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Engineering Archaeological Services Ltd.

Home Farm, Abbeycwmhir:

Geophysical Survey

Commissioned by

The Abbey Cwmhir Heritage Trust

Analysis by

I.P. Brooks

Engineering Archaeological Services Ltd

EAS Client Report 2022/10

Engineering Archaeological Services Ltd is

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List of Illustrations

NGR

Centred on:

Area 1: SO 05484 71122
Area 2: SO 05495 71078

Location and Topography (Figures 1 - 4)

The survey area consisted of the available parts of the garden to Home Farm, Abbeycwmhir and part of the field immediately to the south in which the remains of the abbey, itself, are located. The garden has two terraces, each running east-west with a series of shrubs and trees within them, particularly on the upper terrace. The field was originally divided into two, a situation that is still reflected on the current Ordnance Survey mapping (Figure 2). The northern sector has a series of mature trees and a line of shrubs that mark the original field boundary. The southern sector is a pasture field with short cropped grass.

Archaeological Background

The survey was commissioned by the Abbey Cwmhir Heritage Trust to investigate the garden of Home Farm and the western end of the field in which the remains of the Abbey stand.

Home Farm consists of an18th century building with at least two phases of extension in the 19th century (https://cadwpublic-api.azurewebsites.net/reports/listedbuilding/FullReport?lang=&id=83096). Its position near to the remains of the Abbey suggests the possibility that it might be on the site of part of the Abbey complex. Abbey Cwmhir was a Cistercian abbey, founded as a daughter house of the abbey at Whitland. The abbey was re-founded on the present site by Cadwallon ap Madog of Maeliennydd in 1176 (https://cadwpublic-api.azurewebsites.net/reports/sam/FullReport?lang=&id=2578). After the dissolution of the abbey the abbey passed to the Fowler family, however by the War of the Three Kingdoms (Civil War) the Abbey was captured by Parliamentarian forces and subsequently partially demolished. In 1824-5 antiquarian excavation took place by Thomas Wilson, who had recently bought the Abbey Cwmhir Estate. The ruins then became part of the pleasure grounds associated with The Hall, built for Francis Aspinall Phillips in 1867 and continued to be until about 1900 (https://cadwpublic-api.azurewebsites.net/reports/listedbuilding/FullReport?lang=&id=8717). It is assumed that the large earthen mound to the south of the eastern end of the Abbey remains is part of this phase of use (https://cadwpublic-api.azurewebsites.net/reports/parkgarden/FullReport?lang=&id=357).

Aims of Survey

1. To investigate, define and record any potentially archaeological features within the survey areas.

SUMMARY OF RESULTS

The resistivity survey took place, partly in the garden of Home Farm, Abbeycwmhir and partly in the field, immediately to the west of the Abbey remains. Within the garden, the plots are not clear, but suggest the possibility of a building running parallel with Home Farm. In the field, however, high resistance anomalies suggest a large, building, at least 24 x 15.7 m in size, with an open face to the north. It is not certain whether a smaller rectangular anomaly is a separate building or a subdivision of the larger building.

The survey took place on 22nd October 2022.

Cynhaliwyd yr arolwg gwrthedd, yn rhannol yng ngardd Home Farm, Abaty Cwm-hir ac yn rhannol yn y cae, yn union i'r gorllewin o weddillion yr Abaty. O fewn yr ardd, nid yw'r lleiniau'n glir, ond maent yn awgrymu'r posibilrwydd o adeilad yn rhedeg yn gyfochrog â Home Farm. Yn y cae, fodd bynnag, mae anomaleddau gwrthiant uchel yn awgrymu adeilad mawr, o leiaf 24m x 15.7m o ran maint, gyda wyneb agored i'r gogledd. Nid yw'n sicr a yw anomaledd hirsgwar llai yn adeilad ar wahân neu'n israniad o'r adeilad fwy.

Gwnaed yr arolwg ar 22 Hydref 2022.

Methods

The survey took place using parts of nine 20 x 20 m squares laid out as in Figure 2. Three of these were within the garden of Home Farm and the remaining six squares within the field to the south of the garden.

For both areas a Geoscan RM15 resistance meter with a MXP15 multiplexer was used. A twin parallel probe setting was used with a separation between the probes of 0.5 m. Readings were taken at 0.5m intervals along transects 2 m apart giving effective readings at 0.5 m separation along transects 1 m apart. Grey scale plots and colour scale plots were produced using Geoscan Research “Geoplot” v.4.00 and X - Y plots using Golden Software “Surfer” v. 10.7.972.

Survey Results:

Area

Home Farm Garden: 0.05 Ha.

Field: 0.22 Ha

Display

The results are displayed as grey scale images (Figures 3 and 7), colour scale images (Figures 4 and 8) and as X-Y trace plots (Figures 5 and 9). The interpretation plots are shown as Figures 6 and 10. The survey, as a whole, is summarised on Figure 11.

Results:

Resistivity Survey

Home Farm Garden (Figures 3 – 6)

The survey within the gardens of Home Farm was somewhat constrained by hard landscaping and the presence of mature trees and shrubs within the survey area. There is also a marked, stone fronted terrace which runs across the survey area. Many of the resistance anomalies noted from this survey (Figure 6) can be directly related to the layout of the garden with Anomalies A, B and C relating to the drying effect of the roots of trees and mature shrubs. These anomalies are shown in green on Figure 6. The terrace across the garden is shown as Anomaly F and the remains of a path, in front of the terrace wall, is shown as Anomaly G. Further disturbance in the south-east corner of the garden (Figure 6, Anomaly H) can be related to a drain which runs through this part of the garden and has two metal covers which are shown as areas of high resistance within Anomaly H.

There are two anomalies which cannot be related to the modern layout of the garden. Anomalies D and E. These are two linear anomalies, running roughly parallel, approximately 5.5 m apart. They are also roughly parallel to the main range of Home Farm and may, therefore, represent a building running parallel to the farmhouse.

Field (Figures 7 – 10)

The survey within the field can be divided int two main regions. The two northern grid squares were largely within an area shown as a separate field on the Ordnance Survey mapping (Figure 11), whilst the remaining squares are within the, more open, field which includes the remains of the Abbey. Within the two northern squares the ground slopes down to the south and the area is clearly disturbed. It also has mature and semi-mature trees within the area and a rough line of small trees which mark the line of the boundary between the two fields shown on the Ordnance Survey mapping.

The disturbed nature of the northern area is reflected in the grey scale and colour scale plots of the area (Figures 7 and 8). Anomaly I (Figure 10) is a linear anomaly with mixed responses that is thought to be the effect of a service pipe or drain in this area of the field. Anomaly J is a group of both enhance and reduced resistance at the eastern end of the northern area. It forms no clear pattern, but appears to align with the position of the lost boundary and possibly relates to a lost tree on the boundary.

The responses within the main field area are more consistent, although the interpretation of Anomalies K, L and M is not certain. It is possible that Anomaly M, an area of very low resistance, may be related to the telegraph pole and its stays which are within this field. Of particular interest area a series of anomalies (Anomalies N, O, P, Q and R) which appear to mark the position of a large, probably open fronted building which is, at least, 24 x 15.7 m in size and appears to run below the large earthen mound in the field. This mound is assumed to be part of the 19th century use of the site as part of the gardens of The Hall and therefore this building must pre-date this period. Anomalies O, P, Q and R appear to mark the positions of a series of piers, approximately 4 m apart which mark the northern face of the building. Between Anomalies P and Q is a rectilinear anomaly (Anomaly S) which is approximately

4 x 3.5 m in size. It is not certain whether this is a sub-division of the larger building or a separate entity from a different phase of construction.

Conclusions (Figure 11)

It is a fundamental axiom of archaeological geophysics that the absence of features in the survey data does not mean that there is no archaeology present in the survey area only that the techniques used have not detected it.

The resistivity survey at Home Farm, Abbeycwmhir has revealed some intriguing results. At least two possible buildings have been revealed, with one possibly running parallel with Home Farm, itself, within the garden. The other building, however, appears to be a large, open fronted building which runs below the earthen mound in the field and therefore pre-dates the 19th century use of the site as part of the garden of The Hall. The alignment of this probable building is curious, running at an angle to both the alignment of Home Farm and to the remains of the Abbey. The front of the probable building appears to be marked by a series of piers, set approximately 4 m apart. The size of the probable building and the spacing of the piers would suggest this was a building of some importance, although from the geophysical survey itself, its function is unknown as is its possible date. It is also unclear from the survey whether Anomaly S (Figure 10) is contemporary with the probable building or represents a separate structure.

Acknowledgements

This survey was commissioned by the Abbey Cwmhir Heritage Trust. Access to the site was kindly granted by Hamer family of Home Farm. Thanks are also due to Mel Walters, Julian Lovell and Phillip Olivant who helped with the survey.

Techniques of Geophysical Survey:

Magnetometry:

This relies on variations in soil magnetic susceptibility and magnetic remanence which often result from past human activities. Using a Fluxgate Gradiometer these variations can be mapped, or a rapid evaluation of archaeological potential can be made by scanning.

Resistivity:

This relies on variations in the electrical conductivity of the soil and subsoil which in general is related to soil moisture levels. As such, results can be seasonally dependant. Slower than Magnetometry this technique is best suited to locating positive features such as buried walls that give rise to high resistance anomalies.

Resistance Tomography

Builds up a vertical profile or pseudo-section through deposits by taking resistivity readings along a transect using a range of different probe spacings.

Magnetic Susceptibility:

Variations in soil magnetic susceptibility occur naturally but can be greatly enhanced by human activity. Information on the enhancement of magnetic susceptibility can be used to ascertain the suitability of a site for magnetic survey and for targeting areas of potential archaeological activity when extensive sites need to be investigated. Very large areas can be rapidly evaluated and specific areas identified for detailed survey by gradiometer.

Instrumentation:

1. Fluxgate Gradiometer - Geoscan FM256

2. Resistance Meter - Geoscan RM15

3. Magnetic Susceptibility Meter - Bartington MS2

4. Geopulse Imager 25 - Campus

Methodology:

For Gradiometer and Resistivity Survey 20m x 20m or 30m x 30m grids are laid out over the survey area. Gradiometer readings are logged between 0.25m and 1m intervals along traverses 1m apart. Resistance meter readings are logged at 0.5m or 1m intervals. Data is down-loaded to a laptop computer in the field for initial configuration and analysis. Final analysis is carried out back at base.

For scanning transects are laid out at 10m intervals. Any anomalies noticed are where possible traced and recorded on the location plan.

For Magnetic Susceptibility survey, a large grid is laid out and readings logged at 20m intervals along traverses 20m apart, data is again configured and analysed on a laptop computer.

Copyright:

Figure 1: Location
Scale 1:25,000

Figure 2: Location of the Surveys
Scale 1:1000

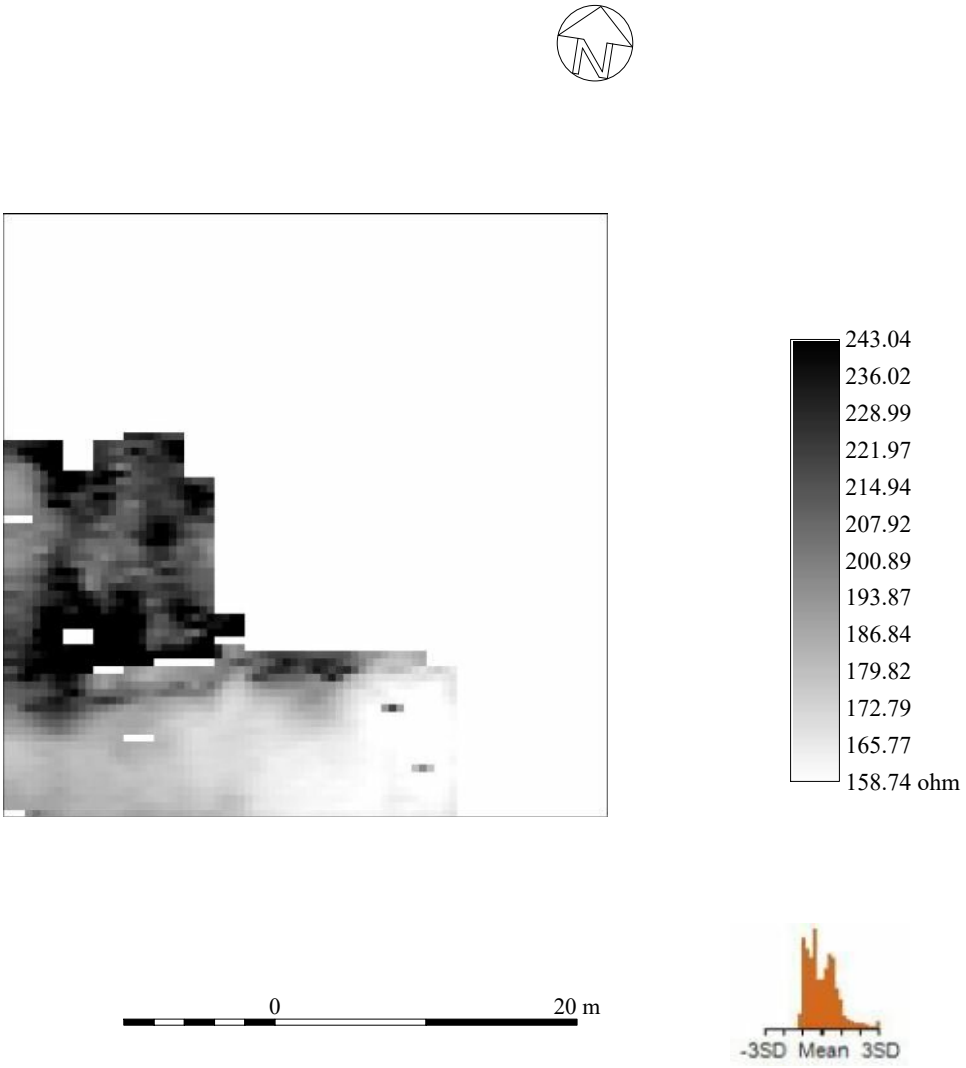

Figure 3: Home Farm Garden, Grey Scale Plot
Scale 1:500

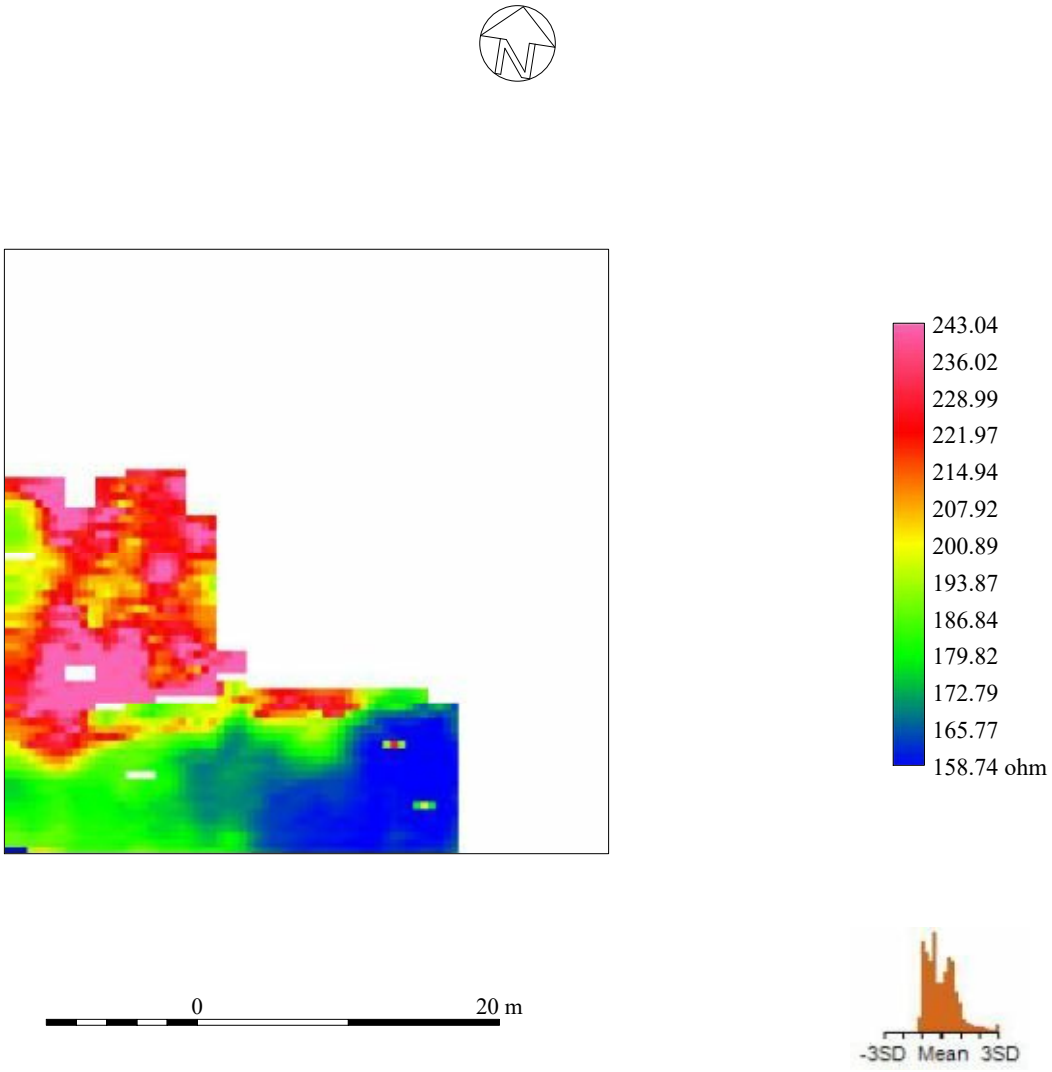

Figure 4: Home Farm Garden, Colour Scale Plot
Scale 1:500

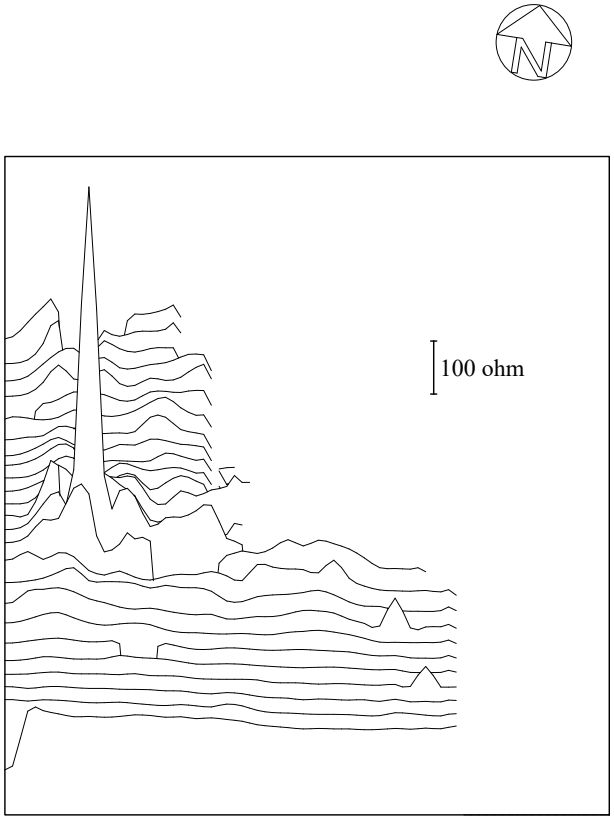

Figure 5: Home Farm Garden, X-Y Plot
Scale 1:500

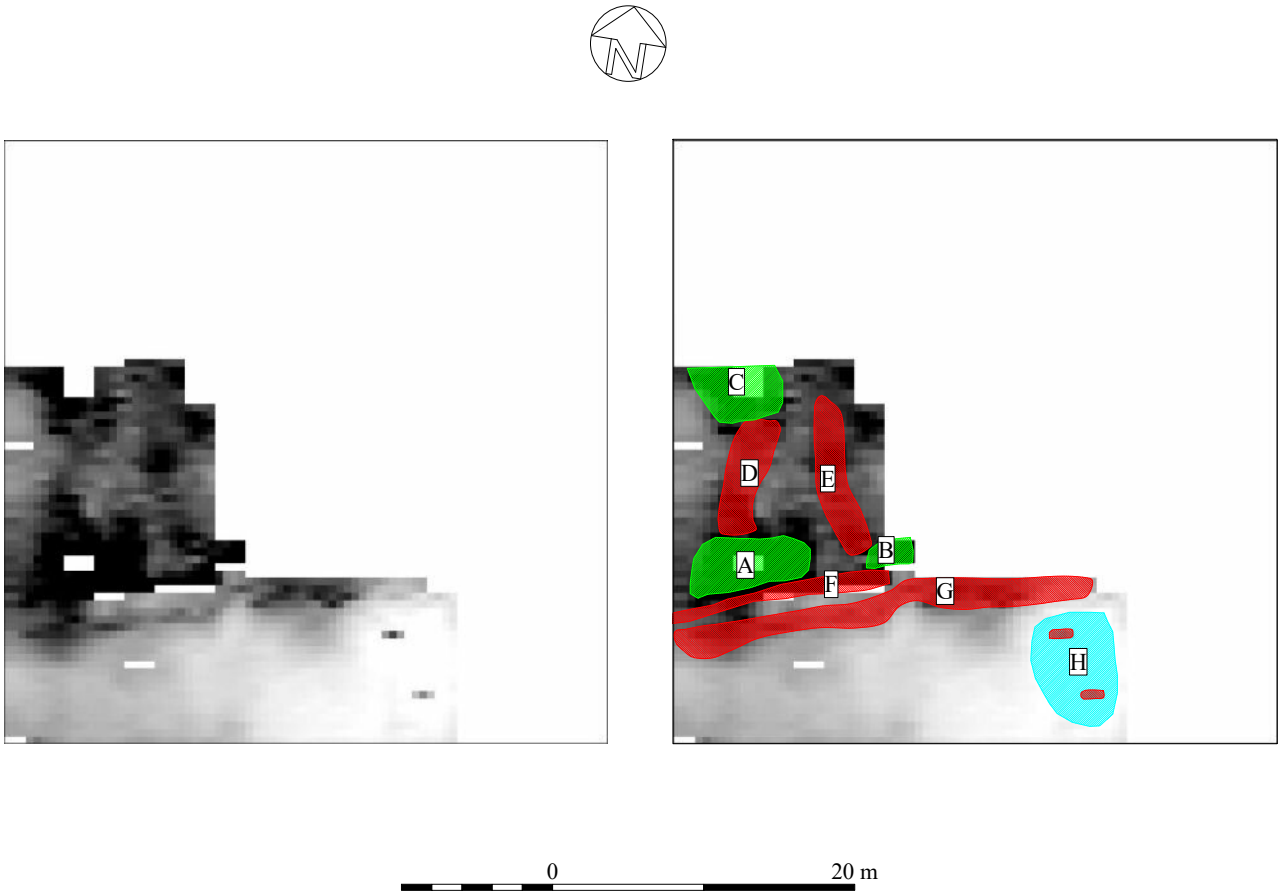

Figure 6: Home Farm Garden, Interpretation
Scale 1:500

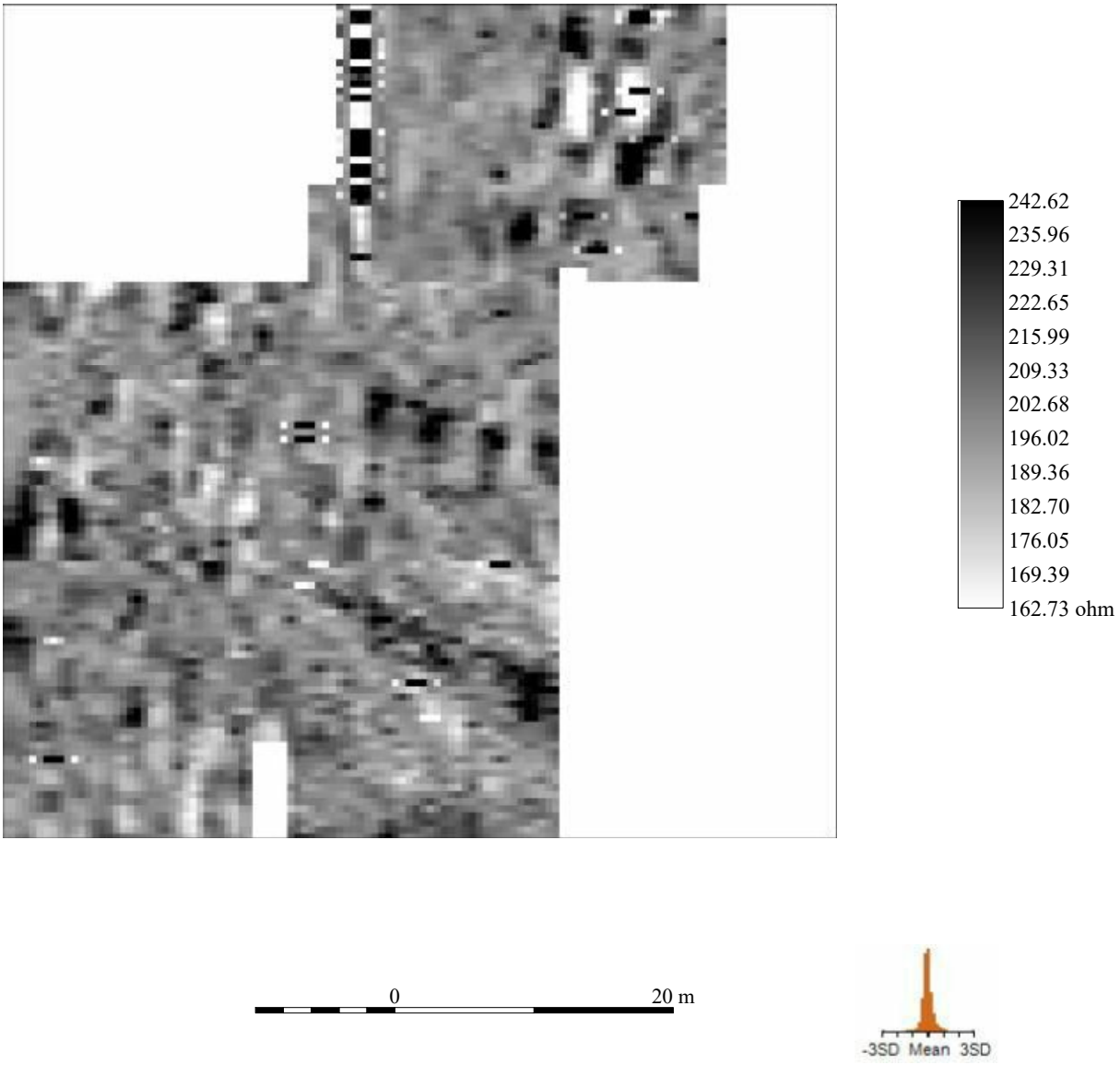

Figure 7: Field, Grey Scale Plot
Scale 1:500

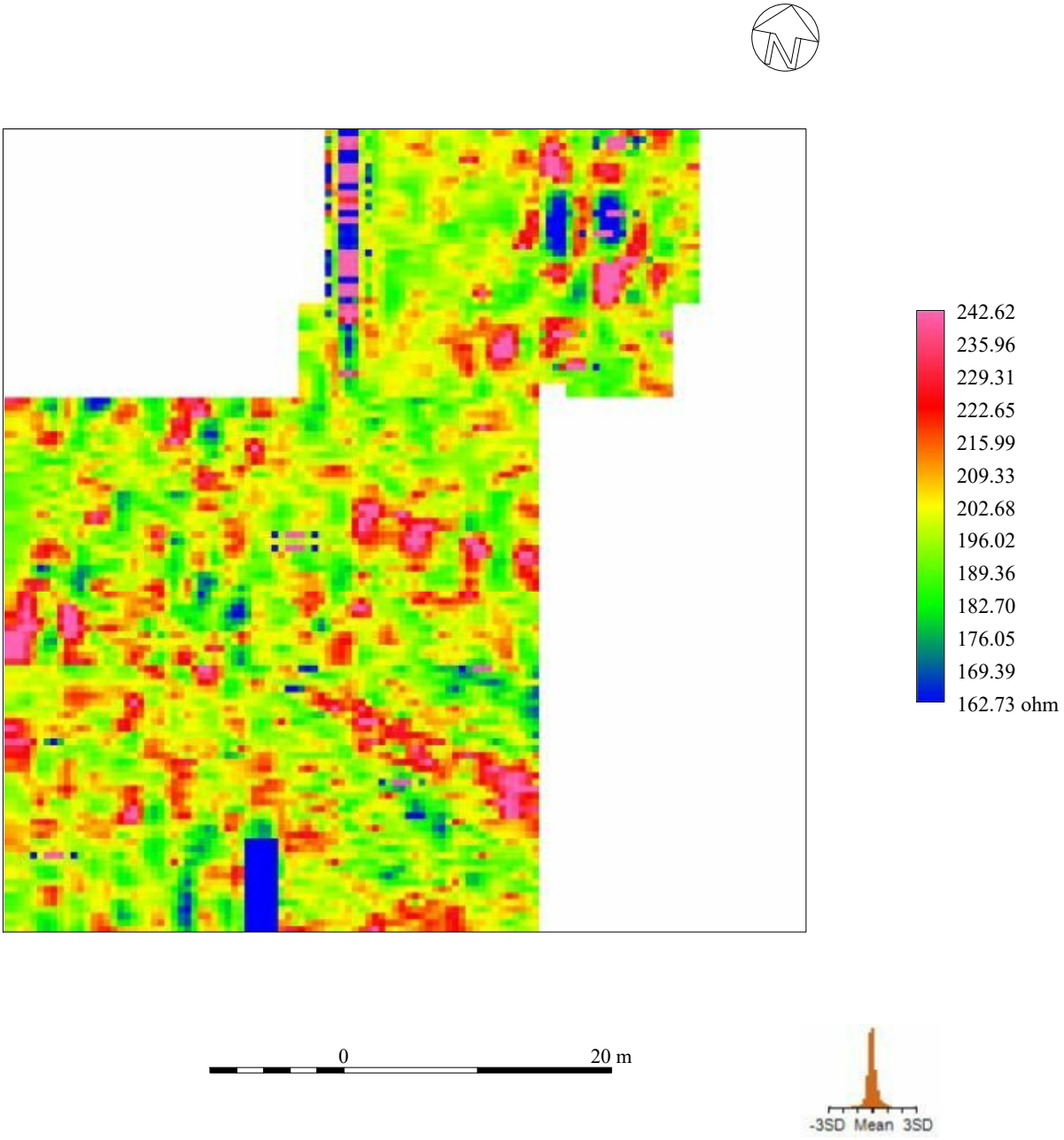

Figure 8: Field, Colour Scale Plot
Scale 1:500

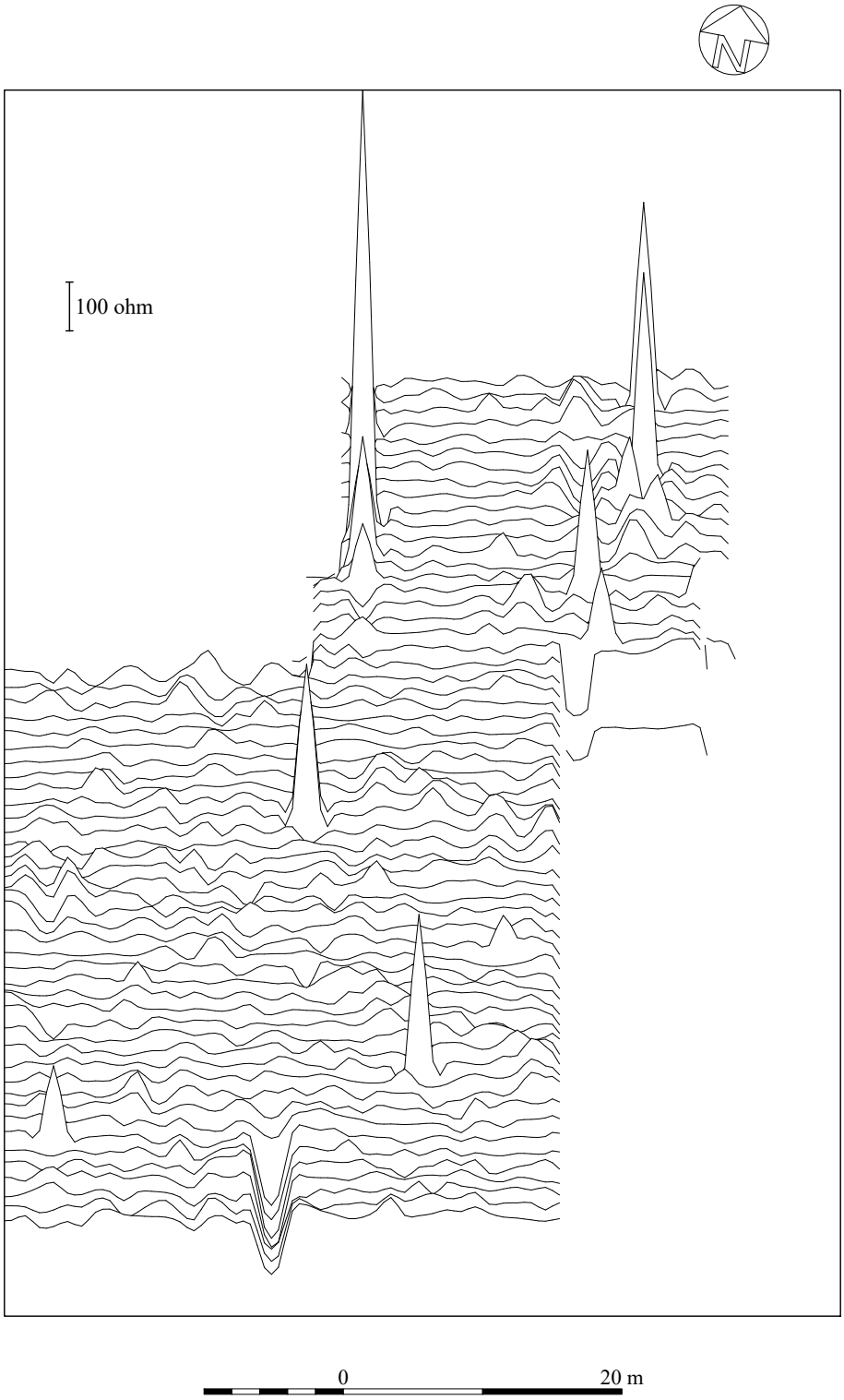

Figure 9: Field, X-Y Plot
Scale 1:500

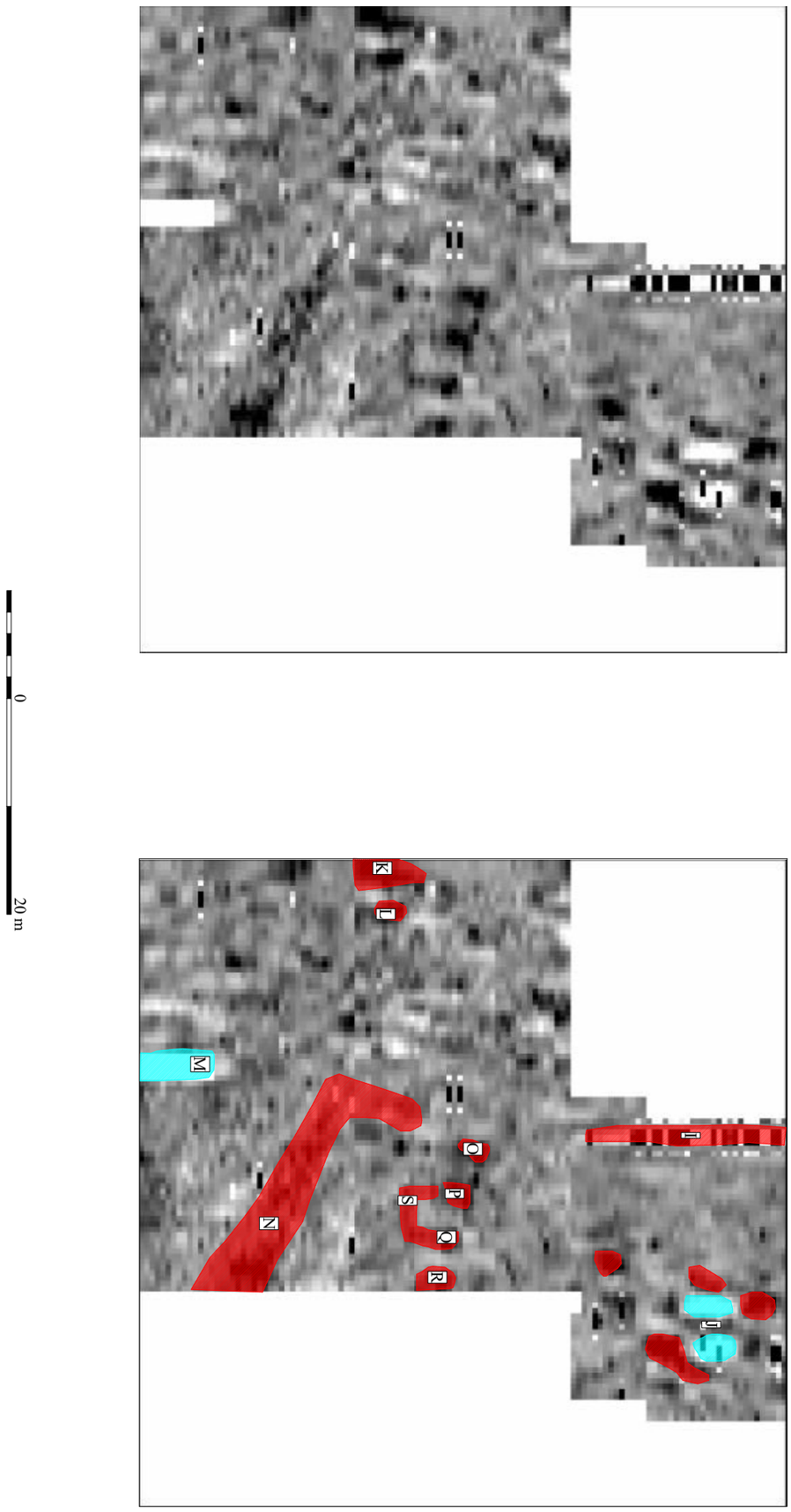

Figure 10: Field. Interpretation
Scale 1:500

Figure 11: Summary
Scale 1:1000