

A30 Chiverton Cross to
Carland Cross Road
Improvement



**Archaeological Investigation Report:
Interpretation of Geophysical Survey**



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**A30 CHIVERTON CROSS TO
CARLAND CROSS IMPROVEMENT
CORNWALL**

**Report on Archaeogeophysical Surveys
2004**

A.D.H. Bartlett

Interpretation of Results

2005

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A30 CHIVERTON CROSS TO CARLAND CROSS IMPROVEMENT, CORNWALL

Report on Archaeogeophysical Surveys 2004

(with a summary of 2003 results)

1 Introduction

- 1.1 This report describes the results from a series of geophysical surveys on the route of the proposed A30 dualling scheme between Carland Cross and Chiverton Cross in Cornwall. The surveys were commissioned by Oxford Archaeology, and form part of the archaeological field evaluation for the project.
- 1.2 The 2004 surveys follow similar investigations carried out at four sites on the same route in 2003. The fieldwork in 2004 was carried out in two stages, starting with initial coverage of sample areas at each site in November. Some of the surveys which produced findings of potential archaeological interest were extended during a return visit in December, and work then was also carried out at sites which had not previously been accessible. Findings from both stages of the project are combined in this report.
- 1.3 Some of the 2004 sites are located close to sites investigated in 2003. Plots of the 2003 results have therefore been included for completeness in this report, and the findings are commented upon below. The 2003 results are described in full in two previous reports [1, 2]. An additional survey also carried out during the same visit in December 2004 on the Temple – Higher Carblake section of the A30 is reported on separately.

2 Site Description

- 2.1 The route lies in an area of Devonian Old Red Sandstone geology. Sites on this bedrock have provided favourable conditions for magnetometer surveying and the detection of archaeological features during previous surveys in Cornwall, and generally strong magnetic responses were again obtained during this project.
- 2.2 One unusual characteristic of the terrain is that soil magnetic susceptibility values sometimes vary abruptly from high to low between adjacent fields, or within a single field. Susceptibility readings are recorded as a routine supplement to magnetometer surveys because enhanced values can indicate the presence of former settlement or occupation sites, but the contrasts here are too extreme to be of wholly archaeological origin. The observed variations probably relate in part to the presence nearby of granite bedrock. At some of the sites there appears to be a correspondence between the magnetometer and susceptibility findings, but at others the lack of any relationship suggests a strong geological influence.
- 2.3 Numerous archaeological sites are known to be present in the vicinity of the route, either as extant monuments or as cropmarks. The areas for investigation by the survey were selected by Oxford Archaeology on the basis of archaeological interest or concern, or

because of proximity to known sites.

3 Survey Procedure

- 3.1 The fieldwork followed the same procedure as for the 2003 surveys. Magnetometer readings were recorded at 25 cm intervals along lines 1m apart using fluxgate magnetometers. The x-y (graphical) plots represent the initial data after correction for irregularities in line spacing caused by variations in the instrument zero setting. Additional 2D low pass filtering has been applied to the grey scale plots to reduce background noise levels.
- 3.2 Magnetic susceptibility readings were taken at 16.6m intervals using a Bartington MS2 meter and field sensor loop. Susceptibility measurements can provide a broad indication of areas in which archaeological debris, and particularly burnt material associated with past human activity, has become dispersed in the soil. They can provide useful supplementary evidence when interpreting a magnetometer survey, but are also affected, as noted above, by non-archaeological factors, including geology, past and present land use, and modern disturbance.
- 3.3 The survey grid was set out and located at the required national grid co-ordinates by means of a sub-1m accuracy GPS system.
- 3.4 Results from each survey area, or group of neighboring areas, are presented as a sequence of plots including a location plan with an interpretation, a grey scale plot, and a graphical (x-y trace) plot. The interpretation, which indicates potentially significant magnetic anomalies and areas of magnetic activity, is also shown superimposed on the x-y plots. Scales vary according to the areas to be fitted on each sheet, but the x-y plots do not reproduce well at small scales and so are drawn at a minimum of 1:1500. The susceptibility readings are displayed as plots of shaded squares of density proportional to the readings on the overall location plans (figures 1-3).

4 Results

Results are listed in order of site number from west to east.

4.1. Field SE of Chiverton Cross Junction - Survey Area 1 (Figures 4-6)

- 4.1.1. This area gave high susceptibility readings, and a strongly defined pattern of linear enclosure boundaries was detected. Other linear markings parallel to these boundaries are probably caused by cultivation. (Some of the more conspicuous examples are marked in green on the interpretation.) It appears from the regular plan of these features that the survey has detected a relatively recent system of enclosures and related cultivation effects.
- 4.1.2. Any future investigation at this site could perhaps include the groups of magnetic anomalies at A1 and A2 (as labelled on figure 4). A1 is located some 30m from a neighbouring barrow. The anomalies at A2 form an approximate arc, but is not clear from the survey plots whether this could represent part of a circular feature or structure.

4.2. Fields NW of Chiverton Cross - Survey Area 2 (Figures 4, 5, 7)

- 4.2.1. A section of the proposed route extending over parts of four fields was surveyed. Susceptibility values here are much lower than at area 1, but linear features and cultivation effects were again detected. There are also individual magnetic anomalies of a kind which could represent clusters of pit-like features, although they need not necessarily be archaeologically significant (e.g. B and C on figure 4). These could also perhaps be examined during any future work on the project.

4.3. Area NW of Four Barrows - Survey Area 3 (Figures 8-10)

- 4.3.1. This section of the route produced no definite findings. Susceptibility readings are low, and the magnetic anomalies as marked are weak, and not clearly distinct from the general background variation.

4.4 Area at Barrow OA110 - Survey Area 4 (Figures 11,12,13)

- 4.4.1. The barrow was detected as a negative anomaly (a light outline on the grey scale plot), which probably indicates a partially extant ditch, or perhaps the edge of a stony mound.
- 4.4.2. Some possible small pit-like magnetic anomalies are outlined nearby, but these are not necessarily archaeologically significant.

4.5 OA Sites 152-4 (2003 Survey)- Figures 11, 12, 14

- 4.5.1. This survey showed disturbances in the vicinity of a previously excavated barrow (D on figure 11), and various former tracks and boundaries. Other possible barrows were not detected, but they may have been of stone construction (which is not usually magnetically detectable), and thoroughly destroyed.
- 4.5.2. The field at the west of this survey gave high susceptibility values and strong cultivation effects.

4.6. Area east of OA200 - Survey Area 5 (Figures 11,15,16)

- 4.6.1. This site gave no positive findings. A group of magnetic anomalies (at E on figure 11) contains only weak features, and its significance is inconclusive. The field to the east could not be surveyed because of a potato crop.

4.7. Area near road from Little Tresawsen - Survey Area 6 (Figures 17-19)

- 4.7.1. The survey in the fields east of the road was extended following the initial findings. Susceptibility readings are also higher in this field than the one surveyed to the west. Groups of magnetic anomalies at F and G (figure 17) could be of archaeological interest, particularly if some of the linear markings near F represent part of an enclosure.

4.8. Area SE of enclosure OA191 Survey Area 7 (Figures 17, 20, 21)

4.8.1. This area gave mainly high susceptibility readings, and strong magnetic anomalies, some of the linear markings may relate to recent boundaries or cultivation, but others must be archaeologically significant. This is particularly the case for the group of circular and other features at H (figure 17). A feature detected at the edge of the survey at J also appears to be circular in plan, but is very strongly magnetic and difficult to categorise with confidence.

4.9 Area 8 – 11, and OA36 - (Figures 22-26)

4.9.1. Survey areas 8-11 provide partial coverage of the dense archaeological landscape identified around the surviving round at OA36 in 2003. Areas as indicated by red cross hatching on figure 22 were proposed for inclusion in the 2003 or 2004 surveys, but access was refused because of crops.

4.9.2. Magnetic and archaeological activity is particularly concentrated in area 9, which appears to represent a western continuation of the site at OA36 (figures 22-24). Additional enclosures and possible pit-like features are present in area 8.

4.9.3. The response is less intensive in areas 10 and 11 (figures 25 and 26), although there is a potentially significant cluster of magnetic anomalies at K (figure 22). Other findings may represent enclosures, boundaries, and cultivation.

4.10 Areas 12-13, + SAM 32901 and Warren's Barrow (2003 survey) - Figures 27-32

4.10.1. Findings in area 12 (figures 27-9) include some strongly defined ditches or boundaries, together with cultivation effects. The area surveyed alongside the Scheduled barrow in 2003 (SAM 32901) was unproductive apart from some linear markings. The Warren's Barrow site was also surveyed in 2003, and produced areas of strong magnetic disturbances, together with strongly varying susceptibility readings, which are likely to be of natural origin. Nearby clusters of magnetic anomalies are irregular in plan and not necessarily archaeologically significant (e.g. L, M)

4.10.2. Area 13 (figures 27, 31 and 32) gave high susceptibility readings and a strong response to linear cultivation effects. A group of magnetic anomalies at N may be a topographical rather than an archaeological effect.

5 Conclusions

The survey has responded strongly to features of probable archaeological significance at a number of sites including areas 7, 8, 9, and probably area 6. Findings as noted from the other survey areas cannot usually be confirmed to be of definite archaeological significance on the survey evidence alone, but could perhaps be tested further during future fieldwork. Findings in this category could include magnetic anomalies seen in areas 1, 2, 4 and 11.

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6 Interpretation of results

by Tim Allen

6.1. Introduction

- 6.1.1. This survey set out to examine a series of offline lengths of the proposed route improvement, as set out in the Mitigation Strategy (OA 2004a, Figures 4 - 6). The proposed lengths of the route were chosen for their archaeological potential, usually because of their proximity to upstanding archaeological monuments or cropmarks.
- 6.1.2. The survey was largely successful in surveying the proposed areas. A total of 18.6 ha was surveyed, of a proposed total of c. 21 ha. The remainder was not surveyed either because access was denied, or because of growing crops.
- 6.1.3. This report considers the results (Bartlett 2004) in relation to the other archaeological evidence, as documented in the DMRB Stage 2 Historic Landscape Character Assessment (OA 2004b) and Cultural Heritage Resource Assessment (OA 2004c), and offers an interpretation of the results and their significance. Following the geophysical survey report (Bartlett 2004) the surveys are considered from west to east, beginning with Chiverton Cross.

6.2. Survey area 1

- 6.2.1. This lay close to a group of three upstanding barrows east of the Chiverton Cross junction. The survey (Bartlett 2004, Figures 4-6) revealed a pattern of rectilinear boundaries that are plotted on the 1840 Tithe map, but were lost after that (OA 2004c, Figure 1). A group of discrete geophysical anomalies forming an arc at A1 lie close to an existing boundary, so could be recent, but could be associated with the barrow or a group of holes that formerly held revetting stones, or even grave cuts. A second group of anomalies forming an arc south-west of this at A2, close to the existing A30, may also be related to this barrow group, which could once have been a linear cemetery incorporating the barrows west of the roundabout (OA 2004c, Figure 1.1 OA 140-141).

6.3 Survey area 2

- 6.3.1. This covered a group of adjacent fields immediately north of the Chiverton Cross roundabout and west of the A3075. The survey revealed nothing to speak of in the northernmost field, and this is not discussed further. Within the remaining three fields there is a linear arrangement of anomalies on a north-north-east alignment in the

southern field, with scattered anomalies on the west side (Bartlett 2004, Figure 4 B). The middle and northern fields each contained a linear ditched boundary, and there is also a group of anomalies without any clear pattern south of the boundary in the northern field (Bartlett 2004, Figure 4 C).

- 6.3.2 No linear boundaries are known from the historic maps within these fields, so these must predate the early 19th century. All three linears are on similar alignments to the existing field boundaries around them, and so may well belong with the pattern of smaller fields visible on surviving 1695 estate maps immediately to the west. The southernmost linear is interrupted, and of different character to the others, and so potentially of different date.
- 6.3.3 The groups of anomalies at B and C do not form any patterns that can be interpreted with confidence. It is possible that those at B are associated with the barrow group to the west (OA 2004c, Figure 1.1 OA 109, OA 140-143), possibly indicating the ploughed-out remains of another barrow in the group. There is no trace in the middle field of the earthwork enclosure recorded in the Cornwall SMR (OA 2004c, Figure 7 OA 212), nor can the scattered anomalies at C be equated with the half of an enclosure apparently present in the northern field (OA 2004c, Figure 7 OA 211).

6.4 Survey area 3

- 6.4.1 This area lay some 100 m from the Four Burrows group of extant barrows. No historic boundaries were expected in this area, and the survey revealed nothing significant.

6.5 Survey area 4

- 6.5.1 This area included the site of a scheduled barrow (OA 2004c, Figure 2, OA 110). The survey showed the scheduled barrow as a penannular line with a gap on the west side. This was interpreted by Bartlett as possibly indicating an extant ditch or a stone edge or kerb to the mound. No extant ditch exists, and it is therefore likely that the negative anomaly represents a stone kerb. This makes it likely that the scheduled monument is indeed a barrow rather than a quarry spoil heap.
- 6.5.2 The anomalies found west and south-west of the barrow are difficult to interpret. If archaeological, many lie close to the existing field boundary, and may represent fairly recent disturbances.

6.6 Survey area 152-4

- 6.6.1 This area was surveyed and reported upon in 2003 (Bartlett 2003a), and is included here for completeness sake. The survey was intended to locate the Great Carvinack Barrow (OA 152), completely excavated in 1958, to look for associated burials around it, and to test map and cropmark evidence that had suggested two further barrows in this area (OA 2004c, Figure 8, OA 153 and 154).
- 6.6.2 No ditch was found when the Great Carvinack barrow was excavated, and the site of this barrow is represented in the geophysical survey only by a cluster of discrete anomalies that do not form any clear pattern. Several linear ditches were found, one continuing north-west from an existing boundary south of the survey area, and another fainter ditch running west-east roughly parallel with the existing A30. Both of these are field boundaries marked on the 1840 Tithe map, but are lost thereafter (OA 2004b, Figure 2). Two short ditches parallel to the west-east boundary were found in that part of the western field that was surveyed. These appear to represent further buried boundaries belonging to the 1840 field pattern, although particularly significant ploughing marks cannot be ruled out entirely. Two further linear anomalies at right

angles on a different alignment appear to represent another unrecorded phase of field boundary.

6.7 Survey area 5

- 6.7.1 This area was surveyed because of a group of possible house platforms noted in the adjacent field to the south, and because a barrow was suspected not far to the south-west (OA 2004c, Figure 3, OA 591 and 199 respectively). Only the western part of this area was surveyed. The survey showed a cluster of weak anomalies that could represent a linear boundary on a west-south-west to east-north-east alignment. No former boundaries are shown within this field from the map regression (OA 2004b, Figure 3), but since the linear anomalies are parallel to the existing A30, it is probable that these relate to a lost boundary of post-medieval date.

6.8 Survey area 6

- 6.8.1 This area was surveyed because of the proximity of one or more barrows (OA 2004c, Figure 3, OA 159 and OA 203) to the south-east and a leper house at Little Tresawsen to the north-west (OA 161). The survey covered one field and part of a second south-west of the road, and two fields north-west of it.
- 6.8.2 Nothing was found in the fields south-west of the road apart from a possible ditch right next to the road, but in the fields to the north-west there were a variety of anomalies. One linear boundary ran south-north diagonally across the field, then turned at an obtuse angle to run east-north-east. This boundary faded before the edge of the field, but may have split into two, one running north-east, the other east, to meet a strong linear anomaly parallel to the existing field boundary. The south-north boundary intersected with what appears to be a curving east-west length of ditch and a cluster of discrete anomalies (Bartlett 2004, Figure 17 F). No clear continuation of the linear boundaries was seen in the last field to be surveyed, but there was another group of anomalies (Bartlett 2004, Figure 17 G), tentatively interpreted as an arc.
- 6.8.3 No former field boundaries are known from historic maps within the areas surveyed, so the anomalies must predate the 19th century. The east-north-east boundary is approximately parallel to the A30, and appears to belong to an earlier phase of field boundary, as it stops at a boundary adjacent and parallel to the existing field boundary. The south-north arm of this linear boundary is heading straight for the surviving barrow (OA 159) to the south, and is approximately in line with the lane running down to the A30 through Little Tresawsen from the north. These linear boundaries are therefore likely to be part of an earlier field system of post-medieval (or just possibly medieval) date.
- 6.8.4 The curving gully and other anomalies at F and G are less easy to interpret, and may represent either features associated with the earlier field/enclosure system, or, since the curving gully is bisected by the north-south boundary, earlier activity.

6.9 Survey area 7

- 6.9.1 This area was surveyed because of the proximity of enclosure OA 191 of probable late prehistoric or Roman date to the north-west, and associated cropmarks crossing the line of the route (OA 2004c, Figures 4 and 9).
- 6.9.2 Three fields were surveyed. Two cropmark features were confirmed in the southernmost field, a curving linear ditched boundary and a discrete circular anomaly giving a very strong reading (OA 2004c, Figure 9; Bartlett 2004, Figure 17 J). The survey also identified a pair of narrow ditches running up to the circular feature from the south-east,

possibly superseding another ditch on a more easterly alignment. Between the curving ditch and the circular feature was another linear ditch on a north-west alignment, with a ditch at right angles close to the existing A30.

- 6.9.3 In the second field a small circular enclosure within a larger, possibly D-shaped enclosure is almost certainly of prehistoric or Roman date. A ditch is visible running south-west from this towards enclosure OA 191. Curving ditches in the south corner of this field may represent another prehistoric enclosure, and in the third field there are further curving features and part of another small circular enclosure adjacent to the current A30 that probably represent more of this settlement (Bartlett 2004, Figure 20).
- 6.9.4 Former post-medieval field boundaries were also detected by the survey in the third field, including a former division of this field that was marked on the 1840 Tithe map (OA 2004b, Figure 3), a parallel ditch and an enclosure at right angles to the former division next to the existing A30. Part of a similar enclosure is also visible at the north end of this field, possibly indicating a pair of former landholdings next to the road. The ditches at right angles in the southern field could possibly also belong to this system, though they could be earlier.

6.10 Survey areas 8, 9 and OA 36

- 6.10.1 Surveys in areas 8 and 9 were undertaken to establish the likely extent of prehistoric activity to the west, south-west and north of a known later prehistoric 'round' (OA 2004c, Figure 11). An initial survey of an area around OA 36 had already been carried out in 2003 to assist in determining the preferred option for the offline route (Bartlett-Clark 2003a), and had revealed a buried landscape of ditched enclosures, fields and associated features of several phases, overlain by medieval and later field boundaries (OA 2003).
- 6.10.2 Regrettably, access to the area immediately west and north of the 2003 survey was denied. It was however possible to survey a long strip starting some 120 m further west, extending through three fields as far as the Henvver/Trevalso crossroads with the A30. The survey revealed linear ditches of several phases.
- 6.10.3 The latest of these was two parallel boundaries on a north-west to south-east alignment some 50 m apart, giving very strong readings. These are on much the same alignment as the post-medieval field boundaries located on the original survey around OA 36 (Bartlett 2003a, Figures 1-3), and are marked on the 1840 Tithe map, so belong to the same system (OA 2004b, Figure 5). Because of their curving alignment these may have originated in a medieval system of ridge-and-furrow cultivation (see also OA 2003, 5-6).
- 6.10.4 Running down area 9 from north-east to south-west were three roughly parallel ditches, two only 10 m apart probably forming a trackway that widened towards the south-west into a curving enclosure. Similar curving ditches within area 8 probably belong to the same system. These ditches are certainly not contemporary with the post-medieval boundaries, and are likely to be prehistoric, possibly contemporary with enclosure OA 36.
- 6.10.5 On an alignment similar to that of the post-medieval boundaries, but more north-north-west, were two ditches only c. 20 m apart at the east end of area 9, and two more at the south-west end of area 9. These do not show on any historic maps (OA 2004b, Figure 5), but could conceivably be medieval furrows, though they are more likely to belong with the system of enclosures on a north-north-west alignment around (and possibly originating earlier than) enclosure OA 36 (see Bartlett 2003a; OA 2003, 5-6).

- 6.10.6 Overall the survey has demonstrated that the buried landscape found immediately around enclosure OA 36 extends for at least 500 m to the south-west, and it can be assumed that the unsurveyed block between area 9 and the original survey around OA 36 also contains buried archaeology of several periods. It is however recommended that this area be surveyed when access becomes possible, as the geophysical survey results are of good quality, and will assist in preparing an appropriate and cost-effective research strategy for mitigation.
- 6.10.7 Since the archaeological features are still evident at the Trevalso/Hensor crossroads with the existing A30, it is imperative that the remainder of area 8 be surveyed when access becomes possible, in order to determine the limits of the archaeology and thus the cost implications for the scheme.
- 6.10.8 In the light of the already extensive character of the buried landscape in this area, options both north and south of OA 36 may still need to be considered to reduce impacts and costs. Given the responsive nature of the geology, survey of a larger area coupled with some test-trenching should assist in determining whether impacts upon the buried archaeology can be significantly reduced either by changing route option or by slight modification to the line along this stretch.

6.11 Survey areas 10 and 11

- 6.11.1 Surveys in areas 10 and 11 were undertaken to establish the likely eastern extent of prehistoric activity in the vicinity of a known later prehistoric 'round' (OA 2004c, Figure 11). An initial survey of an area around OA 36 had already been carried out in 2003 to assist in determining the preferred option for the offline route (Bartlett-Clark 2003a), and had revealed a buried landscape of ditched enclosures, fields and associated features of several phases, overlain by medieval and later field boundaries (OA 2003). A cropmark feature (OA 169) had also been recorded only 50 m north of this stretch of the route (OA 2004c, Figure 11), and it was hoped to determine whether archaeology associated with this would extend into the line of the proposed route.
- 6.11.2 The northern half of the preferred route crosses an area of ponds and boggy wet ground in area 10, so no geophysical survey was attempted here. The southern half of the route was however surveyed, as was the full width of area 11. The background response in these areas was noisier than further west, making interpretation of the survey results less clear.
- 6.11.3 One very clear ditch on a north-west to south-east alignment in area 10, and another halfway along area 11, are parallel to the post-medieval field boundaries around OA 36 further west, and are marked on the 1840 Tithe map, though not thereafter (OA 2004b, Figure 5). The map shows that the former boundary in area 10, like those further west, was slightly curved, and may therefore have originated as part of a system of medieval furlongs. Another very strong response was obtained from a ditch running north-east at an angle from this, which does not appear to continue beyond the existing field boundary at right angles to it between areas 10 and 11. This is not marked on the historic maps, but is also likely to be a post-medieval boundary. It is however also at right angles to a ditch east of enclosure OA 36, possibly indicating that there was at some time another system of enclosures on a different alignment.
- 6.11.4 A number of short lengths of curving ditch were also found at either end of both areas 10 and 11, and with a particular concentration towards the east end of area 11 (Bartlett 2004, Figure 22 K and Figure 25). Although less clear than those further west, these probable features suggest that the buried landscape may extend for nearly five hundred metres east of OA 36. No clear association with OA 169 was established, although slightly more probable features were identified on the northern side of area 11 closest to

this possible enclosure.

- 6.11.5 The width surveyed in areas 10 and 11 was limited, making it more difficult to interpret the fainter responses, and it is recommended that a wider area be surveyed either side of the preferred route in an attempt to clarify the survey. Whether the survey results genuinely reflect sparser archaeology, or worse survival of buried features originally similar to those further west, is unclear, and would need to be clarified by trial trenching.

6.12 Survey area 12

- 6.12.1 This survey was undertaken to investigate cropmarks apparently associated with a rectangular enclosure just south of the proposed route (OA 2004c, Figure 10 OA 42), and a probable trackway continuing north from the extant track from Ennis Farm.
- 6.12.2 The survey was hindered by a major pipe that runs alongside the A30 and just south of the road in this area. Because of this no trace of the cropmark ditches was found. A narrow strip was initially surveyed, and due to the alignment of the pipe the decision was taken to widen the survey only over the eastern part of the strip. This revealed several ditches on a north-north-west alignment, some of which may be those indicated as a trackway (OA 2004c, Figure 10), although the ditches revealed by the geophysical survey are not heading towards the existing track from Ennis Farm, but further to the east. No boundaries are shown on historic maps in this area (OA 2004b, Figure 6). Alternatively these could be cultivation marks from ridge and furrow. Another short length of possible ditch was found on a north-south alignment east of the most prominent ditch, but this is difficult to interpret.

6.13 Survey around SAM 32901

- 6.13.1 This survey was carried out in 2003 to investigate the environs of a scheduled barrow (OA 2, SAM 32901), and has already been reported upon (Bartlett 2003b). The survey was hindered by the same pipe that runs through area 12, and also by another pipe running west from a buried water tank east of the barrow.
- 6.13.2 Despite these interferences, the survey revealed two possible ditches on an east-north-east alignment, plus discrete anomalies on the very west and east edges of the survey area. No former field boundaries are indicated by historic maps within the survey area (OA 2004b, Figure 6), so if genuine, these ditches probably predate the 19th century.

6.14 Survey of area surrounding Warren's Barrow and area 13

- 6.14.1 A survey of the area around Warren's Barrow was carried out in 2003 to investigate the surroundings of the barrow for other buried barrows or associated features including burials (Bartlett 2003). This survey was hampered by vegetation and by a modern service running across the middle of the area, but revealed a linear ditch running in an east-south-east direction towards the barrow from the west, with two groups of irregular anomalies to the south (Bartlett 2004, Figure 27 L and M). These were interpreted as 'not necessarily archaeological', though it remains possible that these are buried features associated with the barrow group.
- 6.14.2 Survey area 13 was intended to investigate the area north of the Carland Cross junction, as the SMR had identified two possible barrow sites in the adjacent fields to the north (OA 2004c, Figure 6). The western part of the survey was crossed by two modern pipes. Cultivation furrows were visible across almost the entire area, and the only clear feature was a probable field boundary on a north-west to south-east alignment. No former field boundaries are indicated by historic maps within the survey area (OA 2004b, Figure 6),

so this ditch predates the 19th century, but is likely to be of post-medieval date. A faint linear impression is visible towards the east end of the survey on an east-south-east alignment, but its origin is unclear.

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Appendix 1

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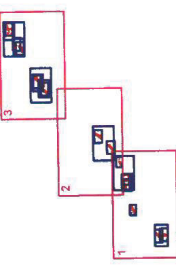
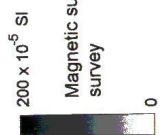
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49000N

177000E



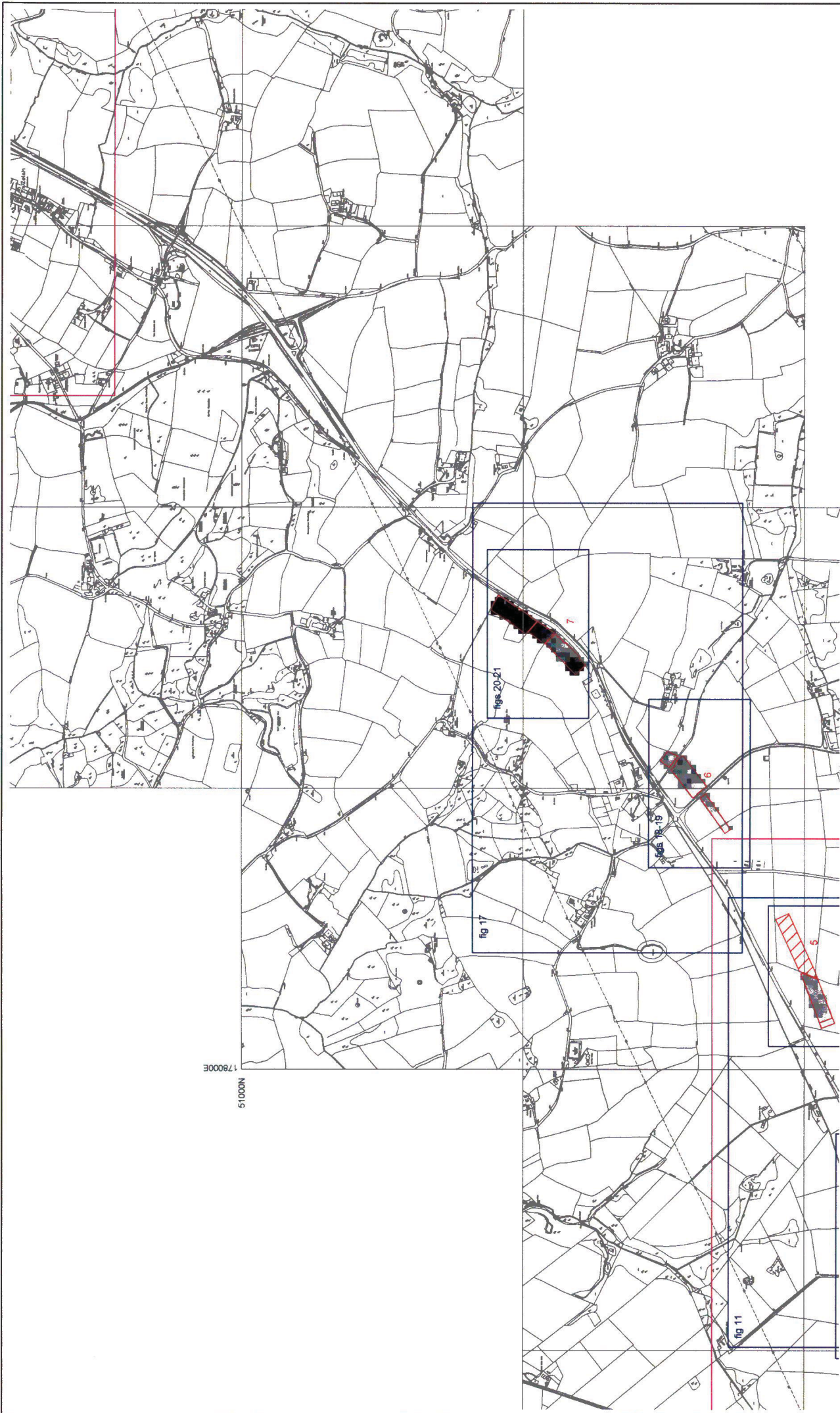
Location of Magnetometer Surveys
(with magnetic susceptibility readings)



-  Area proposed for magnetometer survey
-  Areas not surveyed

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Figure 1:
Survey Location

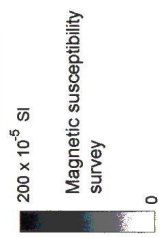
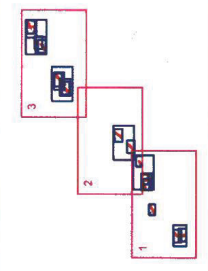


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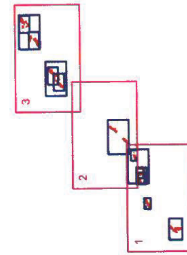
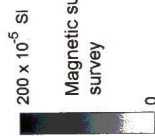
Figure 2:
Survey Location

Location of Magnetometer Surveys
(with magnetic susceptibility readings)

- Area proposed for magnetometer survey
- Areas not surveyed



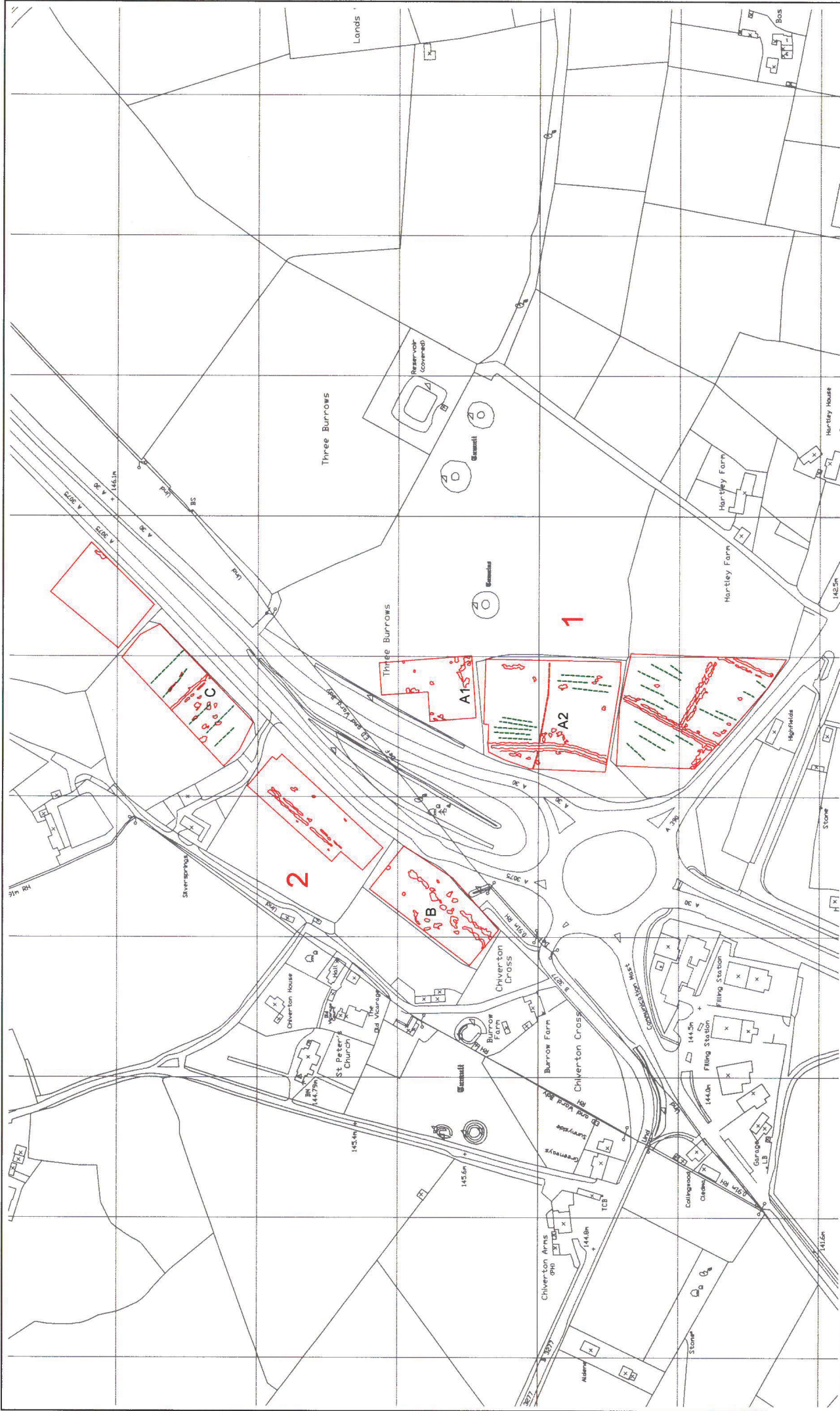
54000N
181000E



Location of Magnetometer Surveys
(with magnetic susceptibility readings)





- Area proposed for magnetometer survey
- Areas not surveyed



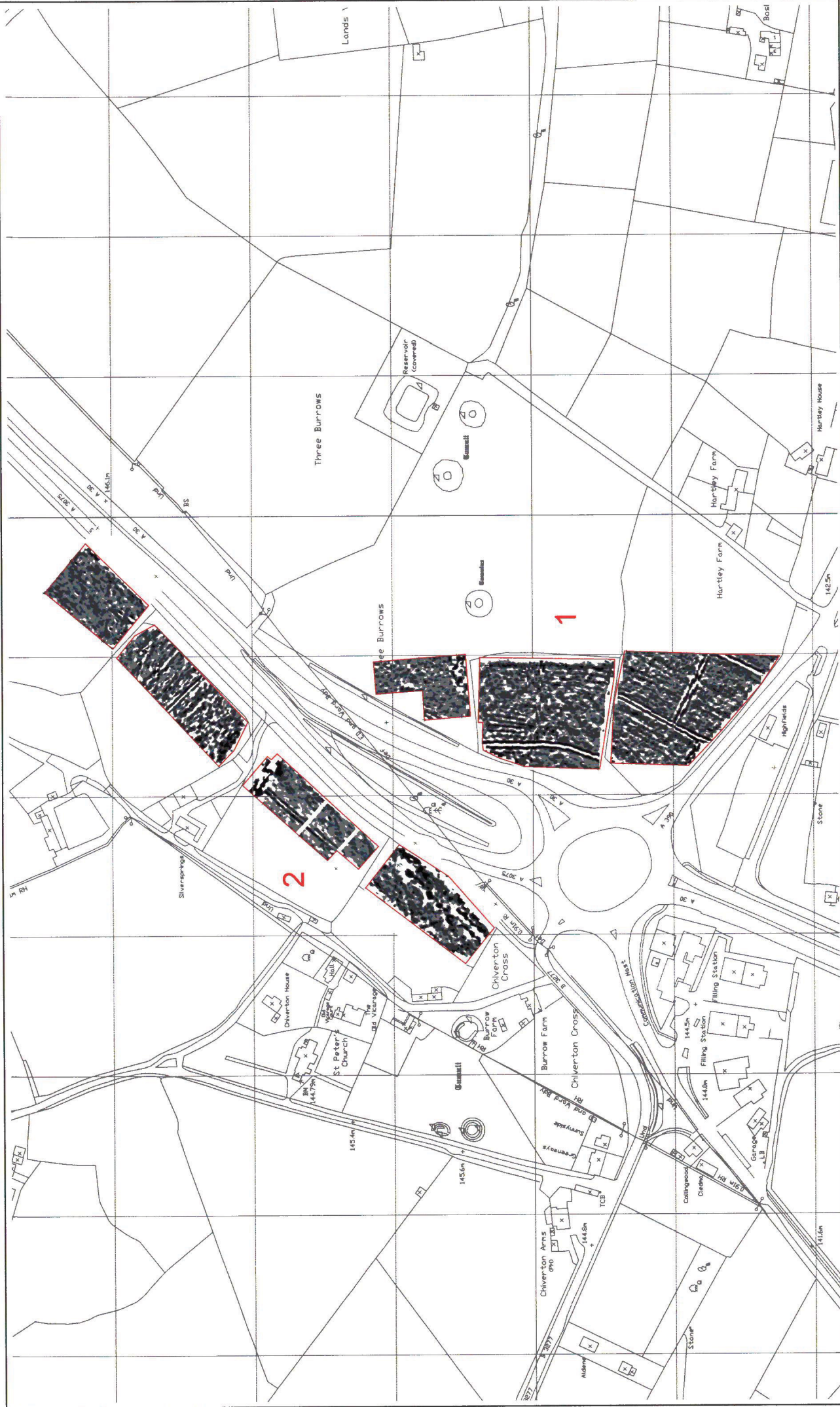


Area proposed for
magnetometer survey

**Magnetometer Surveys
Sites 1-2: Interpretation**

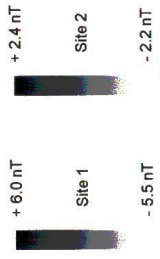
-  magnetic anomalies
-  magnetic anomalies (cultivation ?)
-  pipe ?
-  magnetically disturbed area

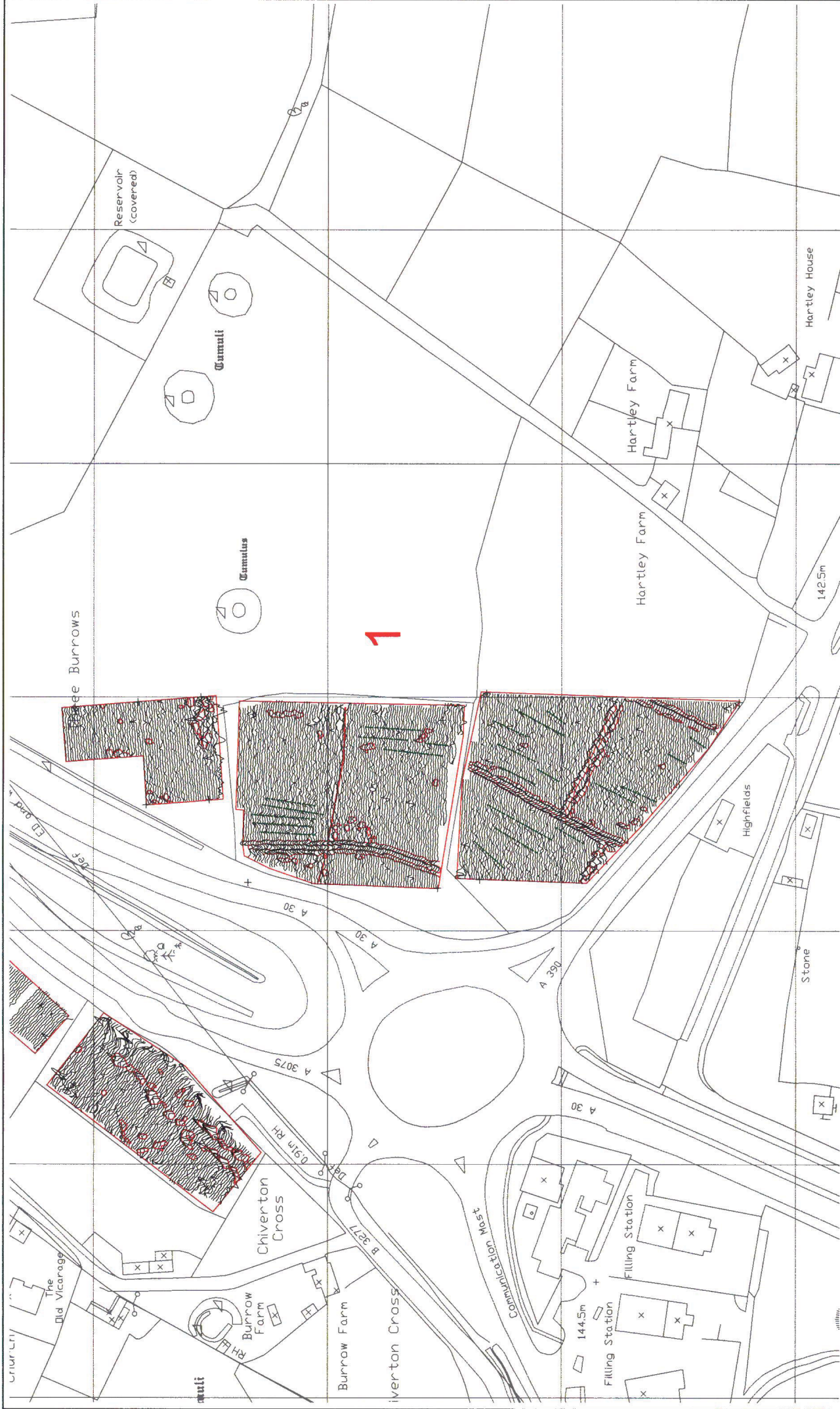








Magnetometer Surveys: Sites 1-2
(grey scale plot)


Area proposed for magnetometer survey





Magnetometer Survey: Site 1
(with interpretation)

-  magnetic anomalies
-  magnetic anomalies (cultivation ?)
-  pipe ?
-  magnetically disturbed area

 Area proposed for magnetometer survey

Scale: 1:1500
0 100m

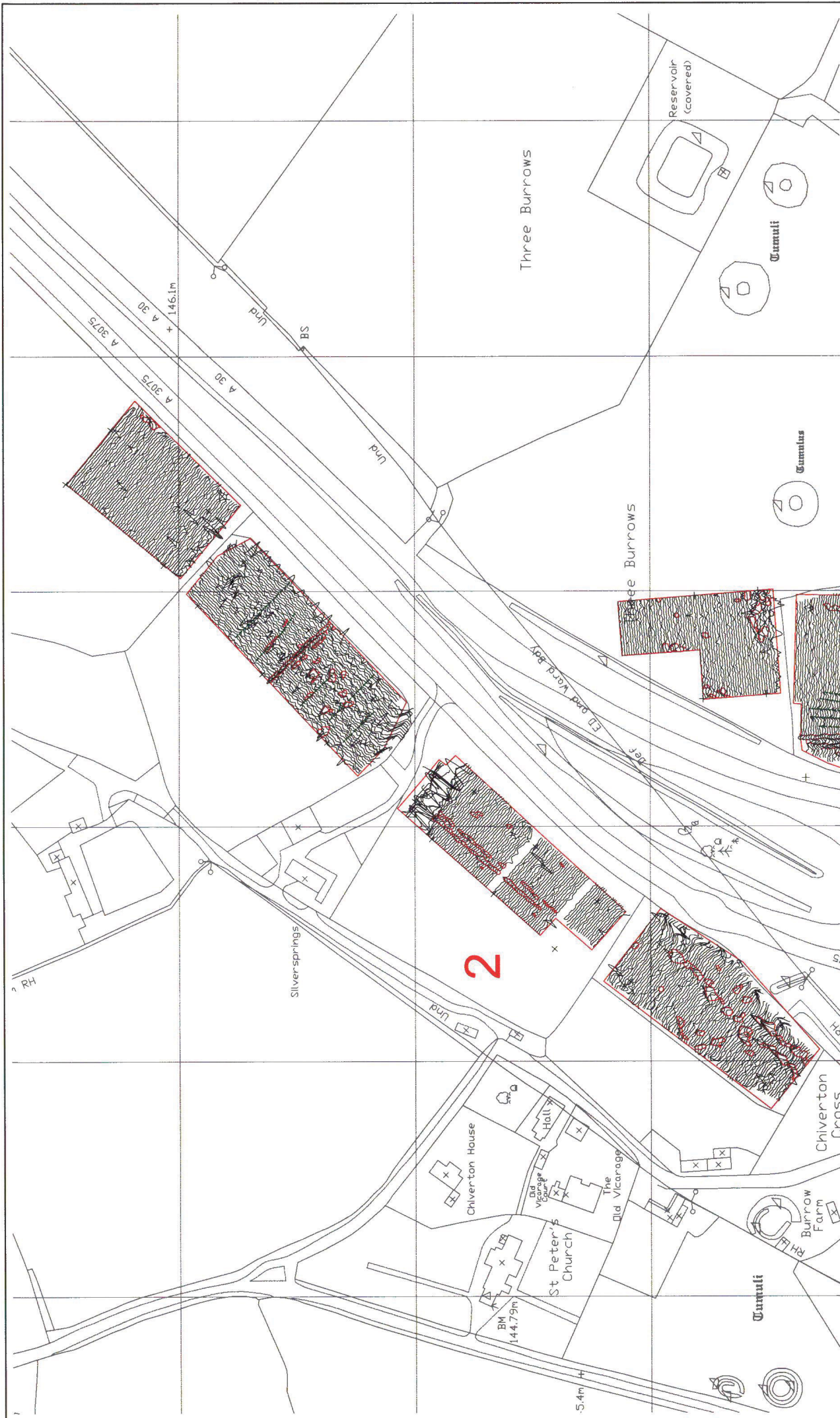
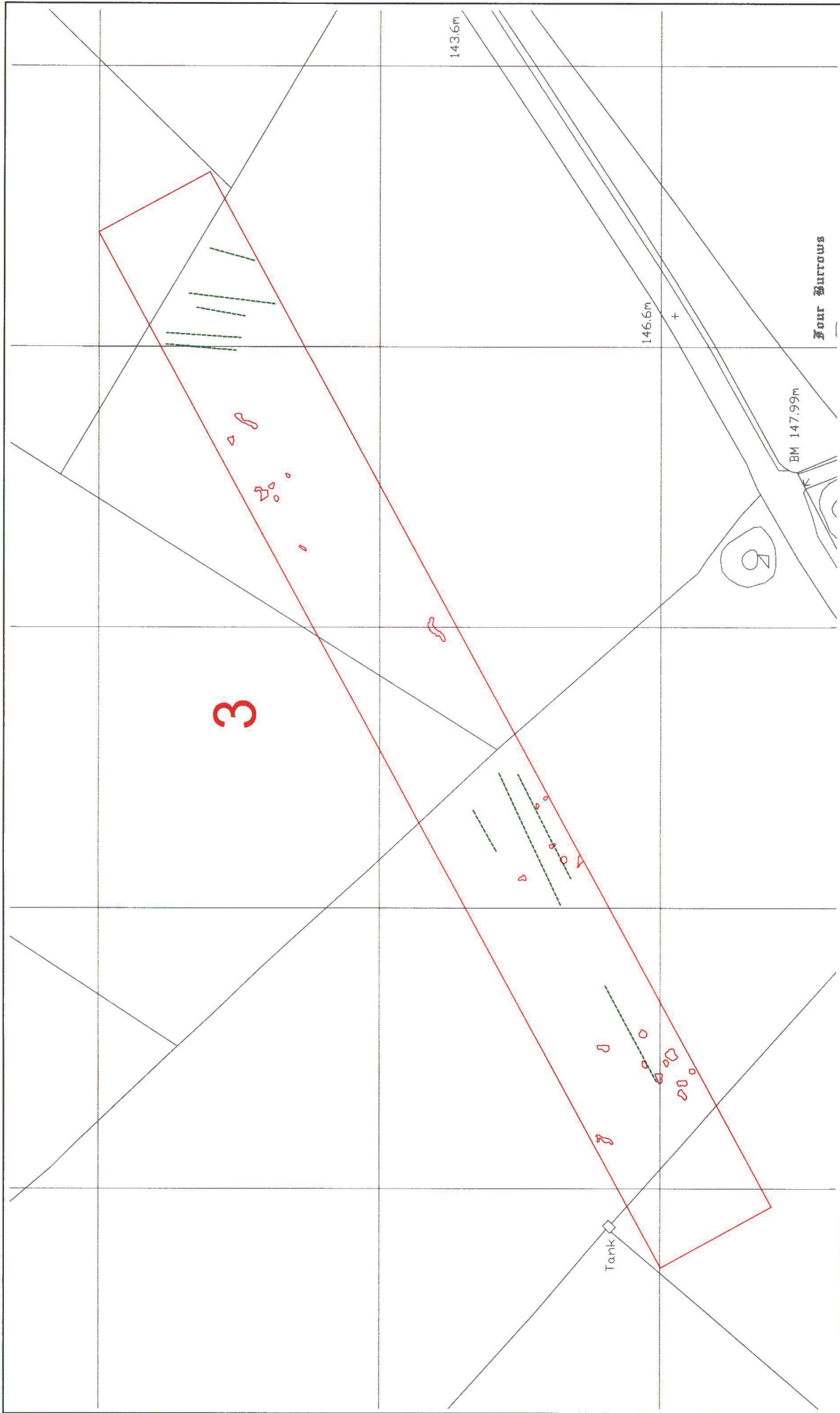


Figure 7: Site 2

Magnetometer Survey: Site 2
 (with interpretation)

- magnetic anomalies
- magnetic anomalies (cultivation?)
- pipe ?
- magnetically disturbed area
- Area proposed for magnetometer survey

Scale: 1:1500
 0 100m

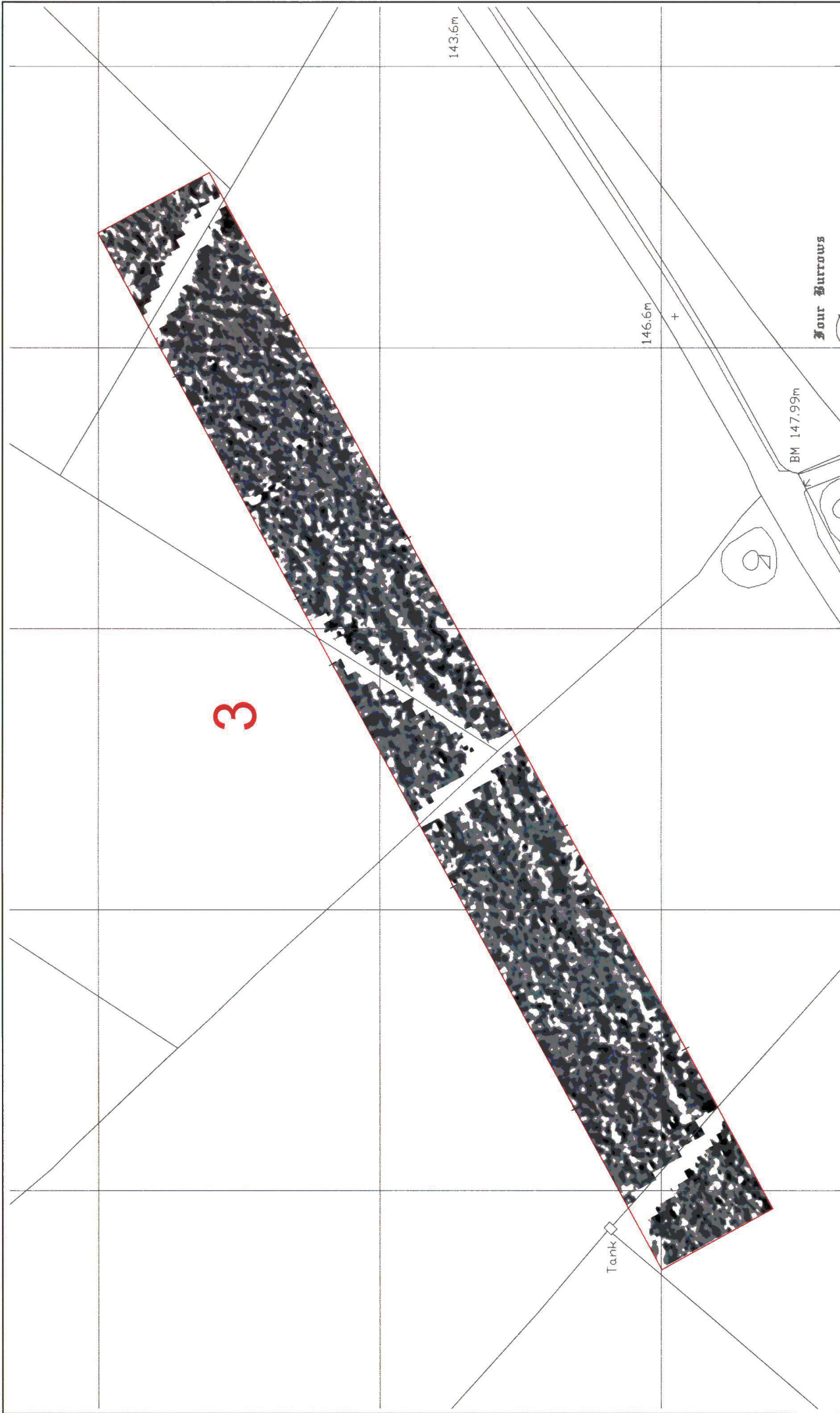


**Magnetometer Surveys
Site 3: Interpretation**

-  magnetic anomalies
-  magnetic anomalies (cultivation ?)
-  pipe ?
-  magnetically disturbed area

 Area proposed for magnetometer survey

1:1250
0 50m

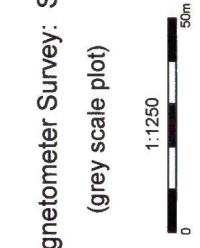


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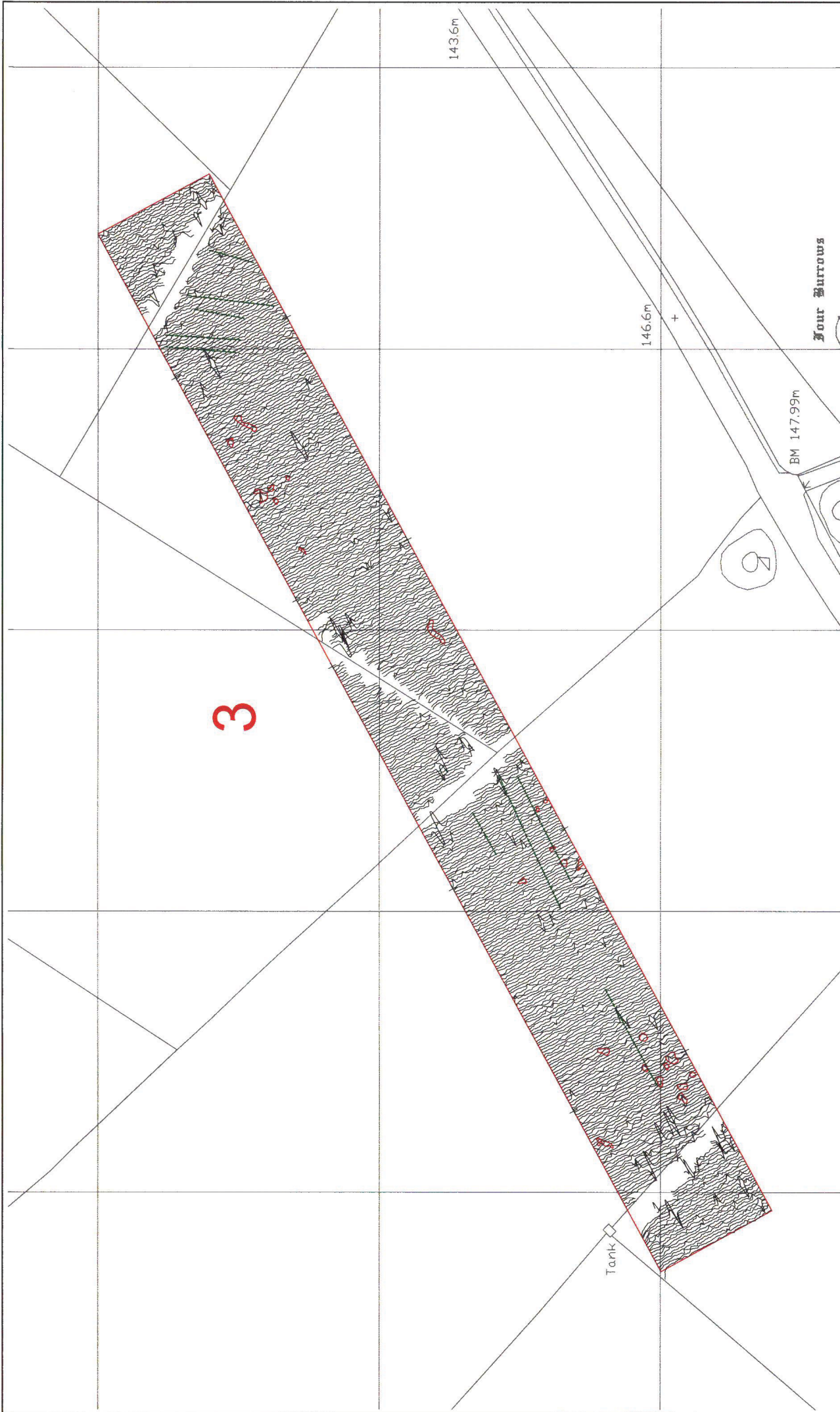
Figure 9: Site 3

Magnetometer Survey: Site 3
(grey scale plot)

Area proposed for
magnetometer survey



+ 2.4 nT
Site 2
- 2.2 nT



Magnetometer Survey: Site 3
(with interpretation)

- magnetic anomalies
- magnetic anomalies (cultivation ?)
- pipe ?
- magnetically disturbed area
- Area proposed for magnetometer survey

1:1250



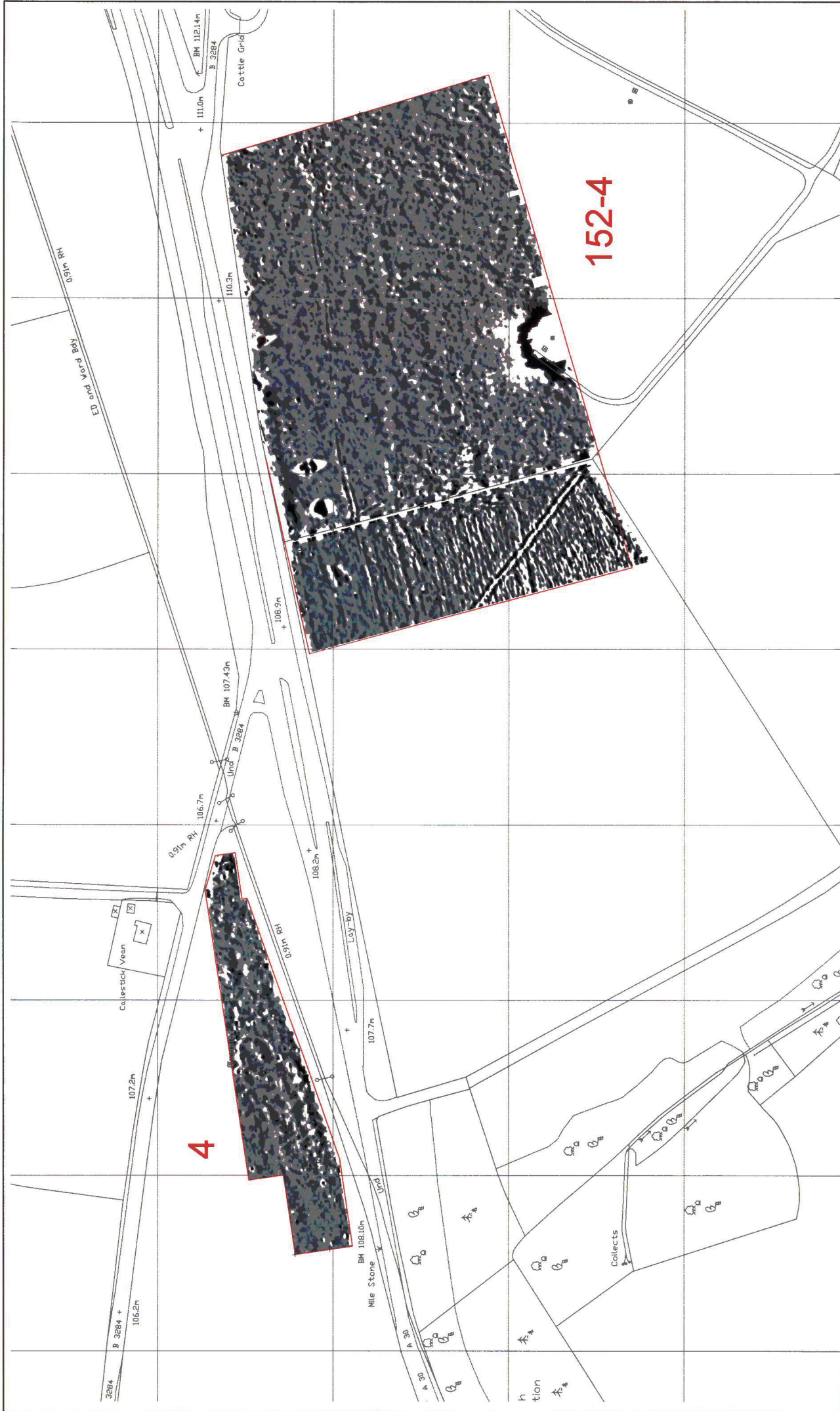
Area proposed for
magnetometer survey



Magnetometer Surveys
Sites 4, 152, 5: Interpretation

- magnetic anomalies
- magnetic anomalies (cultivation ?)
- pipe ?
- magnetically disturbed area

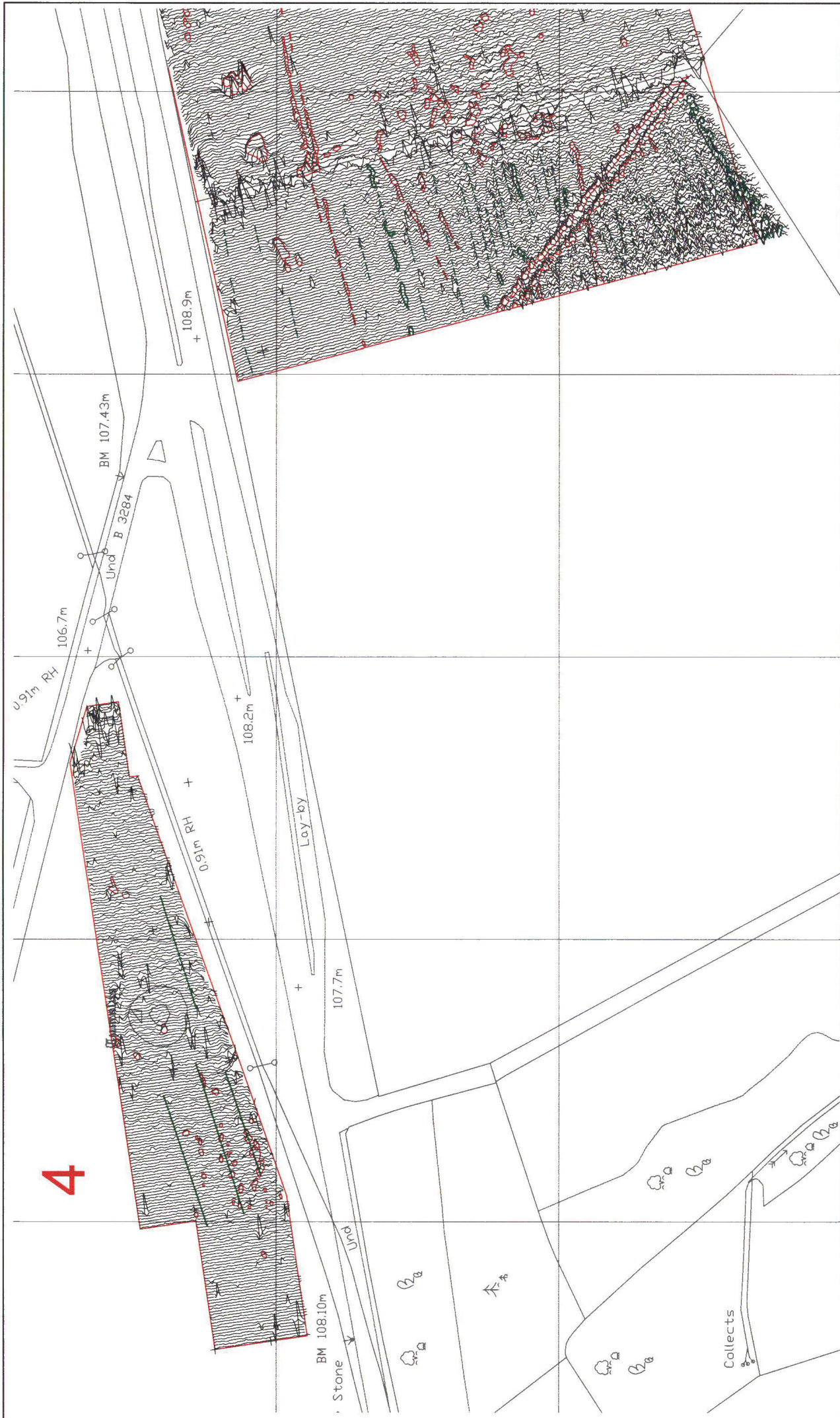




Magnetometer Surveys: Sites 4 + 152
(grey scale plot)

Area proposed for magnetometer survey



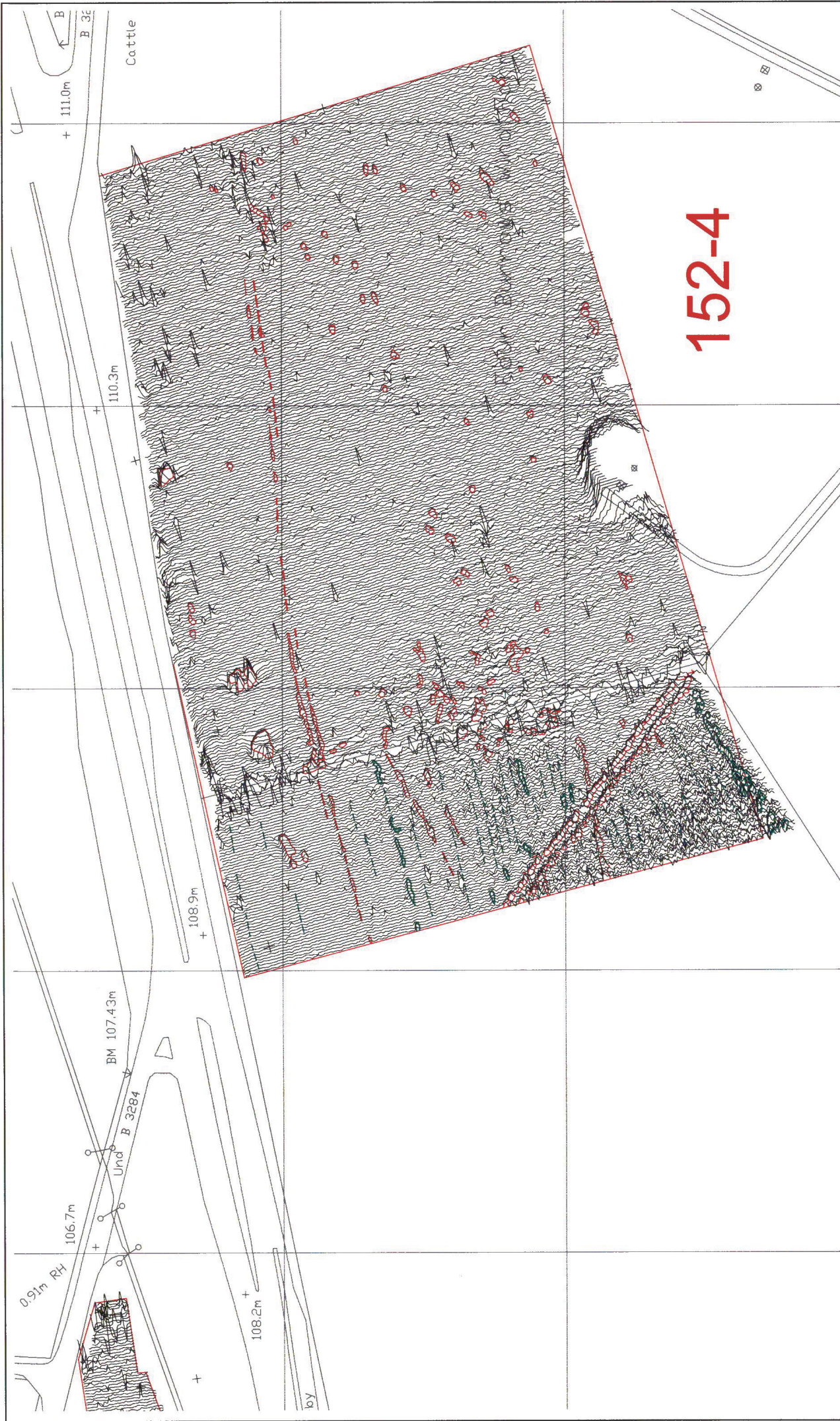


**Magnetometer Survey: Site 4
(with interpretation)**

-  magnetic anomalies
-  magnetic anomalies (cultivation ?)
-  pipe ?
-  magnetically disturbed area
-  Area proposed for magnetometer survey

Scale: 1:1250
0 50m

Figure 13: Site 4



Magnetometer Survey: Site 152
(with interpretation)

<ul style="list-style-type: none"> magnetic anomalies magnetic anomalies (cultivation ?) pipe ? magnetically disturbed area 	<ul style="list-style-type: none"> Area proposed for magnetometer survey
---	--

1:1250
0 50m



Magnetometer Survey: Site 5
(grey scale plot)

Area proposed for magnetometer survey

1:1250

0 50m

+ 2.4 nT

- 2.2 nT

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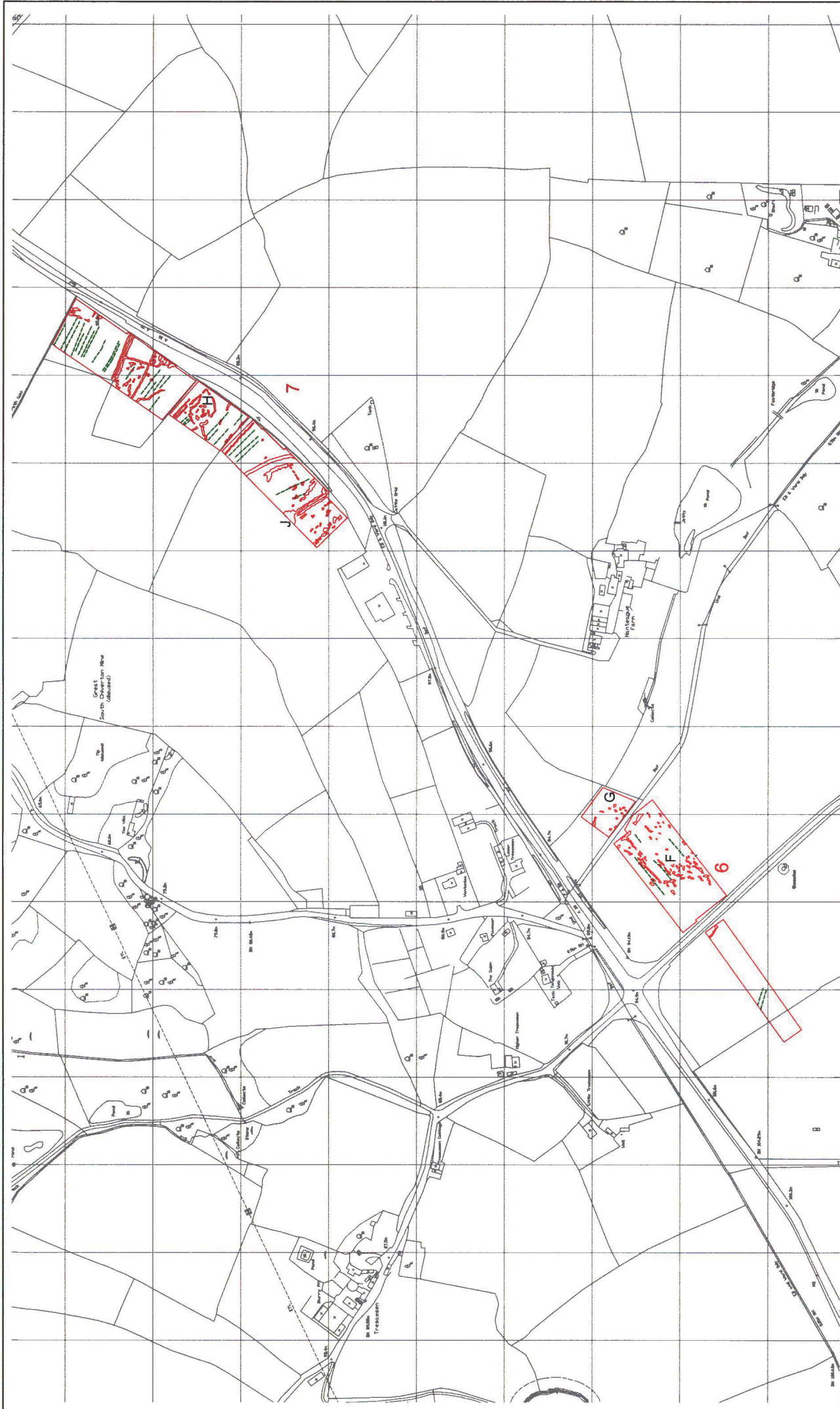


**Magnetometer Survey: Site 5
(with interpretation)**

- magnetic anomalies
- magnetic anomalies (cultivation ?)
- pipe ?
- magnetically disturbed area
- Area proposed for magnetometer survey

Scale: 1:1250
0 50m

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for: Oxford Archaeology



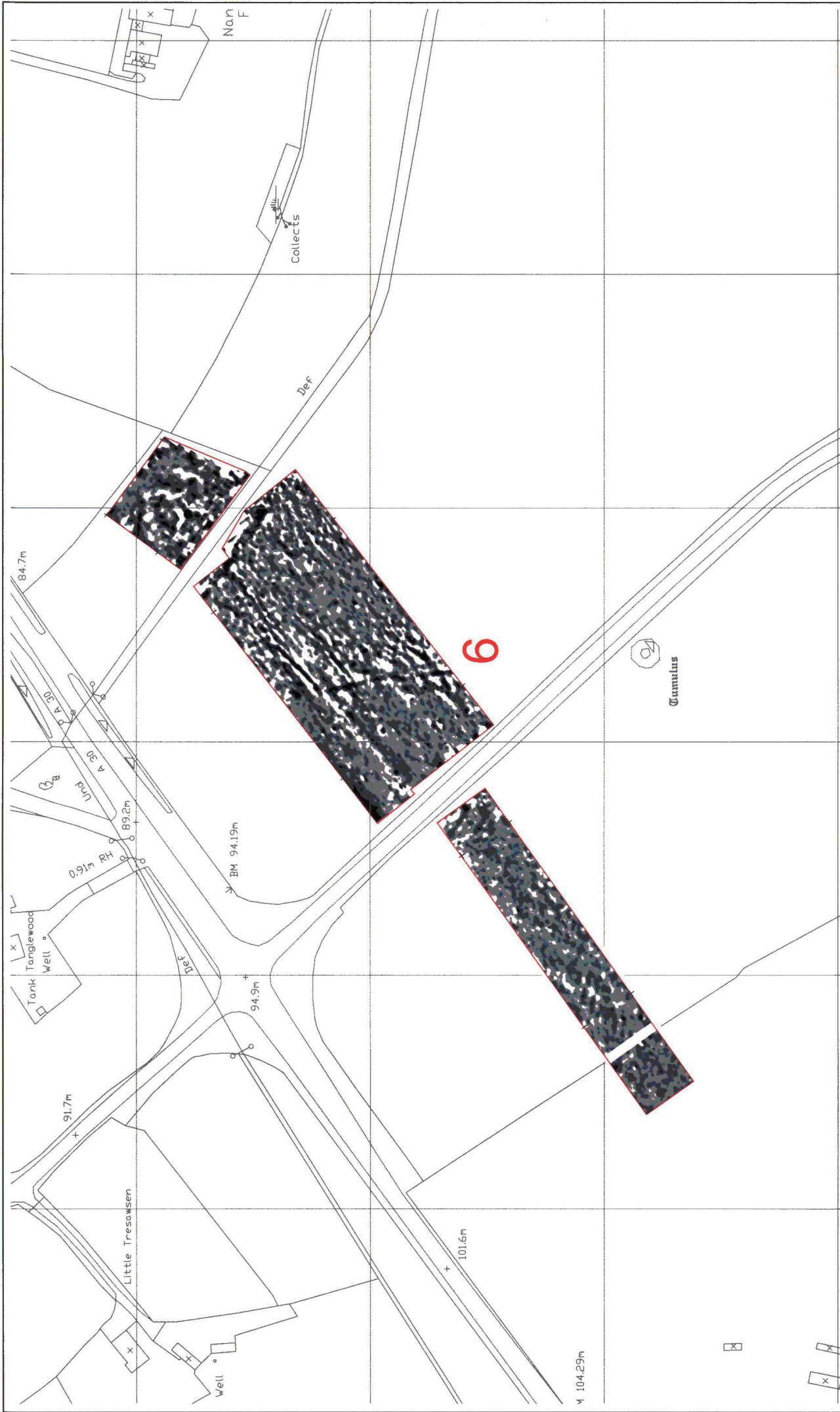
**Magnetometer Surveys
Sites 6-7: Interpretation**

magnetic anomalies
 magnetic anomalies (cultivation ?)
 pipe ?
 magnetically disturbed area

Area proposed for magnetometer survey

1:4000

0 50m



Magnetometer Survey: Site 6
(grey scale plot)

Area proposed for magnetometer survey

0 100m
1:1500

+ 4.4 nT
- 4.0 nT

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for: Oxford Archaeology

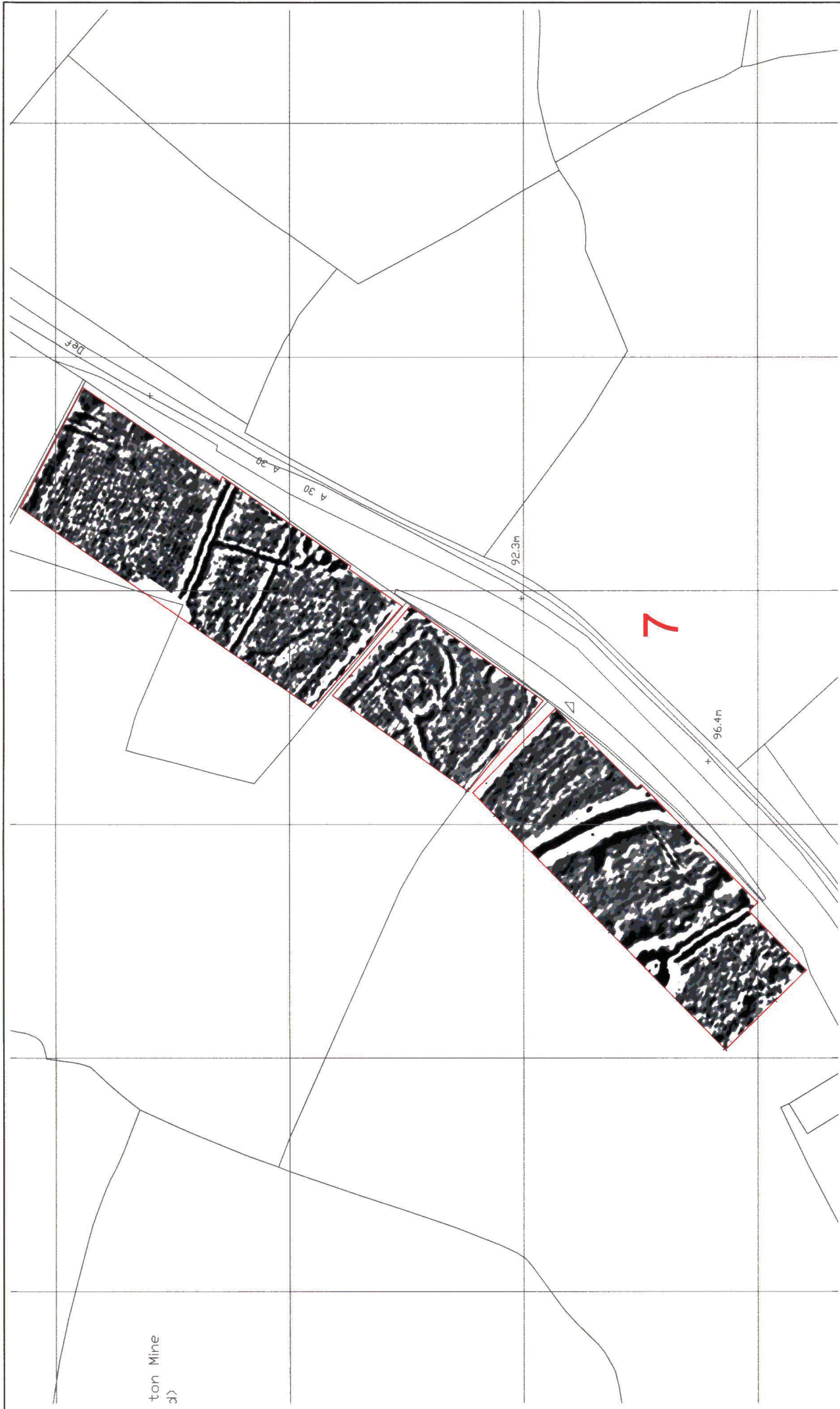


Magnetometer Survey: Site 6
(with interpretation)

- - - magnetic anomalies
- - - magnetic anomalies (cultivation ?)
- - - pipe ?
/// magnetically disturbed area

Area proposed for magnetometer survey

1:1500
 0 100m

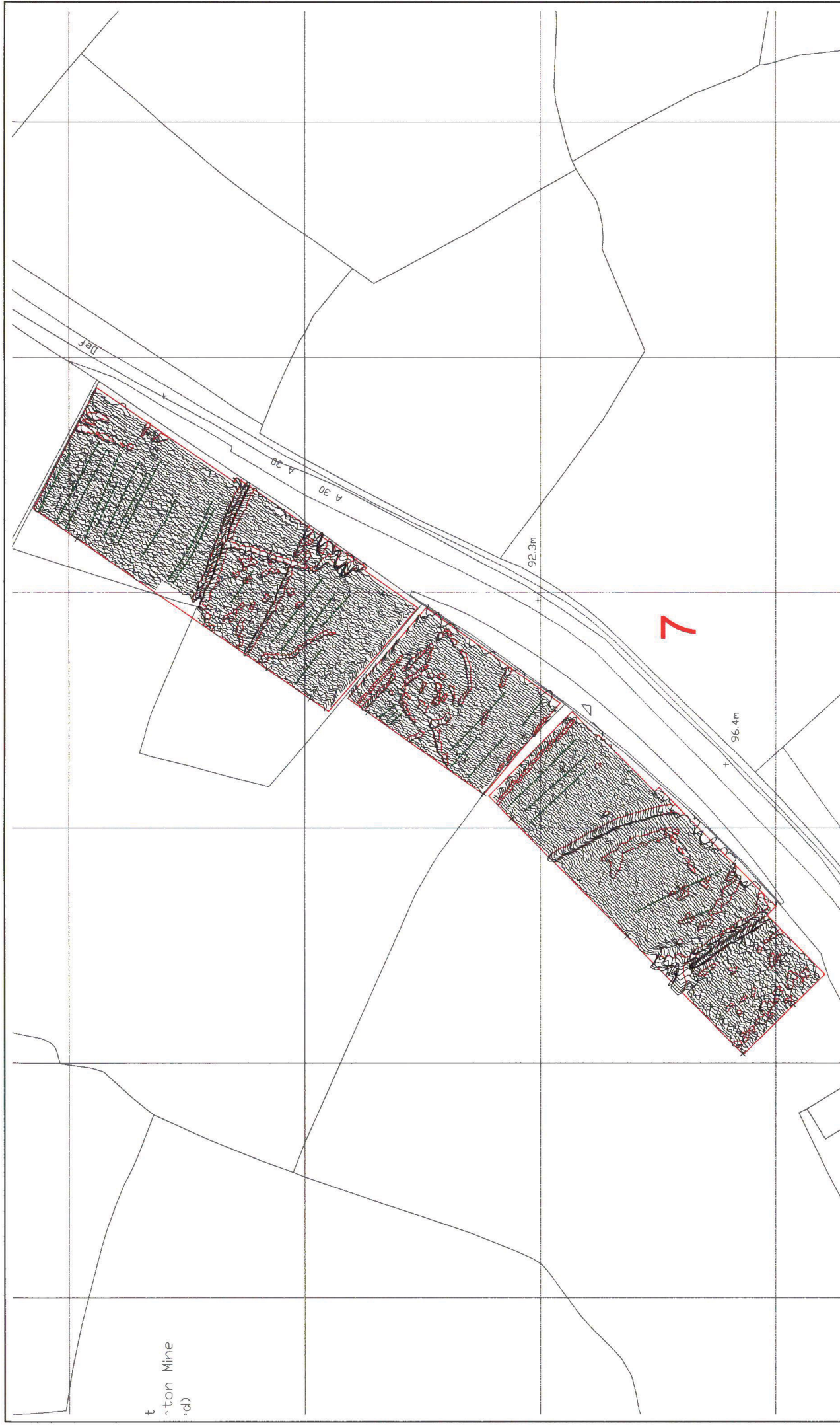


Area proposed for
magnetometer survey






Magnetometer Survey: Site 7
(grey scale plot)



ton Mine
d)

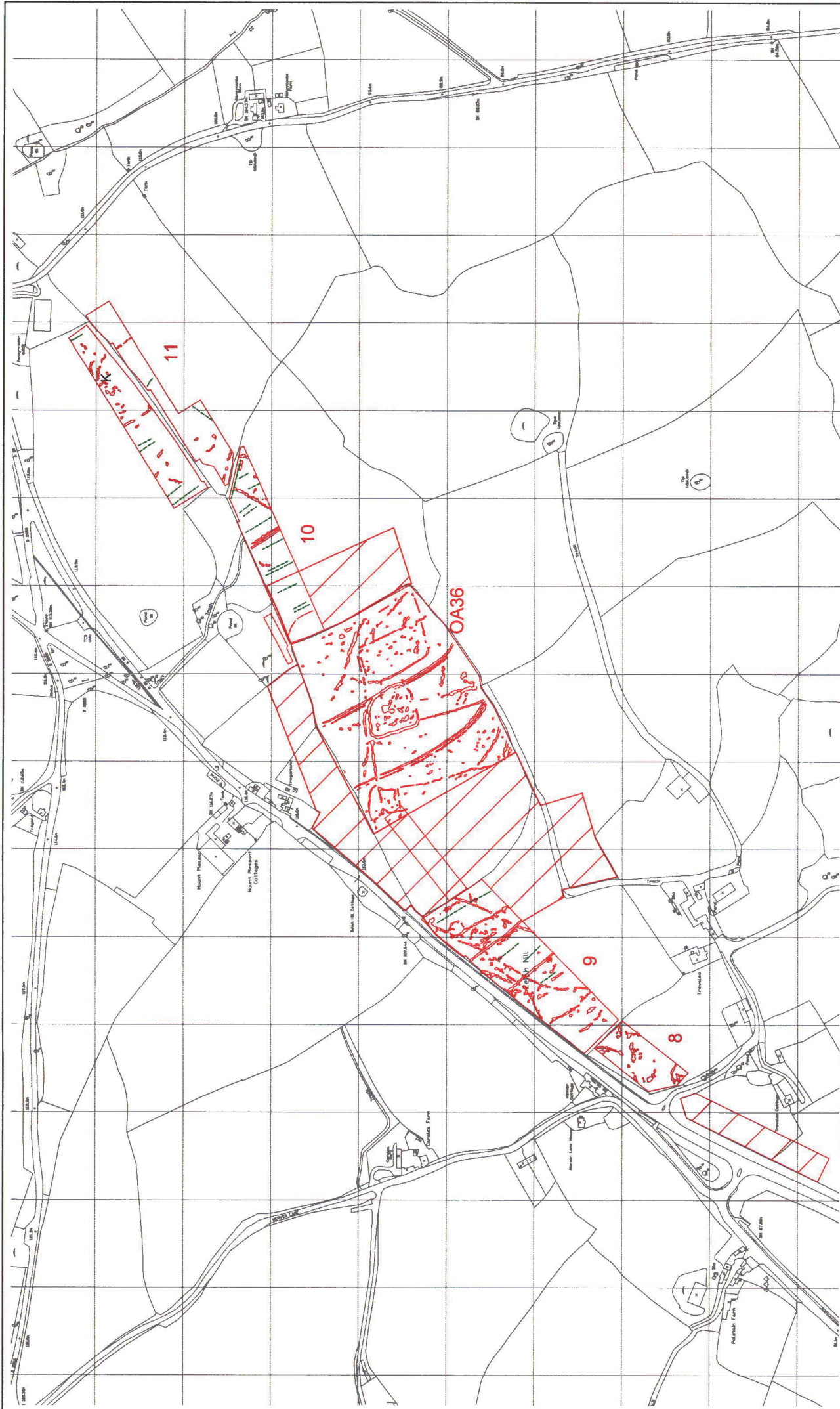


Magnetometer Survey: Site 7
(with interpretation)

-  magnetic anomalies
-  magnetic anomalies (cultivation ?)
-  pipe ?
-  magnetically disturbed area
-  Area proposed for magnetometer survey

1:1500
0 100m

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for: Oxford Archaeology



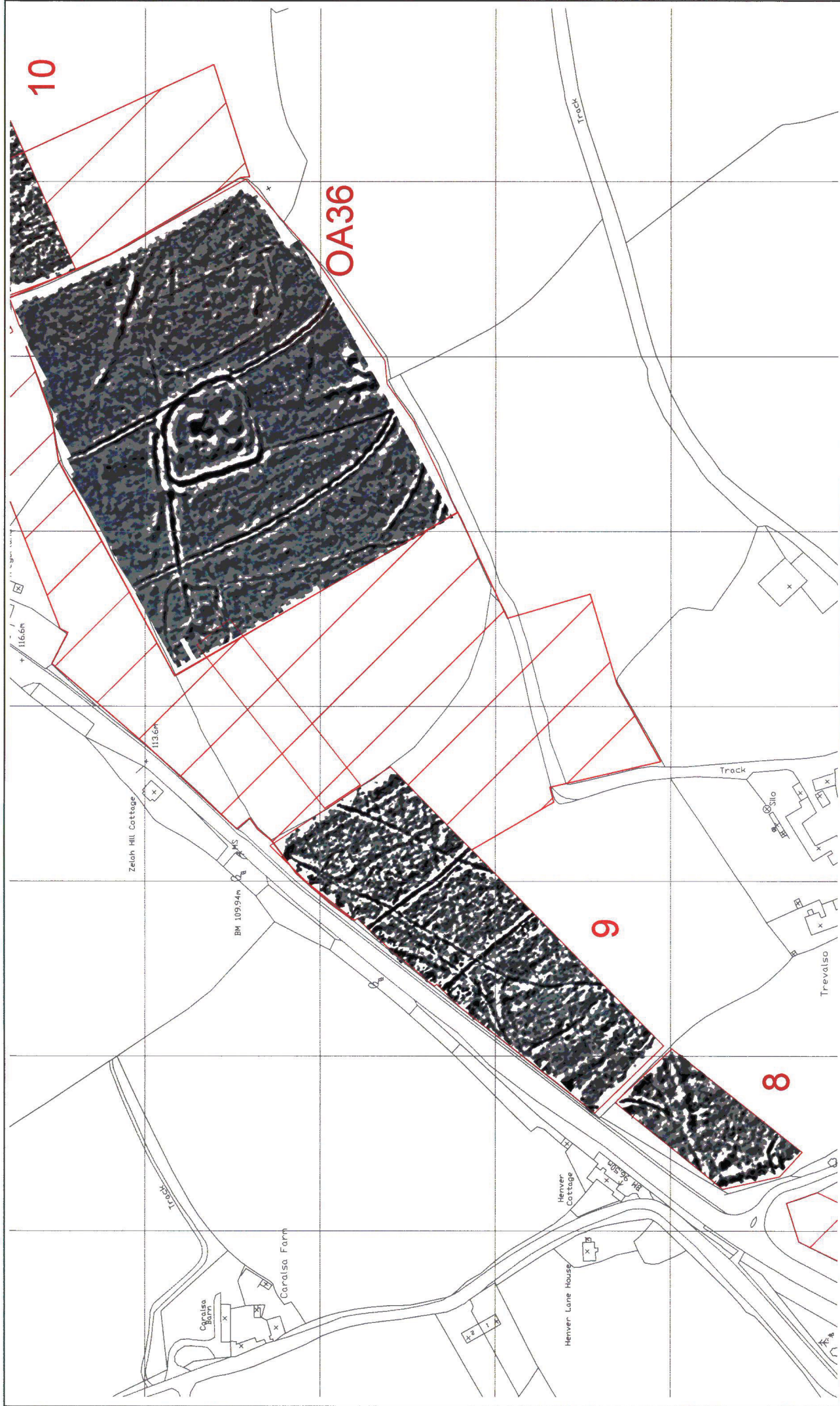
Magnetometer Surveys
Sites 8-11 + OA36: Interpretation

- magnetic anomalies
- magnetic anomalies (cultivation ?)
- pipe ?
- magnetically disturbed area

Area proposed for magnetometer survey

1:4000

 0 200m



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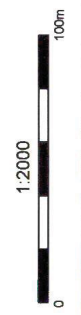
Figure 23:
Sites 8, 9, OA36

Magnetometer Surveys: Sites 8, 9, OA36
(grey scale plot)

+ 9.0 nT
 Site OA36
 + 4.4 nT
 Site 9
 - 4 nT
 - 8 nT

Area proposed for magnetometer survey

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 for: Oxford Archaeology










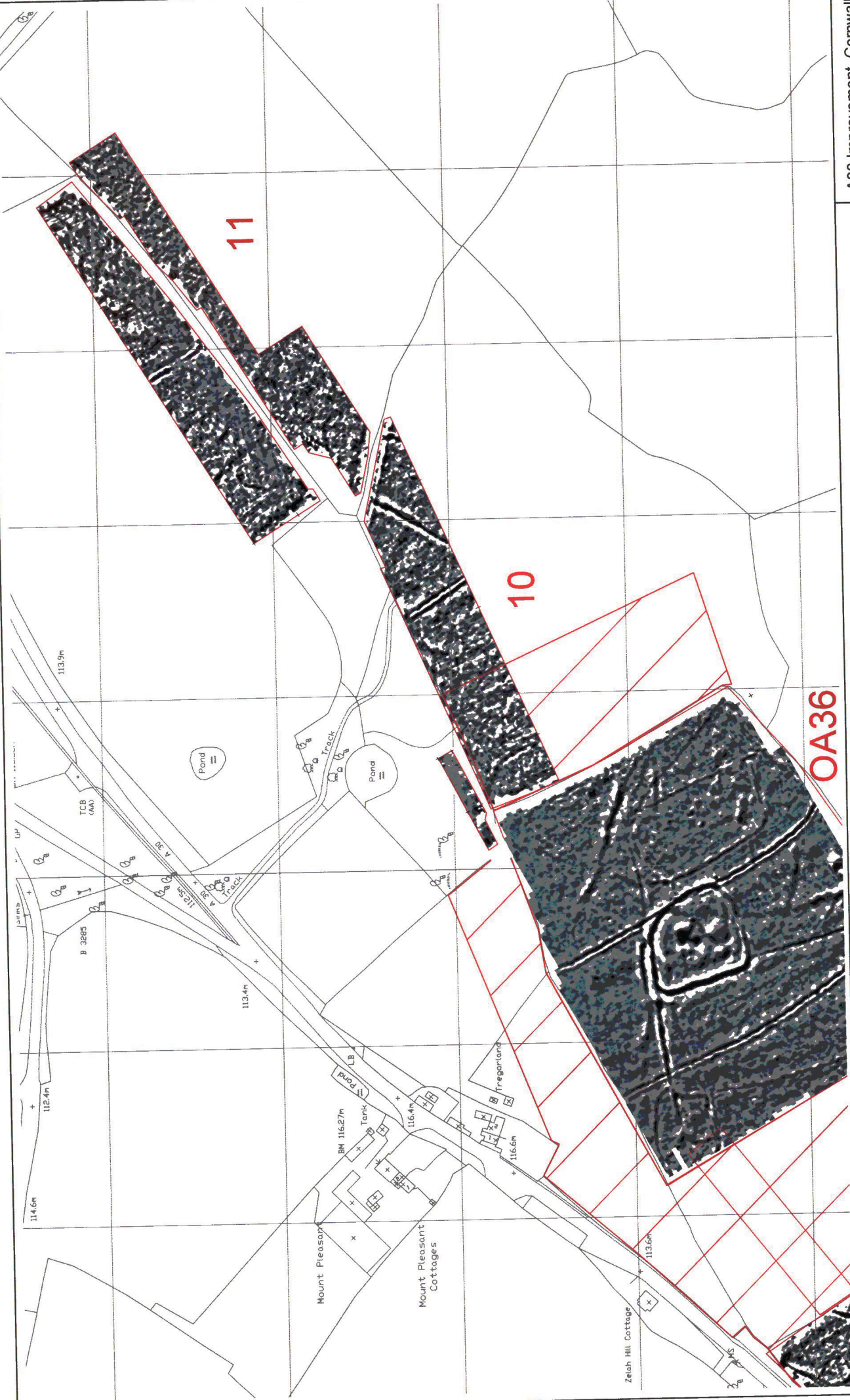
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Figure 24:
 Sites 8, 9, OA36

Magnetometer Surveys: Sites 8, 9, OA36
 (with interpretation)

<ul style="list-style-type: none">  magnetic anomalies  magnetic anomalies (cultivation ?)  pipe ?  magnetically disturbed area 	<ul style="list-style-type: none">  Area proposed for magnetometer survey
---	---

1:1500
 0 100m

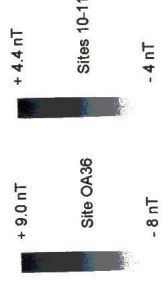


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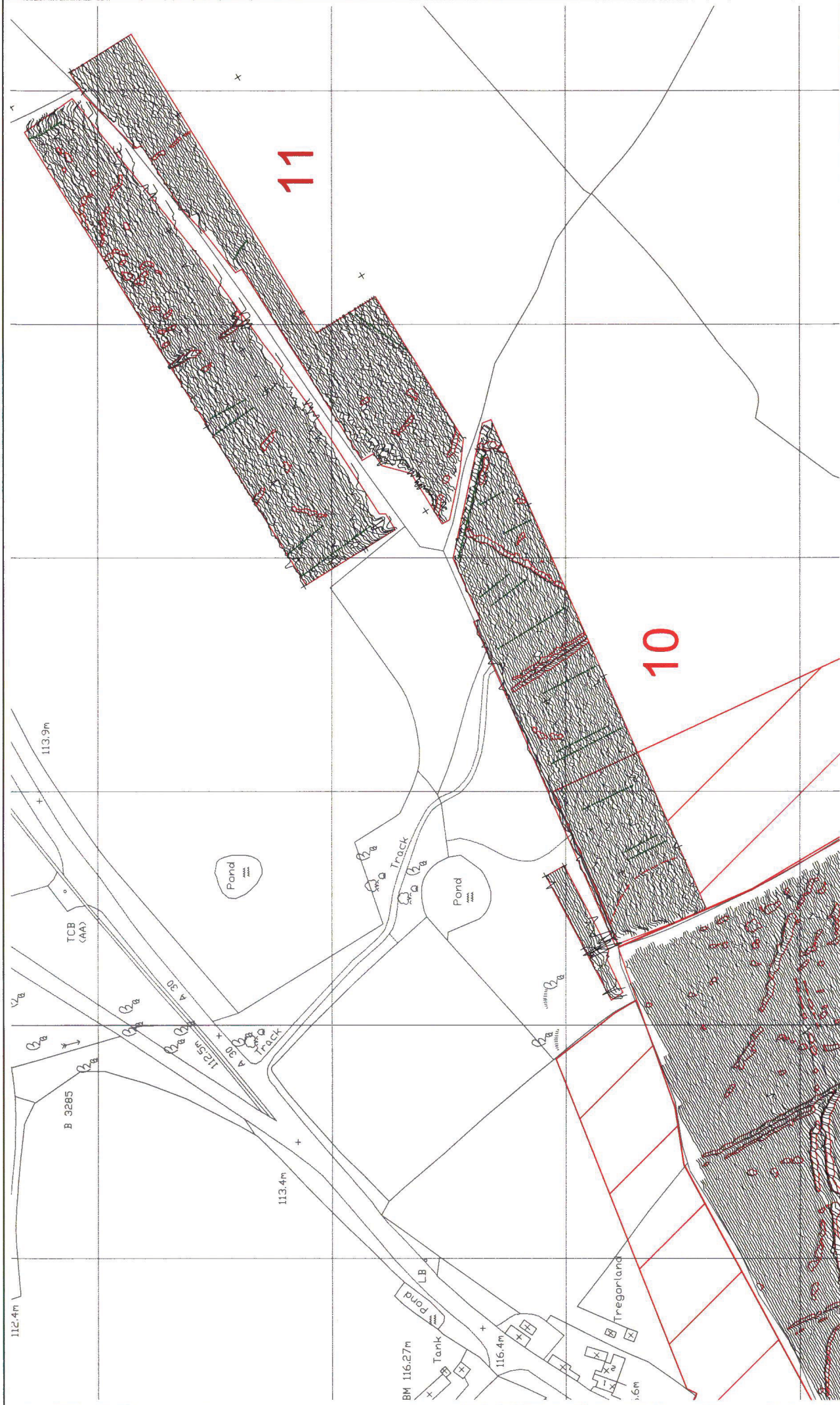
Figure 25:
Sites OA36, 10, 11

Area proposed for
magnetometer survey

Magnetometer Surveys: Sites OA36, 10, 11
(grey scale plot)



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for: Oxford Archaeology



**Magnetometer Surveys: Sites 10-11
(with interpretation)**

- magnetic anomalies
- magnetic anomalies (cultivation ?)
- pipe ?
- magnetically disturbed area

- Area proposed for magnetometer survey

1:1500



Magnetometer Surveys
Sites 12-13, SAM 32901, Warren's Barrow
 Interpretation

magnetic anomalies
 magnetic anomalies (cultivation ?)
 pipe ?
 magnetically disturbed area

Area proposed for magnetometer survey

1:4000

0 200m

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Figure 28:
 Sites 12 + SAM 32901

Magnetometer Surveys: Sites 12 + SAM 32901
 (grey scale plot)

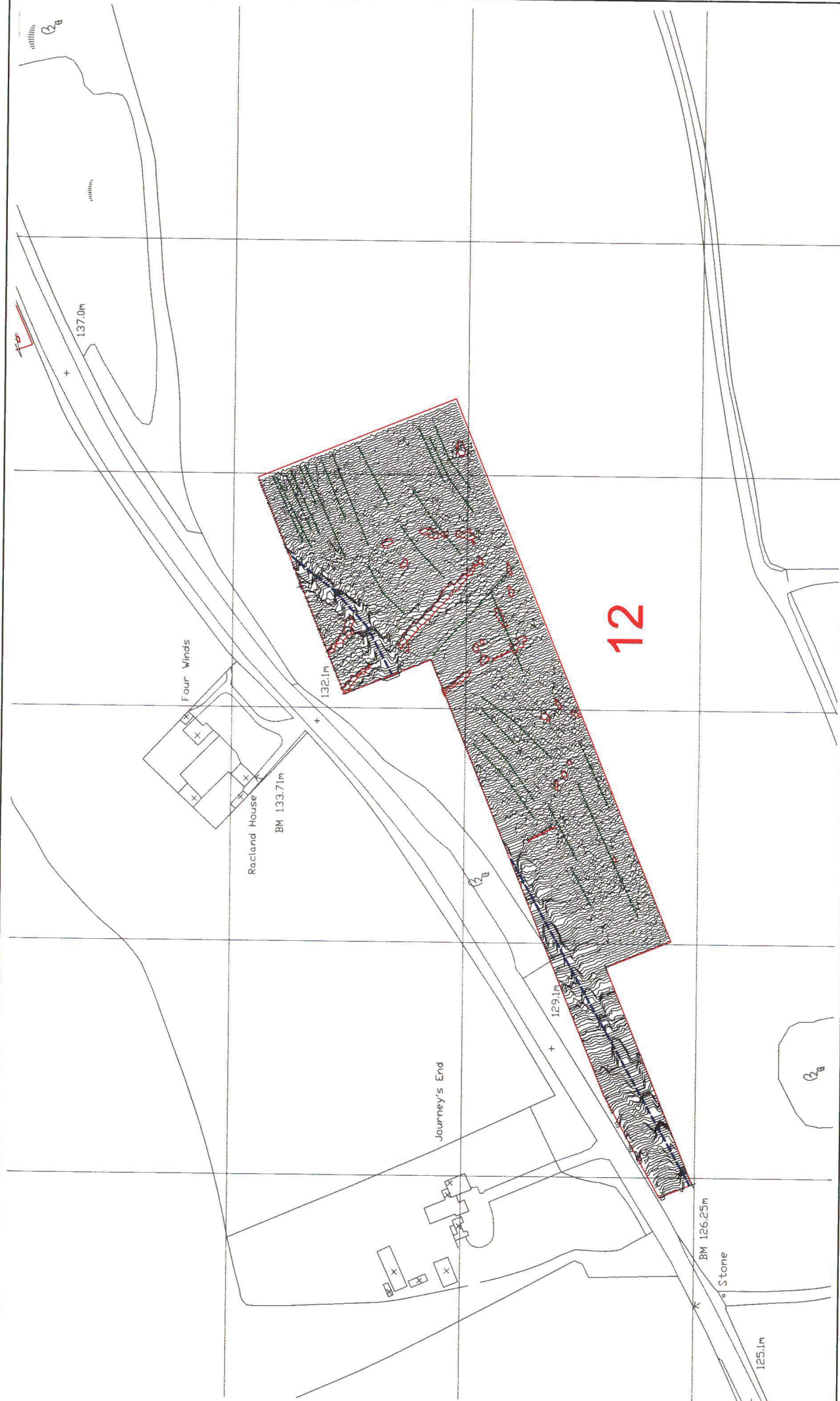
+ 6.0 nT
 + 3.6 nT
 - 5.5 nT
 - 3.2 nT

Area proposed for magnetometer survey

Site 12
 SAM 32901

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1:2000
 0 100m



Magnetometer Survey: Site 12
(with interpretation)

Area proposed for magnetometer survey

magnetic anomalies
 magnetic anomalies (cultivation ?)
 pipe ?
 magnetically disturbed area

1:1500
 0 100m



Magnetometer Survey: SAM 32901
(with interpretation)

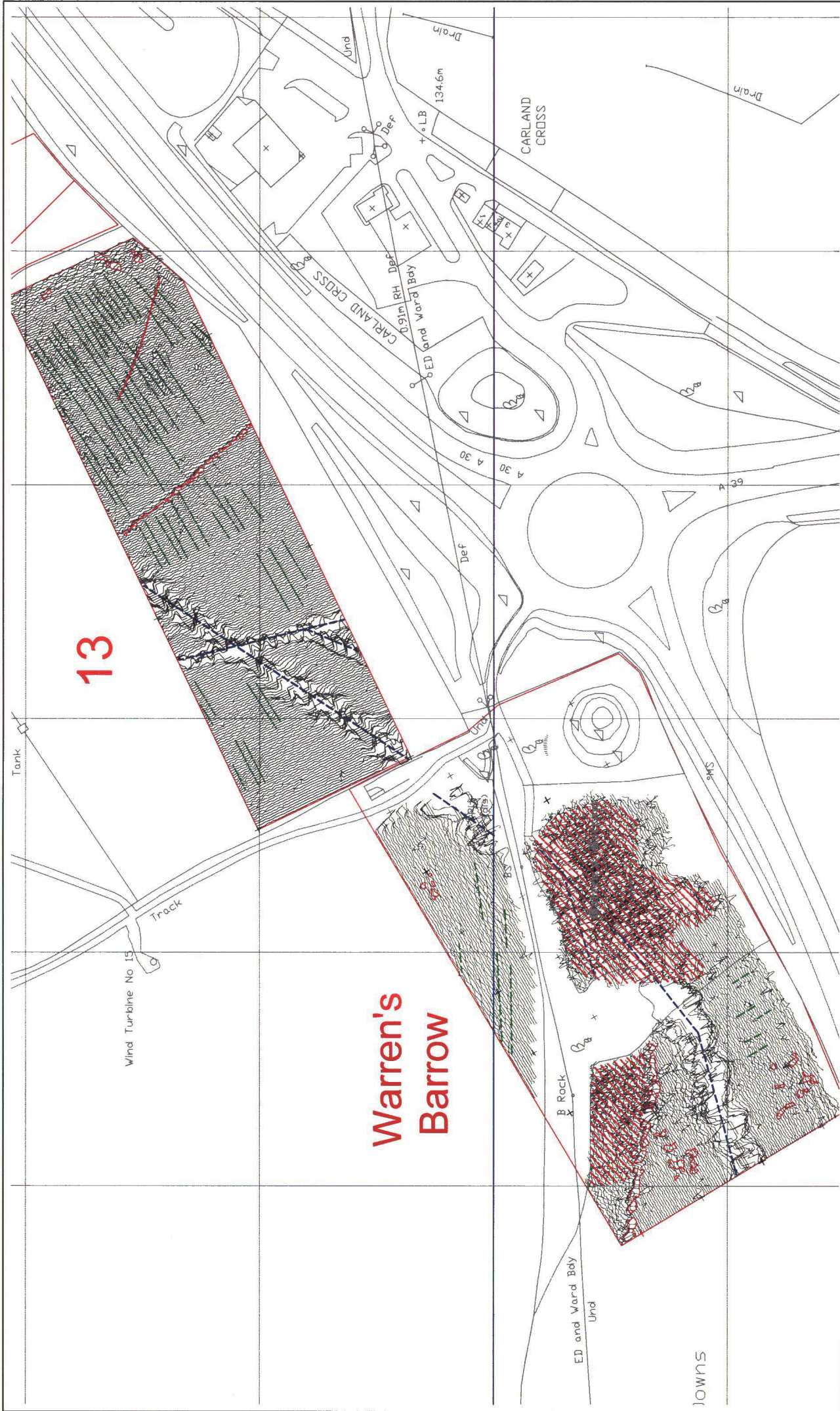
- magnetic anomalies
- magnetic anomalies (cultivation ?)
- pipe ?
- magnetically disturbed area

- Area proposed for magnetometer survey

1:1500

0 100m





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Figure 32: Site 13
+ Warren's Barrow

**Magnetometer Survey: Site 13 + Warren's barrow
(with interpretation)**

-  magnetic anomalies
-  magnetic anomalies (cultivation ?)
-  pipe ?
-  magnetically disturbed area
-  Area proposed for magnetometer survey

Scale: 1:1500
0 100m

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for: Oxford Archaeology