Substrata
Archaeological Geophysical Surveyors

An archaeological magnetometer survey

Land at Langford Bridge, Wolborough Newton Abbot, Devon

Centred on NGR 286800,069390 and 287150,069390

Report: 1805LAN-R-1

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12 September 2018

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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 AC Archaeology Ltd on behalf of Commercial Estates Group. The commissioning of this report was 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 Survey Method Statement (Substrata Ltd, 2018).

2 Client

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3 Copyright

4 Survey type and location

4.1 Survey

Method:	shallow depth magnetometer survey
Instrument:	twin-sensor fluxgate gradiometer
Date:	between 19 August and 5 September 2018
Area:	24ha
Survey resolution:	1m by 0.25m

4.2 Location

Name:	Land at Langford Bridge
Location:	Langford Bridge, Wolborough, Newton Abbot, Devon
Civil Parish:	Newton Abbot (Plots 1 to 3) Abbotskerswell (plots 4 to 7)
District:	Teignbridge
County:	Devon
Historic environment designation:	None
OASIS ID:	substrat1-328299
<u>Plots 1 to 5</u>	
Nearest Postcode:	TQ12 5JU
Survey centre NGR:	SX 86800 69390 (point)
Survey centre NGR (E/N):	286800,069390 (point)
<u>Plots 6 and 7</u>	
Nearest Postcode:	TQ12 5LA
Survey centre NGR:	SX 87150 69390 (point)
Survey centre NGR (E/N):	287150,069390 (point)

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 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-seven magnetic anomaly groups were characterised as representing potential archaeological deposits. Of these, fourteen represent field boundaries recorded on the 1839 Abbotskerswell and 1848 Wolborough tithe maps, nine of which are also recorded on later historic Ordnance Survey maps. One group represents former orchard banks. All these historically mapped features were removed before the publication of the Ordnance Survey 1974 1:2,500 map. The remaining anomaly groups not previously recorded on historic maps or in the Historic Environment Record have characteristics typical of anomaly groups representing fragments of former field and enclosure boundaries of unknown date.

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 (Chartered Institute for Archaeologists, 2014b).

9 Survey Area

9.1 Location and description

The Survey Area comprises seven fields, used for both arable cultivation and pasture, in two areas split by the Kingskerswell Road. The fields are situated south of Newton Abbot and east of Abbotskerswell (Figures 1 and 2). The ground rises to the west and south from approximately 10m aOD in the northeast to approximately 60m aOD in the southwest. The

fields are bound by a mix of Devon Banks and hedgerows with wire fencing within the hedges and alone in some places.

9.2 Geology and sub-surface deposits

The solid geology across the majority of the Survey Area comprises kaolinitic clays, sandy and silty clays, silts, lignites and sands of the Palaeogene Bovey Formation. Beds of silt and fine-grained sand and sandstone of the Cretaceous Upper Greensand Formation are present in plots 3, 4 and 5. The superficial geology is not recorded in the source used (British Geological Survey, undated).

No relevant geotechnical reports or borehole logs of near-surface deposits within 500m of the Survey Area were available at the time of writing.

9.3 Soils

The topsoil is 'freely draining acid loamy soils over rock' (LandIS, undated).

10 Archaeological background

10.1 Historic landscape characterisation
(Devon County Council, undated)

Plots 1, 2, and 3 along with the majority of Plot 4
'Modern enclosures'
These modern fields have been created out of probable medieval enclosures themselves based on strip fields that were probably first enclosed with hedge-banks during the later middle ages. The curving form of the hedge-banks reflects earlier open strip-field patterns.

Part of Plot 4
'Former orchards'
This area was once an orchard planted with fruit trees, but these have been lost in the 20th century.

Plot 5
'Post-medieval enclosures'
Enclosures of post-medieval date. Fields laid out in the 18th and 19th centuries with many surveyed dead-straight field boundaries.

Plot 6
'Barton fields'
These relatively large, regular enclosures seem likely to have been laid out between the 15th and 18th centuries. Some curving boundaries may be following earlier divisions in the pre-existing medieval fields.

Plot 7
'Modern enclosures'
Modern enclosures that have been created by adapting earlier Barton fields (see the description for Plot 6).

10.2 Statement of research

The Devon County Council Historic Environment Record and library of tithe maps was examined via Devon County Council Historic Environment, Environment and Planning website (Devon County Council, undated) the Heritage Gateway (Historic England, undated) to gain an appreciation of historic assets pertinent to the geophysical survey data within approximately 500m of the survey area perimeter. Whilst providing a useful context for the data analysis, this source is not necessarily comprehensive and detailed publication of the information in commercial reports is not permitted.

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

Figures 2 to 5 show the interpretation of the survey data and include 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.

Figures 2 to 5 along with Table 1 comprise the analysis of the survey data.

Figures 6 to 9 are plots of the processed data as specified in Table 3. Figure 10 is a plot of minimally processed data as specified in Table 4. Figure 11 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 of dense, rough vegetation and 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

Plot 2

An approximately north-south set of parallel, linear trends are confined by the lines of former field boundaries (Section 12.2) are likely to represent post-medieval ploughing disturbance.

Plot 3

A vague set of parallel, linear, west-south-west to east-north-east trends are likely to reflect post-medieval or modern ploughing disturbance.

Plot 4

A set of curvilinear trends (group 101) shown in Figures 2 and 4 are likely to reflect former orchard banks which may extend to the northwest. Elsewhere in the Plot, parallel, linear trends are likely to reflect post-medieval or modern ploughing disturbance.

Plot 5

West-north-west to east-south-east trending broad, vague linears are likely to reflect underlying geology.

Plot 6

Northeast to southwest parallel, linear trends in the northwest of the plot are likely to represent field drainage.

12.2 Data relating to historic maps and other records

Fifteen of the twenty-seven magnetic anomaly groups mapped as representing potential buried archaeology reflect features recorded on the two relevant tithe maps and later historic Ordnance Survey maps as shown in Table 1. One group (101) represents former orchard banks and the rest former field boundaries.

The anomaly groups recorded in Plot 1 are typical of those representing extensively re-deposited material. A China Clay quarry was recorded in this area on the 1906 1:10560 Ordnance Survey map and continued to be mapped up to the publication of the 1937 1:2,500 map but was not shown on the 1938 1:10560 map. A large pond was recorded in the area on the 1955 1:2,500 map. This was reduced in size by the publication of the 1964 1:10560 map and by the 1976 1:10,000 map had been further reduced to it's current size.

12.3 Data with no previous archaeological provenance

Those twelve anomaly groups that have no provenance so far as historic maps or existing Historic Environment Records are concerned represent linear and curvilinear fragments of potential archaeological features such as ditches and wall footings. They are typical of anomaly groups representing former field and enclosure boundaries of unknown date.

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-seven magnetic anomaly groups were characterised as representing potential archaeological deposits. Of these, fourteen represent field boundaries recorded on the 1839 Abbotskerswell and 1848 Wolborough tithe maps, nine of which are also recorded on later historic Ordnance Survey maps. One group represents former orchard banks. All these historically mapped features were removed before the publication of the Ordnance Survey 1974 1:2,500 map. The remaining anomaly groups not previously recorded on historic maps or in the Historic Environment Record have characteristics typical of anomaly groups representing fragments of former field and enclosure boundaries of unknown date.

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: substrat1-328299
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 Simon Hughes of AC Archaeology Ltd for commissioning us to complete this survey.

17 Bibliography

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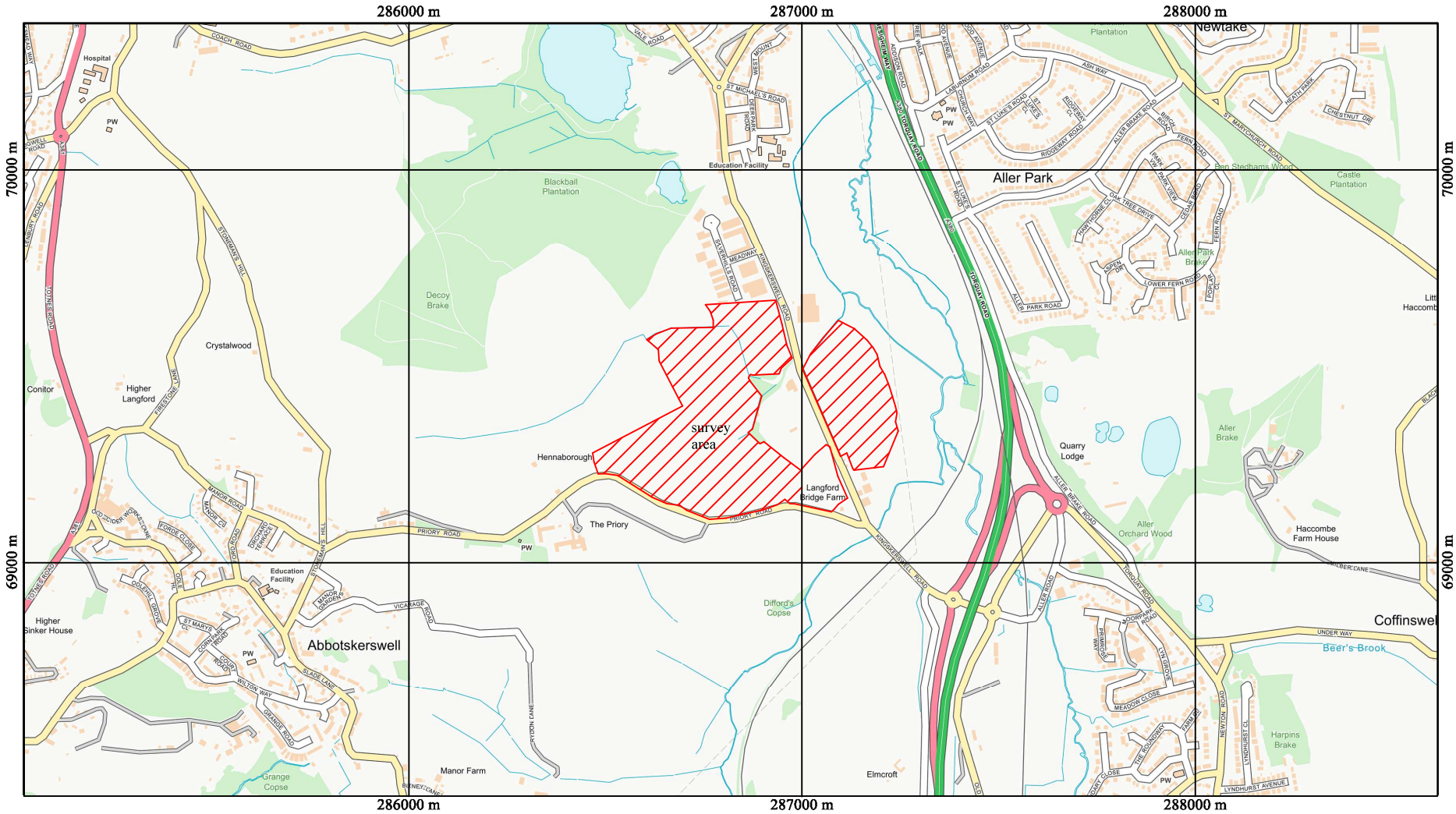
Appendix 1 Figures

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.



British Grid
centre X: 286818.45 m, centre Y: 69389.45 m

Scale: 1:10000 @ A3. Spatial Units: Meter. Do not scale off this drawing

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Land at Langford Bridge, Wolborough, Newton Abbot, Devon
Centred on NGR: 286800,069390 and 287150,069390
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Figure 1: location map

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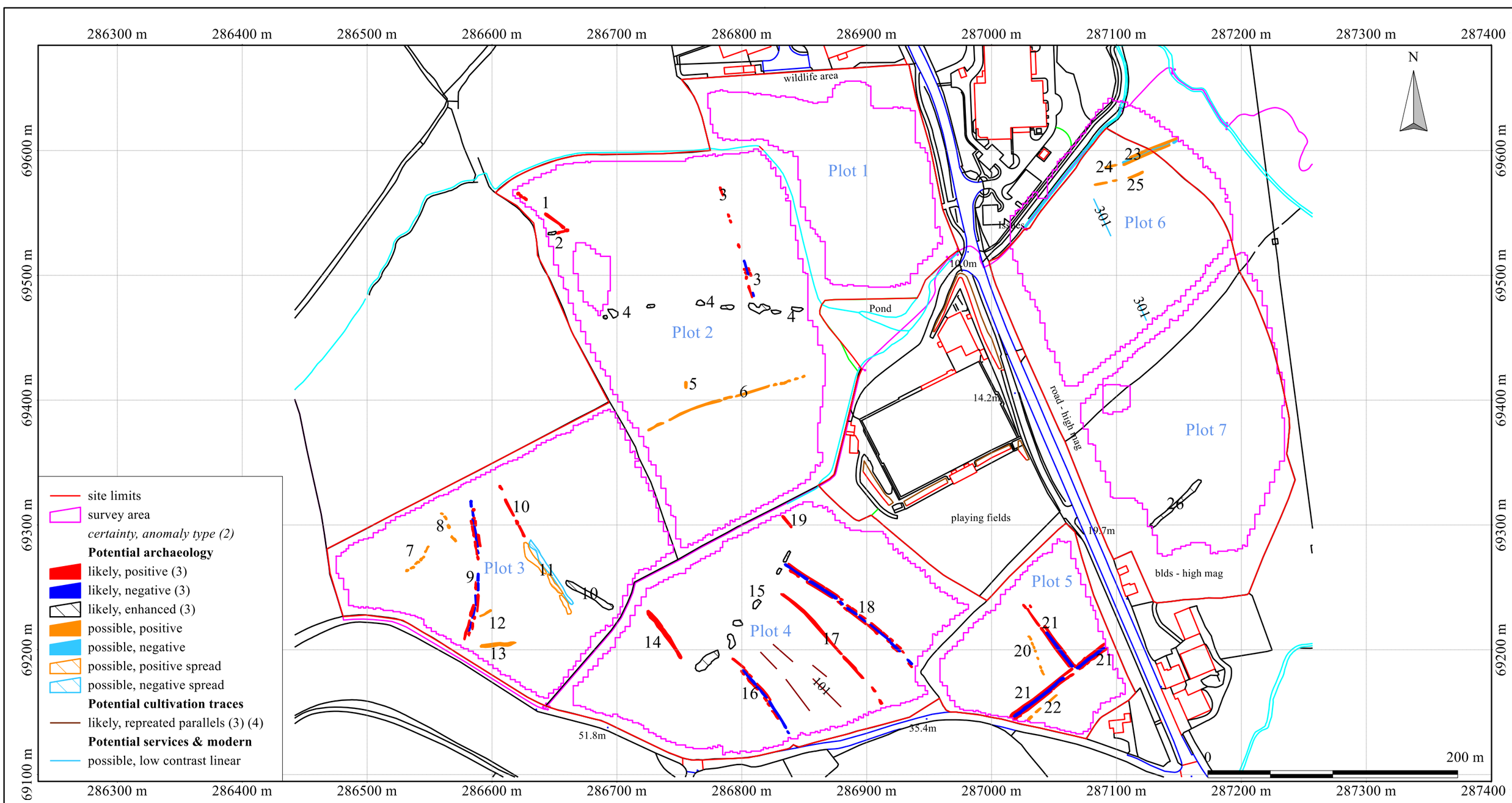

British Grid
centre X: 286818.45 m, centre Y: 69389.45 m

Scale: 1:3000 @ A3. Spatial Units: Meter. Do not scale off this drawing

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.

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Figure 2: survey interpretation, all plots

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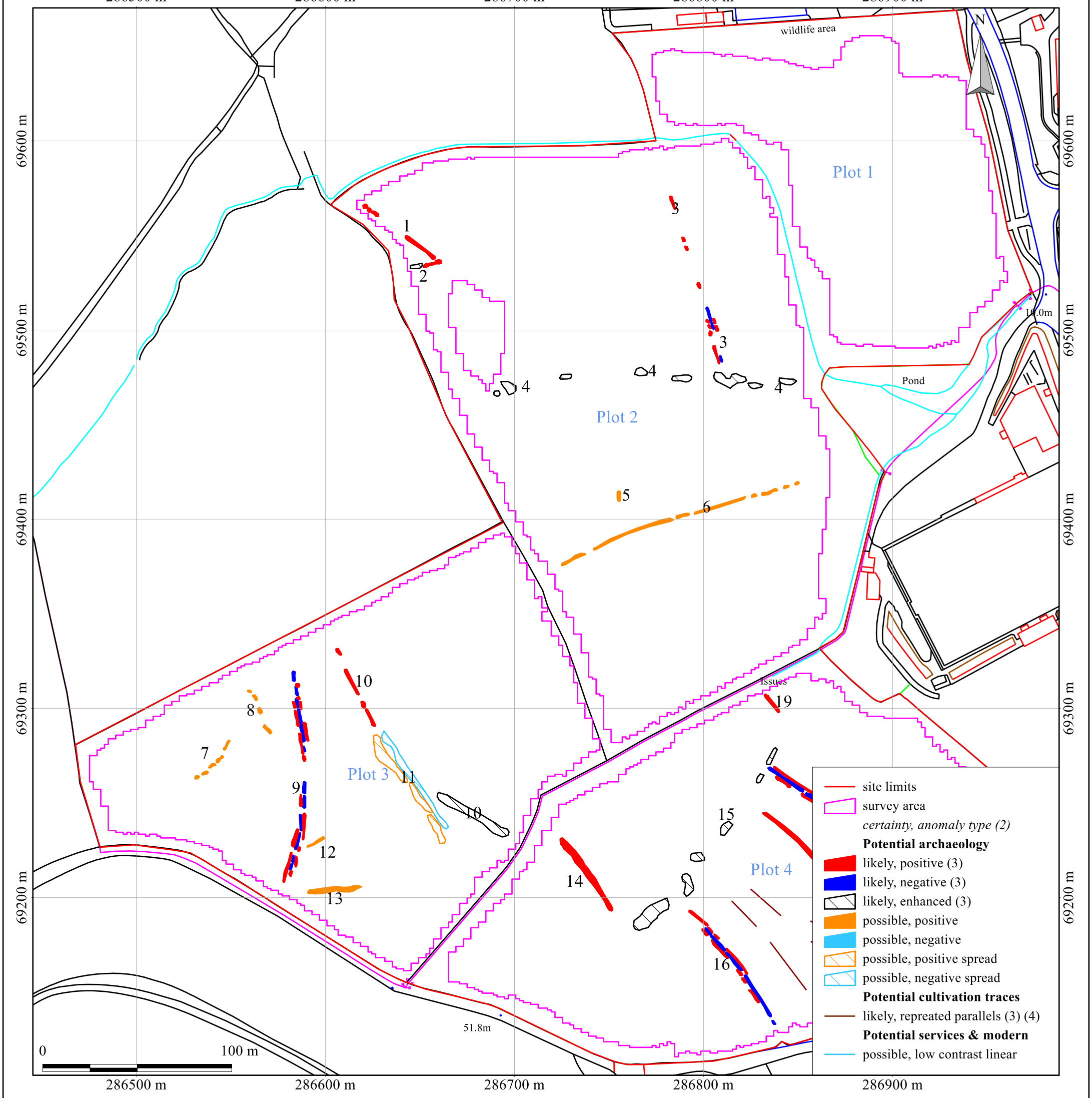

British Grid
centre X: 286716.67 m, centre Y: 69388.17 m

Scale: 1:2000 @ A3. Spatial Units: Meter. Do not scale off this drawing

Notes:
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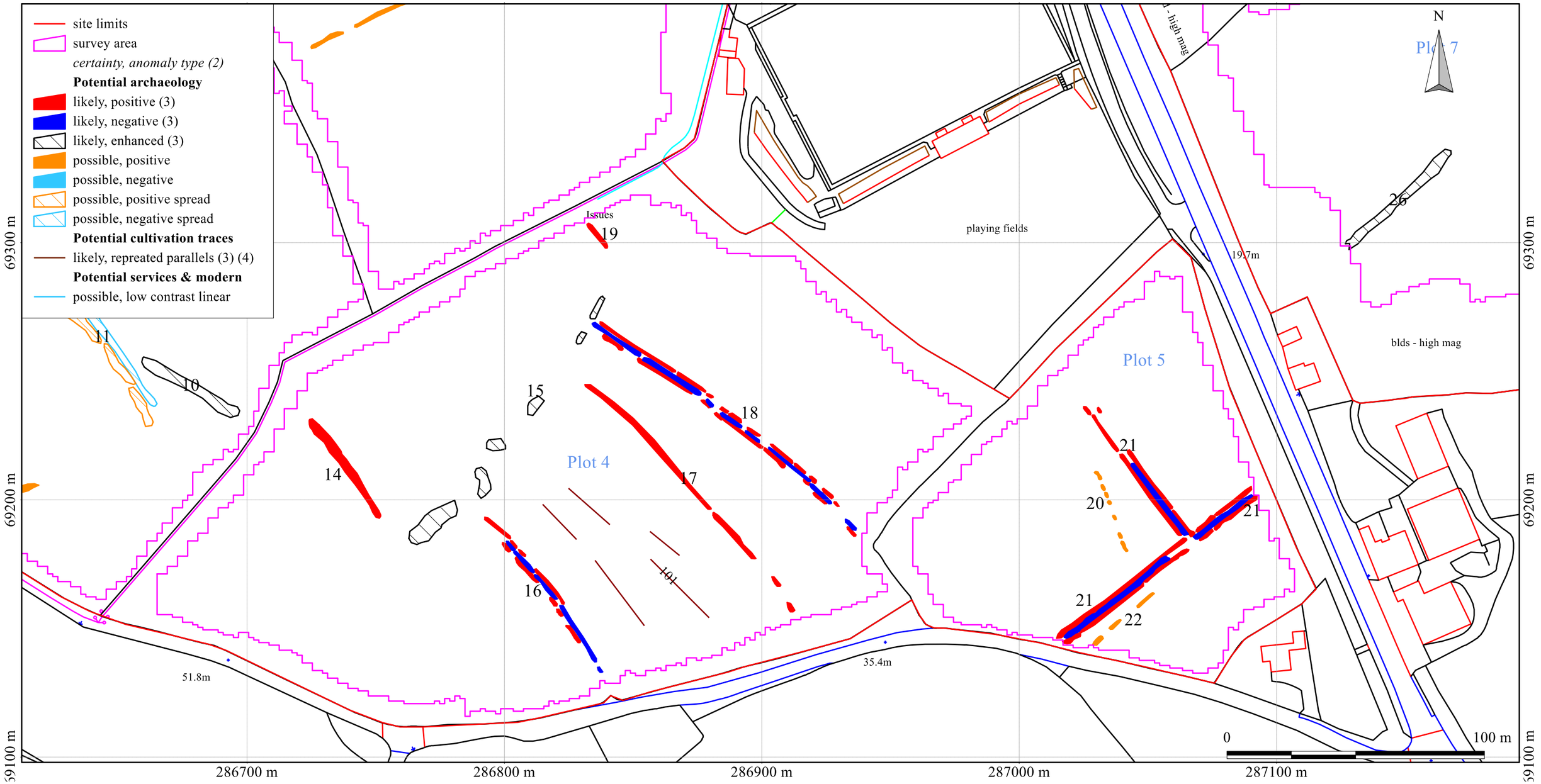
Figure 3: survey interpretation, Plots 1, 2 and 3



British Grid
centre X: 286903.39 m, centre Y: 69245.38 m

Scale: 1:1500 @ A3. Spatial Units: Meter. Do not scale off this drawing

Notes:
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Figure 4: survey interpretation, Plots 4 and 5

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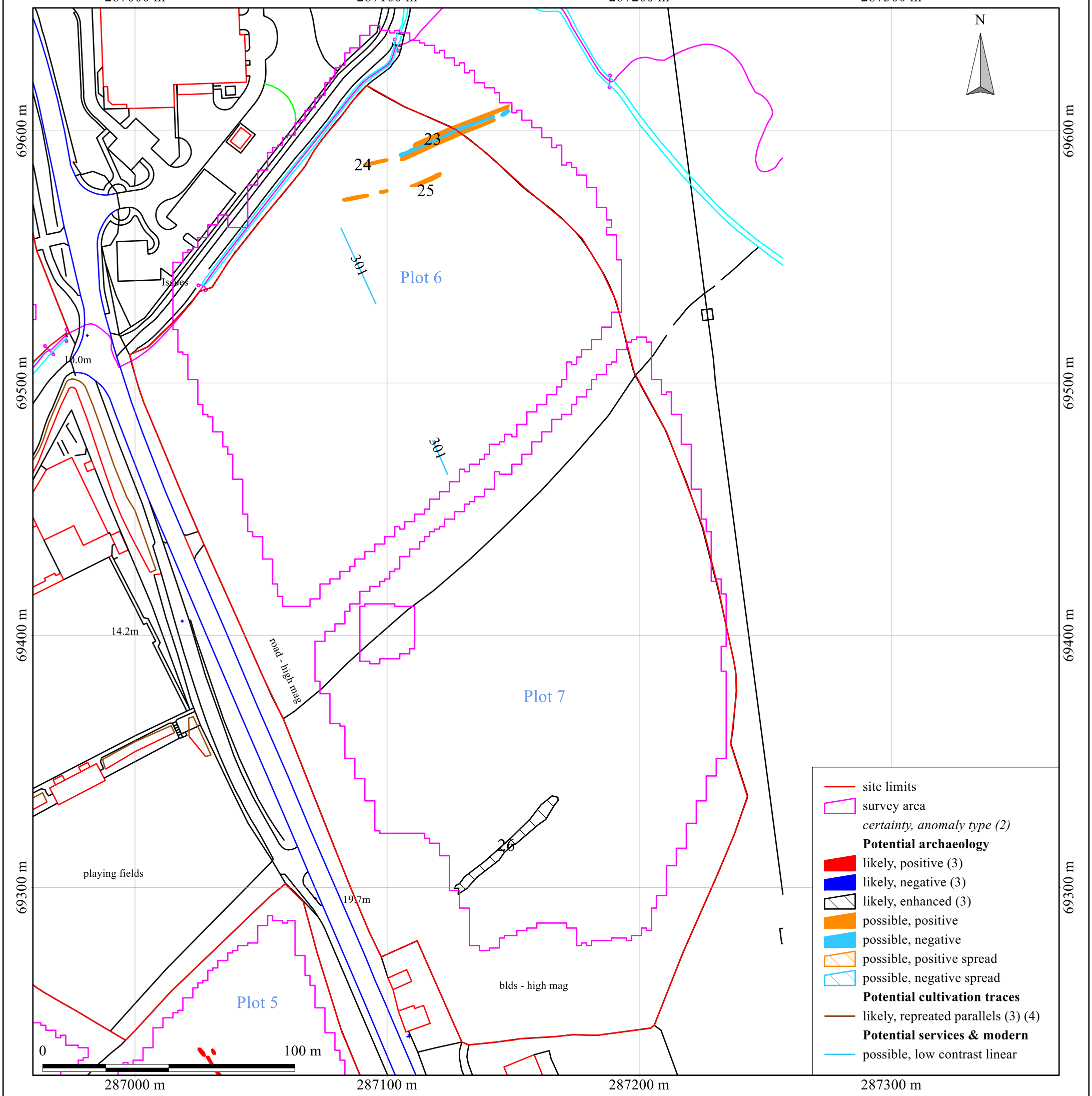

British Grid
centre X: 287163.02 m, centre Y: 69437.12 m

Scale: 1:1500 @ A3. Spatial Units: Meter. Do not scale off this drawing

Notes:
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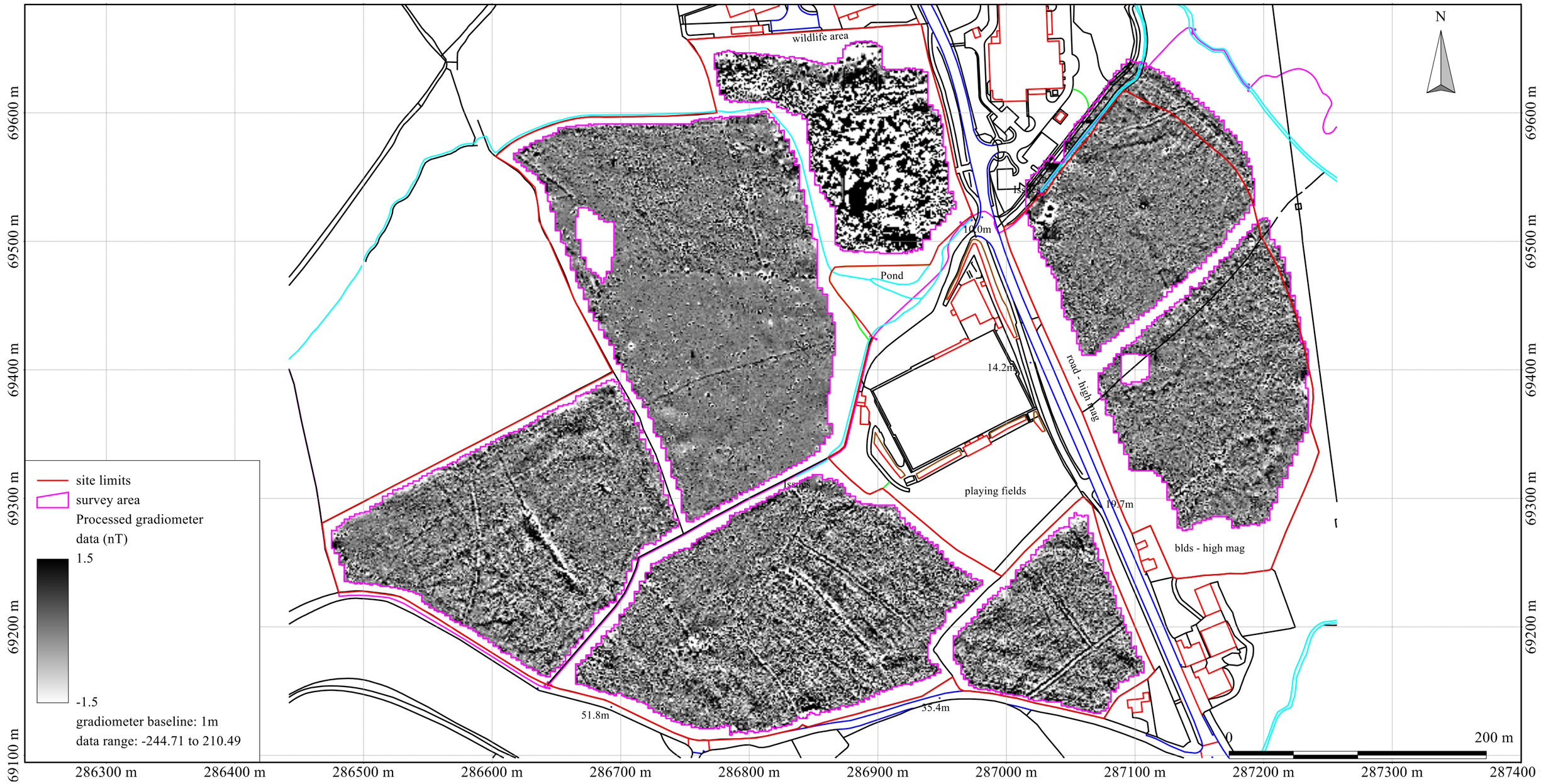
Figure 5: survey interpretation, Plots 6 and 7



British Grid
centre X: 286818.45 m, centre Y: 69389.45 m

Scale: 1:3000 @ A3. Spatial Units: Meter. Do not scale off this drawing

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Figure 6: shade plot of processed data, all plots

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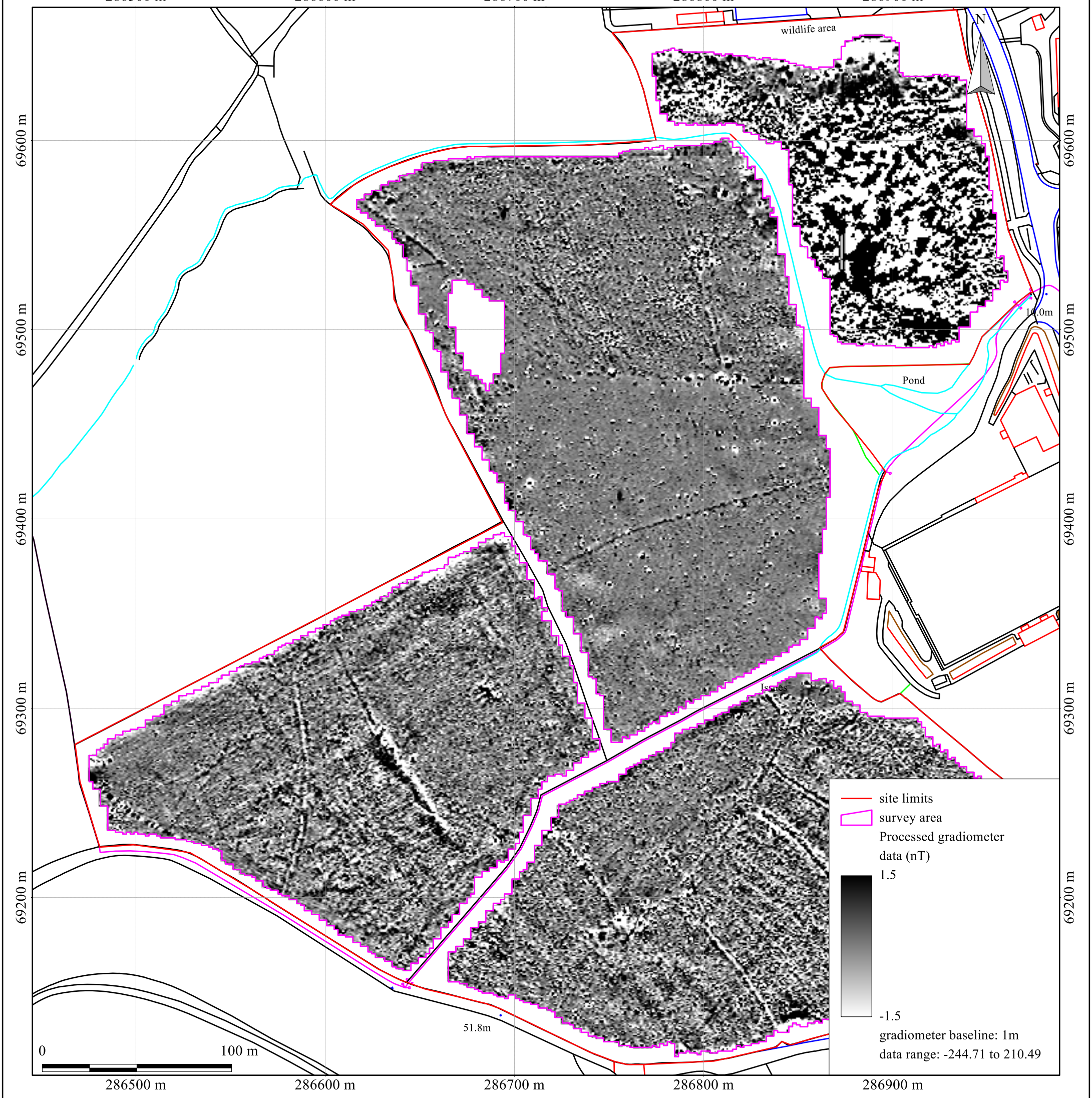

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Figure 7: shade plot of processed data, Plots 1, 2 and 3

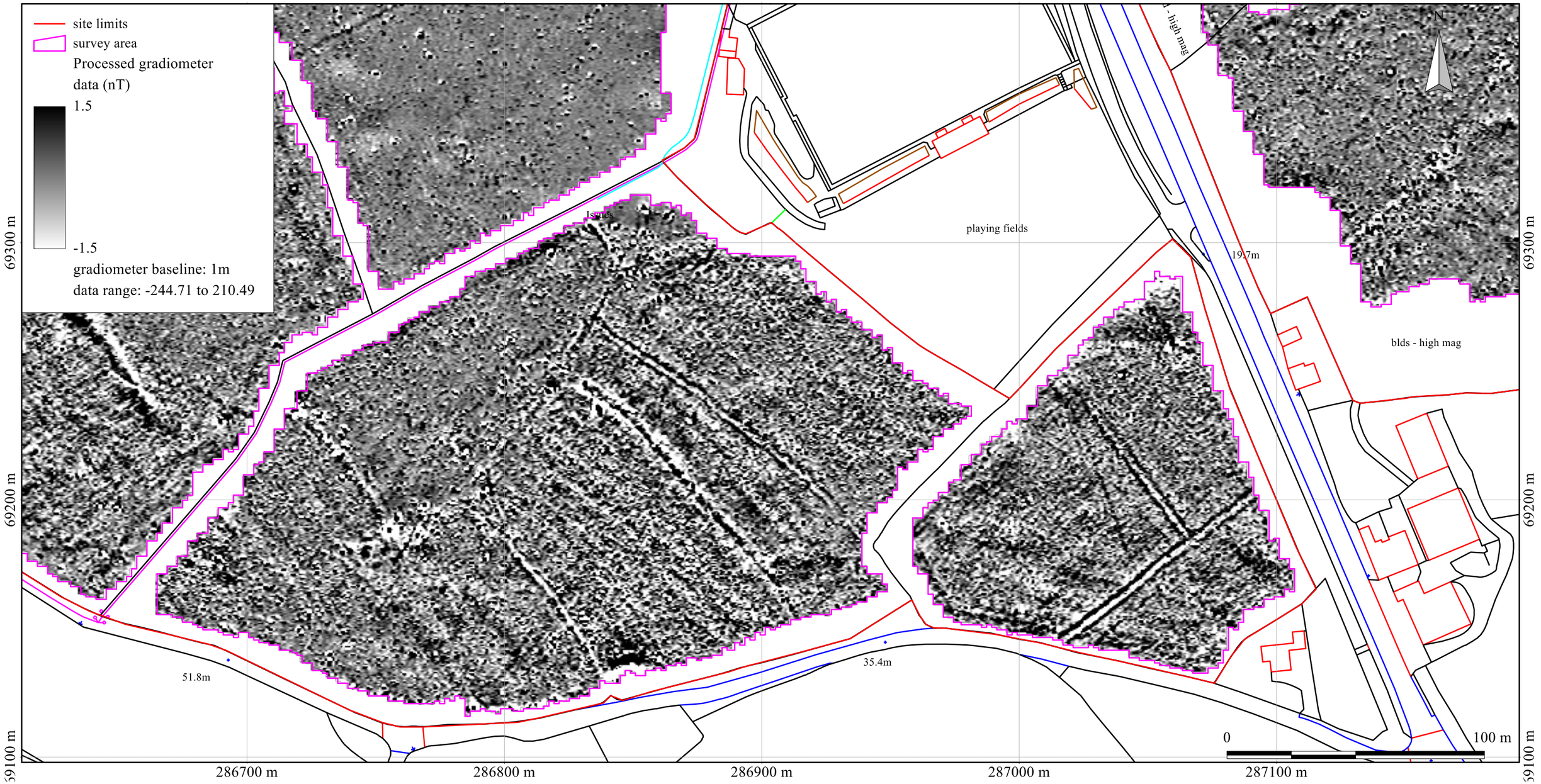

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Figure 8: shade plot of processed data, Plots 4 and 5

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287000 m 287100 m 287200 m 287300 m

69600 m 69500 m 69400 m 69300 m

N

Issues

10.0m

14.2m

road - high mag

playing fields

19.7m

blds - high mag

0 100 m

site limits
survey area
Processed gradiometer data (nT)
1.5
-1.5
gradiometer baseline: 1m
data range: -244.71 to 210.49

British Grid
centre X: 287163.02 m, centre Y: 69437.12 m

Scale: 1:1500 @ A3. Spatial Units: Meter. Do not scale off this drawing

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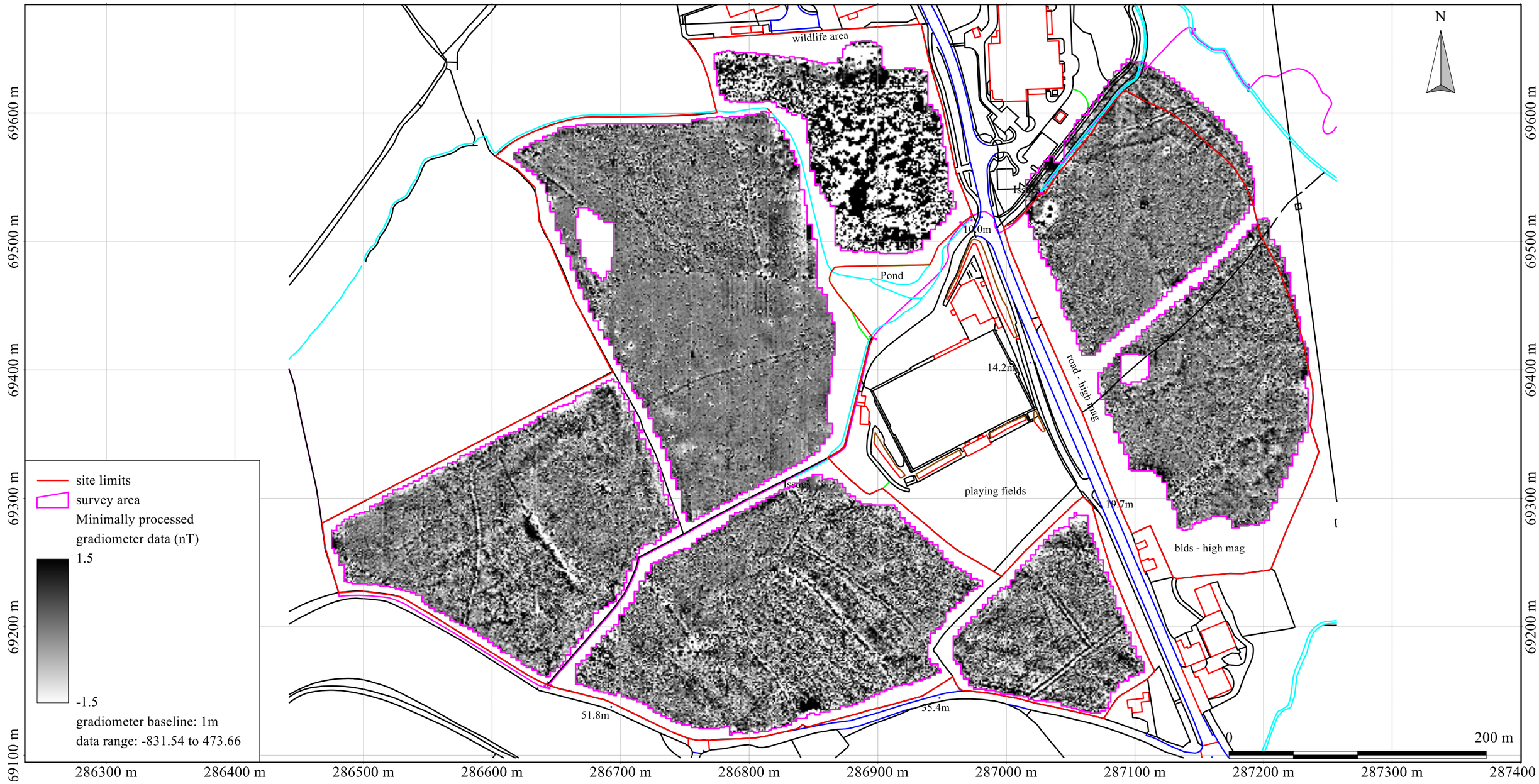
Figure 9: shade plot of processed data, Plots 6 and 7



British Grid
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Figure 10:shade plot of minimally processed data, all plots

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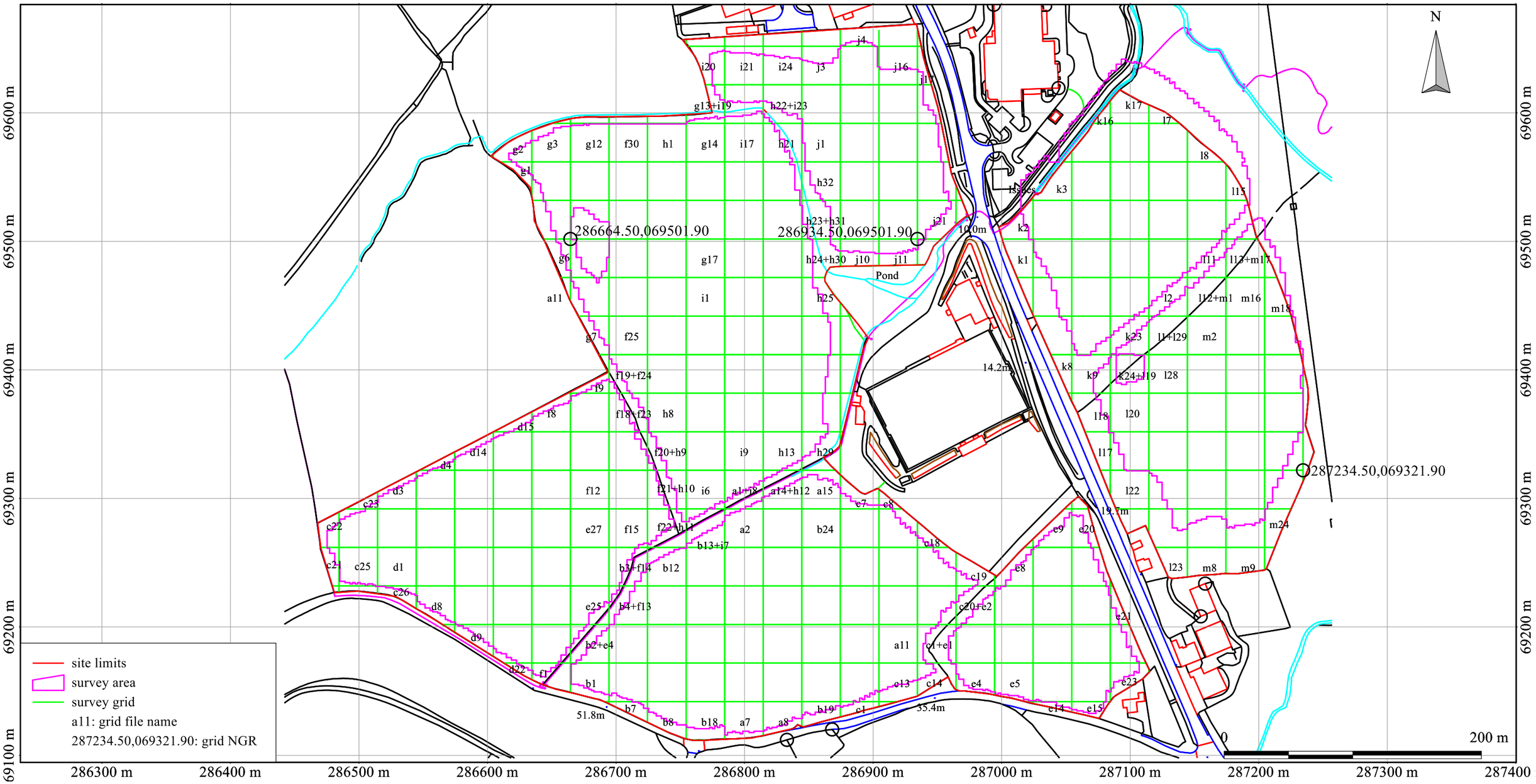

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Figure 11: grid plan and location

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Web: substrata.co.uk

Appendix 2 Tables

Site: Land at Langford Bridge, Wolborough, Newton Abbot, Devon
Centred on NGR: 286800,069390 and 287150,069390

plot	anomaly group	associated anomalies	anomaly characterisation certainty & class	anomaly form	additional archaeological characterisation	comments	supporting evidence
2	1		likely, positive	disrupted linear	field boundary	anomaly group coincides with, and likely represents, field boundaries recorded on the 1848 tithe map but not on later historic Ordnance Survey maps	1848 Wolborough Tithe Map
	2		likely, positive/enhanced	disrupted linear	field boundary	anomaly group coincides with, and likely represents, field boundaries recorded on the 1848 tithe map but not on later historic Ordnance Survey maps	1848 Wolborough Tithe Map
	3		likely, positive/negative/positive	disrupted linear	field boundary - Devon Bank?	anomaly group approximately coincides with, and likely represents, a field boundary recorded on historic maps between 1888 and 1938 but removed by 1974	1848 Wolborough Tithe Map, Ordnance Survey maps 1888 1:2500 to 1955 1:2500
	4		likely, enhanced	disrupted curvilinear	field boundary - associated ground disturbance and rubble	anomaly group approximately coincides with, and likely represents, a field boundary recorded on historic maps between 1888 and 1937, as a field boundary with stream between 1955 and 1964 but removed by 1974	1848 Wolborough Tithe Map, Ordnance Survey maps 1888 1:2500 to 1974 1:2500
	5		possible, positive	linear			
	6		possible, positive	disrupted curvilinear	field boundary?		
3	7		possible, positive	disrupted curvilinear			
	8		possible, positive	disrupted linear			
	9		likely, positive/negative/positive	disrupted curvilinear	field boundary - Devon Bank	anomaly groups coincide with, and likely represent, a field boundary recorded on historic maps and removed as a physical boundary by 1974	1848 Wolborough Tithe Mapp, Ordnance Survey maps 1888 1:2500 to 1974 1:2500
	10	11	likely, positive/enhanced	disrupted linear	field boundary	anomaly group coincides with, and likely represents, field boundaries recorded on the 1848 tithe map but not on later historic Ordnance Survey maps	1848 Wolborough Tithe Map
	11	10	possible, positive & negative spread	disrupted broad linear	field boundary - bank?	anomaly group appears to be an extension of group 10 and may represent a former boundary, such as a bank, removed before the mapping of the 1848 tithe map	1848 Wolborough Tithe Map
	12		possible, positive	linear			
	13		possible, positive	linear			
4	14		likely, positive	linear	field boundary	anomaly group approximately coincides with, and likely represents, a field boundary recorded historic maps and removed by 1974	1839 Abbotskerswell Tithe Map, Ordnance Survey maps 1888 1:2500 to 1974 1:2500
	15		likely, enhanced	disrupted broad linear	field boundary - associated ground disturbance and rubble	anomaly group approximately coincides with, and likely represents, a field boundary recorded on the 1839 tithe map, partially removed by 1888 and removed by 1974	1839 Abbotskerswell Tithe Map, Ordnance Survey maps 1888 1:2500 to 1974 1:2500
	16		likely, positive/negative/positive	disrupted curvilinear	field boundary - Devon Bank	anomaly group approximately coincides with, and likely represents, a field boundary recorded on historic maps and removed by 1974	1839 Abbotskerswell Tithe Map, Ordnance Survey maps 1888 1:2500 to 1974 1:2500
	17		likely, positive	disrupted curvilinear	field boundary	anomaly group approximately coincides with, and likely represents, a field boundary recorded on historic maps and removed by 1974	1839 Abbotskerswell Tithe Map, Ordnance Survey maps 1888 1:2500 to 1974 1:2500
	18		likely, positive/negative/positive	disrupted linear	field boundary - Devon Bank	anomaly group coincides with, and likely represents, field boundaries recorded on the 1839 tithe map but not on later historic Ordnance Survey maps	1839 Abbotskerswell Tithe Map
	101		likely, repeated parallels		cultivation traces - possible orchard banks	anomaly group may represent orchard banks mapped in a field at this location between 1888 and 1964 and removed by 1974	1839 Abbotskerswell Tithe Map, Ordnance Survey maps 1888 1:2500 to 1974 1:2500
5	19		likely, positive	linear	enclosure boundary	anomaly group may represent orchard banks mapped in a field at this location between 1888 and 1964 and removed by 1974	1839 Abbotskerswell Tithe Map, Ordnance Survey maps 1888 1:2500 to 1974 1:2500
	20		possible, positive	disrupted linear			
	21		likely, positive/negative/positive	disrupted rectilinear	field boundaries - Devon Banks	anomaly group coincides with, and likely represents, field boundaries recorded on the 1839 tithe map but not on later historic Ordnance Survey maps	1839 Abbotskerswell Tithe Map
	22		possible, positive	disrupted linear			
6	23		possible, positive/negative/positive	linears	field boundary - Devon Bank		
	24		possible, positive	linear			
	25		possible, positive	disrupted linear			
	301		possible, low contrast linear		service trench		
7	26		likely, enhanced	broad linear	field boundary - associated ground disturbance and rubble	anomaly group approximately coincides with, and likely represents, a field boundary recorded on historic maps between 1888 and 1964 and removed by 1974	1839 Abbotskerswell Tithe Map, Ordnance Survey maps 1888 1:2500 to 1974 1:2500

Table 1: data analysis

<table>
<tr><td colspan="2">Grid
Method of Fixing: DGPS set-out using pre-planned survey grids and Ordnance Survey coordinates.
Composition: 30m by 30m grids
Recording: Geo-referenced and recorded using digital map tiles.
DGPS used: Spectra Precision PM5V2 GPS with external antenna and survey pole and DigiTerra Explorer 7 as the survey control program.</td></tr>
<tr><td>Equipment
Instrument: Bartington Instruments grad601-2
Firmware: version 6.1</td><td>Data Capture
Sample Interval: 0.25m
Traverse Interval: 1 metre
Traverse Method: zigzag
Traverse Orientation: GN</td></tr>
<tr><td colspan="2">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</td></tr>
</table>

Table 2: methodology information

Instrument Type:	Bartington Grad 601
Units:	nT
Direction of 1st Traverse:	0 deg
Collection Method:	ZigZag
Sensors:	2 @ 0.00 m spacing.
Dummy Value:	32702
Dimensions	
Composite Size (readings):	2760 x 780
Survey Size (meters):	690 m x 780 m
Grid Size:	30 m x 30 m
X Interval:	0.25 m
Y Interval:	1 m
Stats	
Max:	210.49
Min:	-224.71
Std Dev:	21.64
Mean:	0.10
Median:	0.00
PROGRAM	
Name:	TerraSurveyor
Version:	3.0.33.6
Processes: 6	
1 Base Layer	
2 Clip at 1.00 SD	
3 Clip at 2.00 SD	
4 DeStripe Median Traverse: Grids: All	
5 De Stagger: Grids: All By: 0 intervals, 25.00cm	
6 De Stagger: Grids: i3.xgd By: 0 intervals, -25.00cm	

Table 3: processed data metadata

Instrument Type:	Bartington Grad 601
Units:	nT
Direction of 1st Traverse:	0 deg
Collection Method:	ZigZag
Sensors:	2 @ 0.00 m spacing.
Dummy Value:	32702
Dimensions	
Composite Size (readings):	2760 x 780
Survey Size (meters):	690 m x 780 m
Grid Size:	30 m x 30 m
X Interval:	0.25 m
Y Interval:	1 m
Stats	
Max:	473.66
Min:	-831.54
Std Dev:	61.59
Mean:	-0.38
Median:	0.00
PROGRAM	
Name:	TerraSurveyor
Version:	3.0.33.6
Processes: 3	
1 Base Layer	
2 Clip at 1.00 SD	
3 DeStripe Median Sensors: Grids: All	

Table 4: minimally processed data metadata

Appendix 3 Project archive contents

A3.1 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) and
Raw data composite files:	CSV (.xyz)
Minimally processed 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

A3.2 Online Access to the Index of archaeological investigationS (OASIS)

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

A3.3 Archaeological Data Service

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

Raw data composite file:	XYZ file
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

A3.4 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.