

Substrata

Archaeological Geophysical Surveyors

An archaeological magnetometer survey
Roseworthy Hill, Camborne, Cornwall

Centred on NGR: 163168,040398

Report: 1808ROS-R-1

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1 Introduction

This report presents the results of an archaeological geophysical survey at the site listed in Section 4 and shown in Figure 1, hereafter referred to as the 'Survey Area'. The survey was commissioned by Cotswold Archaeology Ltd (the Client) on behalf of Peacock and Smith Limited.

The Survey Area lies on the north-western edge of Camborne. It comprises two full fields and part of a third field, numbered 1 to 3 in Figure 1. This survey was designed to inform two proposed phases of development. The first phase, to be located in field 3, is the subject of a planning application summarised in Section 4.3. The proposals for fields 1 and 2 are currently unconfirmed, although they will be of similar form to phase 1.

The purpose of the survey is to provide sufficient information on the nature of any archaeological remains to facilitate the assessment of their interest prior to the determination of the application. This is in keeping with the National Planning Policy Framework, Chapter 16, Paragraph 189 (Ministry of Housing, Communities & Local Government, 2018). The survey and report were completed in compliance with a Written Scheme of Investigation (Substrata Ltd, 2018).

The survey followed on from the production of a Heritage Assessment by Cotswold Archaeology Ltd (2018).

2 Client

Cotswold Archaeology Ltd, Unit 53, Basepoint Business Centre, Yeoford Way, March Barton Trading Estate, Exeter EX2 8LB

3 Copyright

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4 Survey type and location

4.1 Survey

Method:	shallow depth magnetometer survey
Instrument:	twin-sensor fluxgate gradiometer
Date:	24 September 2018
Area:	3ha
Survey resolution:	1m by 0.25m

4.2 Location

Name:	Roseworthy Hill
Civil Parish:	Camborne
County:	Cornwall
Nearest Postcode:	TR14 0PX
Survey centre NGR:	SW 63168 40398 (point)
Survey centre NGR (E/N):	163168,040398 (point)
Historic environment designation:	None
OASIS ID:	substrat1-330163

4.3 Planning information

Planning Application Number:	PA18/06111
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Status:	Awaiting decision
Parish/Town Council:	Camborne
Proposal:	Full planning application for a mixed use development comprising three retail units and petrol filling station; associated parking, access and landscaping arrangements.

5 Summary

A magnetometer survey was selected to provide a relatively fast and cost-effective evaluation of any buried archaeology across the Survey Area (see Section 14). The magnetic anomaly groups pertaining to potential buried archaeology and other relevant features were georeferenced to the Ordnance Survey National Grid, mapped, characterised and assigned with an appropriate degree of certainty in conformance with the survey aims and objectives set out in Section 7.

The differences in magnetic responses across the Survey Area were sufficient to be able to differentiate between anomalies representing possible buried archaeology and background magnetic responses.

Twenty-two magnetic anomaly groups were characterised as representing potential buried archaeology. Of these, one represents a former road mapped on the 1840 Camborne tithe map and historic Ordnance Survey maps between 1879 and 1963. Two represent former houses and gardens mapped on the 1840 Camborne tithe map and removed before the publication of the First Edition Ordnance Survey map in 1879. Two represent field boundaries also mapped on the tithe map and removed before 1879. Two groups are most likely to represent ring ditches and one may represent an internal feature of one of the ring ditches. Five anomaly groups may represent a cluster of pits although natural features cannot be ruled out. The remaining anomaly groups have characteristics typical of those representing fragments of former field or enclosure boundaries.

6 Standards

The standards that were used to complete this survey are defined by the Chartered Institute for Archaeologists (2014b) and the Europae Archaeologiae Consilium (undated). The codes of approved practice to be followed are those of the Chartered Institute for Archaeologists (2014) and Archaeology Data Service (undated).

7 Survey aims and objectives

7.1 Aims

1. Within the framework set out in Chartered Institute for Archaeologists (2014b) and Europae Archaeologiae Consilium (undated), complete an archaeological geophysical survey and report which will, as far as possible, establish the presence or absence, extent and character of any buried archaeology within the survey area.
2. Provide sufficient information on the nature of any archaeological remains to facilitate the assessment of their interest prior to the determination of the planning application.

7.2 Objectives

1. Complete a magnetometer survey across the Survey Area.
2. Identify any magnetic anomalies that may be related to buried archaeology.
3. Within the limits of the technique and dataset, archaeologically characterise any such anomalies or patterns of anomalies.
4. Accurately record the location of the identified anomalies.
5. Produce a report based on the survey that is sufficiently detailed to inform any subsequent development on the survey area about the location and possible archaeological character of the recorded anomalies.

8 Methodology

The magnetometer survey was undertaken in accordance a Survey Method Statement

(Substrata Ltd, 2018) using the standards specified in Section 6 to achieve the aims and objectives set out in Section 7. The survey method was selected to provide a relatively fast and cost-effective evaluation of any buried archaeology across the Survey Area (see Section 14).

Data processing was undertaken using appropriate software (Table 2), with all anomalies being digitised and geo-referenced. The final report (this document) includes a graphical and textual account of the techniques undertaken, the data obtained and an archaeological interpretation of that data and conclusions about any likely archaeology. The survey and report conform to the Chartered Institute for Archaeologists standard for geophysical survey (2014b).

9 Survey Area

9.1 Location and description

The Survey Area lies on the north-western edge of Camborne. It comprises two full fields and part of a third field, numbered 1 to 3 in Figure 1. All three fields are bounded by hedges with the southern boundary for all the fields and the boundary between fields 2 and 3 being Cornish hedges. Roads surround the Survey Area on three sides; a slip-road from the A30 and the A30 itself with fields beyond lie to the north, the A3047 and a commercial estate beyond lie to the east, Roseworthy Hill road and fields beyond lie to the south. The remainder of the western-most field with a feed store and farm buildings beyond lies to the west of the Survey Area (Figure 1).

The Survey Area lies on a slight westward incline, ascending from approximately 86m aOD in the east to approximately 89m aOD in the west (Cotswold Archaeology 2018, pp14).

9.2 Geology and sub-surface deposits

The solid geology across the Survey Area is metamorphic rock of the Devonian Mylor Slate Formation with the majority being metabasaltic rock. Hornfelsed slate and hornfelsed siltstone are present along the north-western and north-eastern edges of the Survey Area. The superficial geology is not recorded in the source used (British Geological Survey, undated).

A number of geotechnical borehole logs and trial pit of near-surface deposits are recorded in the vicinity of the site and three examples of trial pit logs are listed in Table 5 to provide an appreciation of the near-surface geological deposits in the area.

9.3 Soils

The topsoils in the locality are ‘shallow lime-rich soils over limestone’ (Cranfield Soil and Agrifood Institute, undated).

10 Archaeological background

10.1 Historic landscape characterisation

‘Post-medieval Enclosed Land’

Land enclosed in the 17th, 18th and 19th centuries, usually from land that was previously Upland Rough Ground and often medieval commons. Generally in relatively high, exposed or poorly-drained parts of the county (Cornwall Council, undated).

10.2 Summary of the archaeological background

This section summarises heritage assets that are thought relevant to the survey data analysis and is not designed to be a comprehensive description of the archaeological background.

A Heritage Assessment of the Survey Area and its surrounding environment was produced in May 2018 (Cotswold Archaeology Ltd, 2018). The Assessment includes a review of the recorded heritage resource within the Survey Area and its vicinity (the Study Area) in order to identify any extant heritage assets and to assess the potential for below-ground archaeological remains. The following is taken from the Assessment and an examination of the Cornwall and Scilly Historic Environment Record via Cornwall Council (undated) and Historic England (undated). Historic maps were consulted using Cotswold Archaeology Ltd (2018) and Old-Maps (undated). Whilst providing a useful context for the data analysis, detailed publication in

commercial reports of the on-line resource information and any publication of the on-line maps is not permitted.

The Assessment concluded that there is a low potential for any significant archaeology to be present within the Survey Area. There is a tentative record for a prehistoric settlement Round within the Survey Area, although the documentary source may be referring to that which has been recorded a short distance south-east of the Survey Area boundary. Further sites of prehistoric settlement are present in the Study Area, as well as settlements of early medieval to modern date. It was concluded that there is potential for settlement and associated agricultural features to be buried within the Survey Area. The Cornwall and West Devon Mining Landscape World Heritage Site lies approximately 800m east of the Survey Area and the Study Area contains numerous examples of associated industrial features. No such features have been identified within the Survey Area or are recorded on historic maps. The potential for post medieval or modern industrial features is therefore thought to be low. The 1840 Tithe map of Camborne shows a former road through the Survey Area, two former houses, and a since removed field boundary. The road was seen as a hollow along a more recent boundary through the Survey Area, although no surface evidence of the other features was present (ibid, p3).

11 Results

11.1 Scope and definitions

This survey was designed to record magnetic anomalies. A magnetic anomaly is a local variation in the Earth's magnetic field. Such variations can result from differences in the magnetic properties of the underlying solid geology, superficial geology and other near-surface deposits including those altered and created by past human activities. Near-surface artefacts can also create magnetic anomalies.

The dimensions of magnetic anomalies mapped as representing potential buried archaeology do not represent the dimensions of any associated archaeology.

The analysis presented below identifies and characterises anomalies and anomaly groups that may relate to buried archaeology.

11.2 Analysis

Figure 2 shows the interpretation of the survey data and includes the anomaly groups identified as possibly relating to buried archaeology along with their identifying numbers. Table 1 is an extract of the detailed analysis of the survey data sourced from the attribute tables of the GIS project provided in the project archive.

Figure 2 and Table 1 comprise the analysis of the survey data.

Figures 3 and 4 are plots of the processed data as specified in Table 3. Figure 5 is a plot of minimally processed data as specified in Table 4. Figure 6 shows the location of the survey grid and grid data files.

12 Discussion

12.1 General points

Scope

Not all anomalies or anomaly groups identified in Table 1 are necessarily discussed below. All identified anomaly groups are recorded in the GIS project held in the survey archive.

Data collection

Data collection along the survey area edges was restricted as shown in the figures due to the presence magnetic materials within and adjacent to the plot boundaries. Strong magnetic responses mapped close to the boundaries are likely to relate to the magnetic materials except where otherwise indicated in Figure 2 and Table 1.

Anomaly characterisation

There are a number of anomaly groups that could be interpreted as relating to large postholes or pits although most will have natural origins. Anomalies of this sort are mapped as potential archaeology when they are well defined in the data, associated with other significant anomaly groups or otherwise formed recognisable patterns as listed in Table 1.

Anomalies thought to relate to natural features and recent man-made objects such as manholes, water management equipment, drains, cables and other services are only mapped where they comprise significant magnetic responses across the dataset that need clarification.

Numerous dipole magnetic anomalies are present within the dataset. These are likely to represent recent ferrous objects. They are only mapped if they could influence the analysis of anomaly groups thought to have an archaeological origin.

Data trends

The sets of parallel, closely spaced, linear anomaly groups following the trend of the long boundaries of each field are likely to represent recent ploughing disturbance.

12.2 Data relating to historic maps and other records

Magnetic anomaly group **2** is likely to represent a road mapped on historic maps between 1840 and 1963. It was removed before the publication of the 1974 1:2500 Ordnance Survey map.

Anomaly groups **3** and **7** likely to represent parts of former houses and gardens recorded on the 1840 Camborne tithe map but not on later historic Ordnance Survey maps.

Groups **10** and **21** are likely to represent field boundaries recorded on the 1840 Camborne tithe map but not on later historic Ordnance Survey maps.

12.3 Data with no previous archaeological provenance

Magnetic anomaly groups **8** and **17** are most likely to represent ring ditches. Group **9** is situated near the centre of group 8 and could reflect an internal feature such as a pit, large posthole or archaeological surface although a natural feature, such as an in-filled hollow or tree bole, cannot be ruled out.

Groups **11 to 15** may represent a collection of pits although, as with group 9, natural origins cannot be ruled out.

The remaining anomaly groups have characteristics typical of those representing fragments of former field boundaries not recorded on historic maps from 1840 onwards and possibly from more than one phase of past land management.

13 Conclusions

The differences in magnetic responses across the Survey Area were sufficient to be able to differentiate between anomalies representing possible buried archaeology and background magnetic responses.

Twenty-two magnetic anomaly groups were characterised as representing potential buried archaeology. Of these, one (group 2) represents a former road mapped on the 1840 Camborne tithe map and historic Ordnance Survey maps between 1879 and 1963. Two (3 and 7) represent former houses and gardens mapped on the 1840 Camborne tithe map and removed before the publication of the First Edition Ordnance Survey map in 1879. Two (10 and 21) represent field boundaries also mapped on the tithe map and removed before 1879. Two groups (8 and 17) are most likely to represent ring ditches and one (9) may represent an

internal feature of one of the ring ditches. Five anomaly groups (11 to 15) may represent a cluster of pits although natural features cannot be ruled out. The remaining anomaly groups have characteristics typical of those representing fragments of former field or enclosure boundaries.

14 Disclaimer

The description and discussion of the results presented in this report are the authors', based on their interpretation of the survey data. Every effort has been made to provide accurate descriptions and interpretations of the geophysical data set. The nature of archaeological geophysical surveying is such that interpretations based on geophysical data, while informative, can only be provisional. Geophysical surveys are a cost-effective early step in the multi-phase process that is archaeology.

15 Archive

15.1 Online Access to the Index of archaeological investigationS (OASIS)

OASIS ID: substrat1-329442

The OASIS entry has been completed and the boundary file and report uploaded with six months delay in publication.

15.2 Substrata Limited archive

A full archive of this survey will be held by Substrata Limited on cloud and local hard drive storage as specified in Appendix 3.

15.3 Archaeological Data Service (ADS)

Depending on local authority policy, an archive may be deposited with the ADS as specified in Appendix 3.

15.4 Historic Environment Record (HER)

Subject to any contractual requirements on confidentiality, a PDF or printed copy of the report will be submitted to the appropriate HER within six months of completion.

16 Acknowledgements

Substrata would like to thank Zoe Arkley of Cotswold Archaeology Ltd for commissioning us to complete this survey.

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Appendix 1 Figures

General Guidance

The anomalies represented in the survey plots provided in this appendix are magnetic anomalies. The apparent size of such anomalies and anomaly patterns are unlikely to correspond exactly with the dimensions of any associated archaeological features .

A rough rule for interpreting magnetic anomalies is that the width of an anomaly at half its maximum reading is equal to the width of the buried feature, or its depth if this is greater (Clark, 2000: 83). Caution must be applied when using this rule as it depends on the anomalies being clearly identifiable and distinct from adjacent anomalies. In northern latitudes the position of the maximum of a magnetic anomaly will be displaced slightly to the south of any associated physical feature.

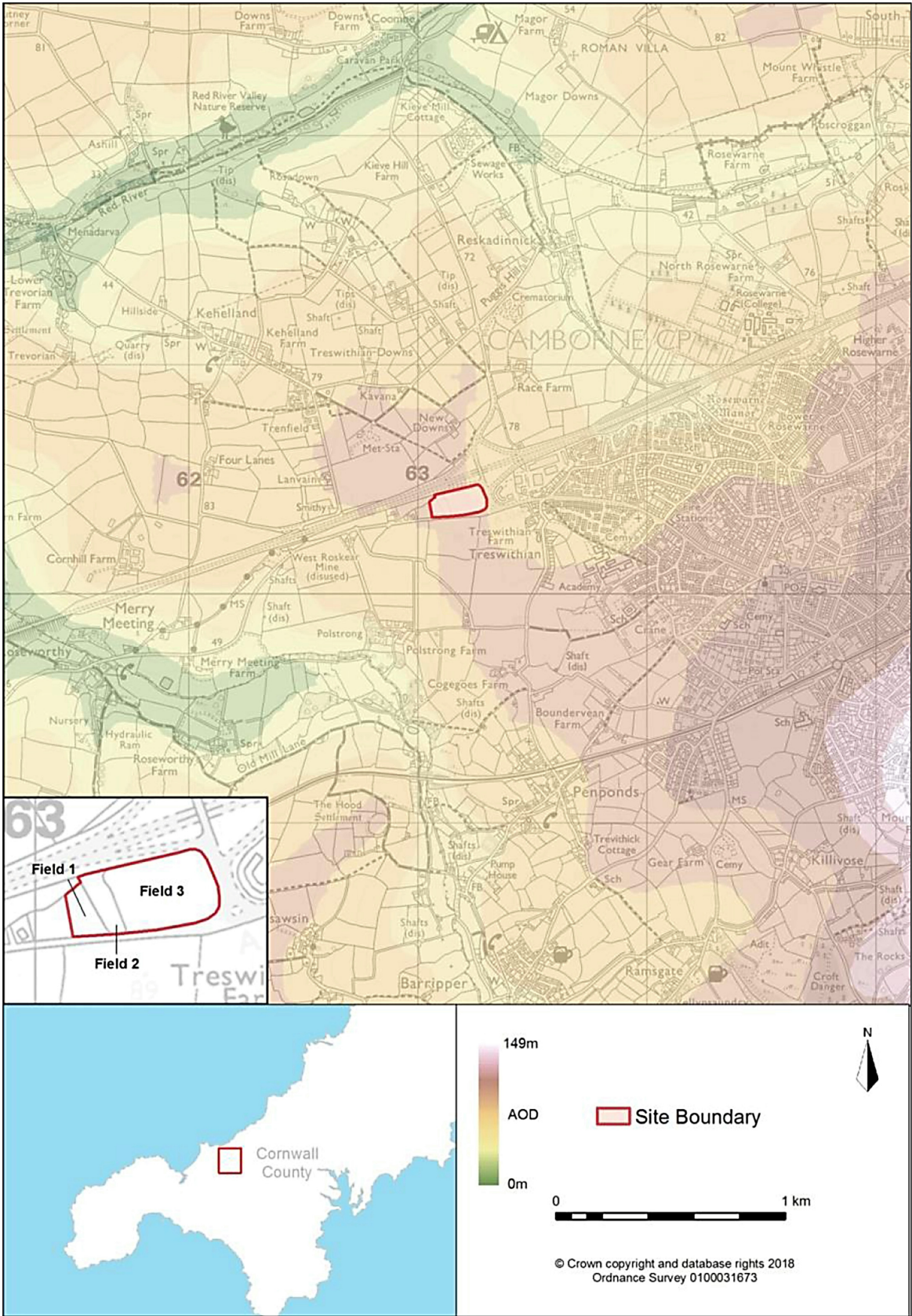
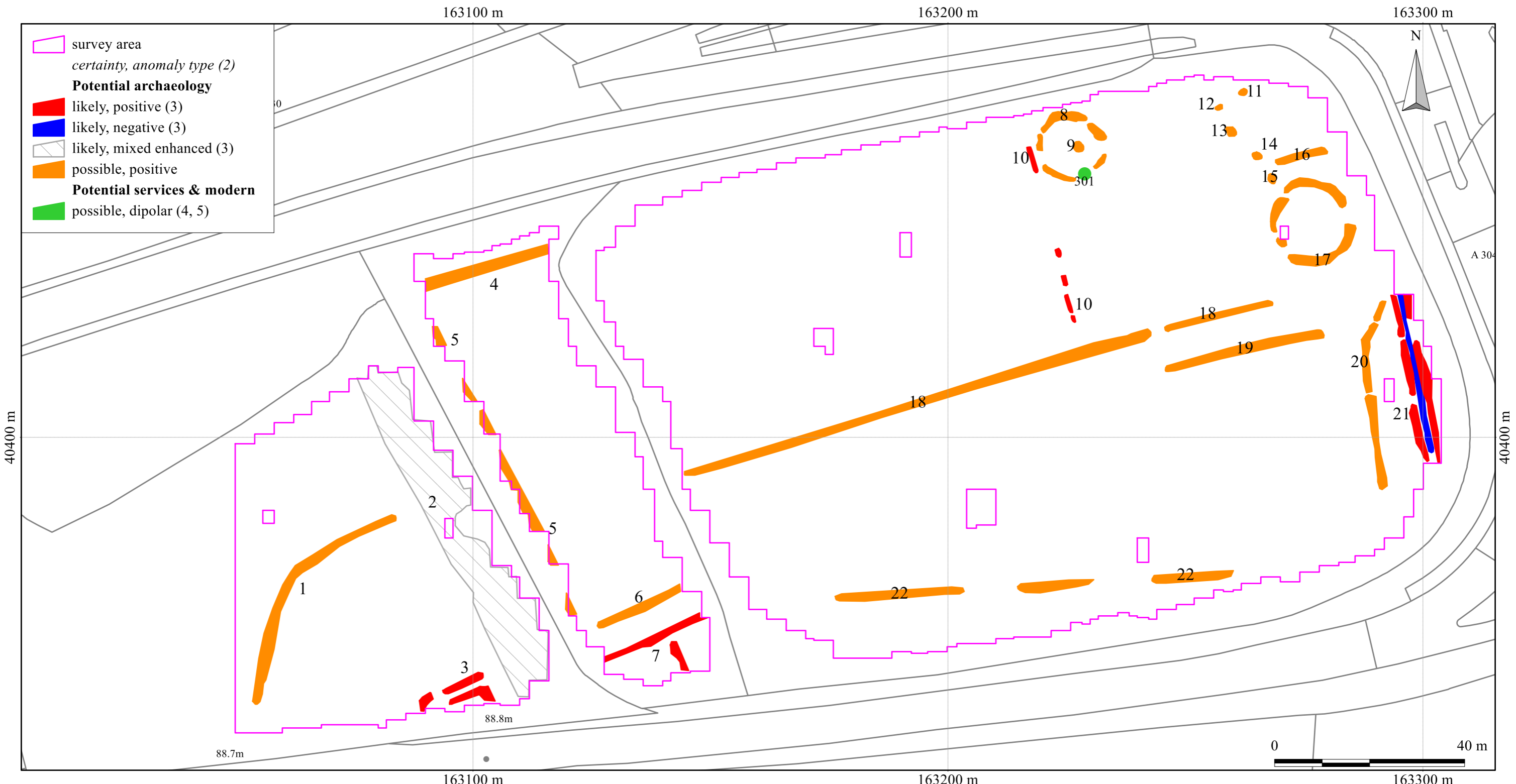


Figure 1: location map (after Cotswold Archaeology Ltd, 2018)



British Grid
 centre X: 163160.06 m, centre Y: 40408.49 m

Scale: 1:800 @ A3. Spatial Units: Meter. Do not scale off this drawing

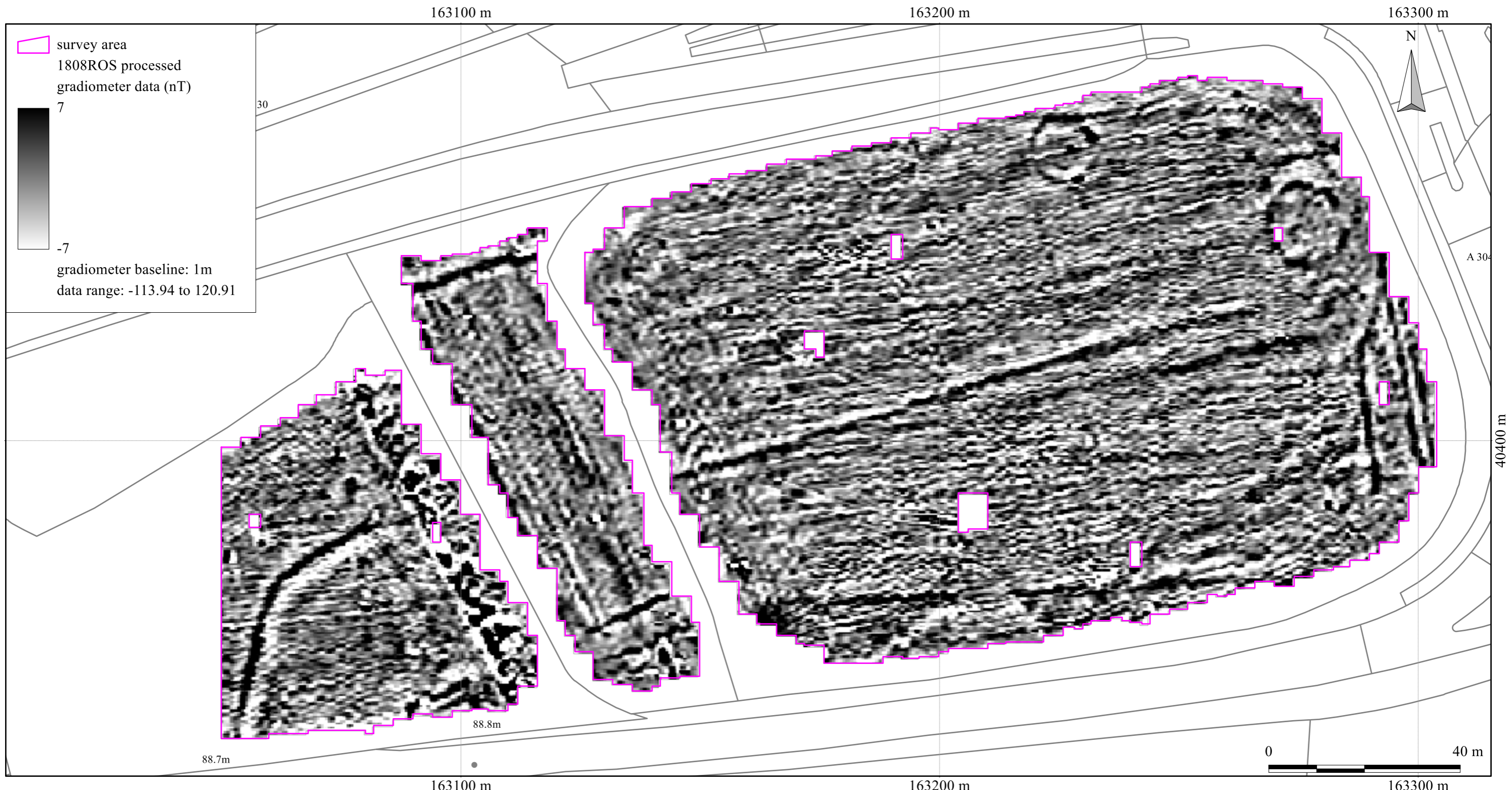
Geophysical survey: Copyright Substrata Ltd.
 Base map: (c) Crown Copyright and database rights 2018 OS 100053143.

- Notes:
1. All interpretations are provisional and represent potential archaeological deposits.
 2. 'Anomaly type' is a description of the magnetic anomaly. See the report text or GIS for an archaeological characterisation.
 3. Anomalies designated "likely archaeology" have supporting evidence e.g. historical maps and or visible earthworks.
 4. Not all instances are mapped.
 5. Anomalies likely to represent recent deposits or ground disturbance, or geological and other natural deposits are not mapped unless relevant to potential buried archaeology.

An archaeological magnetometer survey
 Roseworthy Hill, Camborne, Cornwall
 Centred on NGR: 163168,040398
 Report 1808ROS-R-1

Figure 2: survey interpretation

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British Grid
 centre X: 163160.06 m, centre Y: 40408.49 m

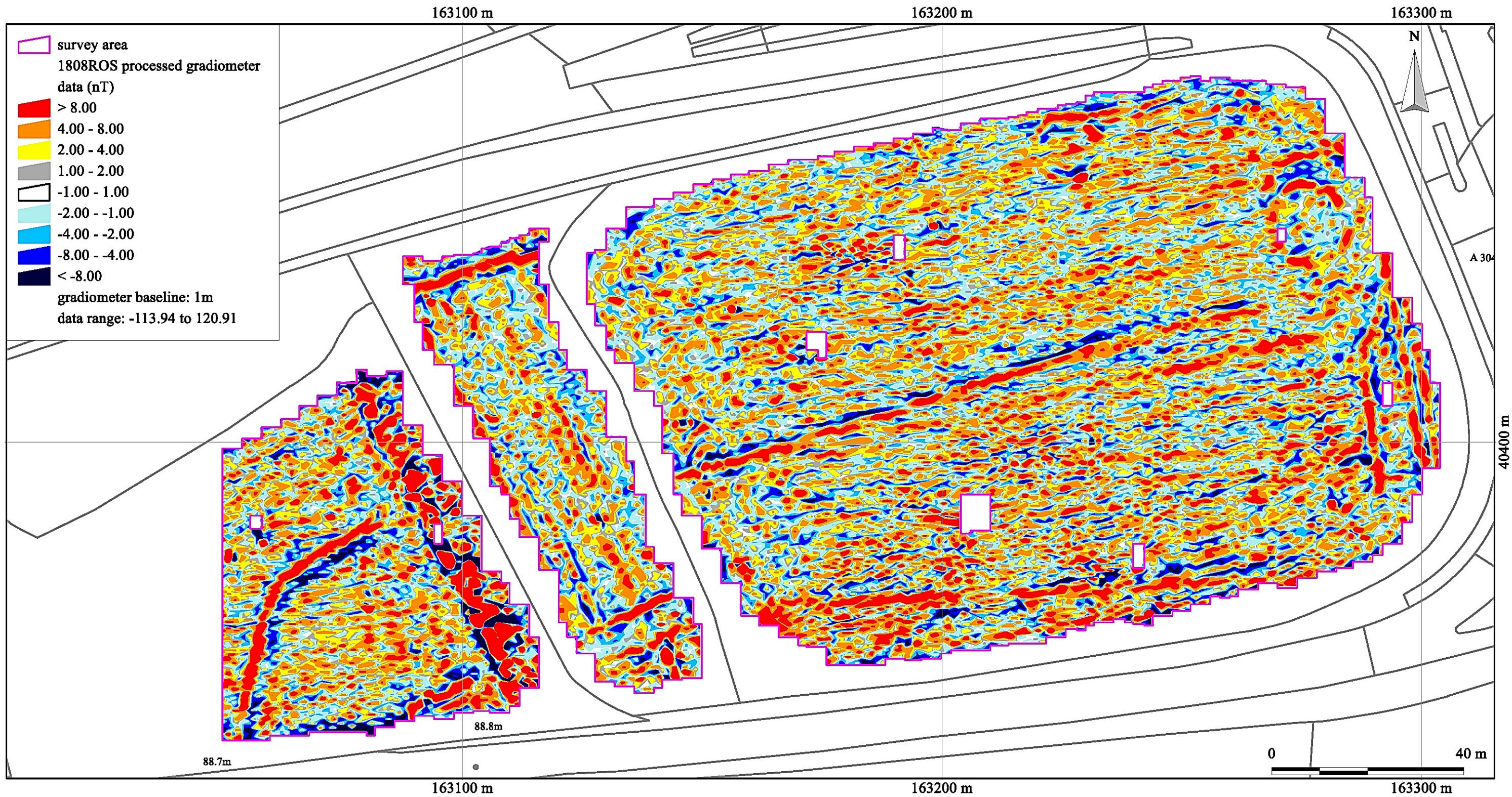
Scale: 1:800 @ A3. Spatial Units: Meter. Do not scale off this drawing

Geophysical survey: Copyright Substrata Ltd.
 Base map: (c) Crown Copyright and database rights 2018 OS 100053143.

An archaeological magnetometer survey
 Roseworthy Hill, Camborne, Cornwall
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Figure 3: shade plot of processed data

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 Web: substrata.co.uk



British Grid
 centre X: 163160.06 m, centre Y: 40408.49 m

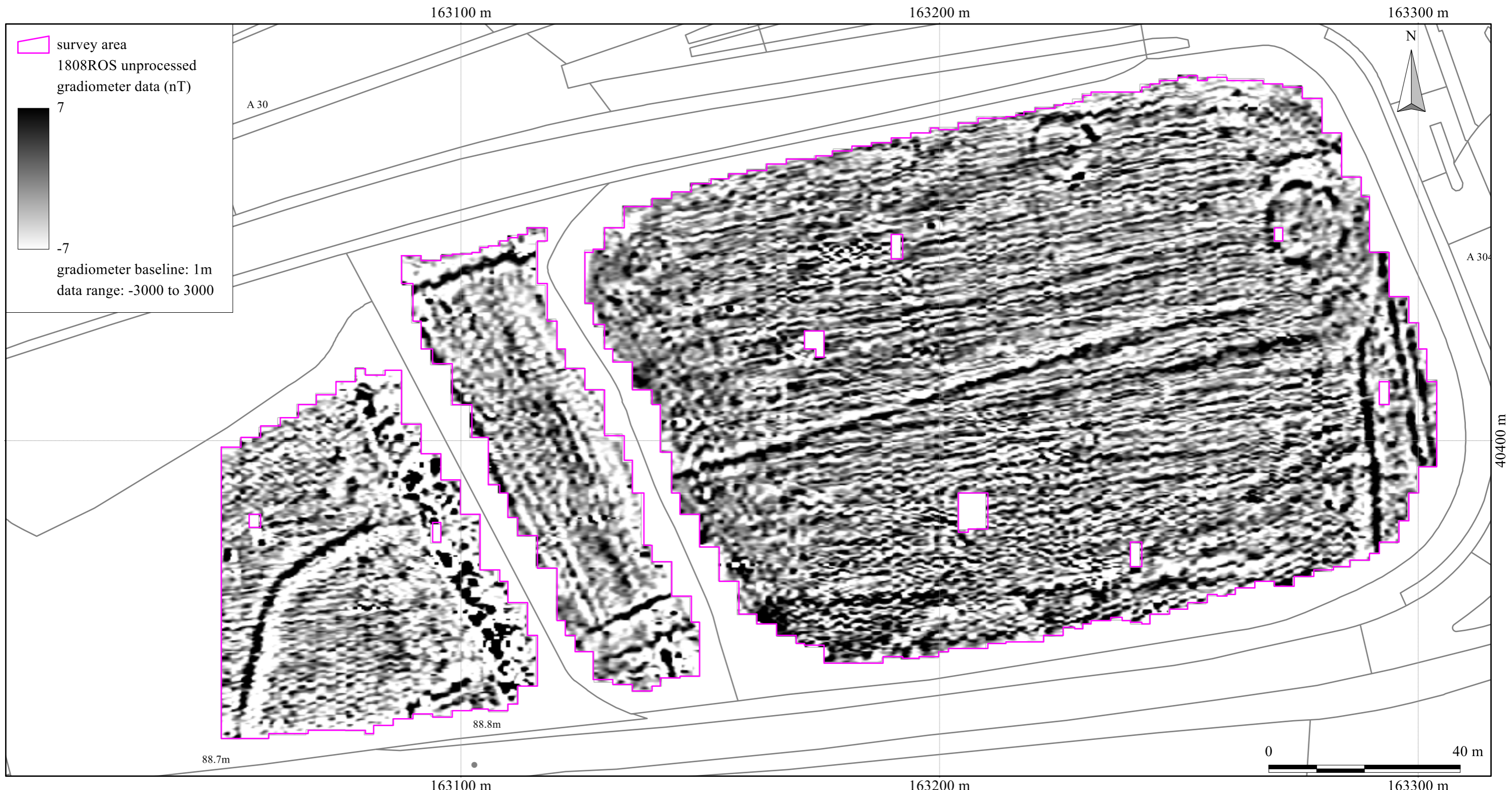
Scale: 1:800 @ A3. Spatial Units: Meter. Do not scale off this drawing

Geophysical survey: Copyright Substrata Ltd.
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An archaeological magnetometer survey
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Figure 4: contour plot of processed data

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British Grid
 centre X: 163160.06 m, centre Y: 40408.49 m

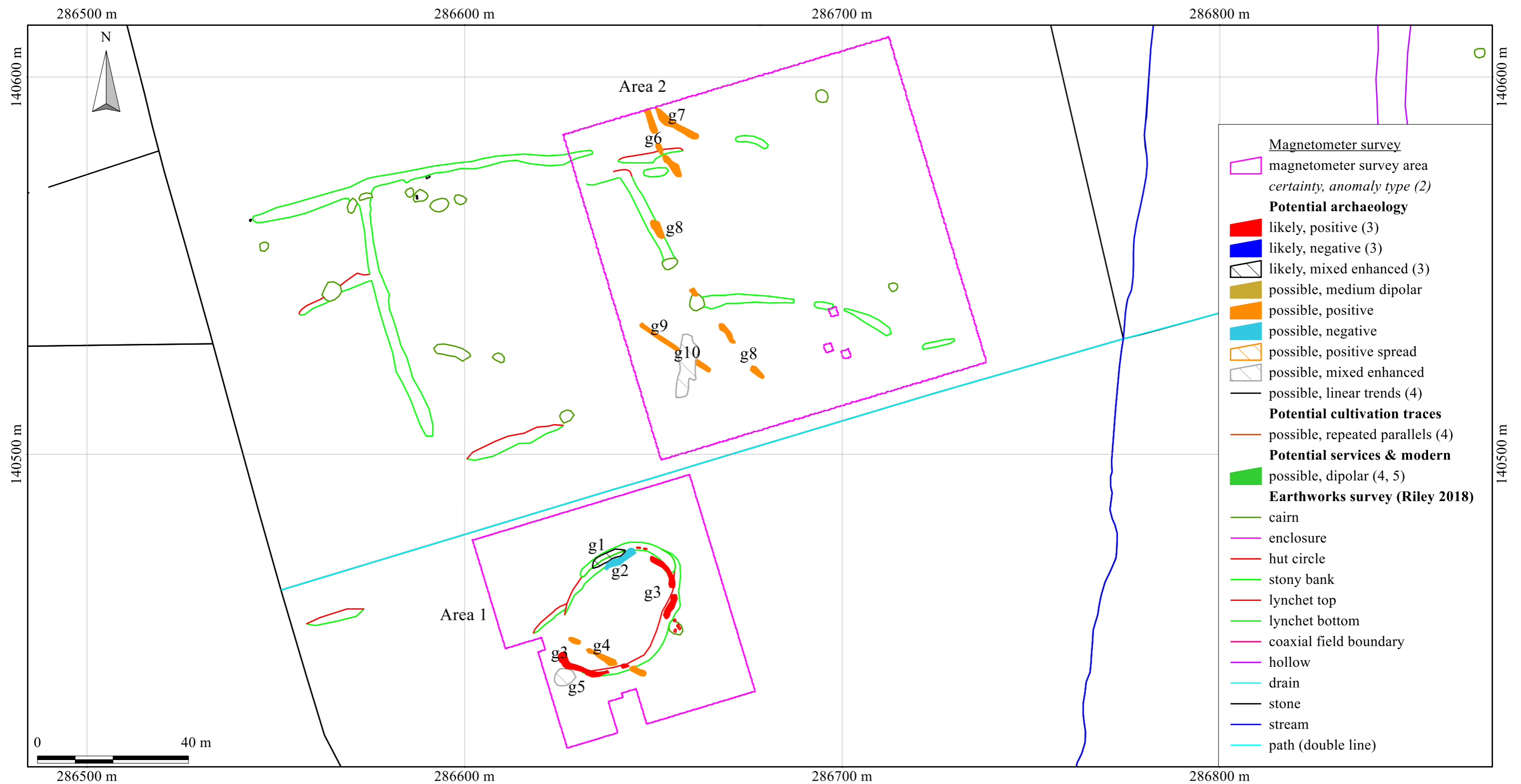
Scale: 1:800 @ A3. Spatial Units: Meter. Do not scale off this drawing

Geophysical survey: Copyright Substrata Ltd.
 Base map: (c) Crown Copyright and database rights 2018 OS 100053143.

An archaeological magnetometer survey
 Roseworthy Hill, Camborne, Cornwall
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Figure 5: shade plot of minimally processed data

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British Grid
 centre X: 286678.23 m, centre Y: 140515.45 m

Scale: 1:1000 @ A3. Spatial Units: Meter. Do not scale off this drawing

Geophysical survey: Copyright Substrata Limited.
 Base map: Ordnance Survey (c) Crown Copyright 2018.
 All rights reserved. Licence: Exmoor National Park Authority

Notes:

1. All interpretations are provisional and represent potential archaeological deposits.
2. 'Anomaly type' is a description of the magnetic anomaly. See the report text or GIS for an archaeological characterisation.
3. Anomalies designated "likely archaeology" have supporting evidence e.g. historical maps and or visible earthworks.
4. Not all instances are mapped.
5. Anomalies likely to represent recent deposits or ground disturbance, or geological and other natural deposits are not mapped unless relevant to potential buried archaeology.

An archaeological magnetometer and resistance survey
 Codsend Moor, Cutcombe, Exmoor National Park
 Centred on NGR (E/N): 286950,140700
 Report: 1802COD-R-1

Figure 6: magnetometer survey, Areas 1 and 2
 with earthworks survey (Riley 2018)

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Appendix 2 Tables

Site: Roseworthy Hill, Camborne, Cornwall
 Centred on NGR: 163168,040398

plot	anomaly group	associated anomaly groups	anomaly characterisation certainty & class	anomaly form	additional archaeological characterisation	comments	supporting evidence
1	1		possible, positive	curvilinear	in-filled curvilinear feature such as a ditch		
	2		likely, mixed enhanced	broad linear	disturbed ground associated with a former road	anomaly group coincides with, and likely represents, a former road recorded on historic maps from 1840 to 1963 and removed by 1974	1840 Camborne tithe map, Ordnance Survey maps 1879 1:2500 to 1974 1:2500
	3		likely, positive	multilinear	remnants of a house and garden	anomaly group coincides with, and likely represents, a house and garden recorded on historic maps	1840 Camborne tithe map
2	4		possible, positive	linear	in-filled linear feature such as a ditch		
	5		possible, positive	linear	in-filled linear feature such as a ditch		
	6	7?	possible, positive	linear	in-filled linear feature such as a ditch		
	7	6?	likely, positive	broad linear	remnants of a house and garden	anomaly group coincides with, and likely represents, a house and garden recorded on historic maps	1840 Camborne tithe map
3	8	9?	possible, positive	disrupted sub-circular	ring ditch, possibly with an internal feature		
	9	8?	possible, positive	oval	in-filled pit, surface or natural deposit		
	10		likely, positive	disrupted linear	field boundary	anomaly group coincides with, and likely represents, a former field boundary recorded on historic maps	1840 Camborne tithe map
	11	12 13 14 15	possible, positive	oval	in-filled pit or natural deposit	anomaly group is one of five similar groups in the same area	
	12	11 13 14 15	possible, positive	oval	in-filled pit or natural deposit	anomaly group is one of five similar groups in the same area	
	13	11 12 14 15	possible, positive	oval	in-filled pit or natural deposit	anomaly group is one of five similar groups in the same area	
	14	11 12 13 15	possible, positive	oval	in-filled pit or natural deposit	anomaly group is one of five similar groups in the same area	
	15	11 12 13 14	possible, positive	oval	in-filled pit or natural deposit	anomaly group is one of five similar groups in the same area	
	16		possible, positive	linear	in-filled linear such as a ditch or ploughing disturbance		
	17		possible, positive	disrupted sub-circular	ring ditch		
	18		possible, positive	disrupted linear	in-filled linear such as a ditch		
	19		possible, positive	linear	in-filled linear such as a ditch		
	20		possible, positive	disrupted curvilinear	in-filled curvilinear feature such as a ditch		
	21		likely, negative	linear	field boundary - Cornish hedge	anomaly group coincides with, and likely represents, a former field boundary recorded on historic maps	1840 Camborne tithe map
22		possible, positive	disrupted linear	in-filled linear such as a ditch			
301			possible, dipolar		recent ferrous material		

Table 1: data analysis

<p>Grid <i>Method of Fixing:</i> DGPS set-out using pre-planned survey grids and Ordnance Survey coordinates. <i>Composition:</i> 30m by 30m grids <i>Recording:</i> Geo-referenced and recorded using digital map tiles. <i>DGPS used:</i> Spectra Precision PM5V2 GPS with external antenna and survey pole and DigiTerra Explorer 7 as the survey control program.</p>	
<p>Equipment <i>Instrument:</i> Bartington Instruments grad601-2 <i>Firmware:</i> version 6.1</p>	<p>Data Capture <i>Sample Interval:</i> 0.25m <i>Traverse Interval:</i> 1 metre <i>Traverse Method:</i> zigzag <i>Traverse Orientation:</i> GN</p>
<p>Data Processing, Analysis and Presentation Software IntelliCAD 8.4 DW Consulting TerraSurveyor3 Manifold System 8 GIS Microsoft Corp. Office 365: Excel, Publisher, Word Adobe Systems Inc Adobe Acrobat 9 Pro Extended</p>	

Table 2: methodology information

Filename:	1808ROS processed gradiometer data.xcp
Description:	
Instrument Type:	Bartington Grad 601
Units:	nT
Direction of 1st Traverse:	0 deg
Collection Method:	ZigZag
Sensors:	2 @ 1.00 m spacing.
Dummy Value:	32702
Dimensions	
Dimensions	
Survey Size (meters):	150 m x 270 m
X&Y Interval:	0.25 m
Stats	
Max:	120.91
Min:	-113.94
Std Dev:	7.95
Mean:	0.21
Median:	0.00
Composite Area:	4.05 ha
Surveyed Area:	2.2194 ha
PROGRAM	
Name:	TerraSurveyor
Version:	3.0.34.10
Processes:	7
1	Base Layer
2	Clip at 2.00 SD
3	DeStripe Median Traverse: Grids: All
4	De Stagger: Grids: b14.xgd b18.xgd b13.xgd b19.xgd b12.xgd b20.xgd By: 0 intervals, 25.00cm
5	De Stagger: Grids: b8.xgd b15.xgd b17.xgd By: 0 intervals, 25.00cm
6	De Stagger: Grids: a10.xgd a11+b2.xgd By: 0 intervals, 25.00cm
7	Interpolate: Match X & Y Doubled.
Note: Input to the GIS results in slight changes to the stats shown above. The data stored in the archives (Appendix 3) will have the above metadata and the values quoted in the report figures will be those quoted in this metadata table.	

Table 3: processed data metadata

Filename:	11808ROS unprocessed gradiometer data.xcp
Description:	
Instrument Type:	Bartington Grad 601
Units:	nT
Direction of 1st Traverse:	0 deg
Collection Method:	ZigZag
Sensors:	2 @ 1.00 m spacing.
Dummy Value:	32702
Dimensions	
Composite Size (readings):	720 x 150
Survey Size (meters):	180 m x 150 m
Grid Size:	30 m x 30 m
X Interval:	0.25 m
Y Interval:	1 m
Stats	
Max:	3000.00
Min:	-3000.00
Std Dev:	71.15
Mean:	0.45
Median:	0.10
Composite Area:	2.7 ha
Surveyed Area:	1.713 ha
PROGRAM	
Name:	TerraSurveyor
Version:	3.0.33.6
Processes: 1	
1 Base Layer	
Note: Input to the GIS results in changes to the stats shown above. The data stored in the archives (Appendix 3) will have the above metadata and the values quoted in the report figures will be those quoted in this metadata table.	

Table 4: unprocessed data metadata

Site: Roseworthy Hill, Camborne, Cornwall
Centred on NGR 163168,040398

BGS ID	BGS reference	NGR (E/N)	method	type	strata	thickness (m)	depth (m)
640108	SW64SW26	163460,40200	mechanical excavator	TOPSOIL	Turf over medium brown friable clayey topsoil with some gravel and roots	0.30	0.00 to 0.30
				HEAD	Stiff pale brown extremely closely fissured friable sandy clayey SILT with much fine-medium and some coarse gravel sized fragments of quartz and weathered greenstone	0.60	0.30 to 0.90
				MYLOR SLATE IGNEOUS WEATHERED BEDROCK	Highly-completely weathered bedrock = Firm-stiff yellow brown mottled pale green brown, friable slightly sandy clayey SILT with some angular fine-medium gravel sized fragments of highly weathered greenstone with occasional black mottling.	?	0.90 to ?
					At one end of the trial pit: blocky angular gravel and cobble sized fragments of moderately strong-moderately weak pale green grey altered yellow brown moderate-highly weathered greenstone end of trial pit	?	1.20 to ?
					2.50		
640109	SW64SW27	16,343,040,370	mechanical excavator	TOPSOIL	Turf over medium brown extremely closely fissured silty topsoil with much angular fine-medium gravel and roots	0.30	0.00 to 0.30
				HEAD	Medium dense (?) sub-angular and angular blocky GRAVEL and some, becoming much more below 1.0m, cobble sized fragments of moderately weathered dark grey and pale green grey highly metamorphosed greenstone, jumbled with a generally partial-supportive matrix (estimated 30% above 1.05m reducing to 5-20% below) of firm-stiff pale green brown extremely closely fissured very silty clay	1.40	0.30 to 1.70
				MYLOR SLATE IGNEOUS (GREENSTONE)	Pale green grey, mottled pale green, fine grained very close-closely fractured (typically 20-200mm) moderately weathered blocky greenstone, moderately strong, altering (estimated 10%) adjacent to some fractures to firm friable clayey silt, and with other fractures stained black-brown end of trial pit	?	1.70 to ?
						2.60	
640110	SW64SW28	163640,40550	mechanical excavator	SUB-BASE	Fill: sub-angular GRAVEL and COBBLES with a little red brown clay	0.30	0.00 to 0.30
				HEAD	Firm brown friable sandy silty CLAY with some (estimated 15%) gravel sized fragments of mudstone	0.50	0.30 to 0.70
				HEAD	Medium dense (?) sub-angular GRAVEL, COBBLE and occasional boulder-sized fragments of mudstone and siltstone with a partial matrix (estimated 10-20%) of yellow brown friable silty sandy clay	0.90	0.70 to 1.60
				MYLOR SLATE SEDIMENTARY	Medium and dark grey fine grained very narrowly cleaved (poor) quartz veined extremely close-closely fractured (typically 10-100mm) slightly weathered blocky MUDSTONE, moderately strong, altering (estimated <5%) adjacent to fractures to brown silty clay. Fracture 1 dip 60 degrees south end of trial pit	?	1.60 to ?
						2.60	

Table 5: example geological test pit logs in the vicinity of the Survey Area (British Geological Survey, undated).

Appendix 3 Project archive contents

1 Substrata Limited archive

A full archive of this survey will be held by Substrata Limited on cloud and local hard drive storage as follows:

Report:	Adobe PDF (.pdf), Microsoft Publisher (.pub)
Raw grid data files:	DW Consulting TerraSurveyor 3 (.xgd)
Raw data composite files:	DW Consulting TerraSurveyor 3 (.xgd) and CSV (.xyz)
Final data processing composite files:	DW Consulting TerraSurveyor 3 (.xgd) and CSV (.xyz)
GIS project:	GIS project Manifold 8 (.map)
Survey interpretation:	ESRI shape files
AutoCAD version of the survey interpretation: (if generated)	AutoCAD (.dwg)
All project working files:	IntelliCAD 8.4 Microsoft Corp. Office 365: Excel, Publisher, Word Adobe Systems Inc Adobe Acrobat 9 Pro Extended

2 Online Access to the Index of archaeological investigationS (OASIS)

Metadata:	online form
Georeferenced survey boundary file:	ESRI shape file
Report:	Adobe PDF (.pdf)

3 Archaeological Data Service

Depending on local authority policy, an archive may be deposited with the ADS as follows:

Raw data composite file:	CSV (.xyz)
Processed data plot:	rendered images in TIFF format
Survey grid plot:	image in TIFF format
Details of data processing:	image in TIFF format
Interpretation plot:	rendered images in TIFF format
Metadata:	Microsoft Excel format

4 Historic Environment Record (HER)

Subject to any contractual requirements on confidentiality, a PDF copy of the report will be submitted to the appropriate HER within 6 months of the completion of this report via the OASIS process or by other means, depending on the relevant HER process.