
| 3 | METHODOLOGY |
| 4 | SURVEY RESULTS |
| 5 | CONCLUSION |
| | BIBLIOGRAPHY |

Figures

- Fig 1 Site Location; 1:17,500
- Fig 2 Magnetometer Survey Results; 1:2,000
- Fig 3 Magnetometer Survey Interpretation; 1:2,000
- Fig 4 Magnetometer Survey Results (unprocessed); 1:1,000

**ARCHAEOLOGICAL GEOPHYSICAL SURVEY
AT PEACE HILL, BUGBROOKE
NORTHAMPTONSHIRE
MAY 2011**

ABSTRACT

Northamptonshire Archaeology was commissioned by Bellway Homes to carry out a magnetometer survey on 1ha of land at Peace Hill, Bugbrooke, Northamptonshire. The application area has extant ridge and furrow of medieval field cultivation surviving as earthworks. A possible ditch was recorded in the southern part of the site.

1 INTRODUCTION

Northamptonshire Archaeology (NA) was commissioned by Bellway Homes to undertake a detailed geophysical survey on 1ha of land at Peace Hill, Bugbrooke, Northamptonshire (NGR 467281 257010; Fig 1). The works were carried out to help inform a planning application.

The works were requested by the County Archaeological Advisor to Northamptonshire County Council in accordance with Planning Policy Statement 5 (PPS5; DCLG 2010). Outline planning consent for the site has been granted, the works were requested in order to inform a forthcoming reserved matters application.

2 BACKGROUND

The site is located on the south-western edge of Bugbrooke, overlooking the Northampton Arm of the Grand Union Canal. It comprises a single pasture field one hectare in area at an altitude of between 85m and 90m aOD. Its northern boundary and part of the eastern edge is defined by roads or by residential areas. To the south and south-west lie fields. Wooden post and metal wire fencing surround the field.

Middle Lias silts and clays underlie the bulk of the site area and Marlstone rockbed outcrops in the north-west corner (BGS <http://www.bgs.ac.uk/GeoIndex/> accessed 27/5/11).

A Cultural Heritage Assessment has been carried out by Gifford (2009). The site has not been the subject of any previous field investigation and there are no Scheduled Monuments or listed structures within the proposed survey area. There are medieval ridge and furrow cultivation surviving as earthworks within the application (HER MNN3723). The earthworks survive on a south-west to north-east alignment and stand at an approximate height of 0.25m. Further likely medieval earthworks are known in the area, such as more ridge and furrow to the north and west and a hollow-way to the south-east.

The parish of Bugbrooke is known to be rich in Roman archaeology, attested by the work of the Community Landscape Archaeology Survey Project (CLASP www.claspweb.org.uk accessed 18/05/11).

3 METHODOLOGY

The geophysical survey was carried out in accordance with the guidelines of English Heritage and the Institute for Archaeologists (EH 2008 & Gaffney, Gater and Ovenden 2002).

The survey was conducted with Bartington Grad 601-2, twin sensor array, vertical component fluxgate gradiometers (Bartington and Chapman 2003). These are standard instruments for archaeological survey and can resolve magnetic variations as slight as 0.1 nanotesla (nT).

The gradiometer coverage comprised a total of 13 whole and partial 30m x 30m grid-squares. The survey area was set-out manually by tape measure and optical square. Each grid square was traversed at rapid walking pace in zigzag mode and magnetic data was recorded every 0.25m along traverses spaced at 1m intervals. As the earthworks were sizeable the decision was made to walk transects along the earthworks.

The data was analysed using Geoplot 3.00v software. Low (negative) magnetism is shown as white and high (positive) magnetism as black in the resultant greytone plots. Minimal manipulation was carried out on the data as the raw data is generally of high quality, ensuring that the data-set is uniform (EH 2008, 41-44). Thermal drift in the four fluxgate sensors may slightly alter the balanced level of the gradiometer over a survey, causing 'heading' errors visible as striping along traverses in the data. The 'Zero Mean Traverse' function was applied in order to bring the average level of each data line into a balanced mean of zero. This function retains the gradient of the magnetic field whilst reducing the mean so that each traverse is directly comparable.

The processed data was examined for weak magnetic anomalies under a variety of viewing regimes. The data is presented here in the form of a grey tone image highlighting a broad magnetic anomaly scale (-4.0nT / +4.0nT) which in turn was rectified to the Ordnance Survey base (Fig 2). Interpretative plots have been generated from the results (Fig 3). A plot of the unprocessed data (-4.0nT / +4.0nT) is included for reference (Fig 4).

4 SURVEY RESULTS

Against the eastern boundary of the site is a positive L-shaped linear anomaly (Fig 3). One length is aligned south-east to north-west and perpendicular from its southern end a weaker positive anomaly is aligned north-east to south-west.

The ridge and furrow of the medieval field system, which survives as an earthwork, shows up as a dominant feature in the data.

A number of ferrous anomalies also occur throughout the area and may indicate scrap or other surface detritus. The wooden post and wire fencing is seen as highly magnetic in the data.

5 CONCLUSION

Approximately one hectare of magnetic survey was carried out on land at Peace Hill, Bugbrooke. An L-shaped ditched feature was identified in the eastern part of the field and the remnants of medieval ridge and furrow field cultivation was located across much of the survey area. The ridge and furrow seen in the geophysical survey results mirror the extant earthworks.

As with all such surveys, feature detection is at the mercy of ground resolution (1.0m x 0.25m) and magnetisation levels. Small features, such as postholes, may exist in the vicinity of the larger features but be undetectable by this survey.

BIBLIOGRAPHY

Bartington, G, and Chapman, C, 2003 *A high-stability fluxgate magnetic gradiometer for shallow geophysical survey applications*, Archaeological Prospection, **11**, 19-34

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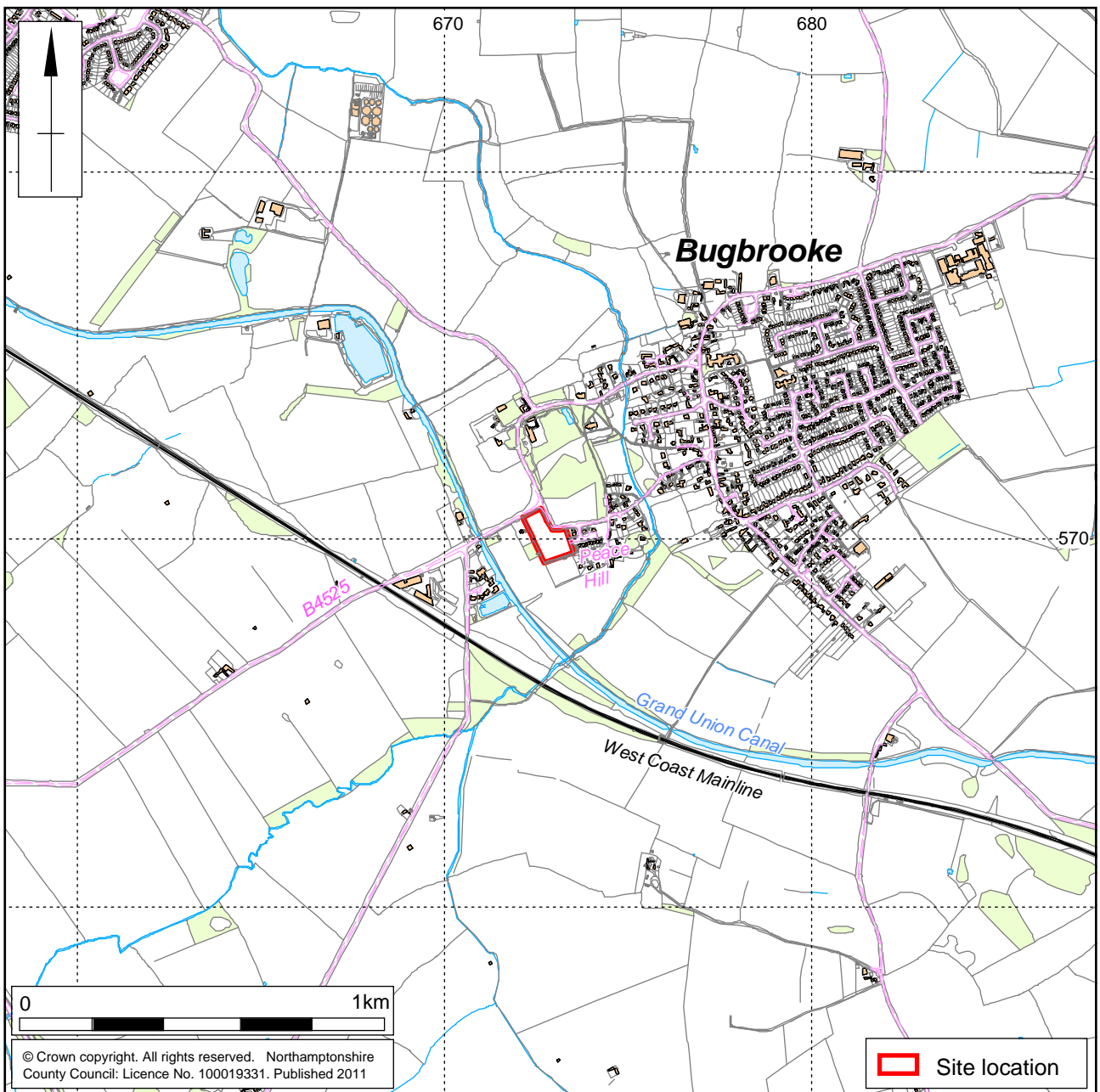
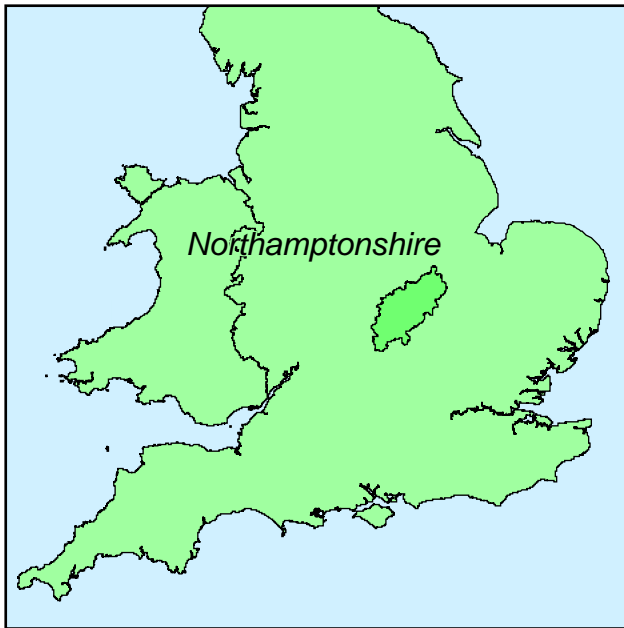
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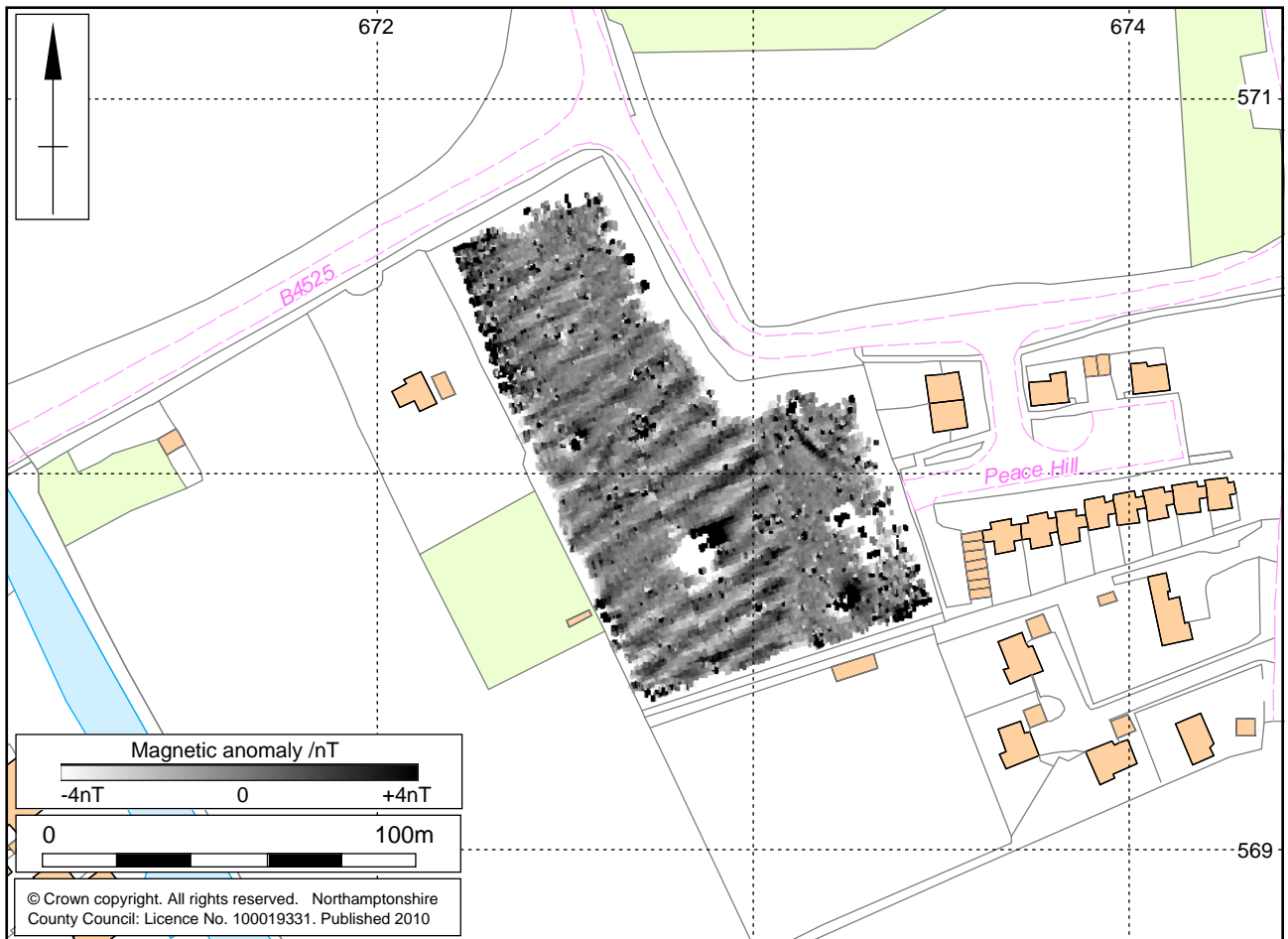
CLASP www.claspweb.org.uk

BGS <http://www.bgs.ac.uk/GeoIndex/>



Scale 1:17,500

Site location Fig 1



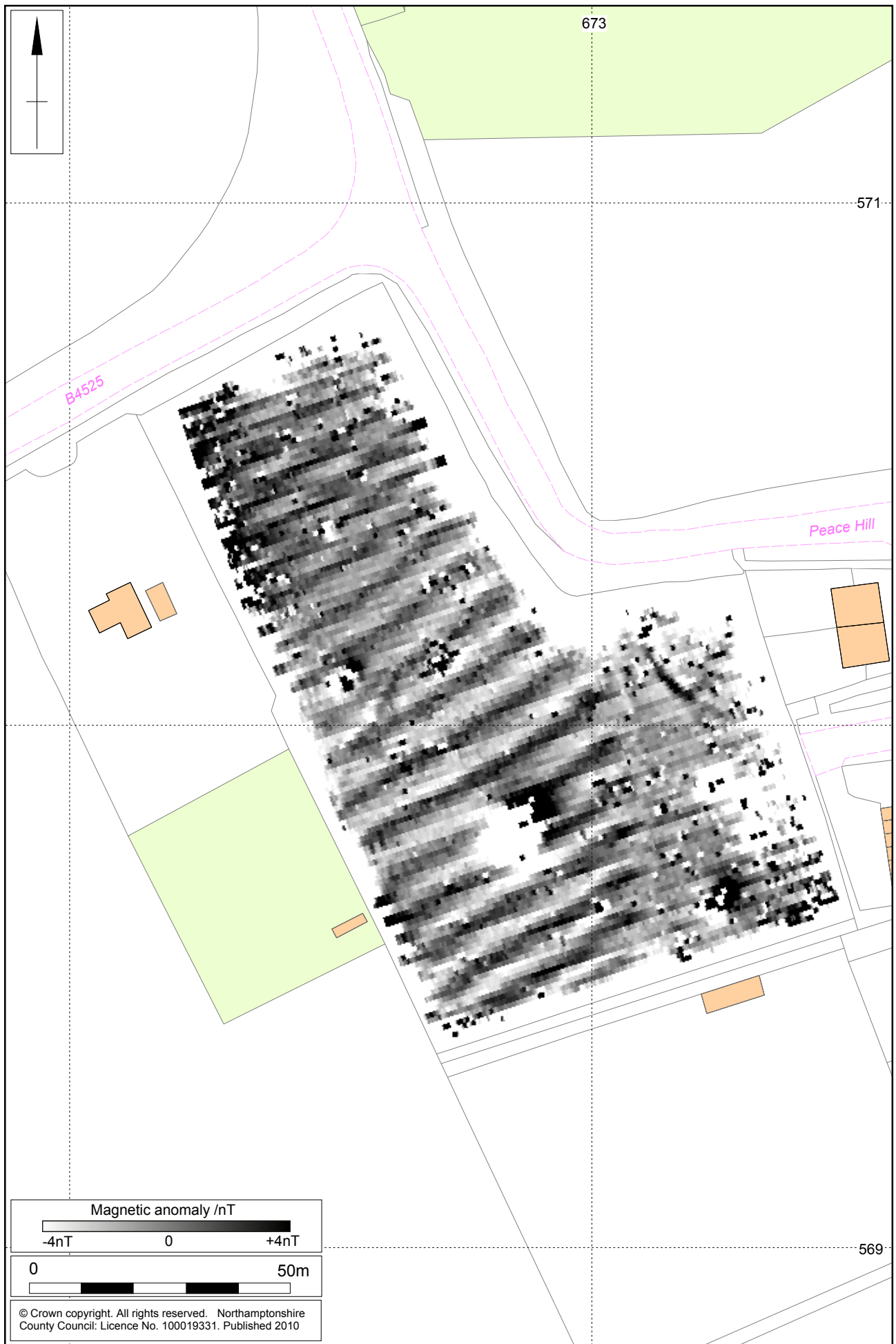
Scale 1:2,000

Magnetometer Survey Results Fig 2



Scale 1:2,000

Magnetometer Survey Interpretation Fig 3



Scale 1:1,000

Magnetometer Survey Results (unprocessed) Fig 4



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