

LAND AT HIGHER TRESTRAYLE FARM

PROBUS

TRURO

CORNWALL

Results of a Geophysical Survey



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LAND AT HIGHER TRESTRAYLE FARM, PROBUS, TRURO, CORNWALL RESULTS OF A GEOPHYSICAL SURVEY

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SUMMARY

This report presents the results of a geophysical survey carried out by South West Archaeology Ltd. (SWARCH) on land at Higher Trestrayle Farm, Probus, Cornwall. The site is located across part of a single large field south-east of Probus, c.100m west of Higher Trestrayle Farm on a south-east facing slope. Lower- and Higher Trestrayle Farms were first recorded in 1278 and 1510, respectively and the Cornwall Historic Landscape Character (HLC) describes the site as within 'Medieval Farmland'. Prehistoric field systems and Iron Age settlements/'rounds' are recorded near to the site in the wider landscape (MCO8041, MCO8042, MCO8210, MCO8302, MCO8745, MCO21184) and a 'round' with a single ditch is visible as a cropmark on the site itself (MCO54991). The site has been subject to a desk based assessment by Cornwall Archaeological Unit (Motley 2020).

The geophysical survey identified 24 groups of potential archaeological anomalies. These include: a historical field boundary that was probably removed in the 1960's; a probable 'round' with internal features and a possible entrance in its north-east segment; nine probable boundary/enclosure ditches that equate to approximately six or fewer boundaries that enclose the area surrounding the 'round'; five possible circular and rectangular enclosures/ring-ditches that may indicate structures or small annexes within an enclosed area north-east of the 'round'; approximately nine linear/recti-linear anomalies associated with possible ditches; an area of irregular activity including ovoid and possible recti-linear anomalies or a 'hollow'; and 17 discrete ovoid anomalies that may correspond to pits, tree-throws or natural features, two of which may represent possible burning events. The majority of the undated 'boundaries' appear to respect and/or be contiguous with the 'round' suggesting that they were contemporaries. Smaller discrete features such as smaller pits and post-holes are unlikely to be identified in this survey and may occur across the site, which evidently has high archaeological potential.

The basic explanation of this survey is that the site contains a probable multi-phased prehistoric, probable Iron Age, settlement. At least two phases may be evident with the 'round' having probably been later enclosed and abutted by larger enclosures, with possible structures both in-side and outside the 'round'. Although potentially of an Iron Age date these phases of activity cannot be dated via this survey.

Any development of the site is likely to encounter a potentially significant buried archaeological resource. This resource may have suffered some truncation, primarily due to ploughing. However, further archaeological mitigation in the form of targeted evaluation trenching or open area excavation would validate and clarify the results of the geophysical survey and aid to confirm the presence or absence of prehistoric archaeology on the site.



September 2020

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1.0 INTRODUCTION

LOCATION:	LAND AT HIGHER TRESTRAYLE FARM
PARISH:	PROBUS
COUNTY:	CORNWALL
NGR:	SW 90489 46687
SWARCH REF.	PHT20

1.1 PROJECT BACKGROUND

South West Archaeology Ltd. (SWARCH) was commissioned by a Private Client to undertake a geophysical survey on land at Higher Trestrayle Farm, Probus, Truro, Cornwall, as part of required works prior to the development of a proposed dairy. This work was undertaken in accordance with best practice and ClfA guidance.

1.2 TOPOGRAPHICAL AND GEOLOGICAL BACKGROUND

The site is located c.1.15km south-south-east of the centre of Probus and c.100m west of Higher Trestrayle Farm. It is across a pastoral field on a south-east facing slope to a tributary of the River Fal, at a height of between 55m and 80m AOD (Figure 1).

The soils on the site are the shallow well drained fine loamy soils over slate or slate rubble of the Denbigh 2 Association (SSEW 1983), which overlie the interbedded sandstone and [subequal/subordinate] argillaceous rocks of the Portscatho Formation (BGS 2020).

1.3 BRIEF HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

Probus is a settlement and parish in the deanery and hundred of Powder (Lysons 1814). The site is south-east of Probus on Higher Trestrayle Farm, west of the farm building complex, half way between the Registered Parks and Gardens of Trewarthenick (DCO11) and Trewithen (DCO18). On the south side of the site is Lower Trestrayle Farm, which was first recorded in 1278 as *Trestael*. This contains the Cornish place-name elements *tre* meaning 'farmstead/settlement/estate' and *strail* meaning 'mat/tapestry' (MCO15574). Higher Trestrayle Farm was first recorded in 1510 as *Trestrayle Wartha*, which included the Cornish element *guartha* meaning 'upper' (MCO14971). Other medieval assets near to the site include the farmstead of Trevorva to the south-west, also first recorded in 1278 (MCO17973); and cropmark/lower earthwork evidence of possible medieval field-systems and ridge and furrow to the east (MCO21185, MCO30027). The Cornwall Historic Landscape Character (HLC) describes the site as within Medieval Farmland: *The agricultural heartland, with farming settlements documented before the 17th century AD and whose field patterns are morphologically distinct from the generally straight-sided fields of later enclosure. Either medieval or prehistoric origins.*

Potential prehistoric assets near to the site include the cropmarks of a possible prehistoric field system (MCO21184), and a potential Iron Age 'D'-shaped univallate enclosure c.65mx50m across (MCO8210), to the south; the cropmark of a potential Iron Age 'round' (MCO8745), to the north; and an Iron Age settlement with 'round' at Parkengear Farm to the north-west that has been identified in assessments utilizing cropmarks, place-name evidence, geophysical survey and watching briefs (MCO8041, MCO8042, MCO8302, ECO437, ECO4194, ECO4240, ECO4241, ECO5053). A possible 'round' with a single ditch is visible as a cropmark, c.49m in diameter, on the site itself (MCO54991). The site has also been subject to a desk based assessment by Cornwall Archaeological Unit (Motley 2020).

Historic mapping shows a relative continuity in the sites field-system as of 1843. On this earliest mapping the site is divided into two fields: a large square field (plot 970) with a smaller square field (plot 979) at its south end. According to the 1843 tithe apportionment plot 970 was part of *Higher Trestail*, which belonged to C.H.T. Hawkins and was occupied by Charles Hardy. It was called *The Eight Acres* and under arable cultivation. Plot 979 belonged to *Lower Trestail*, also owned by C.H.T. Hawkins, occupied by a Melchizedek Hotton and called Wainhouse Meadow; it was also under arable cultivation. By the time of the 1880's Ordnance Survey (OS) 1st edition map the site is in the same condition, although some loss of boundaries has evidently occurred in the wider landscape. The boundary that divides the site in two in 1843 is ostensibly removed between OS mapping from 1962/3 and 1971. Supporting cartographic and LiDAR sources can be seen in Appendix 2.

1.4 METHODOLOGY

This work was undertaken in accordance with a best practice and ClfA guidance. Any desk-based assessment aspect of this report follows the guidance as outlined in: *Standard and Guidance for Archaeological Desk-Based Assessment* (ClfA 2014a) and *Understanding Place: historic area assessments in a planning and development context* (English Heritage 2012). The geophysical (gradiometer) survey follows the general guidance as outlined in: *EAC Guidelines for the use of geophysics in Archaeology: Questions to Ask and Points to Consider* (Europae Archaeologiae Consilium/European Archaeological Council 2016); *Standard and Guidance for Archaeological Geophysical Survey* (ClfA 2014b); and *Geophysical Survey in Archaeological Field Evaluation* (English Heritage 2008).



FIGURE 1: SITE LOCATION (THE SITE IS INDICATED).

2.0 GEOPHYSICAL SURVEY

2.1 INTRODUCTION

An area of c.2.8ha was the subject of a magnetometry (gradiometer) survey. The purpose of this survey was to identify and record magnetic anomalies within the proposed site. While identified anomalies may relate to archaeological deposits and structures the dimensions of recorded anomalies may not correspond directly with any associated features. The following discussion attempts to clarify and characterise the identified anomalies. The survey was undertaken on the 5th and 6th of August 2020 by J. Bampton; the survey data was processed by J. Bampton.

2.2 SITE INSPECTION

The site is a single large field on an approximate south-east facing slope that overlooked the valley to a tributary of the River Fal. The site was under relatively low grass for silage or grazing and its boundaries were slightly overgrown Cornish hedgebanks with some post and wire fencing visible. These boundaries contained occasional oaks and frequent bramble and hawthorn with coppiced birch or beech hedging. Access gates to the site were near the middle of its north boundary from the track leading to Higher Trestrayle Farm and at the south end of its east boundary leading to further fields. Telegraph poles and overhead cables ran approximately north-west by south-east across the site. There were some slight undulations forming slight plateaus across the slope of the site, which became very steep in its south-east corner. A road ran along- and outside the west boundary of the site; and an area of overgrown garden to Lower Trestrayle Farm bordered the south edge of the survey area. Supporting photographs for the site inspection can be seen in Appendix 3.

2.3 METHODOLOGY

The geophysical (gradiometer) survey follows the general guidance as outlined in: *EAC Guidelines for the use of geophysics in Archaeology: Questions to Ask and Points to Consider* (Europae Archaeologiae Consilium/European Archaeological Council 2016); *Standard and Guidance for Archaeological Geophysical Survey* (ClfA 2014b); and *Geophysical Survey in Archaeological Field Evaluation* (English Heritage 2008).

The survey was carried out using a twin-sensor fluxgate gradiometer (Bartington Grad601). These machines are sensitive to depths of up to 1.50m. The survey parameters were: sample intervals of 0.25m, traverse intervals of 1m, a zigzag traverse pattern, traverse orientation was circumstantial, grid squares of 30×30m. The gradiometer was adjusted ('zeroed') every 0.5-1ha. The survey grid was tied into the Ordnance Survey National Grid- and set out using a Leica CS15 GNSS Rover GPS. The data was downloaded onto *Grad601 Version 3.16* and processed using *TerraSurveyor Version 3.0.36.0*. The primary data plots and analytical tools used in this analysis were *Shade* and *Metadata*. The details of the data processing are as follows:

Processes:

DeStripe all traverses, median; used to equalise underlying differences between grids (potentially caused by instrument drift or orientation, directional effects inherent in magnetic instrument, or differences in instrument set up during survey e.g. using two gradiometers).

DeStagger grids a6, a7, a8, a10 out- and inbound by 0.75m; grid a19 out- and inbound by 0.25m; all other grids out- and inbound by 0.50m; reduces staggering effects within data derived from zig-zag collection method.

The data was not *clipped* (removes extreme data point values); although the Band Weight Equalised function displays the data as if clipped to 3SD (see Appendix 1).

Details:

2.8074ha surveyed

Stats unadjusted; Max. 97.62nT, Min. -107.92nT; Standard Deviation 10.05nT, mean 0.68nT, median 0.00nT.

2.4 RESULTS

Table 1 with the accompanying Figures 2 and 3 show the analyses and interpretation of the geophysical survey data. Additional graphic images of the survey data and numbered grid locations can be found in Appendix 1.

TABLE 1: INTERPRETATION OF GRADIOMETER SURVEY DATA.

Anomaly Group	Class and Certainty	Form	Archaeological Characterisation	Comments
1	Moderate positive and negative, probable	Linear	Historical boundary	Indicative of a boundary with a bank flanked by ditches on either side. This anomaly corresponds to a boundary depicted in the cartographic record from 1843 to 1962/3. This boundary is absent from OS mapping in 1971. Responses of +42nT and -36nT.
2	Moderate-strong positive and negative, probable	Circular	'round' enclosure	Indicative of cut and in-filled circular enclosure ('round') c.50m in diameter. Possible bank material associated with this enclosure, particularly on its interior side. Possible entrance or causeway on its north-east side. Possible re-cut or multiple ditches forming bi-/multivallate enclosure. Response strengths of generally c.+40nT to +60nT and < 85nT; and c.-20nT and < -60nT.
3	Moderate-strong positive with associated negative, probable	Curvi-linear	Enclosure/ internal features to 'round'/enclosure	Indicative of cut and in-filled features; possibly forming part of a double ditched circular enclosure with Group 2 and/or representing internal features. Associated negative response may be a relative response or indicative of in-fill or former bank material spread over enclosure. Responses between +36nT and +64nT.
4	Moderate-strong positive, probable	Ovoid	Possible pits/ internal features to 'round'/enclosure	Indicative of discrete cut and in-filled features such as pits or tree-throws. Allude to internal features to probable 'round'/Group 2. Eight prominent examples visible in data. General responses of c.+30nT to +40nT and one of <+89nT (contiguous with south part of Group 3).
5	Moderate positive, probable	Recti-linear	Ditch; possible enclosure	Indicative of a cut and in-filled ditch forming a possible enclosure on the exterior to- and contiguous with Group 2/'round'. On the west side of Group 2/'round'. Comparable response to Group 14. Response of c.+45nT.
6	Weak-moderate, positive and negative, probable	Curvi-linear	Boundary, ditches and bank material	Indicative of cut and in-filled linear feature with associated compact/'bank' material. Indicative of an undated boundary with bank and ditches. Could represent a bank flanked with ditches similar to Group 1 and therefore part of an earlier phase of probable medieval field system; or a series of undated ditches and banks as some bank material appears to be present on the east side of the ditch. Possibly associated with Groups 7-12. Response of +15nT to +36nT and <-27nT.
7	Moderate-strong positive and negative, probable	Linear	Boundary, ditches and bank material	Indicative of a cut and in-filled ditch with associated 'bank' material. Possibly associated with Groups 6 and Groups 8-12. Responses of between +30nT to +74nT, and <-31nT.
8	Moderate positive and negative, probable	Linear	Boundary, ditches and bank material	Indicative of a cut and in-filled ditch with associated 'bank' material. Possibly contiguous with Group 2, on Group 2's south side; and contiguous with Group 9 to its north-east. Possibly associated with Groups 6-7 and Groups 9-12. Responses of <+52nT to +74nT, and c.-20nT.
9	Moderate-strong positive and negative, possible	Curvi-linear	Boundary, ditches and bank material	Indicative of a cut and in-filled ditch with associated 'bank' material. Possibly associated with Groups 6-8 and Groups 10-12. Weaker response towards west end of anomaly. Responses of between +15nT to +71nT, and <-15nT to -29nT.
10	(Weak)-Moderate positive, probable	Linear	Ditch	Indicative of a cut and in-filled ditch. Possibly associated with Groups 6-9 and Groups 11-12. Slight intermittent

Anomaly Group	Class and Certainty	Form	Archaeological Characterisation	Comments
				response may be indicative of poorer survival, which may account for a lack of negative response/'bank' material when compared to comparable groups. Responses of between +23nT to +51nT.
11	Moderate positive and negative, probable	Curvi-linear	Ditch, possible bank material	Indicative of a cut and in-filled ditch with associated 'bank' material. Possibly associated with Groups 6-10 and Group 12. Some intermittence in response may allude to a poorer survival. This anomaly roughly follows contours of the slope and with Group 10 defines the steeper south-east part of the site. Responses of between +30nT to +54nT, and c.-22nT.
12	Weak positive, possible	Linear	Ditch	Intermittent response comparable to Group 11 indicative of a cut and in-filled ditch with possible associated 'bank' material in places. Possibly associated with Groups 6-11. Weak and intermittent response indicative of poorer survival/shallow nature. Responses of between c.+23nT.
13	Weak positive, possible	Linear	Ditches	Ephemeral and intermittent responses running parallel to better established/identifiable anomalies (and in some cases ploughing activity). Indicative of possible cut and in-filled linear features such as ditches. Possibly associated with Groups 11 and 14. Response of between +8nT and +22nT.
14	Moderate positive with associated negative, probable	Curvi- and Recti-linear	Ditch, possible bank material	Indicative of a cut and in-filled linear feature/ditch with possible bank material along its north/west edge. Contiguous with Group 2. Comparable response to Group 5. Responses of c.+32nT and c.-19nT (<-53nT).
15	Weak positive, probable	Circular	Possible ring-ditches/ partial circular ditches	Two examples indicative of cut and in-filled ring-ditches/drip-gullies, although not complete. These may be indicative of prehistoric settlement activity. They exist within the bounds of an enclosure defined by Groups 9 and 14, immediately north-east of Group 2/'round'. Weak response may allude to poor survival. Response of between +10nT to +28nT.
16	Weak-moderate positive, probable	Recti-linear	Ditch, enclosure/ structure	Indicative of a cut and in-filled ditch type feature, possibly defining small enclosure associated with Groups 2 and 9. Responses of between +20nT to +24nT.
17	Weak positive, possible	Semi-circular	Possible ring-ditches/ partial circular ditches	Two ephemeral and intermittent examples indicative of cut and in-filled ring-ditches/drip-gullies similar to Group 15, but less clear or complete. These may be indicative of prehistoric settlement activity. They exist within the bounds of an enclosure defined by Groups 9 and 14, immediately north-east of Group 2/'round'. Their weak and intermittent response may allude to poor/shallow survival. Responses of between <c.+15nT.
18	Weak-moderate positive, probable	Linear	Ditch/ trench-line	Indicative of cut and in-filled linear feature such as a ditch. Its relatively well defined and abrupt length may allude to a more recently dug and in-filled trench-line (?). Responses of c.+20nT to +34nT.
19	Weak negative, possible	Recti-linear / linear	Ditches/ possible enclosure or structure related (beam-slots (?)); or agricultural activity / ploughing	Indicative of possible cut and in-filled recti-linear ditches defining small rectangular enclosures; however these examples are parallel and perpendicular to clear agricultural activity (ploughing) and may be the result of pareidolia. Some of the approximate east-west lengths of these anomalies may be indicative of ploughing or narrow strip-fields, although respecting the extant field-system. These responses are both intermittent and very weak relative to more likely archaeological anomalies. Responses of c.+12nT to +23nT.
20	Weak positive, possible	Recti-linear and ovoid	Possible discrete features (e.g. pits) with associated linear/structural aspects; or natural features	An area of possible pits or tree-throws with associated recti-linear and irregular anomalies that may be indicative of archaeological activity. This may be a natural hollow, sunken feature, or evidence of a structure with internal features. Responses of c.+10nT to +20nT.
21	Moderate dipolar, possible	Ovoid	Ferrous objects/ tree-throws or pits with thermoremanent/ burning activity	Indicative of two areas of thermoremanent activity, such as burnt pits or tree-throws; or possibly indicative of ferrous objects/debris. Indicative of cut and in-filled pits or tree-throws or similar features that may have incurred a burning event. Responses of between +30nT to +53nT and -19nT to -27nT.

Anomaly Group	Class and Certainty	Form	Archaeological Characterisation	Comments
22	Weak positive, possible	Ovoid	Probable tree-throws/ possible pits	Indicative of cut and in-filled tree-throws or pits. These four examples are relatively weak responses compared to more likely archaeological anomalies and probably represent natural features. Furthermore their shape and adjacent readings depict almost typical tree-throw type disturbance – a possible hole at the edge of a ring of disturbed ground. Responses of c.+17nT to +30nT.
23	Weak positive, possible	Ovoid	Pits or tree-throws	Indicative of cut and in-filled pits or tree-throws or similar features. Four examples that are similar in response to Group 22, but slightly more regular/strong. Mostly within the area of more frequent anomalies in the enclosure defined by Groups 9 and 14. North example associated with Groups 15 and 17. Responses of c.+25nT to +30nT.
24	Moderate-strong positive, probable	Ovoid	Pits or tree-throws	Indicative of cut and in-filled pits or tree-throws or similar features. These five examples are very probable to exist as pits or tree-throws given their response strength and relatively well defined edges. Mostly associated with activity west of Group 2/'round'. Telegraph poles on the site may allude to their having been former poles. Some possible pit-type anomalies may equate to this form of modern activity. Responses of c.+43nT to +76nT.
Other anomalies				
-	Strong dipolar, probable	Point/ ovoid	Ferrous objects/debris	Black crosses in Figures 3 and 6. The site has a large number of dipolar responses. These strongest examples are indicative of ferrous objects that are typically presumed to be modern, such as farm machinery fragments. Similar and weaker responses can be indicative of geological features/anomalies. These responses are highly probable to be non-archaeological in nature. Responses <+/-100nT. Group 21 may be examples that are indicative of a thermoremanent debris/deposit.
-	Weak positive and negative, probable	Linear	Ploughing activity, tracks/shallow ground disturbance, field drainage	Examples/samples displayed as green lines in Figure 6. Indicative of ploughing activity that runs predominantly north-south across the site and parallel to the field boundaries. Also runs perpendicular to the slope of the site, particularly the steeper south-east part of the site. Some ostensibly shallow ground disturbance on the site forms tracks between entrances and corners of the site. Some faint linear anomalies running at slight diagonals to the predominant ploughing is indicative of occasional ploughing activity in these directions and potentially field drains/drainage across the site. The varied slopes of the site mean the effect of agricultural works on soil-creep/hill-wash can be better managed through varied ploughing practices. Most of the ploughing activity is also evident in LiDAR and satellite imagery. Responses of <c./10nT.
-	Magnetic disturbance, probable	-	Magnetic disturbance	Near the edges of the site magnetic disturbance from fence lines and debris is apparent. A clear example in the south of the site equates to a telegraph pole; and some slight disturbance in the west of the site equates to a nearby telegraph pole. Response of <+/-100nT.
-	Weak positive (and negative), probable	-	Geological variation	Faint orange areas in Figure 6. An amount of geological variation was evident in the survey data. Most of this alludes to the topography of the site, with areas of breaking- or steep slopes and areas of slight plateau in the slopes evidently having variation in soil or geology. This either accounts for- or results from these topographic differences. Bands of this geological variation north and north-east of Group 2/'round' may allude to associated activity/weathering. The example in the north-east corner of the site may relate to a palaeochannel or dry-valley. The area in the south-east of the site directly corresponds to the steeper slope of the site. Responses of <c.+15nT (and <-10nT).

2.5 DISCUSSION

The survey identified 24 groups of anomalies; and evidence of geological variation and agricultural ground disturbance, including ploughing in predominantly two directions. Any 'other anomalies' that are not considered to bear archaeological potential are fully described at the end of Table 1 and represented in Figure 6.

The general response variation across the site was between +/-10nT with occasional clear geological variation into the low teens. The response strength of probable archaeological activity was also relatively high in general (typically between +/-30 and +/-70nT). It seems probable that response strengths of below +/-20nT could be of natural or geological origin.

The anomaly groups identified included: a historical field boundary that was probably removed in the 1960's (Group 1); a probable 'round' with internal features (Groups 2-4); nine probable boundary/enclosure ditches (Groups 5-12 and 14), which equate to approximately six boundaries or fewer); five possible circular and rectangular enclosures/ring-ditches (Groups 15-17); approximately nine linear/recti-linear anomalies associated with possible ditches (Groups 13 and 18-19); an area of irregular activity including ovoid and possible recti-linear anomalies or a 'hollow' (Group 20); and 17 discrete ovoid anomalies that may correspond to pits, tree-throws or natural features, including two examples of possible burning events (Groups 21-24).

The historical boundary (Group 1) has a clear anomaly response, typical of a Cornish hedgebank and distinct from the other examples of linear/curvi-linear anomalies on the site. These other linear/curvi-linear anomalies therefore probably predate the extant modified medieval field-scape or are not boundaries of the same design. The Group 1 'boundary' was depicted on the 1843 Probus tithe map and up to the 1962/3 OS mapping, but it was absent from the 1971 OS mapping.

The 'round' (Group 2) equates to an identified cropmark of a single ditch curvilinear enclosure (MCO54992). This is in a landscape of numerous 'rounds'/Iron Age settlement with both cropmark and excavation evidence of examples to the south, north and north-west. These settlement types develop through the Later Iron Age and Romano-British periods. Group 2 has a series of internal anomalies (Groups 3 and 4), including a possible inner ditch that may indicate a multivallated nature, multiple-phase of enclosure, or probably internal activity associated with other internal anomalies. The multivallated Penhale Round at Fraddon, although slightly larger than this example, was revealed to contain; re-cut enclosure ditches, multiple post-ring structures with ring-ditches and a probable fogou as well as stone lined structure and exterior features (Hood 2007; Johnston *et al* 1998-9). Pottery from the multiphased Penhale 'round' indicates that it was occupied from the 1st century BC to the 4th century AD. The Group 2 anomaly appears to predominantly be a univallate enclosure with internal features. The poor and intermittent survival of the ring of this anomaly in its north-east corner may indicate an entrance in this area. This 'entrance' would also lead to an area enclosed by possible boundary ditch anomalies (Groups 14 and 9); an area that contains the majority of other more complex anomalies associated with possible settlement activity.

Of some note regarding the 'round' and its curvi-linear internal anomalies is the presence of associated negative responses lining- and in discrete patches adjacent to the positive anomalies. This can be accounted for in the most part by a relative response associated with the nature of surveying by gradiometer; in that an exaggerated response can appear between areas with distinct responses. However, it may allude to the presence of stony material or spreads associated with the features. This could therefore indicate a compacted or worn-down floor area or stony material associated with structures as at Penhale Round (Hood 2007).

The ostensibly respected/contiguous nature to the 'round' of the possible boundary ditches represented by Groups 5, 8 and 9, and 14 allude to a contemporary date; although possibly later additions to the settlement represented by the 'round'. These possible boundaries are ostensibly contiguous and/or comparable to the other anomalies on the site (Groups 6-7 and 10-12) forming a wider, possibly prehistoric landscape. A similar relationship between a 'round' and series of associated and ostensibly contemporary boundaries was also identified at Penhale Round in geophysical survey and later excavation (Davis *et al* 1994; Johnston *et al* 1998-9;); and an extensive multi-featured Iron Age settlement at Parkengear (MCO8302; Rainbird *et al* 2017). A recent geophysical survey adjacent to excavated Late Iron Age Roundhouses at Ladock (Bampton 2017; Bonvoisin 2020) indicates a potential 'round' surrounded by a later rectilinear enclosure adjacent to- or part of a wider multi-phased Iron Age settlement. With these examples in mind, this site may fall into a later Iron Age trend of firstly open settlements (having already shifted out of larger hillforts) and small fortified settlements followed by then later recti-linear enclosure (Nowakowski 2011). However, any number of phases may account for any potential 'structures' and ditches evident on the site.

Although there is a scattering of possible pit-type features across the survey area, the presence of possible truncated ring-ditches and a rectilinear enclosure/ditch in the area north-east of the 'round' indicates a higher potential for settlement evidence in this part of the site. The areas north and south of the Group 5 'ditch' also ostensibly show more archaeological potential than areas further from the 'round'.

The basic explanation of this survey is that the site contains a probable multi-phased prehistoric, probable Iron Age, settlement. At least two phases may be evident with the 'round' having been later enclosed and abutted by larger enclosures with possible structures both in- and outside the 'round'. These phases may have occurred within a single generation or been a development over centuries, even after a partial abandonment of the 'round', which may have left a land-mark presence of which to attach settlement, earthworks and meaning. These phases or relationships cannot be gleaned from this survey.

Any development of the site is likely to encounter a potentially significant buried archaeological resource. Some truncation of the archaeological resource may have occurred across much of the site, primarily due to ploughing. There are areas of less dense potential archaeology in the south-east and north-west areas of the site, although these still contain aspects of an undated field-system/enclosure; the middle and north-east of the site have a high potential to reveal numerous archaeological features and deposits. Smaller discrete features such as smaller pits and post-holes are unlikely to be identified in this survey and may occur across the site, which evidently has a high archaeological potential.

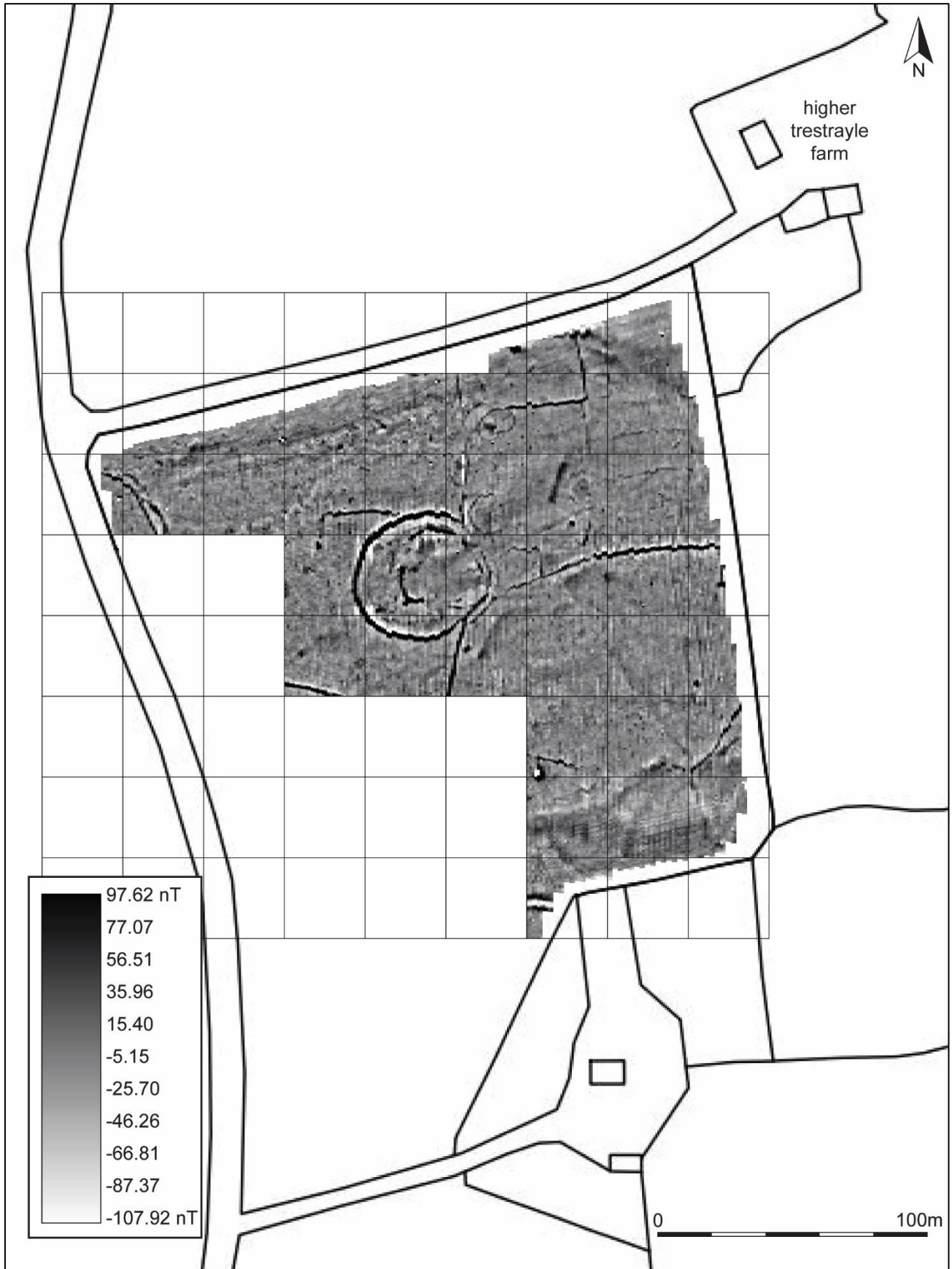


FIGURE 2: SHADE PLOT OF GRADIOMETER SURVEY DATA; MINIMAL PROCESSING.

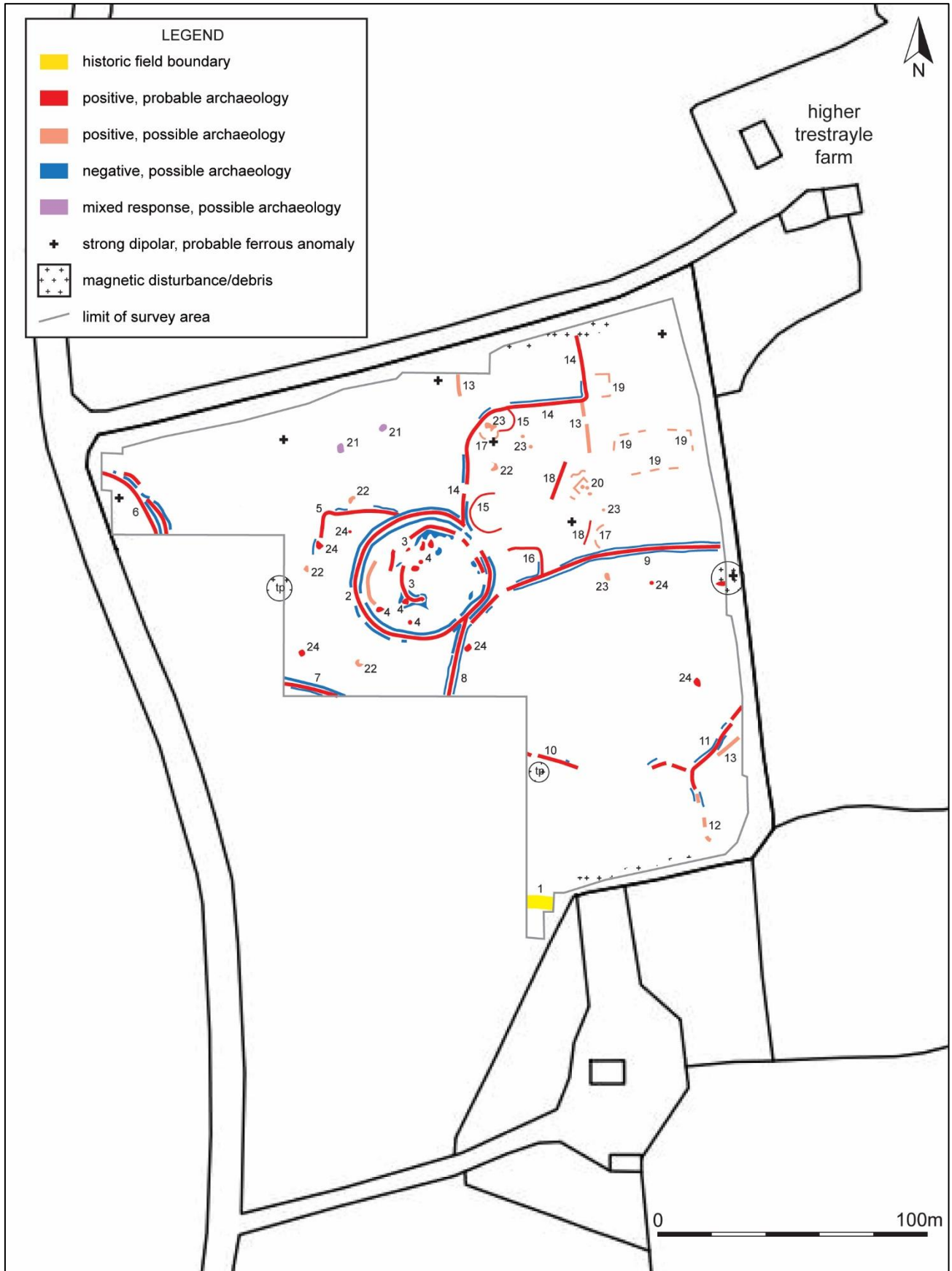


FIGURE 3: INTERPRETATION OF GRADIOMETER SURVEY DATA.

3.0 CONCLUSION

The site is located south-east of Probus, c.100m west of Higher Trestrayle Farm on a south-east facing slope to a tributary of the River Fal. On the south side of the site is Lower Trestrayle Farm, which was first recorded in 1278 as *Trestael*. Higher Trestrayle Farm was first recorded in 1510 as *Trestrayle Wartha*. The Cornwall Historic Landscape Character (HLC) describes the site as within 'Medieval Farmland'. Prehistoric field systems and Iron Age settlements/'rounds' are recorded near to the site in the wider landscape (MCO8041, MCO8042, MCO8210, MCO8302, MCO8745, MCO21184). A 'round' with a single ditch is visible as a cropmark, c.49m in diameter, on the site itself (MCO54991) and the site has been subject to a desk based assessment by Cornwall Archaeological Unit (Motley 2020).

The geophysical survey identified 24 groups of anomalies; and evidence of geological variation and agricultural ground disturbance, such as ploughing. The geophysical anomalies had relatively strong responses across the survey area. The anomaly groups identified included: a historical field boundary that was probably removed in the 1960's; a probable 'round' with internal features; nine probable boundary/enclosure ditches that equate to approximately six boundaries or fewer; five possible circular and rectangular enclosures/ring-ditches that may indicate structures or small annexes; approximately nine linear/recti-linear anomalies associated with possible ditches; an area of irregular activity including ovoid and possible recti-linear anomalies or a 'hollow'; and 17 discrete ovoid anomalies that may correspond to pits, tree-throws or natural features, two of which may represent possible burning events.

The responses of the undated 'boundaries' are distinct from the historical boundary response and probably represent an earlier field-system/enclosure of possible prehistoric date.

The 'round' equates to the identified cropmark of a single ditch curvilinear enclosure (MCO54992). It contains anomalies indicative of internal features and a possible entrance or causeway in its north-east segment. This 'entrance' would also lead to an area enclosed by possible boundary ditch anomalies; an area that contains the majority of other anomalies associated with possible settlement activity including potential partial ring-ditches and possible pits.

The basic explanation of this survey is that the site contains a probable multi-phased prehistoric, probable Iron Age to Romano-British settlement. At least two phases may be evident with the 'round' potentially later enclosed and abutted by larger enclosures, with possible structures both in- and outside the 'round'.

Any development of the site is likely to encounter a potentially significant buried archaeological resource. There are areas of less dense potential archaeology in the south-east and north-west areas of the site, although these still contain aspects of an undated field-system/enclosure; the middle and north-east of the site have a high potential to reveal numerous archaeological features and deposits. Smaller discrete features such as smaller pits and post-holes are unlikely to be identified in this survey and may occur across the site, which evidently has high archaeological potential.

Further archaeological mitigation, perhaps in the form of targeted evaluation trenching or open area excavation would validate and clarify the results of the geophysical survey and aid to confirm the presence or absence of prehistoric archaeology on the site.

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Kresen Kerow (The Cornwall Record Office)

Probus Tithe Apportionment, 1843

Probus Tithe Map, c.1843

APPENDIX 1: ADDITIONAL GRAPHICAL IMAGES OF THE GRADIOMETER SURVEY

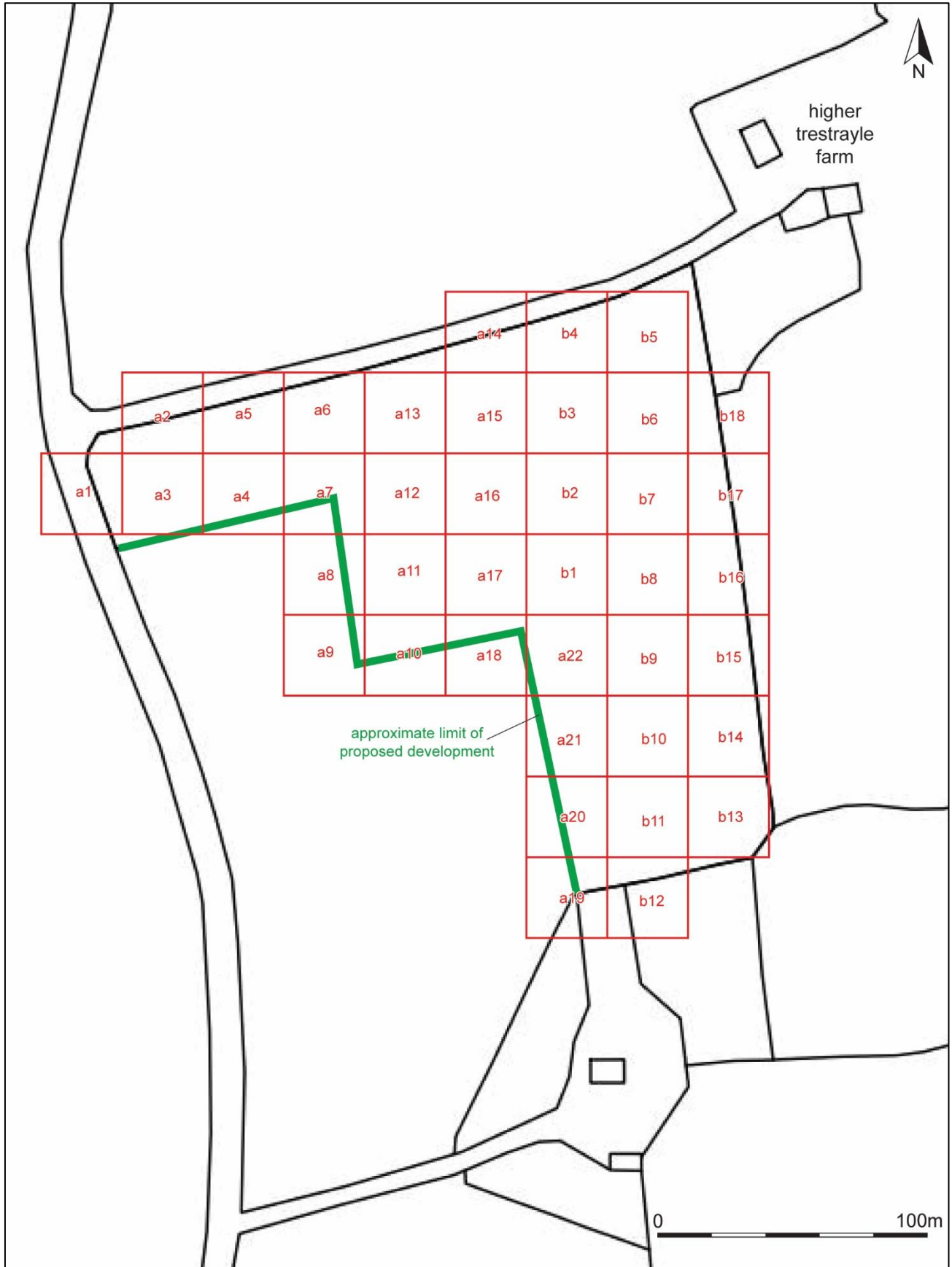


FIGURE 4: GEOPHYSICAL SURVEY GRID LOCATION AND NUMBERING.

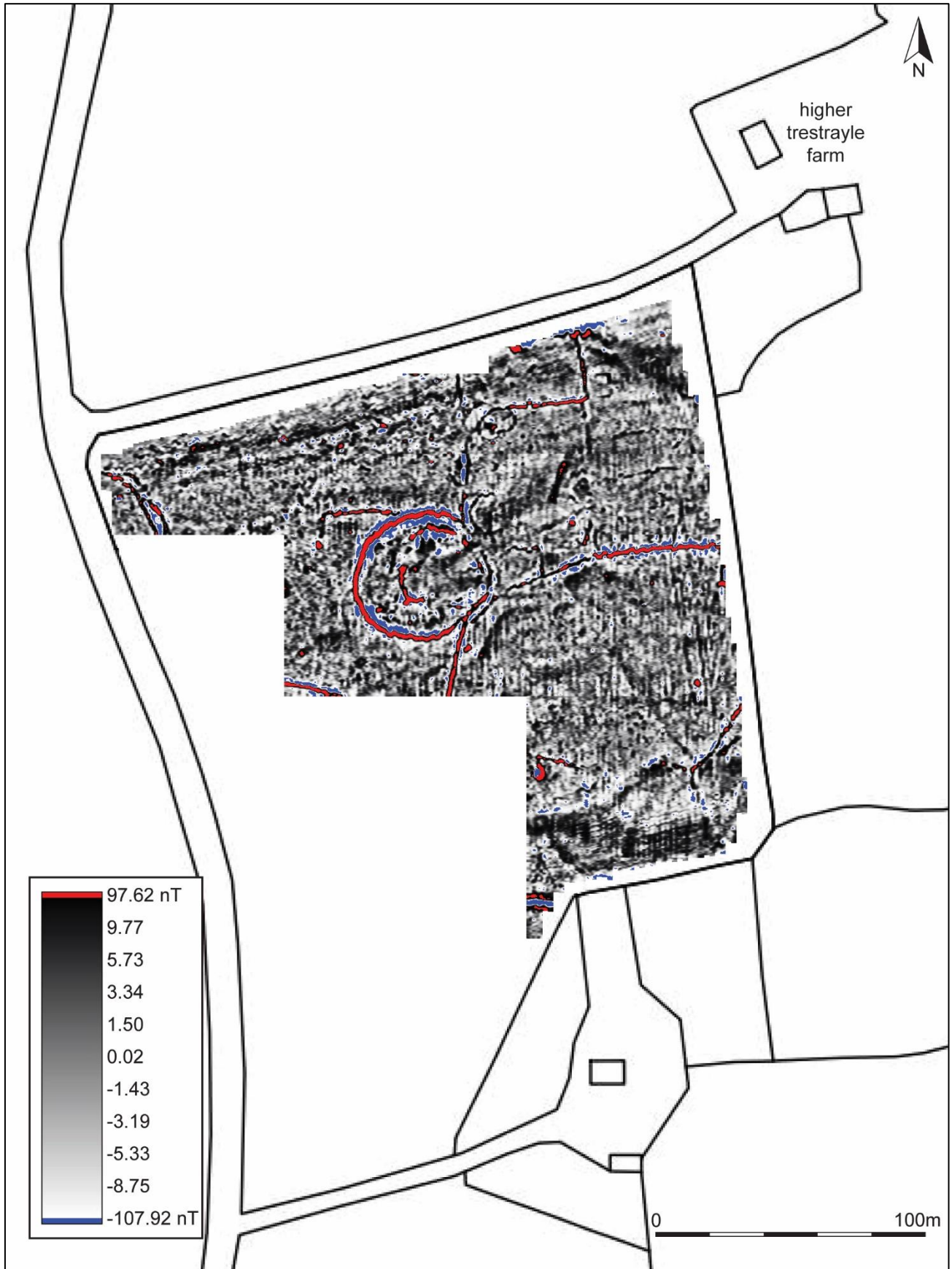


FIGURE 5: RED-GREY-BLUE SHADE PLOT OF GRADIOMETER SURVEY DATA; BAND WEIGHT EQUALISED; GRADIATED SHADING.

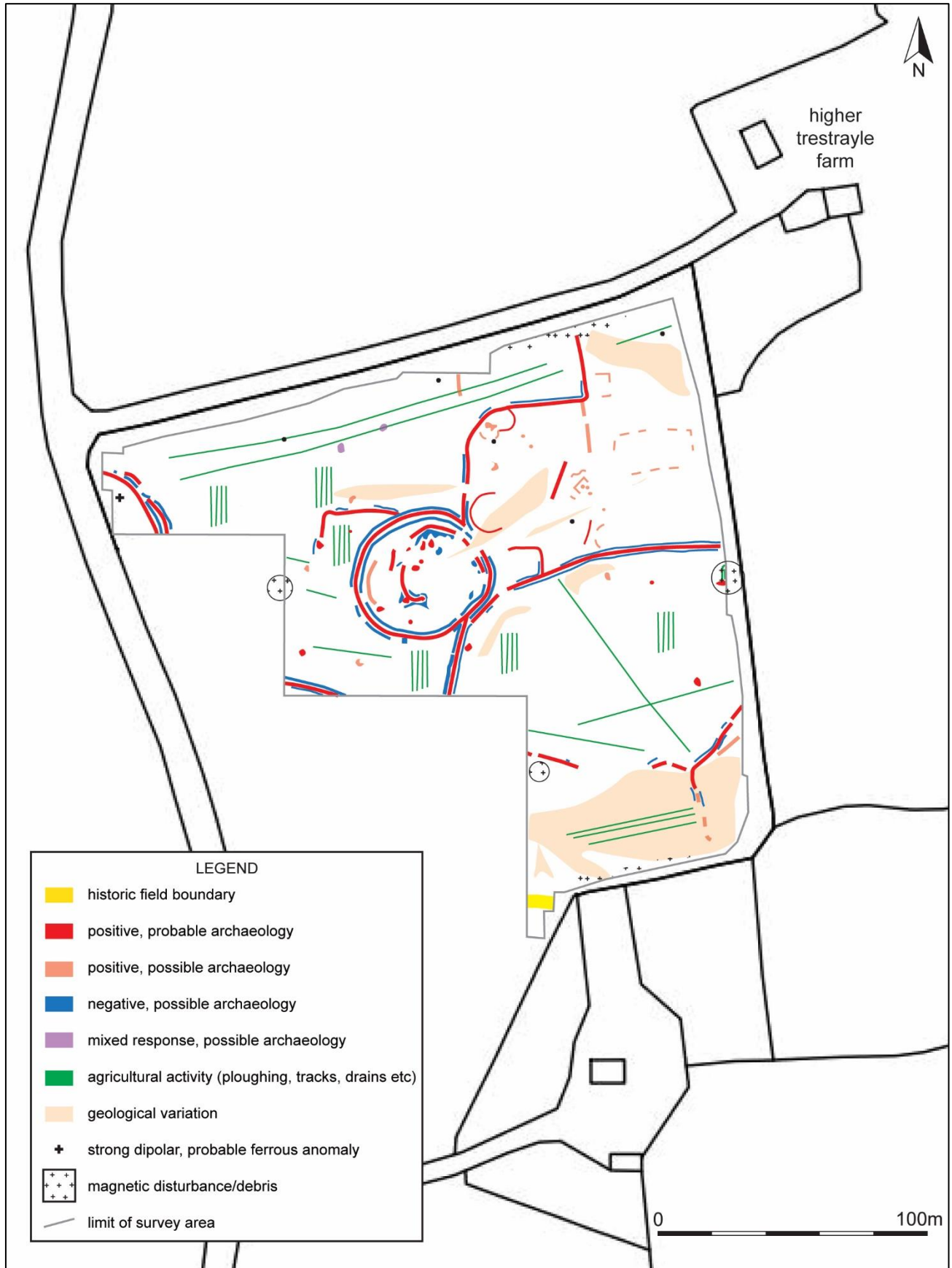


FIGURE 6: INTERPRETATION OF GRADIOMETER SURVEY DATA; INCLUDING NON-ARCHAEOLOGICAL ANOMALIES ASSOCIATED WITH GEOLOGY AND FARMING PRACTICES.

APPENDIX 2: SUPPORTING SOURCES

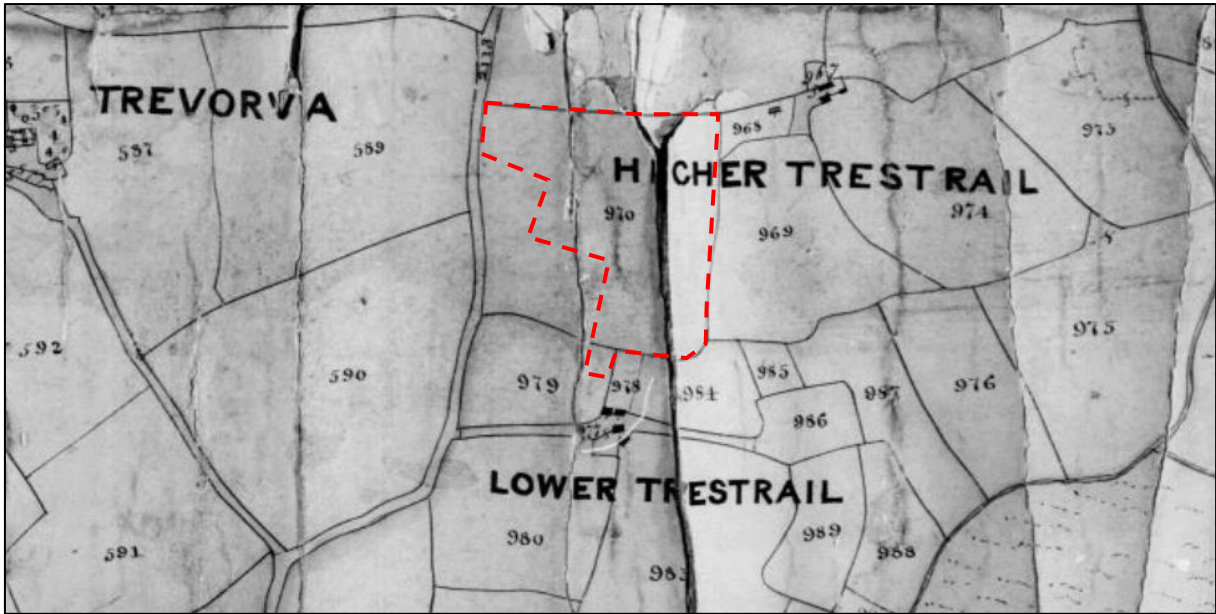


FIGURE 7: EXTRACT FROM THE PROBUS TITHE MAP, 1843; THE SITE IS OUTLINED IN RED (KK).

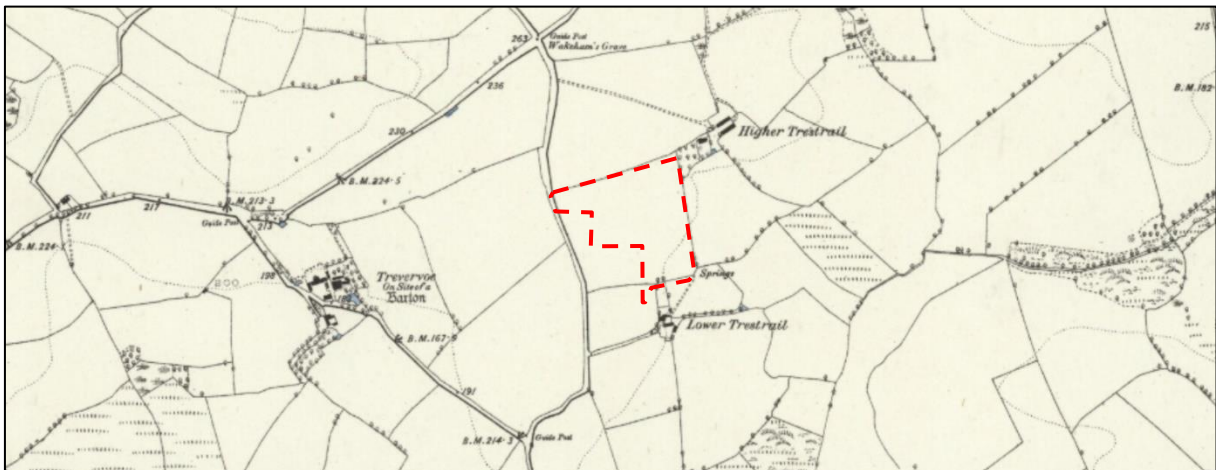


FIGURE 8: EXTRACT FROM THE ORDNANCE SURVEY 1ST EDITION MAP, 6 INCH SERIES, PUBLISHED 1888; THE SITE IS OUTLINED IN RED (NLS).



FIGURE 9: IMAGE DERIVED FROM LIDAR DATA; THE SITE IS OUTLINED IN RED (PROCESSED USING QGIS VER2.18.4, TERRAIN ANALYSIS/SLOPE, VERTICAL EXAGGERATION 3.0). DATA: CONTAINS FREELY AVAILABLE DATA SUPPLIED BY NATURAL ENVIRONMENT RESEARCH COUNCIL (CENTRE FOR ECOLOGY & HYDROLOGY; BRITISH ANTARCTIC SURVEY; BRITISH GEOLOGICAL SURVEY); ©NERC.

APPENDIX 3: SUPPORTING PHOTOGRAPHS



1. NORTH BOUNDARY AT THE SITE ENTRANCE; VIEWED FROM THE WEST (NO SCALE).



2. VIEW ALONG THE EAST HALF OF THE NORTH BOUNDARY FROM THE SITE ENTRANCE; VIEWED FROM THE WEST (NO SCALE).



3. SITE SHOT FROM THE SITE ENTRANCE IN THE NORTH BOUNDARY; VIEWED FROM THE NORTH-WEST (NO SCALE).



4. VIEW ALONG THE WEST HALF OF THE NORTH BOUNDARY FROM THE SITE ENTRANCE; VIEWED FROM THE EAST (NO SCALE).



5. VIEW ACROSS THE APPROXIMATE AREA OF THE 'ROUND' CROPMARK ON SITE; VIEWED FROM THE NORTH-WEST (NO SCALE).



6. SITE SHOT FROM THE NORTH-WEST CORNER OF THE SITE; VIEWED FROM THE WEST (NO SCALE).



7. SITE SHOT FROM THE NORTH-WEST CORNER OF THE SITE; VIEWED FROM THE NORTH-WEST (NO SCALE).



8. SITE SHOT FROM THE NORTH-WEST CORNER OF THE SITE; VIEWED FROM THE NORTH (NO SCALE).



9. VIEW OF THE LOWER WESTERN HALF OF THE FIELD; VIEWED FROM THE NORTH (NO SCALE).



10. VIEW TOWARDS LOWER TRESTRAYLE FARM AND THE SOUTH-EAST CORNER OF THE SITE; VIEWED FROM THE NORTH-WEST (NO SCALE).



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