

**Crowcombe Court  
Crowcombe, Somerset  
Gradiometry Survey, February 2022**



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*Reimagining the Manor*



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# **Crowcombe Court**

## **Crowcombe, Somerset**

### **Gradiometry Survey, February 2022**

#### **1.0 Introduction**

The gradiometry survey took place in a field adjacent to Crowcombe Court (NGR 314100 136850) on behalf of the Quantock Hills Landscape Partnership. Crowcombe Court is situated to the north of the village of Crowcombe in Somerset (fig 1). The purpose of the survey was to try and locate the site of the former manor house shown on the 1841 OS map (fig 2).

The field contains a number of slight linear earthworks, some of which can show as parchmarks during the summer months (Somerset HER ref 34705). These relate to former formal gardens and can be seen on a 1764 map of the estate (fig 3), and also on the LiDAR image of the site (fig 4).

The survey covered an area of approximately 2.5ha on the southwestern side of the field (fig 5). The field is currently under pasture, sloping gently uphill from southwest to northeast before rising steeply to Crowcombe Park to the northeast. The geology of the site is Mercia Mudstone Group – Mudstone and Halite-stone (British Geological Survey).

The work was carried out by GeoFlo – Southwest Geophysical and Flotation Services.

#### **1.1 Equipment**

*Fluxgate gradiometer – Bartington Grad 601-2*

The Bartington Grad 601-2 is a dual system gradiometer, a form of magnetometer. It comprises two sensor rods carried on a rigid frame, each sensor including two fluxgates aligned at 90° to each other, one set 1m above the other. It measures variations in the magnetic field between the two fluxgates, recorded in *nanoTesla* (nT) at each sampling point within a grid. The manufacturer claims a depth range of approximately three metres. The instrument is most effective when carried at a consistent height, not exceeding 0.3m above the ground.

Magnetometers are especially effective for discovering thoroughly decayed organic materials, such as those which accumulate in ditches and pits, and matter exposed to intensive firing, including industrial areas, hearths and larger ceramics. All of these are likely to give a positive magnetic response, sometimes with a negative halo, giving a dipolar effect. Non-igneous stone features, such as walls and banks, are usually perceived as negative anomalies against a background enhanced by decayed organics.

*Software – Geoscan Geoplot 4.00*

Geoplot 4.00 allows the presentation of data in four graphical forms: dot-density, grey scale, pattern and X-Y (or *trace*) plots. The latter are particularly effective when used in conjunction with other graphical modes to emphasise ferrous magnetic anomalies or other distortions which show as accentuated peaks or troughs. The programme supports statistical analysis and filtering of data.

#### **1.2 Field method**

The area covered by the survey was divided into 20m squares and tied into the OS grid using the Reach RS2 RTK GNSS Receiver (fig 5). The location of the baseline surveying pegs are shown in fig 8.

Readings were logged at 0.25m intervals along southeast to northwest traverses set 1m apart, in a zig zag pattern.

### 1.3 Processing method

Preliminary processing revealed some interference from modern ferrous magnetic features, characterised by sharp dipolar fluctuations ranging from approximately 30nT to over 3000nT. The first two processing sequences were carried out to mitigate the impact of modern ironwork.

1. Readings exceeding 30nT either side of 0 were replaced by null (dummy) entries.
2. Any anomalous isolated readings were similarly replaced.
3. Typical regular error due to the zig zag operation of the gradiometer was removed.
4. The mean reading for every traverse was reset to 0.
5. The asymmetric data collection pattern was mitigated by the positive interpolation of data points along the Y axis using the calculation of  $\sin(x)/x$ .

### 2.0 The survey area (figs 5 & 8)

The grid comprises sixty four contiguous whole and partial 20m squares covering approximately 2.5ha of the southwest of the field. It is bounded by metal fencing to the west and a hedge with fencing to the south. The north and east survey limits were specified by the client. Several small areas were not surveyable due to mature trees and a stream towards the south of the field. These areas are highlighted in fig 8.

Visible ferrous magnetic disturbance was provided by the metal fencing, two metal gateposts towards the north of the survey area (**X**, fig 8) and a wire cage around one of the trees (**Y**, fig 8).

### 3.0 The survey results (figs 6, 7 & 8)

The survey results reveal a system of linear and rectilinear anomalies on a north – south alignment (fig 6). The majority of these correspond with features seen on the 1764 map of the former formal gardens (fig 9). There are, however a few linears on differing alignments, possibly suggestive of a different activity phase.

The results also show three distinct concentrations of irregular non-linear anomalies towards the south (**O**, **P** and **Q**, fig 8), whose location would suggest a possible association with the linears of the former gardens. The readings for these areas are within the range for thermo remanent/ferrous magnetic material, possibly indicative of building rubble and/or deposits of domestic/agricultural material from previous activity phases. A clipped colour plot (fig 7) shows the nature of this material, where readings higher than 5nT are included in the maximum red colour band.

Whilst carrying out the survey, the surveyors noted fragments of building material, e.g. brick, tiles and slate, particularly in and around the stream at the south end of the field.

Major ferrous magnetic anomaly **W** (fig 8) is consistent with a pipeline. There is no visible surface feature to account for ferrous magnetic anomaly **Z** (fig 8).

All major anomalies are discussed in **3.1** and **3.2** below.

#### 3.1 Positive magnetic anomalies (fig 8)

**A & B** Three intersecting linear anomalies. The L-shaped linear **A** is generally within a range of 5 to 15nT but rising to 31nT towards its eastern end. **B** is within a range of 6 to 12nT. Both are within the normal range for ditches containing thermo remanent material. **A** and **B** appear to converge at the western side of the survey area, however interference from ferrous magnetic anomaly **W** makes

the point of intersection uncertain. Both **A** and **B** are on differing alignments to the linears associated with the former garden, possibly suggesting a different activity phase.

**C** U-shaped anomaly, ranging from 2 to 4nT to the east and south, but the western linear is much stronger, ranging from 5 to as high as 24nT in places. Within normal range for ditches with localised strongly thermo remanent deposits. Corresponds with garden features on the 1764 map.

**D** Intermittent linear trend running parallel with **C** suggesting a possible association. Reading range from 3 to 15nT suggesting deposits of organic and thermo remanent material.

**E** Long linear generally within a range of 3 to 6nT but rising to 16nT in places. Within normal range for a ditch containing localised thermo remanent deposits. Runs parallel with the 1764 garden features and the current driveway. Possibly continues as **F** although **F** is not as coherent.

**F** Irregular linear within a range of 4 to 7nT. Within normal range for a ditch. Runs parallel with the 1764 garden features. Possible association with **E**.

**G** Linear anomaly within a range of 3 to 7nT but rising to 26nT as it heads northeast. Within the range for a ditch containing thermo remanent/ferrous magnetic deposits. Alignment differs from all other major linears possibly suggestive of a singular intervention event.

**H** Irregular anomaly within a range of 3 to 8nT. Within normal range for a deposit of organic/thermo remanent material.

**I** Short weak linear within a range of 1 to 3nT. Within normal range for a ditch containing organic material. Runs parallel with the major north – south alignment of the former garden features.

**J** Weak linear trend within a range of 1.5 to 3nT. Within normal range for a ditch containing organic residues. Appears to intersect with **K** and run parallel with **L** suggesting an association.

**K** Linear anomaly intersecting with **J** and **L**. Within a range of 3 to 6nT. Runs parallel with the major north - south linear trend of the former garden features.

**L** Long linear anomaly within a range of 4 to 9nT at its eastern end, but as it heads west, its coherence is adversely affected by the strongly thermo remanent/ferrous magnetic deposits in **P**. Would appear to partially correspond with the layout of the gardens on the 1764 map.

**M** Curvilinear anomaly intersecting with **L**. Generally ranging from 7 to 18nT but rising to above 30nT in places. Partially corresponds with a linear depression visible in the field. Appearance and readings are suggestive of modern drainage. **M** curves north to intersect with **L**, suggesting that if **M** is associated with drainage then **L** could be also. According to the tenant farmer the site is the source of several springs where the water-bearing permeable rock has fractured. A number of these have been culverted and at the foot of the slope to the west the ground becomes boggy in places.

**N** Short linear intersecting with **M**. Within a range of 6 to 14nT. Possibly associated with drainage (see **M** above).

**O, P & Q** Three discrete concentrations of amorphous and irregular anomalies, with readings ranging from 5 to 30+ nT. Within the range for deposits of strongly thermo remanent and/or ferrous magnetic material. Anomalies appear to be aligned with the 1764 garden features. Readings could suggest building rubble and as such could possibly relate to the demolition of the former manor house. However it is also possible that they could relate to the clearance of former garden features, e.g. walls, paths and other garden structures. Deposits of material relating to modern farming practices should also not be dismissed but the apparent association of **O**, **P** and **Q** to the

former garden layout would suggest otherwise. Locations of survey grids covering these anomalies are attached at appendix A.

**R** Intermittent linear generally within a range of 4 to 16nT, but increasing to 20nT at its southern end. Within the range for a ditch containing thermo remanent/ferrous magnetic deposits. Corresponds with garden features on the 1764 map.

**S** Parallel linears, the longer within a range of 6 to 14nT and the shorter 2 to 4nT. Both are within the normal range for ditches but with the longer containing thermo remanent material. Alignment differs slightly from the major north – south linear trend suggesting a different activity phase.

**T** Weak linear within a range of 1 to 3nT. Within normal range for a ditch/gully with organic residues.

**U** Two weak linears generally within a range of 3 to 6nT. Within normal range for ditches. Their location could possibly suggest a relationship to the former gardens, although their alignment differs.

**V** Very weak linear within a range of 0.5 to 1.5nT. Although readings are very weak, **V** does run parallel with the dominant north – south linear trend.

### **3.2 Negative magnetic anomalies (fig 8)**

**a** Negative linear generally within a range of -2 to -3nT. Within normal range for a ditch/gully with non-magnetic stone content.

**b** Major negative magnetic anomaly within a range of -2 to -4nT. Corresponds with a path on the 1764 map.

**c** North – south linear with an apparently associated east – west linear trend. Readings are within a range of -2 to -3nT. Corresponds with garden features on the 1764 map.

**d** Weakly negative linears within a range of -0.5 to -1.5nT. Runs parallel with the dominant north – south linear trend, suggesting an association.

## **4.0 Conclusion**

The degree of confidence in identified anomalies is generally fairly high.

The survey has detected a series of rectilinear anomalies which appear to relate to the former garden features of the manor house. An overlay of the survey interpretation graphic onto the 1764 map (fig 9) would seem to confirm this.

Other linears on both similar and differing alignment could possibly relate to drainage as the site is the source of several springs where the water-bearing permeable rock has fractured.

The main purpose of the survey was to try and locate the site of the former manor house. Of the three distinct concentrations of thermo remanent/ferrous magnetic anomalies, **O** is possibly the closest location to the site marked on the 1841 OS map, but as the building had been demolished by 1841 its precise location would not have been known. It is possible these readings might be caused by building rubble but if so their irregularity and incoherence limits confidence in a positive identification of the manor site.

## **Bibliography**

*Standard and Guidance for Archaeological Geophysical Survey*. Amended 2016.  
ClfA Guidance notes. Chartered Institute for Archaeologists, Reading.

*Geophysical Survey in Archaeological Field Evaluation*. Historic England, Swindon, 2008.

Somerset Historic Environment website: <https://www.somersetheritage.org.uk/> Accessed 2<sup>nd</sup> March 2022.

British Geological Survey website:  
[www.bgs.ac.uk/discovering Geology/ geologyofbritain/ viewer.html](http://www.bgs.ac.uk/discovering-Geology/geologyofbritain/viewer.html) Accessed 2<sup>nd</sup> March 2022.

Riley, H. *The Historic Landscape of the Quantock Hills*. Historic England, 2006.

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Fig 1: Location of survey

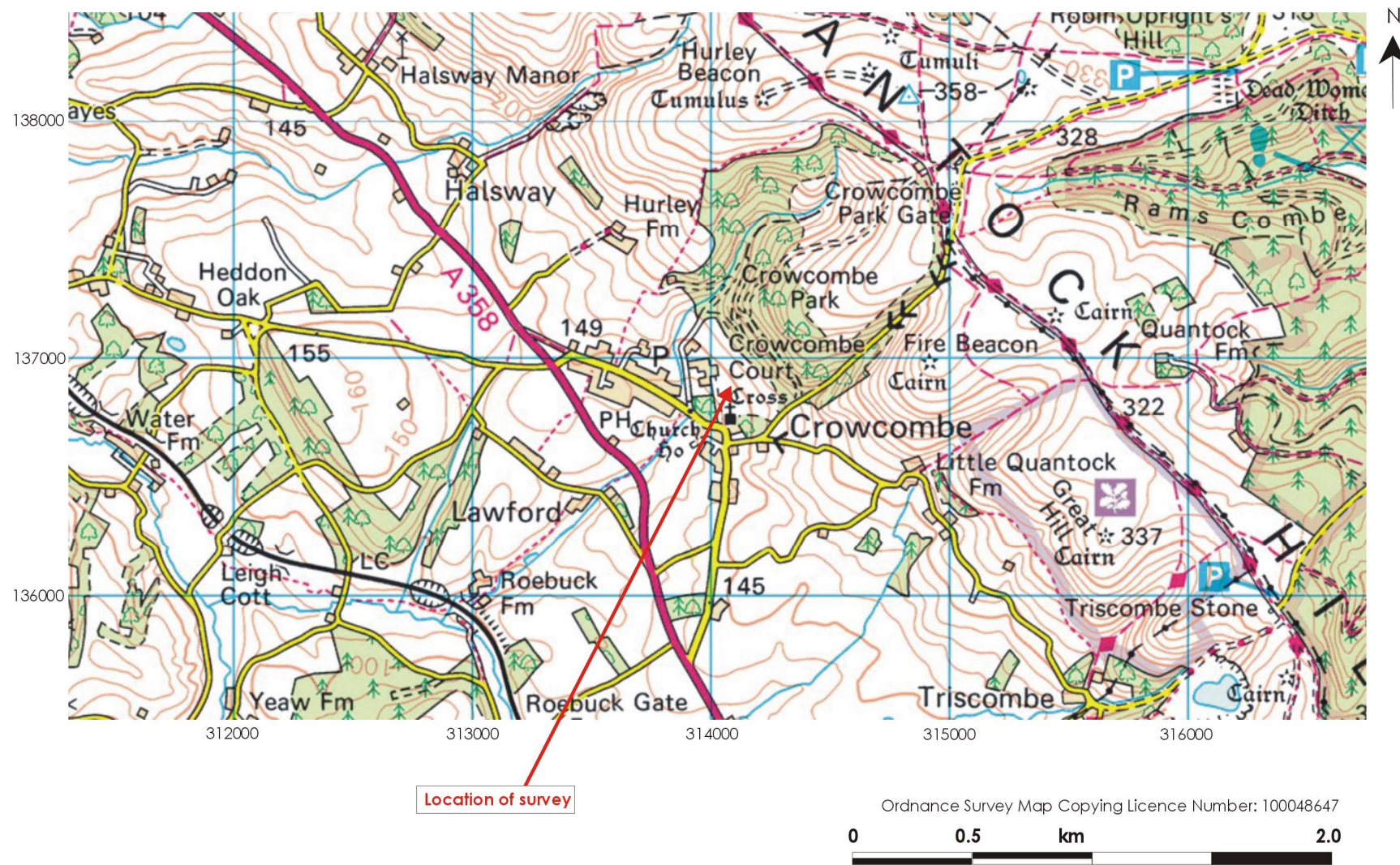




Fig 2: 1841 OS map

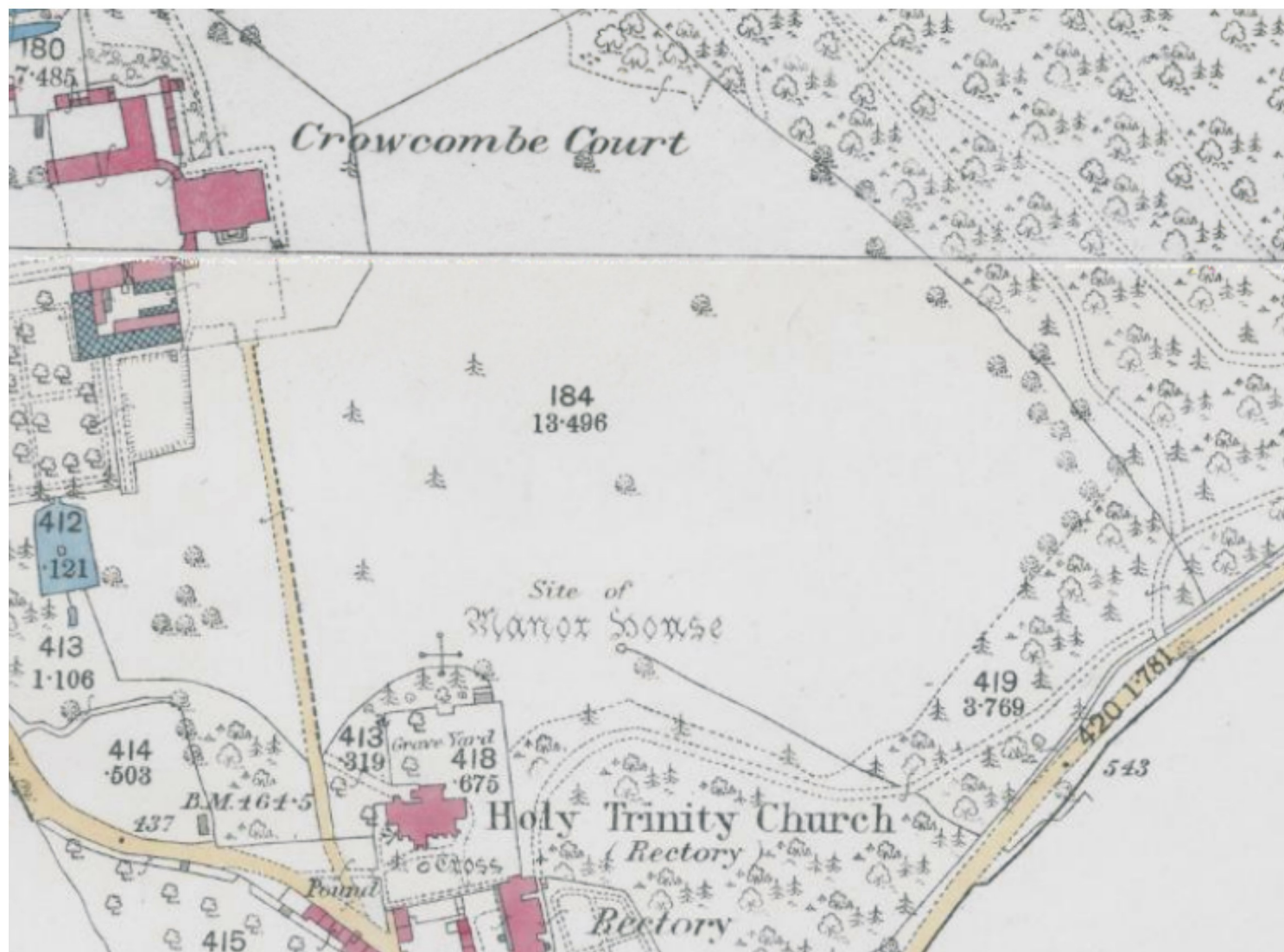


Fig 3: 1764 map



Fig 4: LiDAR image

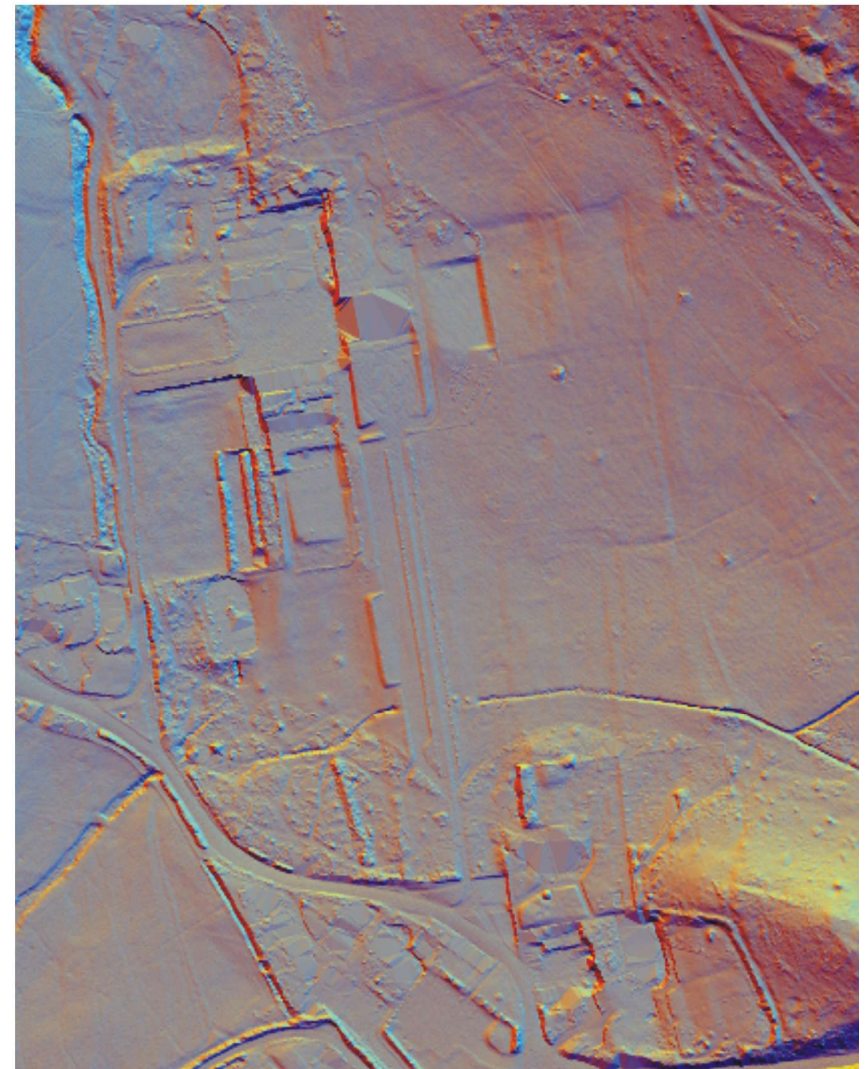




Fig 5: Location of survey - detail



Fig 6: Survey results



Fig 7: Highlighted survey results

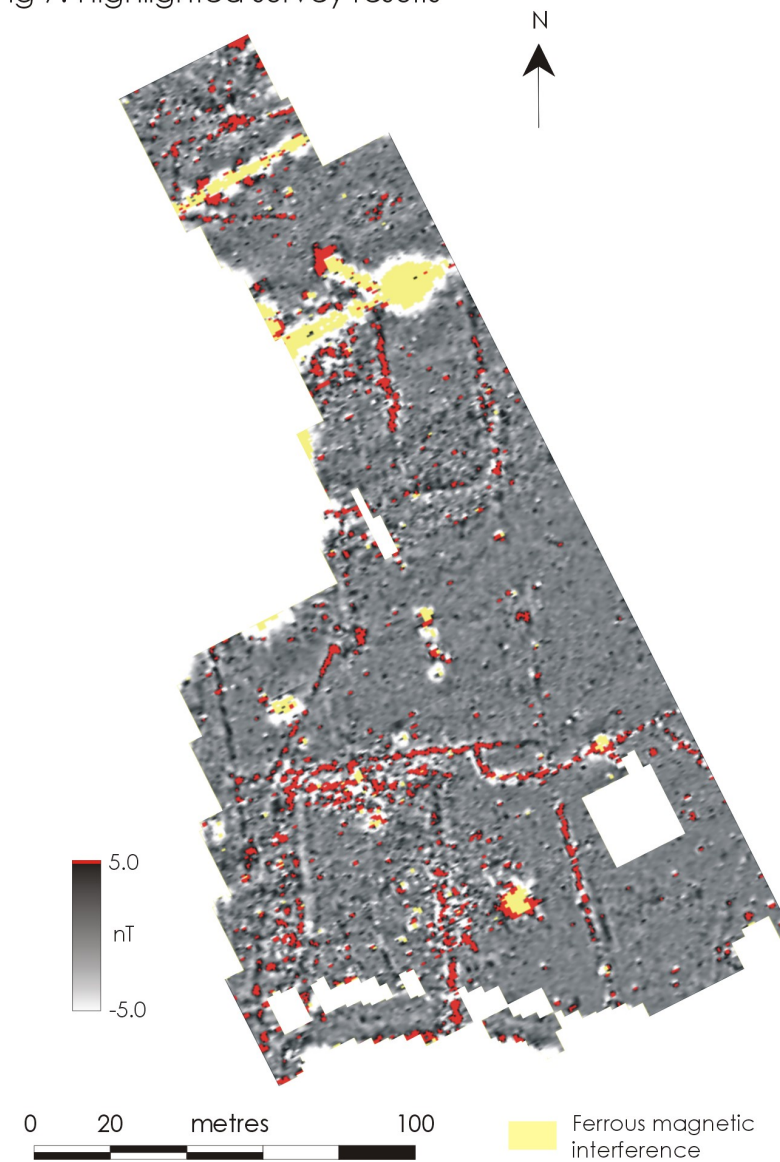


Fig 8: Interpretation





Fig 9: 1764 map with interpretation overlay



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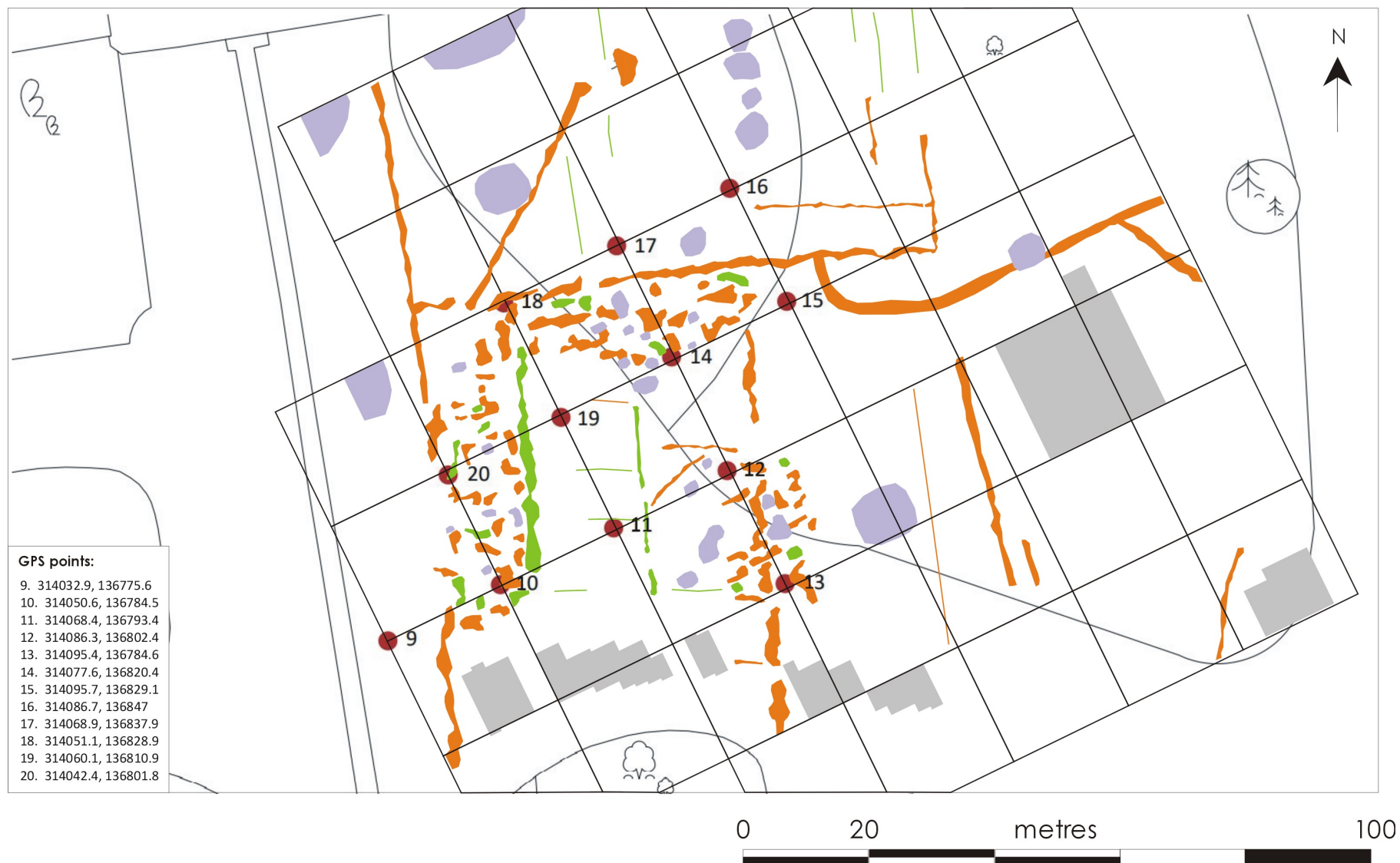
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**APPENDIX A:**  
**GPS grid location points over former garden features in south of field**





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