FOUNDATION FOR COMMON LAND

Long Mynd

Geophysical Surveys at Bodbury Ring and Novers Hill

C M Matthews MRes BSc

2022

Produced on behalf of

The Foundation for Common Land

Our Common Cause: Our Upland Commons' project

Our Upland Commons Project is a three-year, £3m, 25-partner project helping to secure the future of upland commons in Dartmoor, the Lake District, Yorkshire Dales and Shropshire Hills. It's led by the Foundation for Common Land. The project has been made possible by funding from National Lottery players, grants from Esmée Fairbairn and Garfield Weston Foundations and other local funders such as the Millichope Foundation.

Published by Archaeological Survey West LLP ©

Survey Undertaken with support of the University of Chester

Thank you to all the volunteers who supported this survey and thank you to students of The University of Chester for their hard work.

v2.2

National Trust

University of Chester

FOUNDATION FOR COMMON LAND

Contents

Figures

Abstract

Between March and July 2022, Archaeological Survey West undertook geophysical investigations at two scheduled sites on behalf of the 'Our Upland Commons' project. The aim was to enhance our understanding of the sites through non-intrusive means.

The aim of the surveys was to enhance understanding of the sites and formed part of a wider program of investigations undertaken by the Foundation for Common Land.

Both surveys identified features relating to the construction and phasing of the enclosures; with Bodbury Ring presenting a possibly earlier phase enclosure that predates the northern rampart. The most notable feature of Novers hill was the use of imported stone in the construction of the enclosure, which is also more likely to be a wall or rubble bank.

1. Introduction

This report describes the results of archaeological geophysical investigations undertaken on behalf of the Foundation for Common Land 'Our Upland Commons Project'. The aim of this project is to enhance our understanding of the archaeological resource within the common lands of Shropshire. This phase is focused on Prehistoric activity on the Long Mynd common, located to the west of Church Stretton.

The geophysical surveys were undertaken over two scheduled sites, the first was Bodbury Ring (LEN: 1009309), a large univallate hillfort situated above Cardingmill Valley. The second was Novers Hill (LEN: 1008385), a small enclosure and building platform located near to the summit of Novers Hill. Both sites are Scheduled Monuments under the Ancient Monuments and Archaeological Areas Act 1979, for which permission to undertake this survey was obtained by The National Trust.

The surveys were requested by The National Trust and Archaeological Survey West were commissioned to carry out the fieldwork. The purpose was to determine the presence and extent of archaeological features that would help to inform the management of the sites and enhance our understanding of these assets.

2. Scheduling Information

The scheduling for Bodbury Ring records the hillfort as roughly pear shaped in plan and enclosing an area of just under 1 hectare. The ramparts are comprised of earthen ditch and bank and include a strong north-east facing rampart rising 3.5m above the base of the outer ditch. It's believed that this rampart may be the earliest part of the earthworks and may originally have functioned as a cross-dyke. The other enclosing earthwork which crowns the steep natural slopes of the hill, appears to have been cut back to create a steeper slope with a slight upcast rampart. A later field boundary bank approaches the hillfort from the east. To the north of the hillfort are the faint remains of ridge and furrow cultivation orientated roughly east to west, this is believed to be Napoleonic (18^{th} – 19^{th} century) in date (Historic England, 1930).

The enclosure located on Novers Hill is well-defined, formed by a curving bank and ditch on the west facing side and a slight linear earthwork along the north and east facing sides. These earthworks enclose an area of 0.4 hectares. The scheduling notes that there is a 1.5m wide and up to 0.5m deep outer ditch, which would likely have served as a source of material for the bank. At the junction of the east and west sides, the ditch and bank are interrupted to form a possible in-turned entrance. Immediately inside the possible entrance is a small sub-rectangular platform that is believed to be the remains of an early or perhaps contemporary building.

3. Landscape and Geology

Bodbury Ring is located at the summit of a steep sided hill with no enclosing boundaries, the land is characterised by upland grass and ferns. The geological conditions consist of Synalds Formation bedrock, comprised of sandstone, siltstone and mudstone formed between 635 and 541 million years ago during the Ediacaran period, within which is a seam of Cardingmill Grit Member sandstone.

The Noves Hill enclosure is located on a relatively flat area bellow the summit of Novers Hill. The ground conditions consist of dense ferns and grazed upland grass. At the time of the survey, the ferns had only been cut back within the enclosures interior, limiting the viability of surveys on land surrounding enclosure. The geological conditions consist of Burway Formation bedrock, comprised of sandstone and mudstone formed between 635 and 541 million years ago during the Ediacaran period. The drift geology on this site consists of clay, silt, sand and gravel formed between 2.588 million years ago and the present during the Quaternary period.

Both of these geological conditions are known to give mixed to good results depending on the soil depth.

4. Methodology

The purpose of geophysical survey is to identify the archaeological potential of an area of land in a non-intrusive, quick and relatively inexpensive way. To achieve all three and still produce the highest standard of data possible, which also identifies the widest range of past human activity, the survey method of magnetometry was chosen.

All fieldwork and the resulting reports follow the recommendations set out by the Chartered Institute for Archaeologists guidelines for geophysical survey in archaeology (CIFA, 2014).

Magnetometry measures and maps the background magnetic field and any local anomalies. These anomalies can be caused by the presence of features containing greater or lesser magnetic properties than the soils around them. This can be due to the natural magnetic properties of a material, as well as, a range of tophonomic processes that can alter magnetic properties. As a broad example, buried walls and built-up features which generally comprise of low magnetic materials, such as stone, appear as weak negative magnetic anomalies, where as a ditch would often appear as a weak positive anomaly due to a collection of more magnetic material. These can be distinguished from responses caused by high ferrous materials such as iron and ceramic or areas of intense burning (thermoremnance), based on the strength and gradient of the magnetic response. The strength of the magnetic field is measured in nano Tesla (nT), a unit of measurement of magnetic flux density, equal to one billionth of a Tesla [T] (1T = 1000000000 nT) (Milsom & Eriksen, 2011).

The equipment used for the survey was a dual sensor Bartington Instrument Grad 601-2 fluxgate gradiometer. This instrument consists of two sets of sensors, each mounted with a vertical separation of 1m, one set at each end of a 1m long horizontal bar. This provides two sets of parallel readings and, under normal operating conditions, is capable of surveying to a

depth of between 0.5m to 1m, although, materials with higher magnetic properties can be detected at a greater depth.

To set out the survey grids, a Trimble R4 GPS run with a VRS correction was used, operating at an accuracy of 0.014m to 0.03m. The high resolution survey areas were plotted with a temporary grid of either 10m x 10m or 20m x 20m. Each grid was then walked using a zig-zag traverse with a sample interval of **0.25m** (4 points per meter) and an overlapping traverse interval of **0.5m**. Phase 1 was walked at the same resolution but using 10m grids.

Processing and interpretation

Data collected in the field was downloaded and processed using TerraSurveyor software version 3.0.32.4. This allows the survey data to be collated and manipulated to enhance the visibility of anomalies. Full survey and processing metadata can be seen in the appendix with additional plots available on request.

The results of this survey have been presented as combination of greyscale plots and interpretations published through GIS.

The types of features have been classified using established typologies based on Gafney and Gater (2003), as well as, the standardised interpretation key used by Archaeological Survey West.

5. Survey Analysis: Bodbury Ring

The survey data covers an area of 0.9 hectares situated within the enclosure of Bodbury Ring and overlapping the northern ramparts. The survey was conducted in a single phase during wet and windy conditions.

The following feature analysis is based on observed anomalies within magnetic survey data sets shown in Map 1 and Map 2 of the appendices with the annotated features depicted in Figure 2. Each feature is given a letter code (e.g. A, B, C…). Historic mapping as well as aerial photography has been consulted for this analysis. A full list of documents observed can be found in the appendix.

A/ This features consist of a linear mixed positive and negative anomaly running on a northeast to southwest alignment. The feature is visible in the LiDAR data as a slight depression that continues along the ridge to the north. This as well as the similarly orientated geological seams recorded by the British Geological survey suggest that this feature is most likely geological in origin, however, there are areas of increase magnetic activity within the anomaly that could be indicative of human activity but may also be the product of differences in background geological properties. Additional surveys along the ridge to the north may aid in interpreting this feature, however, this did not fall within the scope of this investigation.

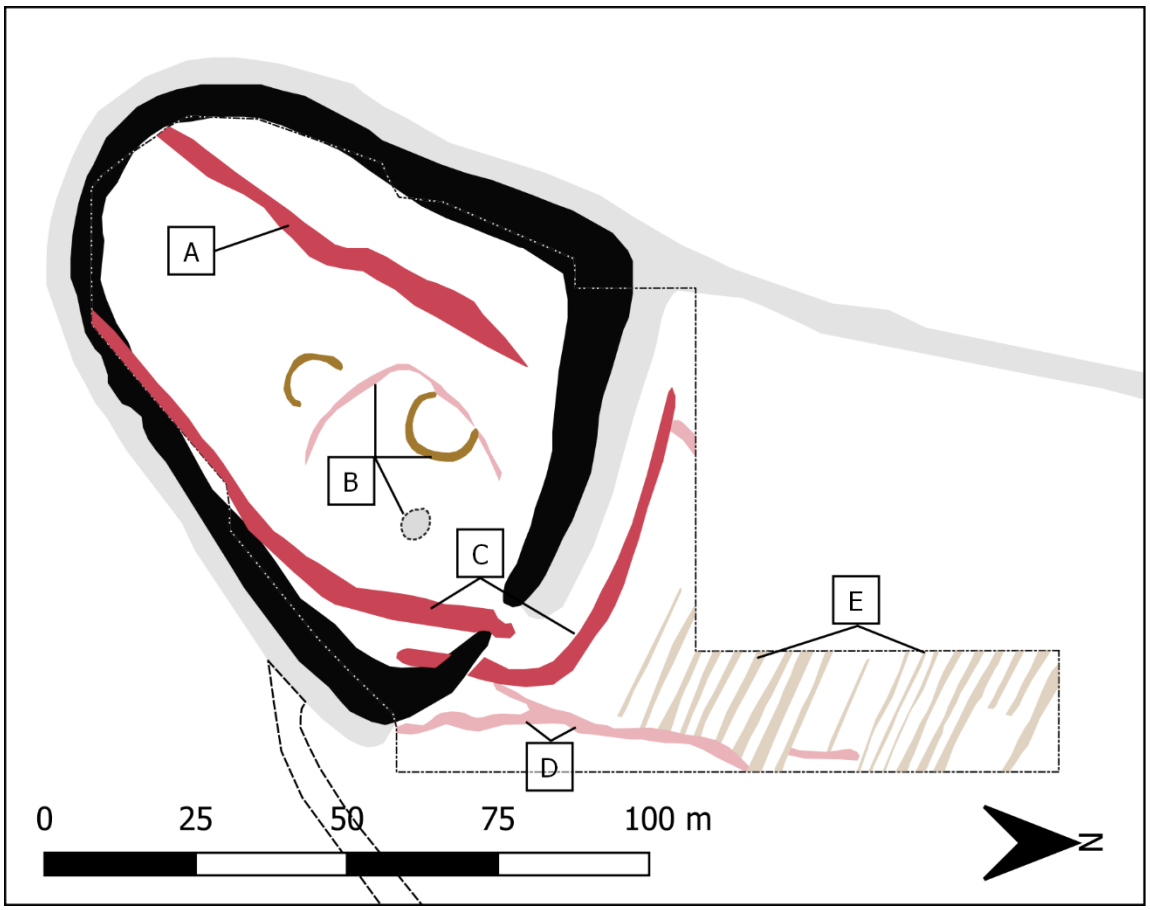


Figure 1: Bodbury Ring feature interpretation

B/ This group of features consist of very faint curvilinear disturbances within the centre of the enclosure that could suggest some form of structural activity. These consist of faint circular features and a large curvilinear forming a possible ditch. Some potential significance can be placed on these anomalies given the context, however, their weak appearance of the anomalies and lack of more conclusive magnetic noise that could be attributed to archaeological activity suggests that geological origins are more likely.

C/ This feature consists of a negative curvilinear running north-south within the eastern interior of the enclosure, and then possibly running under the extant earthworks and turning towards the west. The liner within the enclosure consist of a broad negative anomaly that would often be attributed to an earthwork. It is possible that the feature is geological in origin, however, its orientation does not appear to follow the known bedrock striations or the natural contours of the hill, and therefore could indicate an engineered feature.

D/ This feature consists of weak conjoined linear anomalies running north south along the eastern sloped of the ridge that extend to the north of the hillfort. The pattern of these linear anomalies suggests either natural striations in the data or pathways, likely associated with livestock.

E/ This feature consist of regular strong magnetic striations on an Southeast Northwest alignment that are associated with ridge and furrow cultivation, as identified in the scheduling report for Bodbury Ring.

Additional observations: The extant northern earthworks were visible as only slight negative and positive anomalies in the data, indicating that they are comprised of similar materials to the natural geology.

There was a significant amount of ferrous debris identified on the surface which included ceramic building material observed on the surface throughout the interior and on the earthworks.

6. Survey Analysis: Novers Hill

The survey data covers an area of 0.4 hectares situated within the enclosure of Novers Hill and overlapping the northern eastern and southern earthworks. The survey was conducted in a single phase during warm dry conditions.

The following feature analysis is based on observed anomalies within magnetic survey data sets shown in Map 1 and Map 2 of the appendices with the annotated features depicted in Figure 2. Each feature is given a letter code (e.g. A, B, C…). Historic mapping as well as aerial photography has been consulted for this analysis. A full list of documents observed can be found in the appendix.

A/ This feature consist of strong ferrous linear anomalies that form the visible enclosure. The feature is comprised of a curvilinear section forming the western and southern extent of the enclosure and a linear section forming the northern and eastern section. The strength of readings indicate the use of stone with high magnetic properties for the construction of the enclosure. The sharply defined nature of the anomaly is also more indicative of a wall, as opposed to the upcast earthwork described in the scheduling report. The contrast of the magnetic properties of this stone and the surround geology also suggests that material is likely to have been imported, however, further testing of this could be achieved through the use of a magnetic susceptibility meter. This can be used to compare the natural magnetic properties of stones in construction, contained within the drift geology, and forming the natural bedrock.

B/ This feature consists of a large mixed disturbance comprised of a roughly rectangular concentration of ferrous debris and a curvilinear feature that could represent a Prehistoric origins. The concentration of ferrous material is most likely formed of high ferrous stone similar to feature A and corresponds with a stony mound visible on the surface. This feature is interpreted within the scheduling report as a likely building platform. The curvilinear feature adjoining this anomaly could represent an earlier structure feature, such as the drip gully to a round house, however, this requires further investigation.

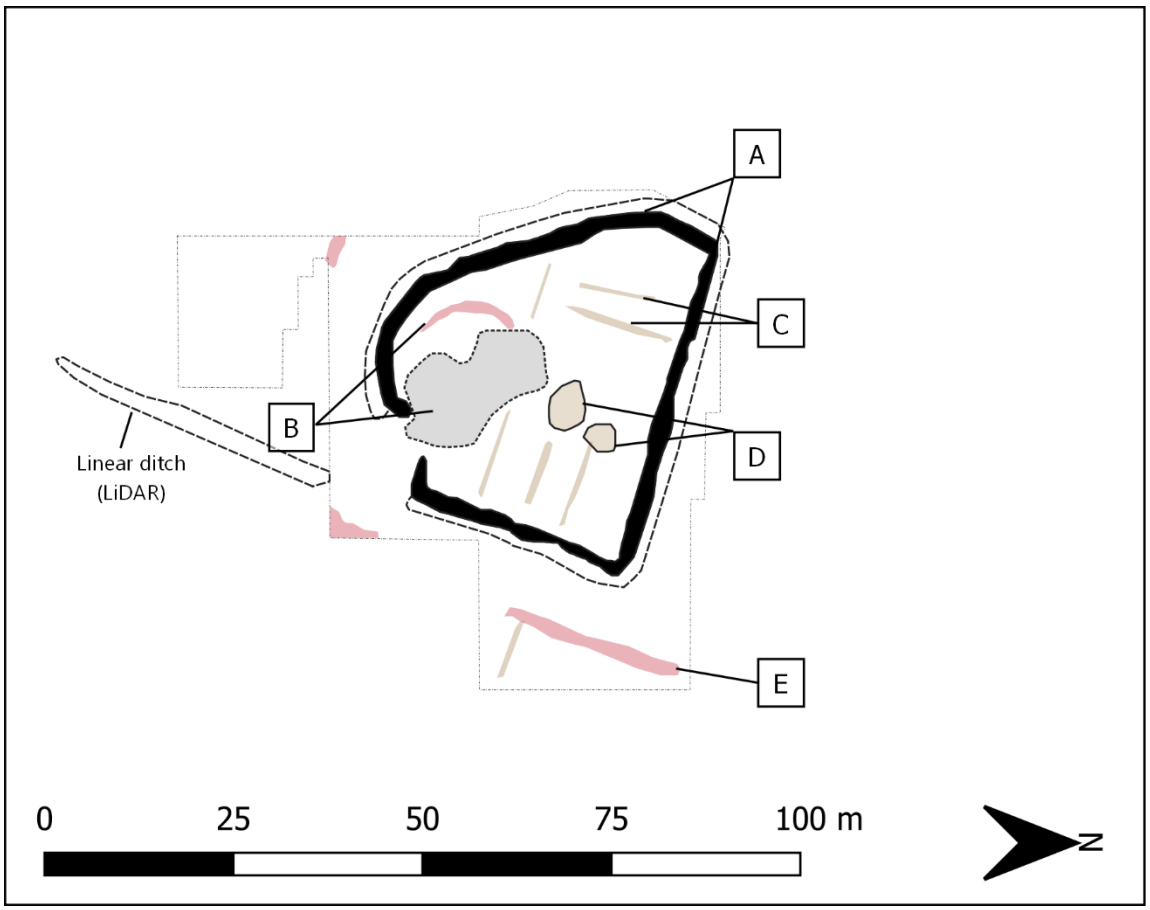


Figure 2: Novers Hill feature interpretation

C/ This feature consists of regular linear striation on a roughly north-south and east-west alignment and are consistent with cultivation that appear mostly within the interior of the enclosure. It is not clear whether the cultivation marks continue beyond the enclosure due to insufficient coverage beyond the enclosure boundary. The survey comprised of high resolution magnetometry covering the interior of the enclosures and overlapping the earthworks where possible.

7. Discussion and Conclusion

In 2022, geophysical investigations were caried out at two locations, Bodbury Ring hillfort and Novers Hill enclosure, situated on the Long Mynd Common near Church Stretton, Shropshire. The aim of the survey was to enhance our understanding of the sites as part of a wider program of investigations undertaken by the Foundation for Common Land.

The most significant observation resulting from the survey at Bodbury Ring has indicated that the construction of the northern rampart does not necessarily form the earliest part of the enclosure. Based on its comparative scale, the scheduling report for Bodbury Ring suggests that the larger northern earthwork may be an earlier feature associated with a cross-dyke. Whilst the form of this earthwork does contrast with the remaining enclosure, a broad curvilinear feature was identified within the survey that extends from part of the south-eastern earthworks and crosses below the northern rampart. If this anomaly is not the product of

geological conditions, then it represents part of an earlier enclosure underlying the northern rampart. This could therefore suggest that the northern rampart is a later addition to an earlier slight earthwork enclosure.

There was some faint internal features identified within Bodbury Ring, the most prominent being an oval enclosure, however, there is no clear evidence associated with human occupation. Whilst the ring features identified in the survey have the potential to be associated with roundhouses, the lack of magnetic noise, typically associated with past human activity, suggests that geological origins are more likely. This will need to be tested through more intrusive means.

One of the most defining features identified in the magnetic survey of Novers Hill was the use of stone with high ferrous properties in the construction of the enclosure and the internal structure. The magnetic strength of this construction material is similar to the stonework used within the ramparts of Nordy Bank on Clee Common (Matthews, 2021), which was also surveyed as part of the 'Our Upland Commons Project' in 2021. The significance of this is the suggestion of imported stone for the construction of the enclosure, which in turn is more likely to be defined by a wall or rubble bank rather than an upcast rampart constructed from the materials extracted from the outer ditch, as is the interpretation held by Historic England. It also suggests that the building within the interior is constructed of the same material and therefore is likely to be contemporary. However, given the contrast between the south-western curvilinear enclosure wall and the north-eastern linear wall, the enclosure may yet be comprised of multiple phases, with the reuse of earlier construction materials. For example, it is possible that the curvilinear enclosure wall forms part of an earlier larger curvilinear enclosure that was partly dismantled, with the materials used in the construction of a linear enclosing wall. This could be evaluated by expanding the survey towards the north to identify any remaining traces of an earlier enclosure.

A further point of interest raised in this survey is the potential relationship between the visible cultivation marks and the enclosure. Due to limited coverage outside the enclosure, it was not possible to further analyse their relationship, however, this could be particularly important in terms of understanding the chronology of the site, as the enclosure boundary does not appear to have been significantly impacted by cultivation, this would therefore suggest that it postdates the cultivation marks. However, it is possible that the cultivation marks are contained within the enclosure which would indicate either contemporary or later use.

There is potential evidence of an earlier structure within the interior, as defined by part of a ring feature extending from the ferrous structural disturbance associated with the visible platform. This could represent the drip gulley of a roundhouse and therefore warrants further investigation.

Appendices

Raw Data

PROGRAM

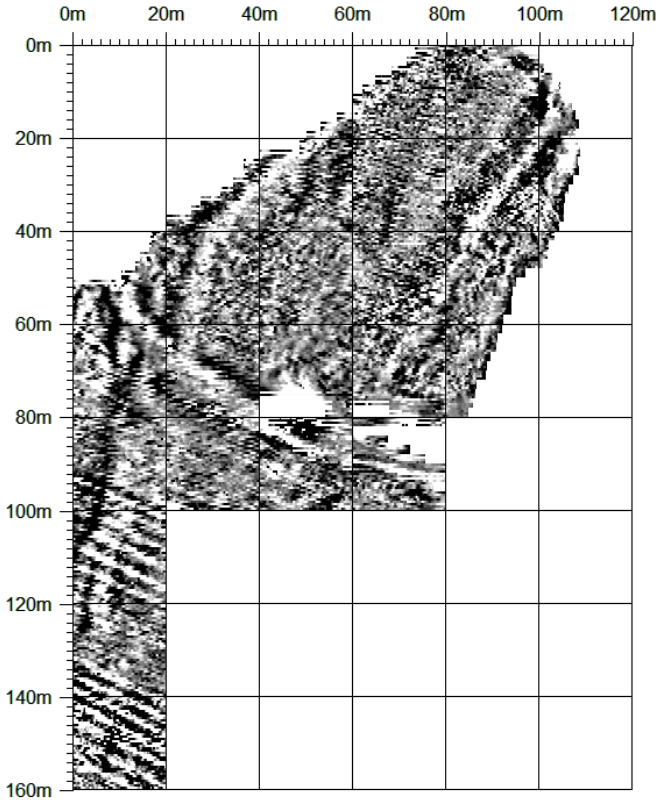
Name: TerraSurveyor
Version: 3.0.37.3
Instrument Type: Bartington (Gradiometer)
Units: nT
Direction of 1st Traverse: 270 deg
Collection Method: ZigZag
Sensors: 2 @ 1 m spacing.
Dummy Value: 2047.5

BODBURY RING COMPOSITE

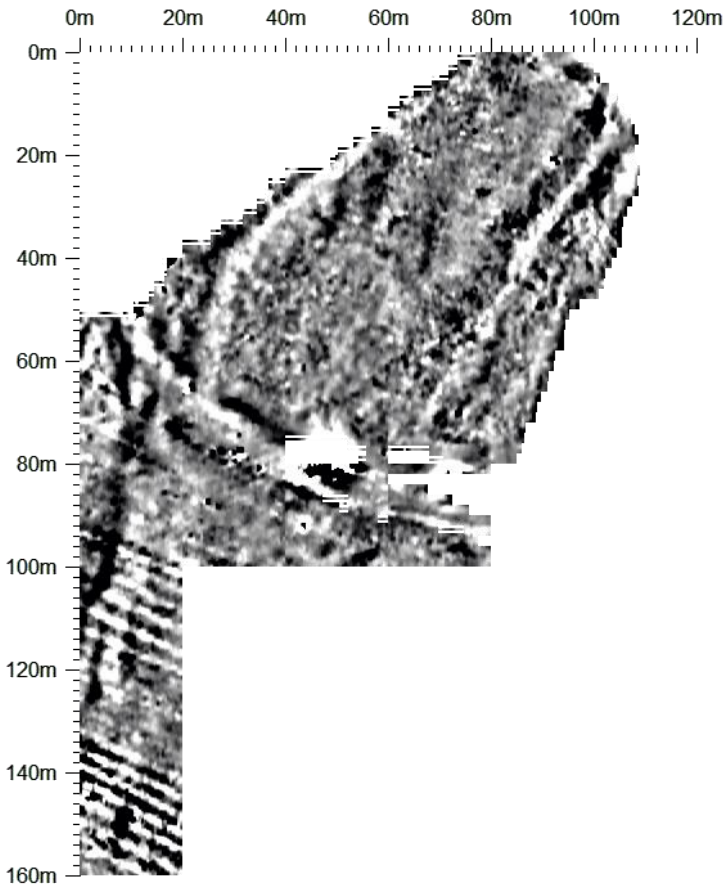
Dimensions
Composite Size (readings): 960 x 640
Survey Size (meters): 120 m x 160 m
Grid Size: 20 m x 20 m
X Interval: 0.125 m (surveyed @ 0.25 m)
Y Interval: 0.25 m (surveyed @ 0.5 m)

Raw data plot (-1.8 2 nT clip)

Stats
Max: 2.00
Min: -1.80
Std Dev: 1.29
Mean: 0.05
Median: 0.00
Composite Area: 1.92 ha
Surveyed Area: 0.84503 ha

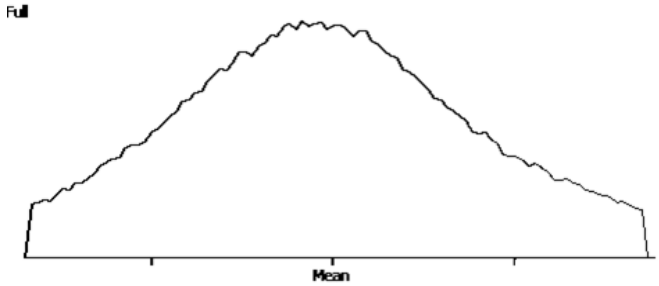


Processed data (-1.8 2 nT clip)



Stats
Max: 2.00
Min: -1.80
Std Dev: 1.09
Mean: 0.06
Median: 0.02
Composite Area: 1.92 ha
Surveyed Area: 0.84503 ha

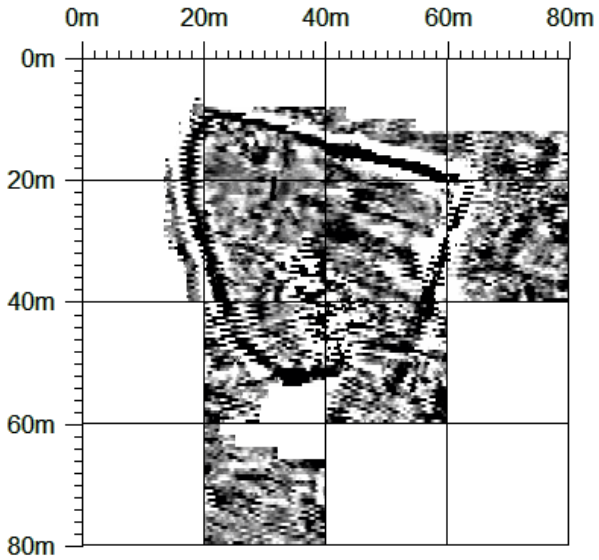
Processes: 6
1 Base Layer
2 DeStripe Median Traverse: Grids: All
3 Despike Threshold: 1 Window size: 3x3
4 Low pass Gaussian filter: Window: 3 x 3
5 Interpolate: X & Y Doubled.
6 Clip from -1.80 to 2.00 nT



NOVERS HILL COMPOSITE

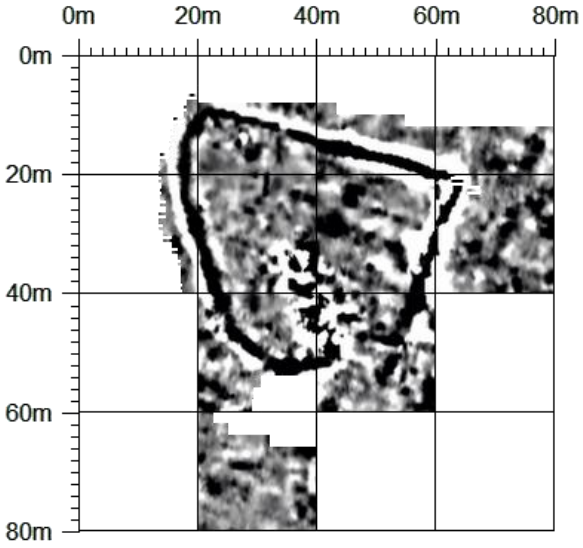
Dimensions
Composite Size (readings): 320 x 160
Survey Size (meters): 80 m x 80 m
Grid Size: 20 m x 20 m
X Interval: 0.25 m
Y Interval: 0.5 m

Rawdata -3 – 3 nT clip

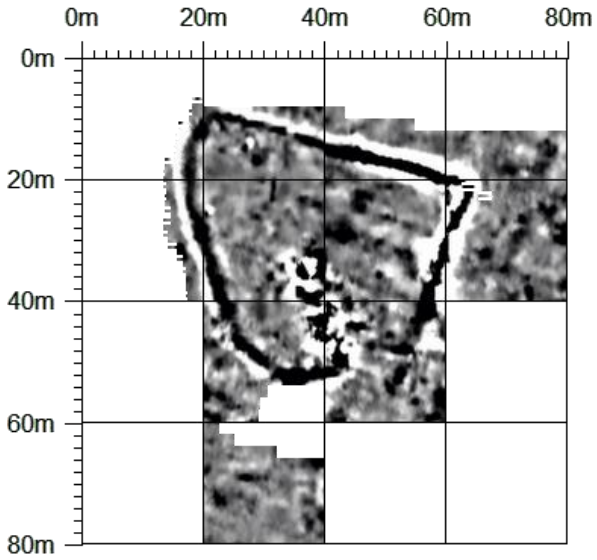


Stats
Max: 2.00
Min: -1.80
Std Dev: 1.41
Mean: 0.06
Median: 0.00
Composite Area: 0.64 ha
Surveyed Area: 0.29995 ha

Processed data (-1.8 – 2 nT clip)

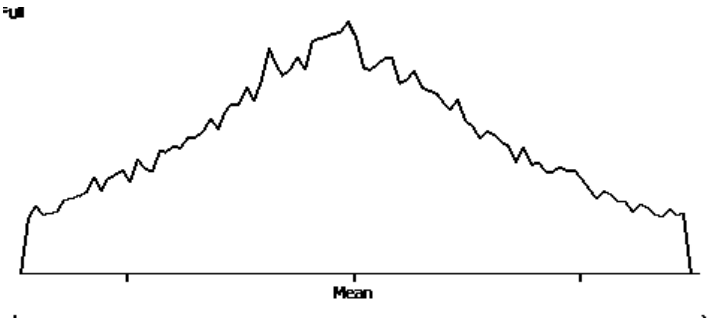


Processed data (-3 – 3 nT clip)



Stats
Max: 2.00
Min: -1.80
Std Dev: 1.27
Mean: 0.07
Median: 0.03
Composite Area: 0.64 ha
Surveyed Area: 0.29995 ha

Processes: 6
1 Base Layer
2 DeStripe Median Traverse: Grids: All
3 Despike Threshold: 1 Window size: 3x3
4 Low pass Gaussian filter: Window: 3 x 3
5 Interpolate: Match X & Y Doubled.
6 Clip from -1.80 to 2.00 nT



Maps consulted in the assessment

Shropshire LVI.5

Series: Ordnance Survey, 25 inch to the mile Surveyed: 1882 Published: 1883

Shropshire LVI.5

Series: Ordnance Survey, 25 inch to the mile Revised: 1901 Published: 1903

Shropshire LVI.5

Series: Ordnance Survey, 25 inch to the mile Revised: 1925 Published: 1927

Maps

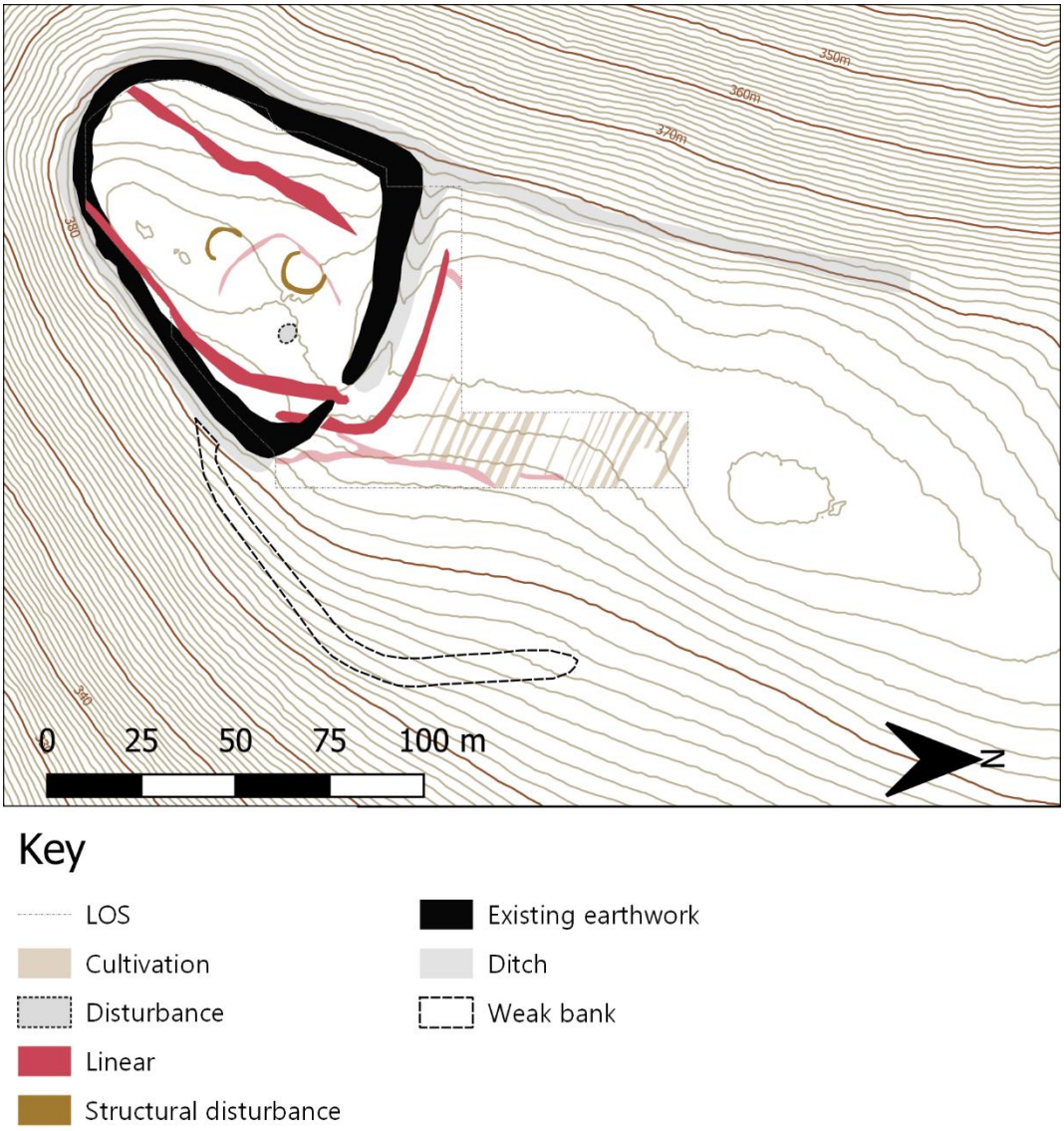


Figure 3: Bodbury Ring feature interpretation with key

344400
344500
344600
294900
294800
294700
N
300m
310m
320m
330m
340m
350
360
370
380
50
0
50
100 m
Legend
+2nT
-1.8nT

Survey data produced by Archaeological Survey West LLP. Contains contour data extracted from National Environment Agency LiDAR data. Contains public sector information licensed under the Open Government Licence v3.0.
Long Mynd
Bodbury Ring
Grey-scale plot
Map 1
Scale
1:1000 @ A3
Date
August 2022

344400
344500
344600
294900
294800
294700
N
300m
310m
320m
330m
340m
350
360
370
380
50
0
50
100 m

Legend

LOS

Magnetic Survey

+
-
Weak+
Weak -
Disturbance
Cultivation
Modern disturbance

Earthwork

Bank
Ditch
Bank (LiDAR)

Survey data produced by Archaeological Survey West LLP. Contains contour data extracted from National Environment Agency LiDAR data. Contains public sector information licensed under the Open Government Licence v3.0.

Long Mynd

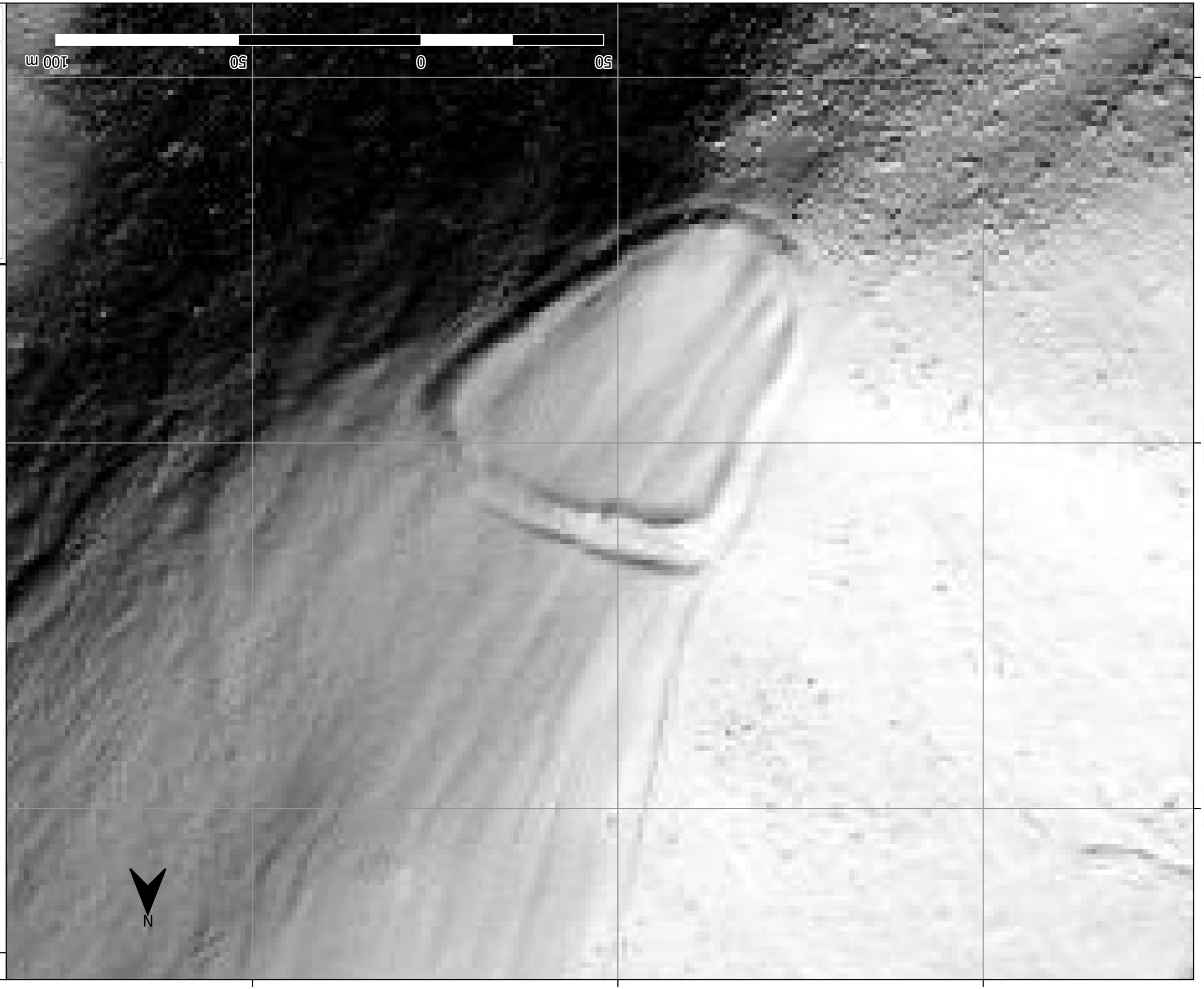
Bodbury Ring

Magnetic feature plot

Map 2

Scale
1:1000 @ A3

Date
August 2022



Survey data produced by
Archaeological Survey West LLP.
Contains LiDAR data commissioned by
The Foundation for Common Land as
part of the Our Upland Commons

Long Mynd

Bodbury Ring

LiDAR Hillshade analysis

Map 3

Scale	Date
1:1000 @ A3	August 2022

345300

345400

345500

295100

295000

N

Legend

+2nT

-1.8nT

50 0 50 100 m

Survey data produced by Archaeological Survey West LLP. Contains contour data extracted from National Environment Agency LiDAR data. Contains public sector information licensed under the Open Government Licence v3.0.

Long Mynd

Novers Hill

Grey-scale plot

Map 4

Scale 1:1000 @ A3

Date August 2022

345300

345400

345500

295100

295000

N

Legend

LOS

Magnetic Survey

+

-

Weak+

Weak -

Disturbance

Cultivation

Modern disturbance

Earthwork

Bank

Ditch

Bank (LiDAR)

50 0 50 100 m

Survey data produced by Archaeological Survey West LLP. Contains contour data extracted from National Environment Agency LiDAR data. Contains public sector information licensed under the Open Government Licence v3.0.

Long Mynd

Novers Hill

Grey-scale plot

Map 4

Scale 1:1000 @ A3

Date August 2022

345300

345400

345500

295100

295000

N

50 0 50 100 m

Legend

Azimuth
Northwestern

Survey data produced by
Archaeological Survey West LLP.
Contains LiDAR data commissioned by
The Foundation for Common Land as
part of the Our Upland Commons

Long Mynd

Novers Hill

LiDAR Hillshade analysis

Map 6

Scale
1:1000 @ A3

Date
August 2022