

The background image is a landscape photograph showing a large, calm lake in the middle ground, surrounded by steep, grassy mountains. In the foreground, there are several stone ruins, including a long, low wall and a larger, more complex structure made of stacked stones. A red and white surveying pole is visible near the ruins. The sky is overcast with soft clouds.

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Engineering Archaeological Services Ltd.

Cwm Idwal Archaeological Survey

I.P. Brooks

EAS Client report 2015/14

Cwm Idwal, Archaeological Survey

Commissioned by

The National Trust

Fieldwork and Analysis by:

I.P. Brooks

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CWM IDWAL

Archaeological Survey

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INTRODUCTION

Summary

A combination of topographic survey, lithic analysis and geophysical surveys suggest there is a palimpsest of archaeological activity within Cwm Idwal. The earliest activity is probably Late Mesolithic in date with further prehistoric activity in the Late Bronze Age and Iron Age. The major phase of activity would appear to be in the Post Medieval period which at one time appears to include the construction of a permanent building. Other features are likely to be related to the management of sheep in the later Post Medieval period. In the early twentieth century there are a few new boundaries, however, the lake appear to have taken on a more social role with the construction of at least one boat house.

Location

The survey area was along the eastern and northern sides of Llyn Idwal. It covered an area 420 x 620 m.

Archaeological Background

The National Trust are seeking to carry out some preliminary investigation at a number of sites in and around Cwm Idwal including a topographic survey and selective geophysical surveys to test the survival of archaeological features.

Methodology

The topographic survey was undertaken using a Leica TS06 Total station with the initial station being defined by a Garmin GPSmap 62S hand held GPS. Some of archaeological features have been previously been described and thus it is possible to assign Nation Trust Historic Environment Numbers to the features. Other features had to be assigned new numbers.

On an assessment visit with the National Trust Archaeologist, Kathy Laws, it was noticed that prehistoric lithic artefacts were to be found in molehills and beach deposits along the northern side of Llyn Idwal. An informal collection was made and an initial analysis of these artefacts is included in this report.

Three areas were investigated with geophysical surveys with both Fluxgate Gradiometer and Resistivity surveys taking place. Area 1 investigated a relatively flat area where a possible round house had already been recognised, Area 2 (centred on SH 64791 59579) and finally a flat platform adjacent to a sheep fold centred on SH 64743 59581 was investigated as Area 3.

The Fluxgate Gradiometer survey was undertaken using parts of ten 20 x 20 m grid squares laid out as in Figure 8). Readings were taken at 0.5 m intervals along transects 1 m apart. These transects were walked in a zigzag pattern. The survey was carried out using a Geoscan FM 36 Fluxgate Gradiometer with a ST 1 sample trigger. Grey Scale and X - Y Plots were produced using Geoscan Research "Geoplot" v.3.00v and X - Y plots using Golden Software "Surfer" v. 10.7.973.

The Resistivity survey (Figure 9) used similar grid squares as the Fluxgate Gradiometer survey. Readings were also taken at 0.5 m intervals along transects 1 m apart. The survey was

carried out using a Geoscan RM4 Resistance meter. The results were processed in a similar manner to the Fluxgate Gradiometer surveys.

Results

Topographic Survey

The topographic survey covered an area of approximately 420 m x 690 m on the eastern and northern shores of Llyn Idwal (Figures 2-4, Plate 1). This not only located the visible archaeological features, but also recorded a basic impression of the land forms. It also located the areas in which the geophysical surveys took place. Three areas with concentrations of archaeological activity were recorded which are shown in more detail in Figures 5, 6 and 7).

The greatest concentration of activity was recorded at the southern end of the survey area (Figure 5). Probably the most impressive feature within this area is the remains of a rectangular building (46226) at SH 64744 59547 (Plate 2). The building sits on a man-made platform which is partly cut into the hillside, but largely is built up towards the north west. The building is well built from rectangular blocks (Plate 3) with an inglenook fireplace at its south eastern gable end (Plate 4). This feature has been later blocked with relatively crude, dry stone walling which is probably contemporary with the sheep pen (Plate 5) which has been constructed within the ruins of the building. It is not certain as to whether the cross wall in the centre of the building is contemporary with the original building or with the sheep fold phase of activity, however the quality of the stonework would suggest it may be an original feature. The original building would appear to be a permanent building with a chimney on its south eastern gable, thus it is likely to be later than the 16th century in date. One possibility is that the platform on which the building was constructed is from an earlier, possibly medieval, structure. Possibly associated with this building are a series of platforms (46796, 46818 and 46819) which appear to be a group of paddocks or gardens on the opposite side of a small stream (Plate 6).

The quality of the stonework used for 46226 is a little unusual, more typical of the remains of a rectangular building in the uplands is 46271 at SH 64796 59600 (Plate 7). This has the remains of a dry stone wall along the western side of the remains and an earthen bank with earth fast stone defining the eastern and northern sides.

At the northern end of the platform 46819 is a complex of features forming a sheep fold on both sides of boundary wall. This complex comprises 46227, 46820 and 46821 and is probably linked to the remains of the walls 46822 and 46820. 46227 (SH 64750 59592) (Plate 8) is on the southern side of the boundary wall and consists of a single pen 10.3 x 3.5 m in size with an arcing guide wall which possibly links to the remains of a stone wall recorded as 46822 (Plate 9). The pen on the northern side of the wall (46820, Plate 10) (SH 64754 59595) is only 5.4 x 3.3 m in size and is best preserved along its northern side where there is a pop-hole. This pen appears to be sitting on an earlier platform (46821, SH 64750 59596) (Plate 11), possibly from a rectangular building. The sheep pens can be demonstrated to have been in existence before 1888 as they appear on the Ordnance Survey map published in that year (Plate 29).

Nearer to the lake there is the remains of a boundary (46817, SH 64686 59586) in the form of a tumbled wall (Plate 12) which develops into an earthen bank as it runs upslope to the east. On the small peninsular jutting into Llyn Idwal there is the somewhat scrappy remains of a sheep pen (46809, SH 64647 59559, Plate 13). This is only 3.1 x 1.5 m in size and is highly

tumbled, however it first appears on the 1920 Ordnance Survey map (Figure 29). There are the remains of two boat houses on the eastern lake shore, 46810 at SH 64655 59570 (Plate 14) and 46803 at SH 64671 59766 (Plate 15). 46803 is first marked on the 1901 Ordnance Survey map (Figure 29) and continues to be marked until the 1920 edition. It does not appear, however on the 1953 map of the area suggesting it may have gone out of use by that time. 46810 does not appear on any of the historic maps inspected possibly suggesting it was a short lived, minor structure.

The only feature which can be demonstrated to be prehistoric in date is a low, arcing, bank at SH 64765 59687 (Plate 16). The size of 46807 would suggest that it is the southern end of a round house beginning to emerge from the peaty soils. This feature is the rationale for the location of Area 1 of the geophysical surveys.

In the north eastern section of the survey area (Figure 6) there is an earthen bank running across the flood plain of the Afon Idwal (46823, SH 64779 59857, Plate 17). This runs to a rock boss. On the other side of the boss the line is taken up by the remains of a dry-stone wall (46228, SH 64844 59820, Plate 18) which can be traced for at least 59 m where it disappears into the peaty soils. The line is taken up on the other side of the basin (Plate 19) and it is probable that it continues below the peaty soils linking the two sections. If this is so it would suggest that this boundary pre-dates the development of significant peat deposits and may therefore be Late Bronze Age or Iron Age in date. This factor may also relate to at least some of the other tumbled wall in the survey such as 46817, 46826 and 46822.

In the north western section of the survey area (Figure 7) there is a low, retaining wall (46223, SH 64180 59891, Plate 20) which defines the northern end of a wet basin fed by one of the mountain streams. It has a small entrance at SH 64206 59900 (Plate 21) which appears to be related to a small sheep pen (46236, SH 64203 59902, Plate 22) behind the wall. There is also a second sheep pen (46815, SH 64237 59909, Plate 23) at the eastern end of the retaining wall which has been partly replaced by a building (46222, SH 64233 59906, Plate 24) which is still in use. Slightly below the building is a linear earthen bank (46816, SH 64332 59880, Plate 25) which is 15 m long and 2.8 m wide and stands up to 0.5 m above the general level. Its form may suggest it marks the line of a track heading towards building (46222), over the wet and soft ground around the northern end of Llyn Idwal.

Lithic Scatters

Two small collections of knapped quartz artefacts were found at the northern end of Llyn Idwal. Nine artefacts were found in molehills on a natural platform overlooking the Afon Clyd Bach at approximately SH 64115 59860 (46824) and a further two artefacts were from the gravel beach at the northern end of Llyn Idwal at approximately SH 64424 59891 (46825). Given the method of collection and the lack of any reliable context, neither of these can be regarded as a consistent assemblage, however they suggest a level of prehistoric activity in this area. None of the artefacts are very large, indeed the largest artefact is a flake only 22.4 x 11.4 x 6.4 mm in size. Whilst natural fragments of quartz are common within the environment of both sites, the artefacts collected have clear evidence for at least one conchoidal fracture and are therefore the product of a deliberate knapping strategy.

The nine artefacts from 46824 (Plate 26) consist of a series of unmodified flakes and broken flakes which tend to be longer than they are wide. Indeed three of the artefacts are probably segments of small bladelets. This would suggest a level of controlled knapping took place to produce a desired flake shape.

The two artefacts from 46825 (Plate 27) consist of the distal end of a broken, thick, flake and a possible awl. This was formed by unifacial retouch on the distal end of a bladelet segment. The distal end of this tool is rounded through use.

Whilst none of the artefacts recovered are diagnostic in themselves, the size and style of knapping would suggest a Late Mesolithic (c. 6,000 – 4300 BC) date. Given the small size of the collection and the location where they were found it is likely that they represent the remains of a hunting stand(s) within the upland environment. It is assumed that small groups of hunters would have used the lake to attract game thereby making hunting easier. The artefacts collected are probably the result of low level tool maintenance whilst camping for short periods of time on hunting trips. It is likely that this hunting was carried out by small, task based, groups who would return to a “home base” on completion of the hunting trip. This “home base”, itself, is likely to have moved around the landscape as resources became available with the seasons.

Quartz is not a preferred material for the production of tools in prehistory. It is difficult to work, tending to be naturally cracked and faulted and it tends to be rather brittle. Whilst flint and cherts are more desirable they are not common in the landscape of Snowdonia. Indeed the only flint available in Wales comes in the form of small, worn pebbles derived from the Irish Sea Till and its derived gravel deposits. Cherts are available in North Wales, particularly from the limestone deposits stretching from Flintshire into Anglesey as part of the Pentre Flint formation, otherwise known as “Gronant Chert”, however the nearest outcrop is at least 20 km from Cwm Idwal. It is therefore likely that the artefacts from Cwm Idwal are the result of the expedient knapping of materials immediately available in the landscape.

Geophysical Surveys

Area

Area 1:	0.24 Ha centred on SH 64775 59708
Area 2:	0.16 Ha centred on SH 64791 59579
Area 3:	0.02 Ha centred on SH 64743 59581

Three areas were selected for geophysical survey. The selection of these areas was somewhat restricted by the relatively steep slopes and the distribution of glacial boulders within the valley. Area 1 sampled a relatively flat area which has the probable round house (46803) near its southern edge. It is defined by a rocky ridge along the southern edge of the survey area and steeper slopes to the west and north. Above Area 1, Area 2 is a basin approximately 80 m long and 28 m wide with the sheep pen 46820 at its western end. Area 3 occupies one of the platforms (46819) thought to be a paddock or garden associated with 46226. The location of the Resistivity surveys is shown on Figure 8 whilst the Fluxgate Gradiometer Surveys on Figure 9.

Display

The results are displayed as Grey Scale Images (Figures 10, 13, 16, 19, 22 and 25) and as X-Y Trace Plots (Figures 11, 14, 17, 20, 23 and 26). Interpretation are shown on Figure 12, 15, 18, 21, 24 and 27 and the results are summarised on Figure 28

Area 1 Resistivity Survey

The grey scale plot (Figure 10) and X- Y plot (Figure 11) are not particularly clear, however, it is possible to define a few anomalies which are probably of archaeological origins (Figure

12). Anomaly A (Figure 12) is directly attributable to the possible round house 46807, following the arc of the bank which can be seen. There also appears to be two other circular anomalies (Anomalies B and C) which are possibly a round house within a larger enclosure in the south eastern corner of the survey area. The only other anomalies which can be determined are two faint linear anomalies (Anomalies D and E). Anomaly D is probably related to the rocky edge of the survey area, however the origins of Anomaly E is uncertain and it is possible that it marks the line of a boundary below the peaty soils.

Area 1 Fluxgate Gradiometer Survey

Only one clear anomaly was recorded in the Fluxgate Gradiometer survey of Area 1. This is clear on both the grey scale plot (Figure 13) and the X-Y plot (Figure 14). Anomaly F (Figure 15) is a band of ferromagnetic responses typical of metallic objects. This is likely to be the line of a metal fence crossing the survey area and there is a boundary marked on the 1901 Ordnance Survey map (Figure 29) which is likely to have given the ferromagnetic response.

Area 2: Resistivity Survey

The grey scale plot (Figure 16) and X-Y plot (Figure 17) of the Area 2 Resistivity Survey are not particularly clear, however a number of anomalies have been defined (Figure 18). Anomalies G H and I are related to the local geology of the survey area with a concentration of glacial boulders or the rock ridge which borders the survey area to the south. Similarly the area of low resistance (Anomaly J) is related to a small stream which flows into the survey area, but is dispersed by peaty soils giving a damp area.

There are, however two possible circular anomalies (Anomalies K and L) which may be the archaeological features. Anomaly K is 9.8 m in diameter and Anomaly L is 6.2 m in diameter, both of which are within the size range for round houses.

Area 2: Fluxgate Gradiometer Survey

The grey scale plot (Figure 19) for Fluxgate Gradiometer Survey of Area 2 has two areas of ferromagnetic disturbance which are particularly clear on the X-Y Plot (Figure 20). Anomaly M (Figure 21) is an extension of Anomaly F within Area 1 and is a continuation of the line of the old fence line. Anomaly N is less well defined, however the range of values recorded would suggest it is the result of either a series of metal objects within the soil or a burnt area.

There is also an area of magnetic disturbance (Anomaly O) approximately 8 m in diameter which corresponds with Anomaly L within the Resistivity Survey of Area 2 further suggesting an archaeological feature at this point.

Area 3: Resistivity Survey

The small size of Area 3 make the grey scale plot (Figure 22) and X-Y plot (Figure 23) difficult to interpret, however a few anomalies can be determined which are shown on Figure 24. The enhanced resistance anomalies (Anomalies P, Q and R) relate to the upper edge of a break of slope forming the western and southern edges of the platform 46819, probably reflecting the enhance drainage in this area. The only other anomaly (Anomaly S) is an area of low resistance which probably reflects an area of impeded drainage.

Area 3: Fluxgate Gradiometer Survey

The grey scale plot (Figure 25) and X-Y Plot (Figure 26) show only one area of magnetic disturbance which is defined as Anomaly T on Figure 27. There is no clear structure to this anomaly and it probably reflects the build-up of soils on the platform.

Conclusions

It is a fundamental axiom of archaeological geophysics that the absence of features in the survey data does not mean that there is no archaeology present in the survey area only that the techniques used have not detected it. It is clear that the conditions are not ideal for either Resistance or Magnetic surveys, however it is possible to suggest that there is a level of archaeological activity on the flatter areas within the valley. The presence of circular anomalies on both the Resistivity and Fluxgate Gradiometer surveys would suggest that at least part of that activity is probably Late Bronze Age or Iron Age in date.

Combining the techniques used to study the survey area it is clear that there is a palimpsest of archaeological activity within Cwm Idwal. The earliest activity is related to the presence of artefacts made of the local vein quartz which is likely to be Late Mesolithic in date. It is likely that the activity is related to hunting trips into the uplands exploiting the resources in and around Llyn Idwal.

The next period represented within the surveys is probably the Late Bronze Age and Iron Age represented by a series of possible round houses on the flatter area of the southern end of the survey area. It is also possible that some of the relict field boundaries relate to this period of activity. Of particular note is the wall 46228 which appears to disappear below the peaty soils to re-emerge on the other side of the peat filled basin. Other boundaries such as 46817 and 46822 may also relate to this phase of activity.

Medieval activity within the valley is uncertain, it is possible that the rectangular building 46271 may date to this period, however similar structures were being used well into the post-Medieval period. It probably represents a temporary structure used to monitor the herds of cattle and flocks of sheep which were pastured in the uplands in the summer months. It is also possible that the platform which forms the base of building 46226 may also have a medieval origin. The building 46226 would appear to be a more permanent building with a chimney on its south eastern gable. It is possible that it had gardens and small paddocks associated with the building suggesting a more permanent occupation. The presence of an inglenook fireplace would suggest a post 16th century date for the building.












The length of the assumed permanent occupation within the valley is unknown, however it was replaced by a series of structures for the penning and handling of sheep including a series of small pens and the sheep fold complex recorded as 46227 and 46828. This phase is also probably related to new boundaries crossing the valley, some of which are still in use today.

The beginning of the twentieth century saw a number of changes within the valley documented in the Ordnance Survey maps between 1888 and 1920 (Figure 29). This includes a few new boundaries and the use of the lake for pleasure with the building of at least one, probably two boat houses.

Acknowledgements

This report was commissioned by Kathy Laws and Guto Roberts for the National Trust. The help of Iwan Francis with the fieldwork is gratefully acknowledged.

Key to the Topographic Drawings

	Top of slope
	Bottom of slope
	Footpath
	Edge of the lake/river
	Stream
	Standing wall
	Tumbled wall
	Fence
	Stone/boulder
	Old fence post
	Building

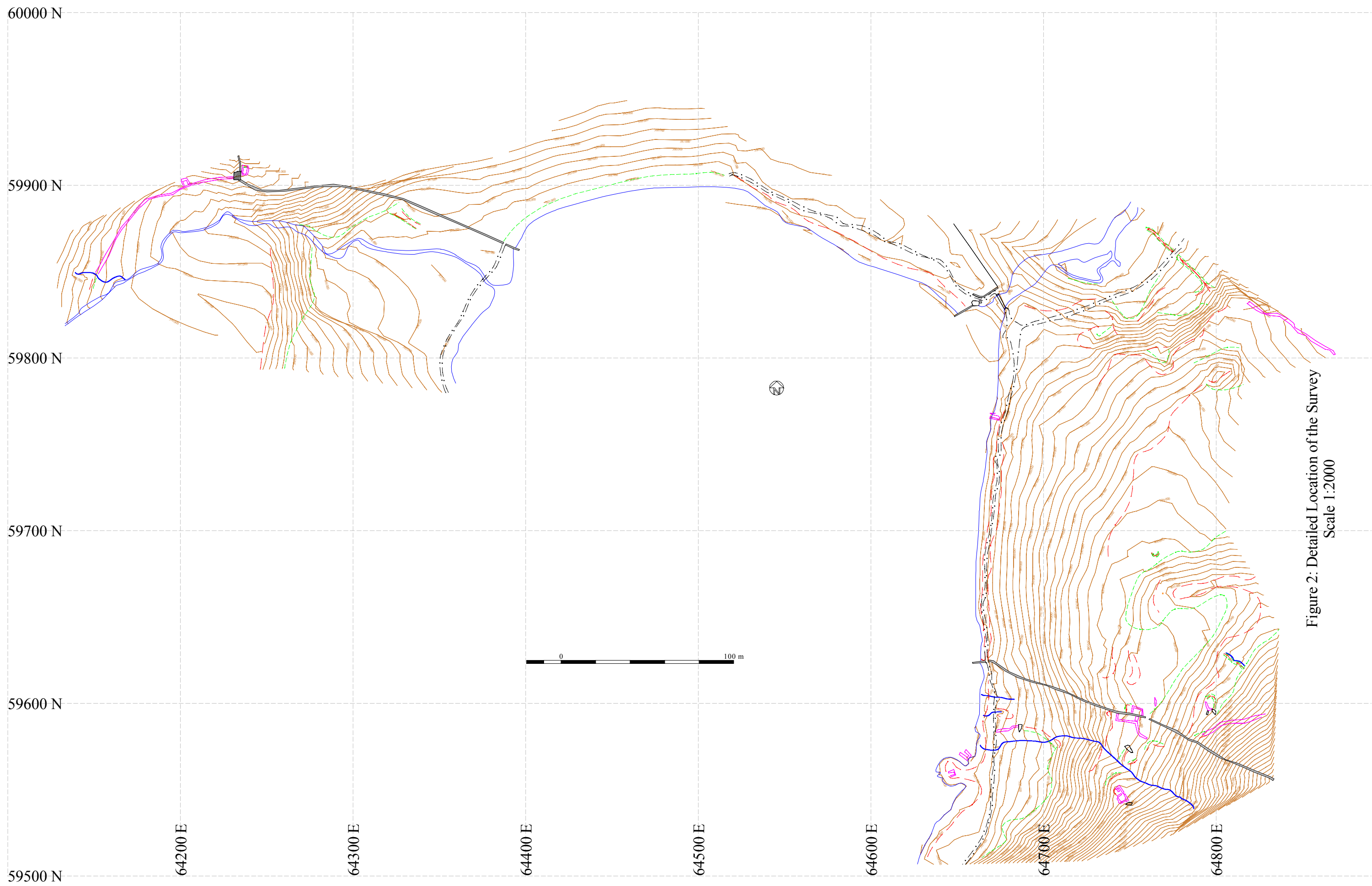
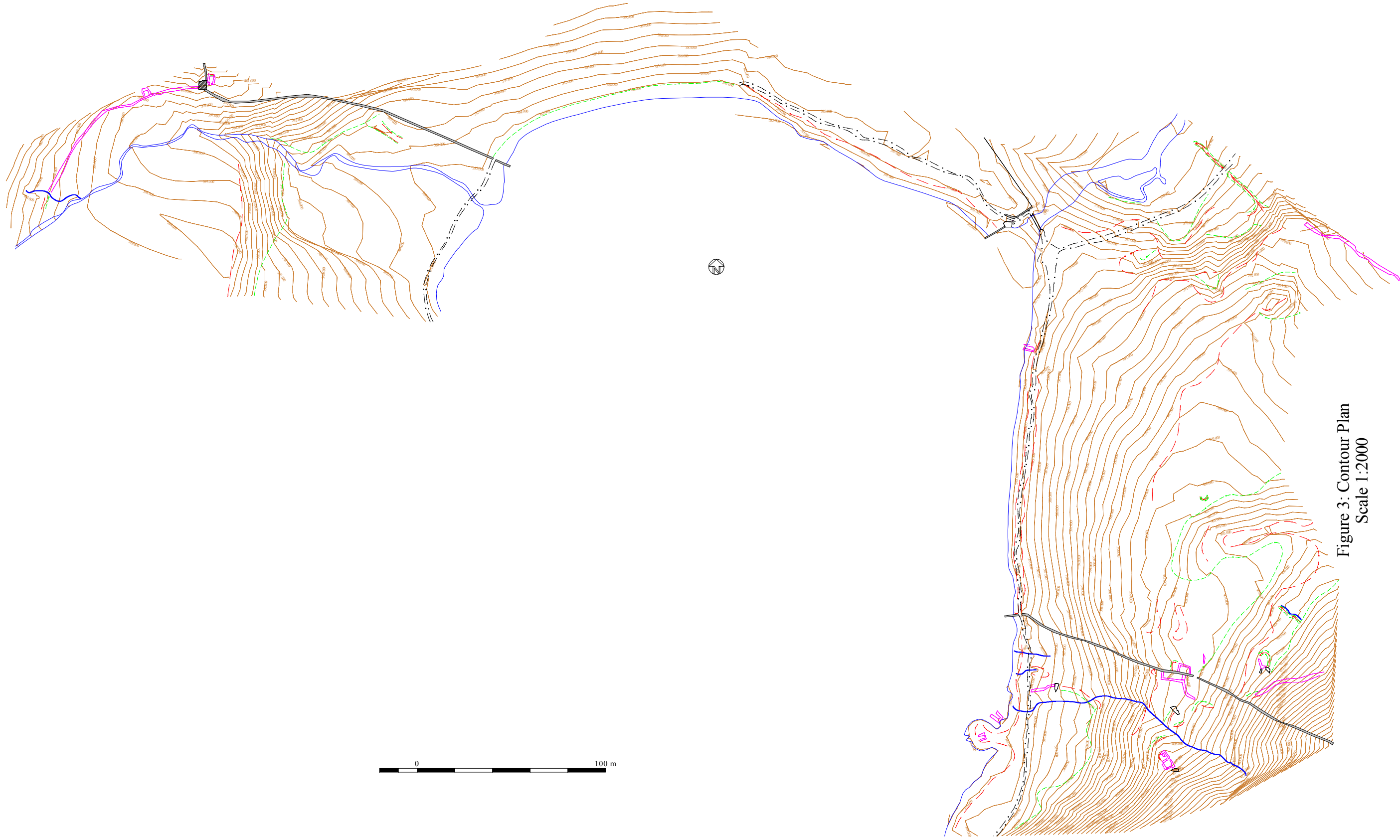


Figure 2: Detailed Location of the Survey
Scale 1:2000



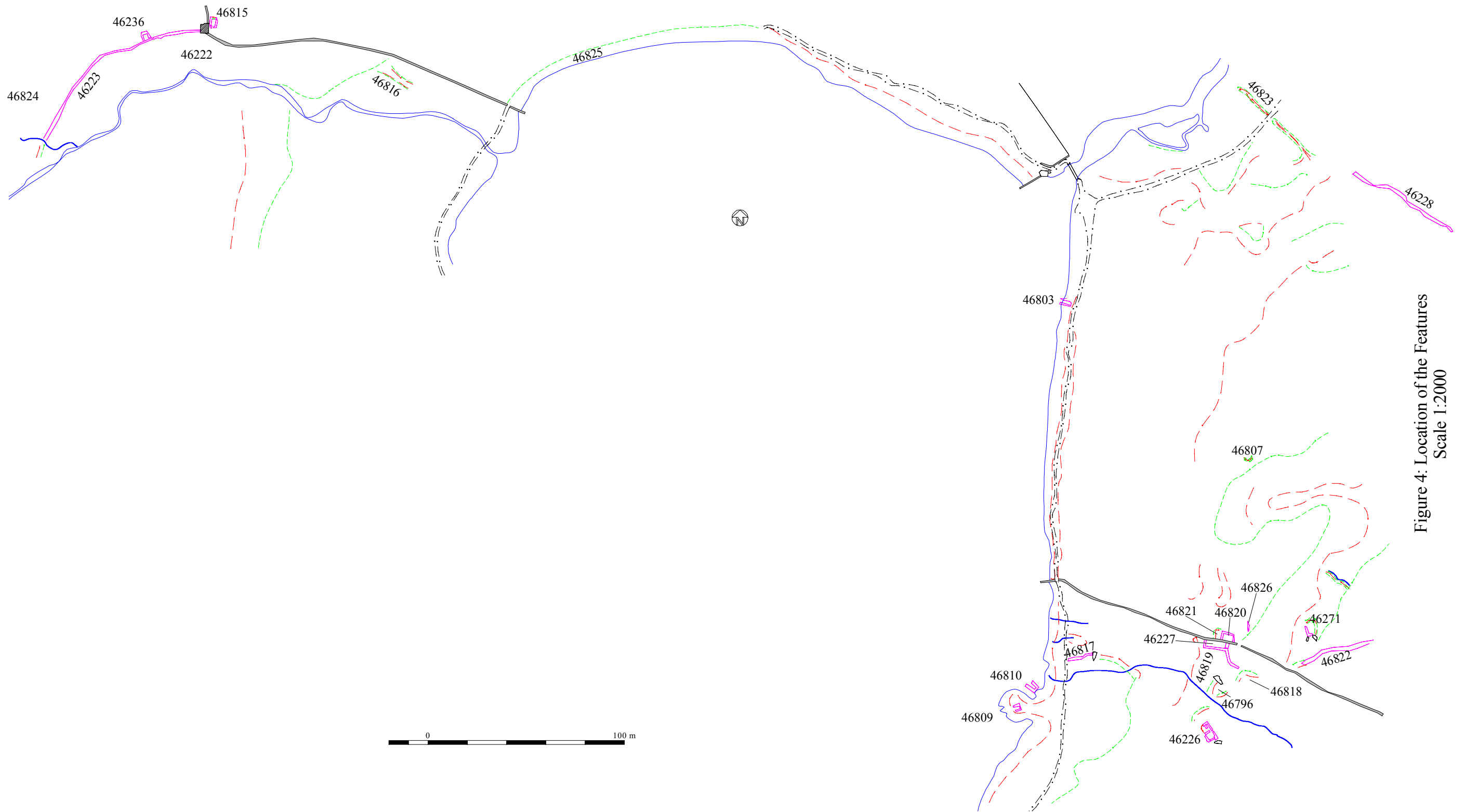
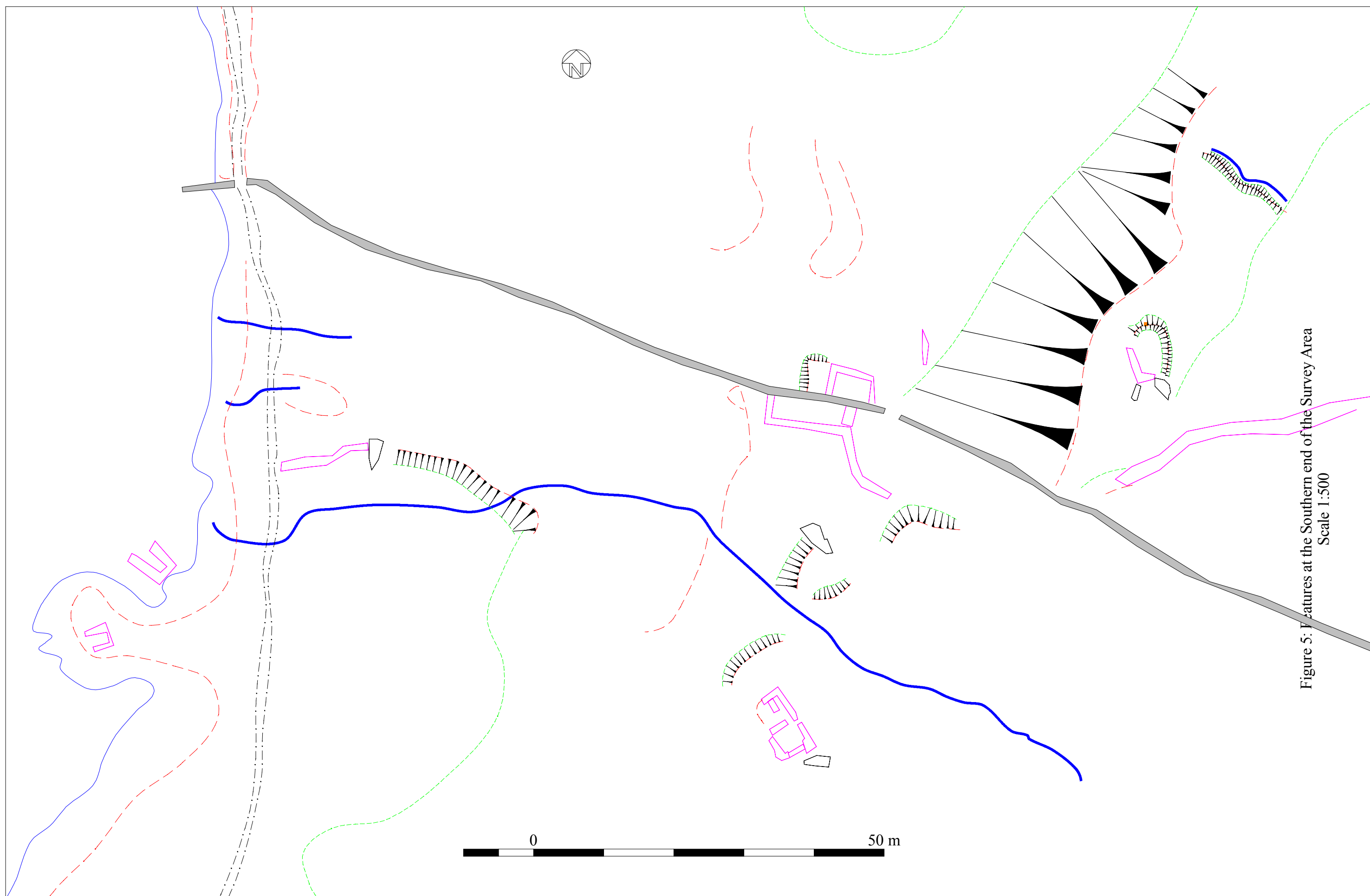


Figure 4: Location of the Features
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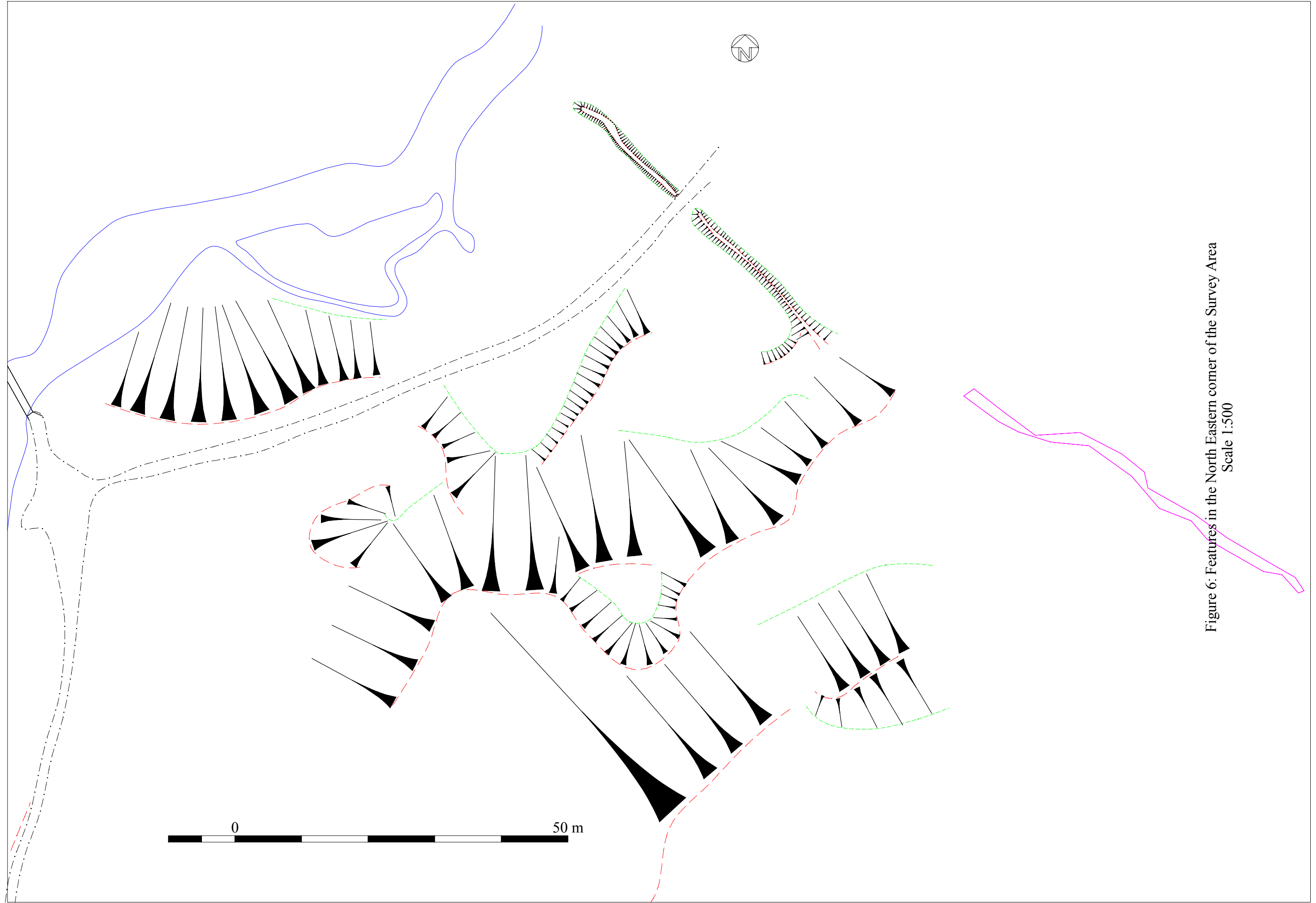


Figure 6: Features in the North Eastern corner of the Survey Area
Scale 1:500

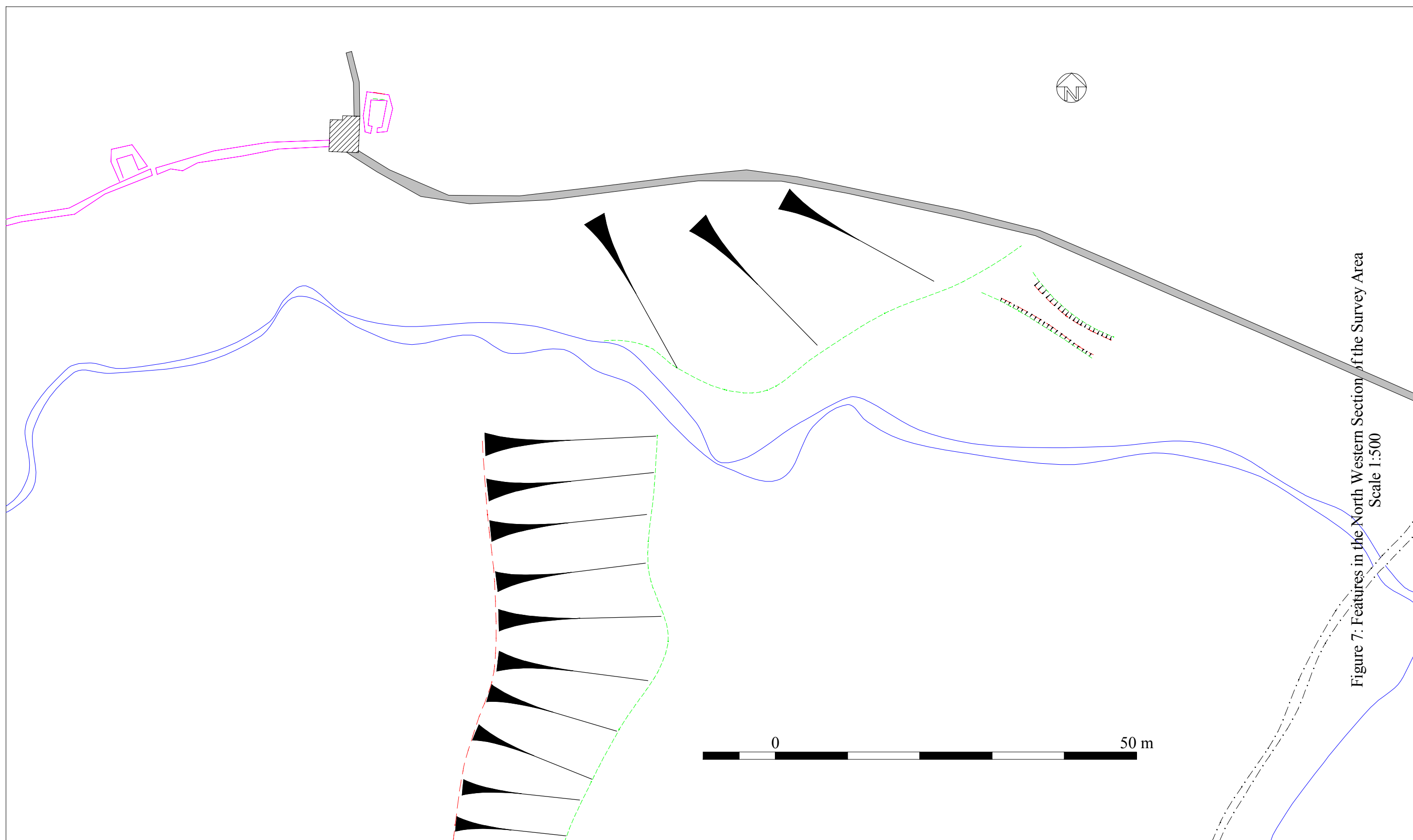


Figure 7: Features in the North Western Section of the Survey Area
Scale 1:500

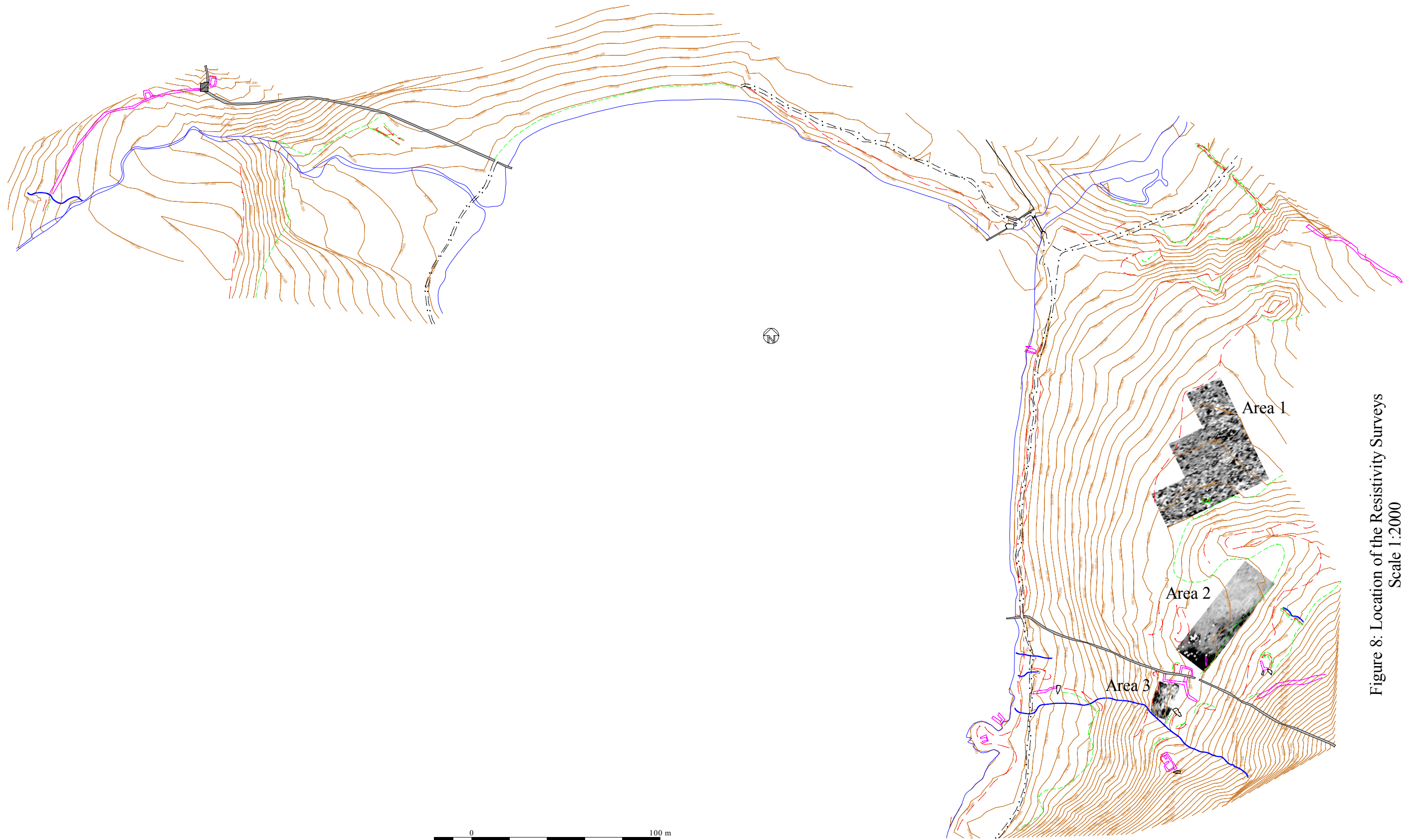


Figure 8: Location of the Resistivity Surveys
Scale 1:2000

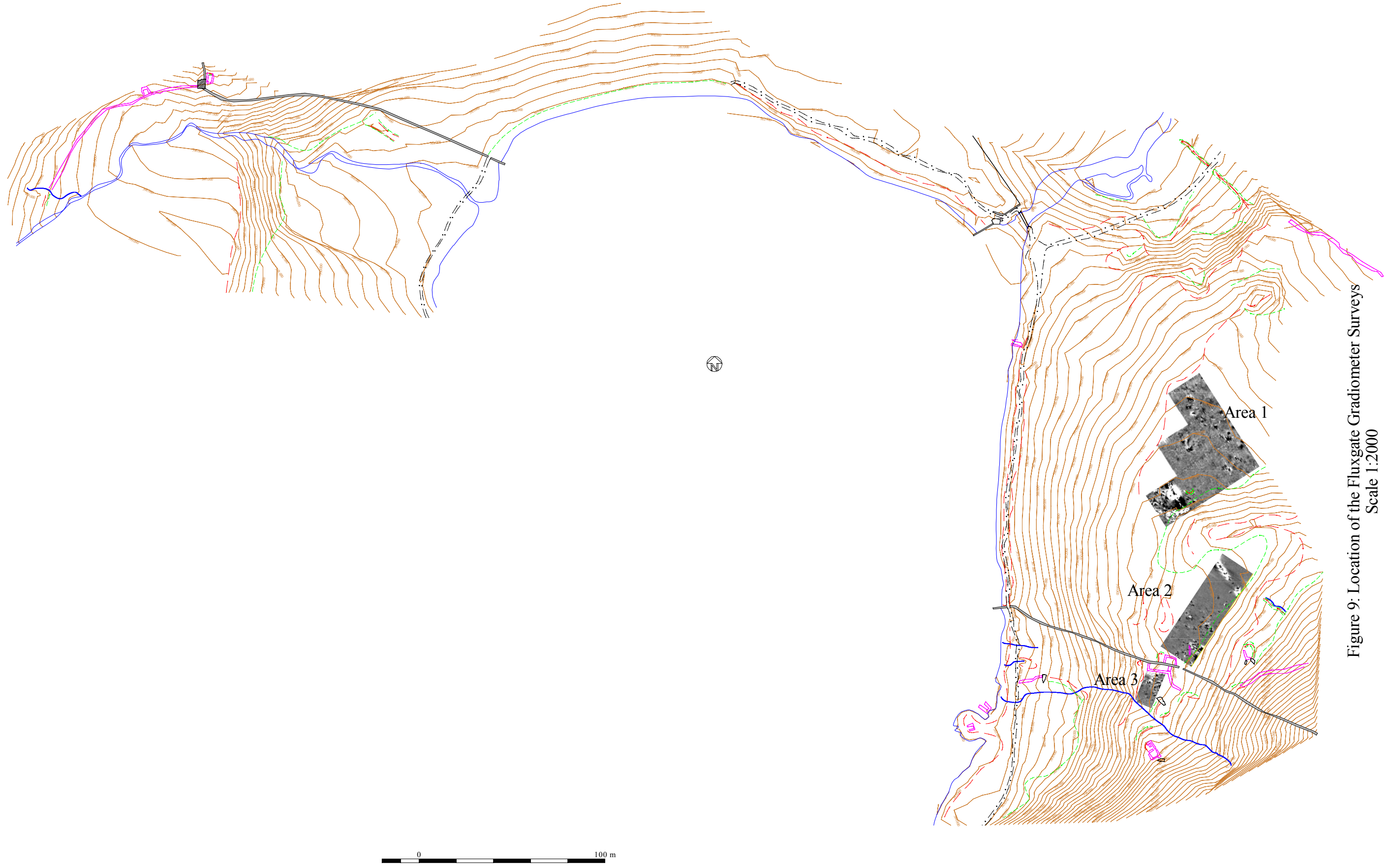
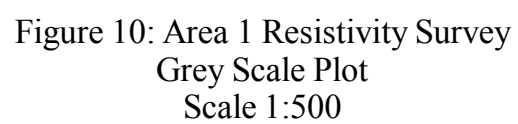
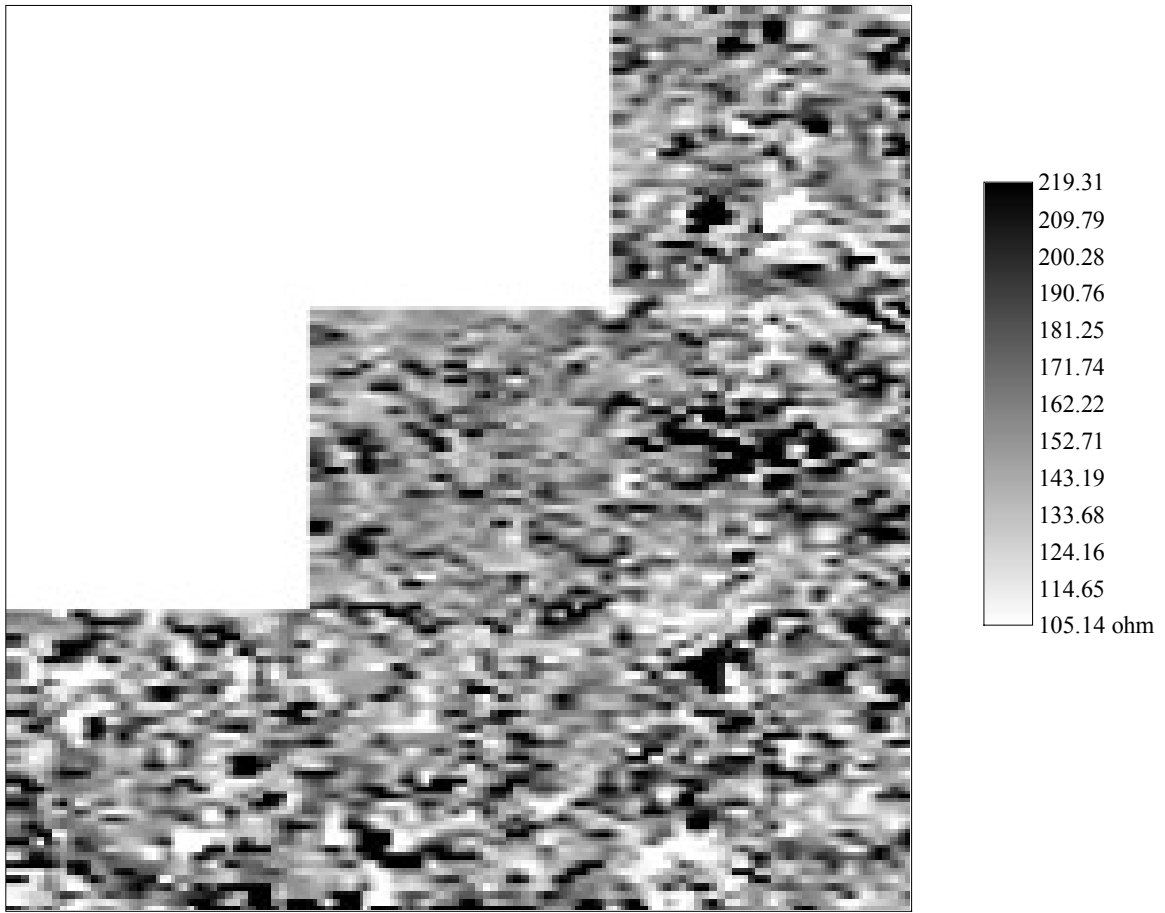


Figure 9: Location of the Fluxgate Gradiometer Surveys
Scale 1:2000



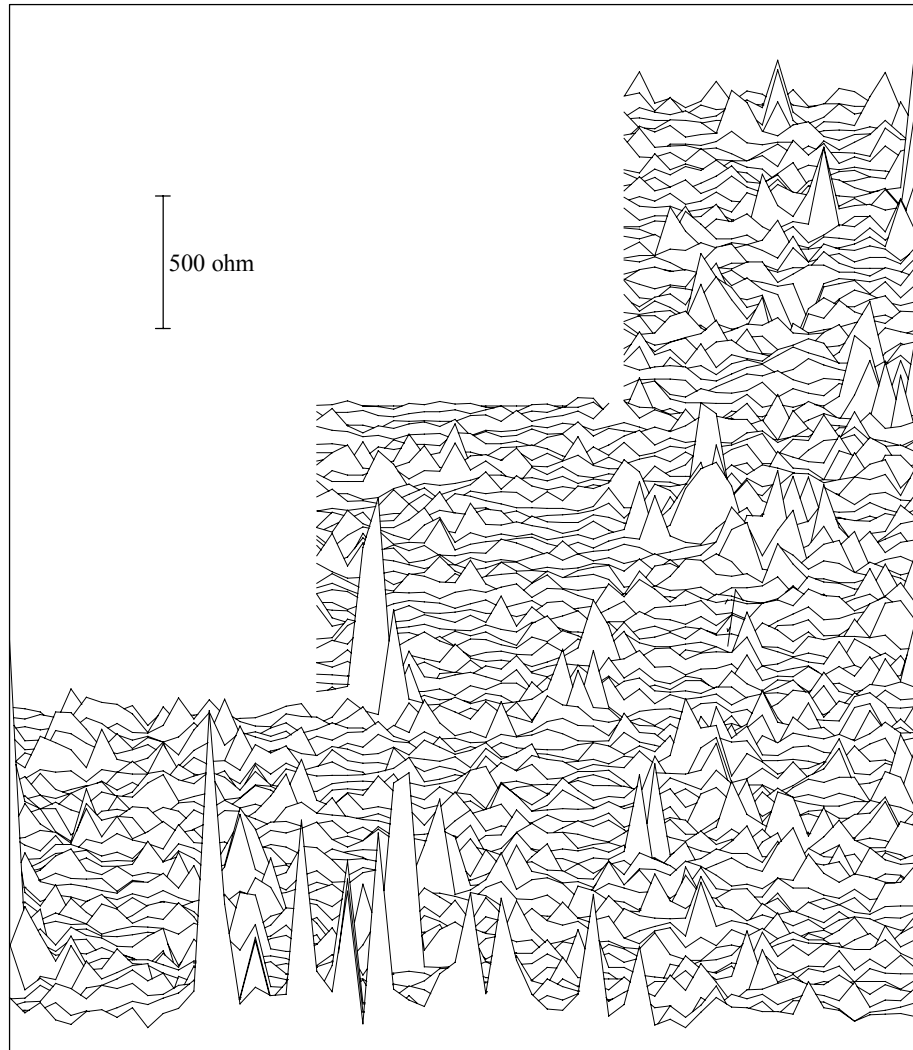
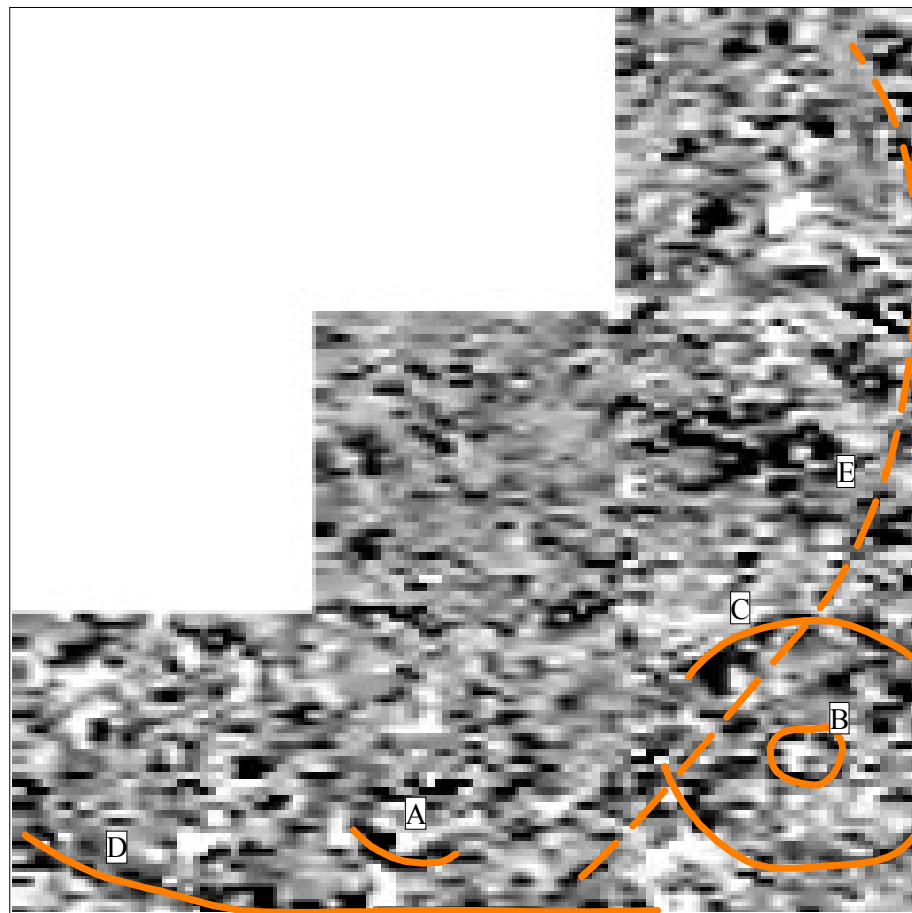
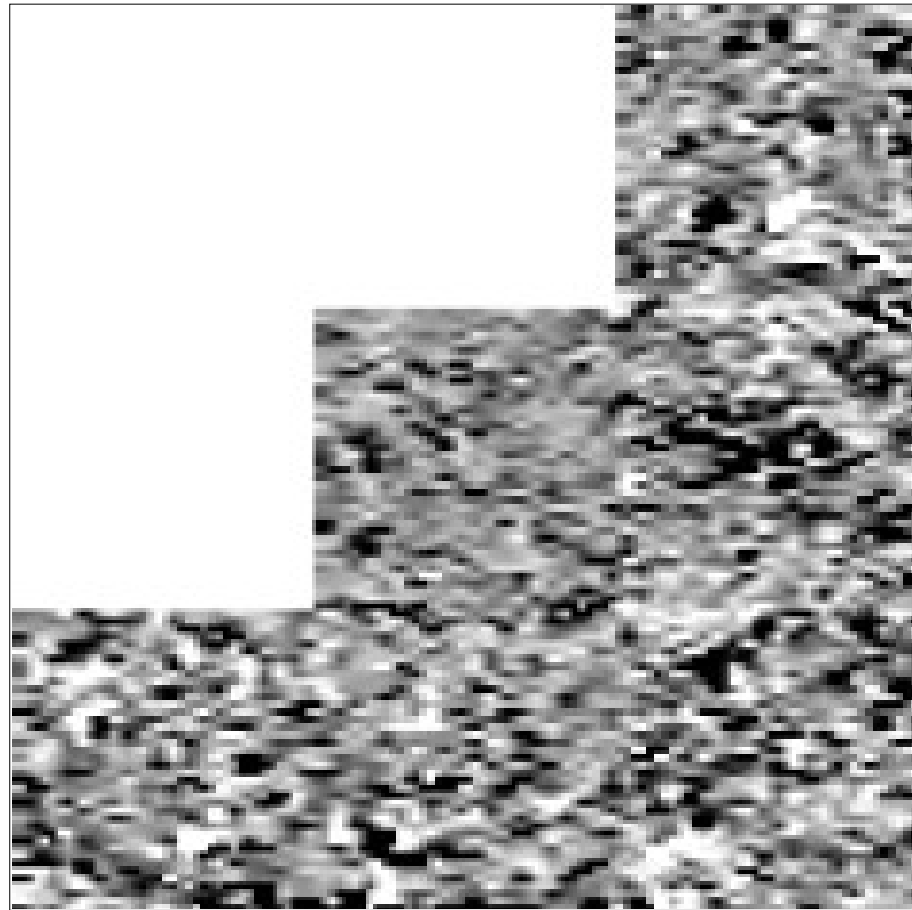


Figure 11: Area 1 Resistivity Survey
X-Y Plot
Scale 1:500



- Enhanced resistance anomaly
- - - Possible enhanced resistance anomaly



Figure 12: Area 1 Resistivity Survey
Interpretation
Scale 1:500

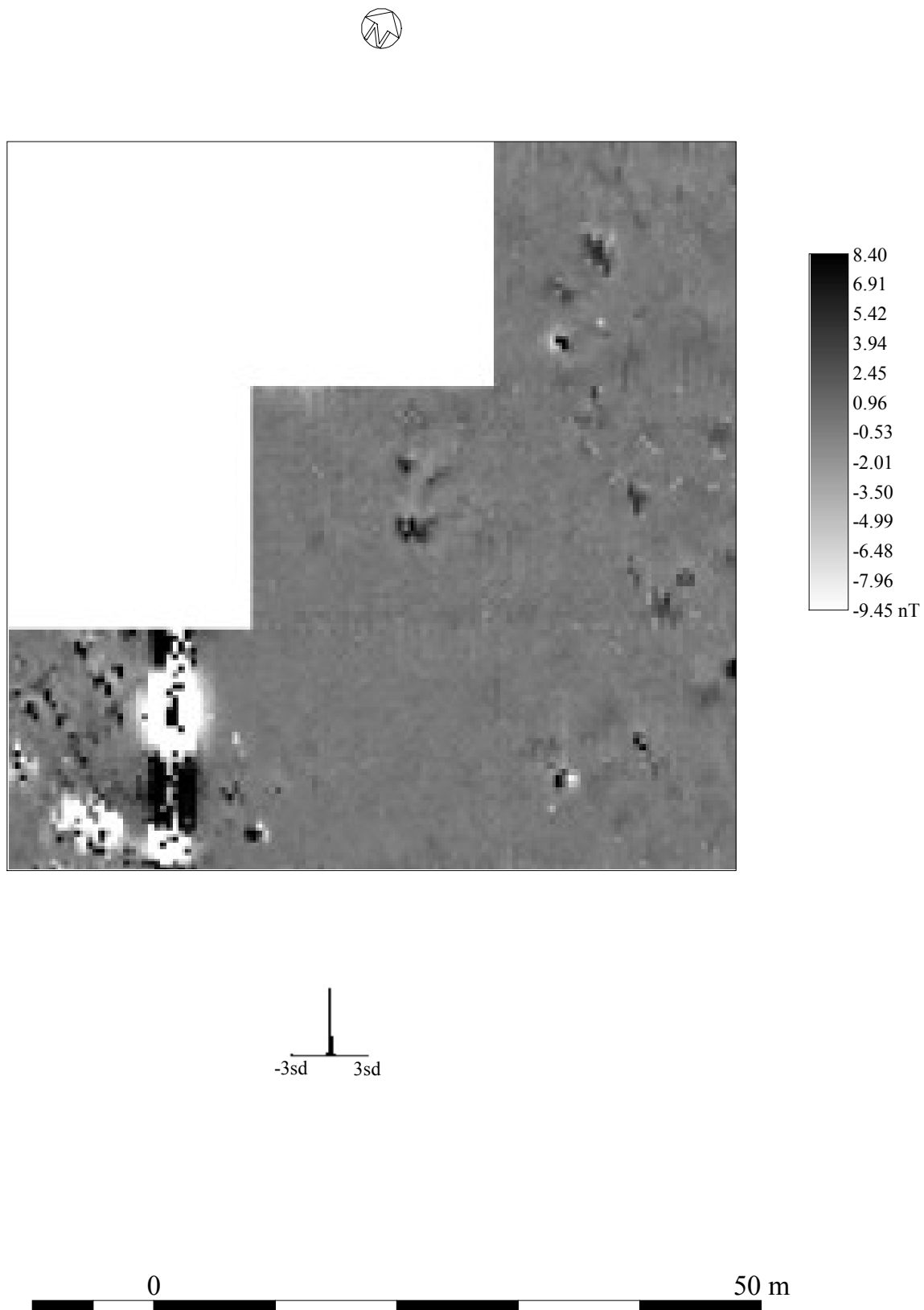


Figure 13: Area 1 Fluxgate Gradiometer Survey
Grey Scale Plot
Scale 1:500

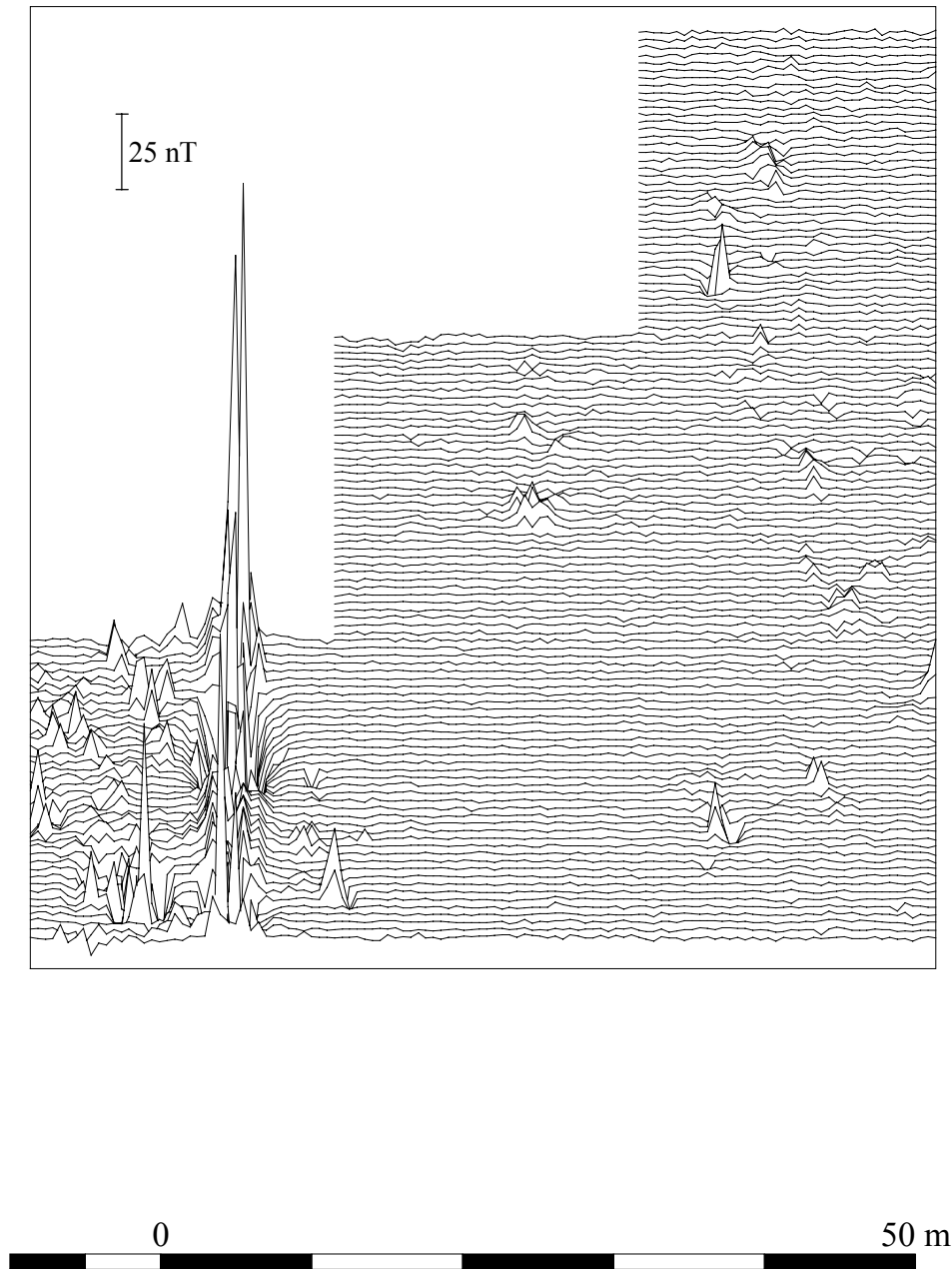
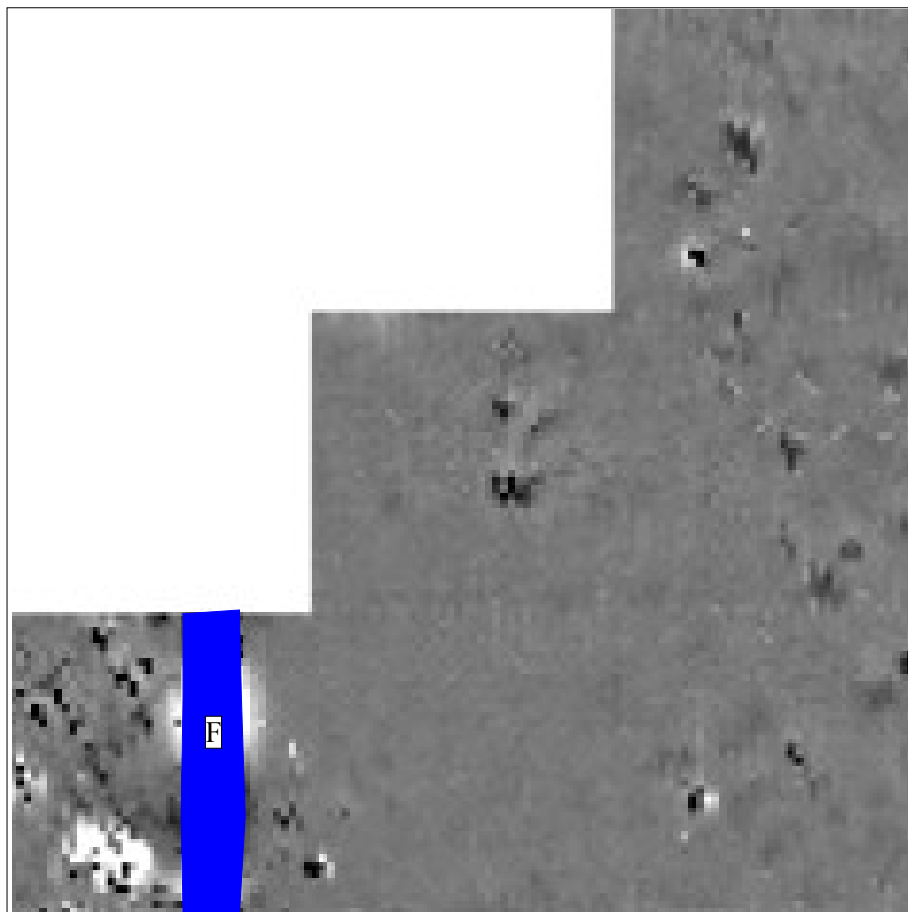
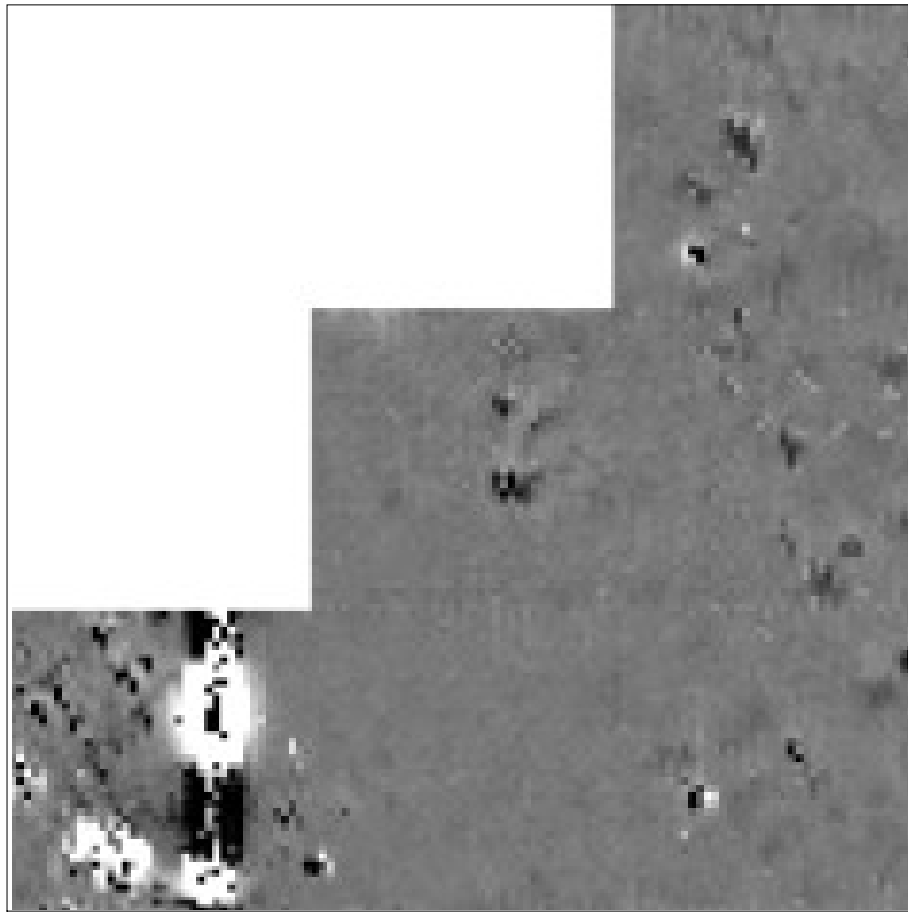


Figure 14: Area 1 Fluxgate Gradiometer Survey
X-Y Plot
Scale 1:500




 Ferromagnetic anomaly



Figure 15: Area 1 Fluxgate Gradiometer Survey
Interpretation
Scale 1:500

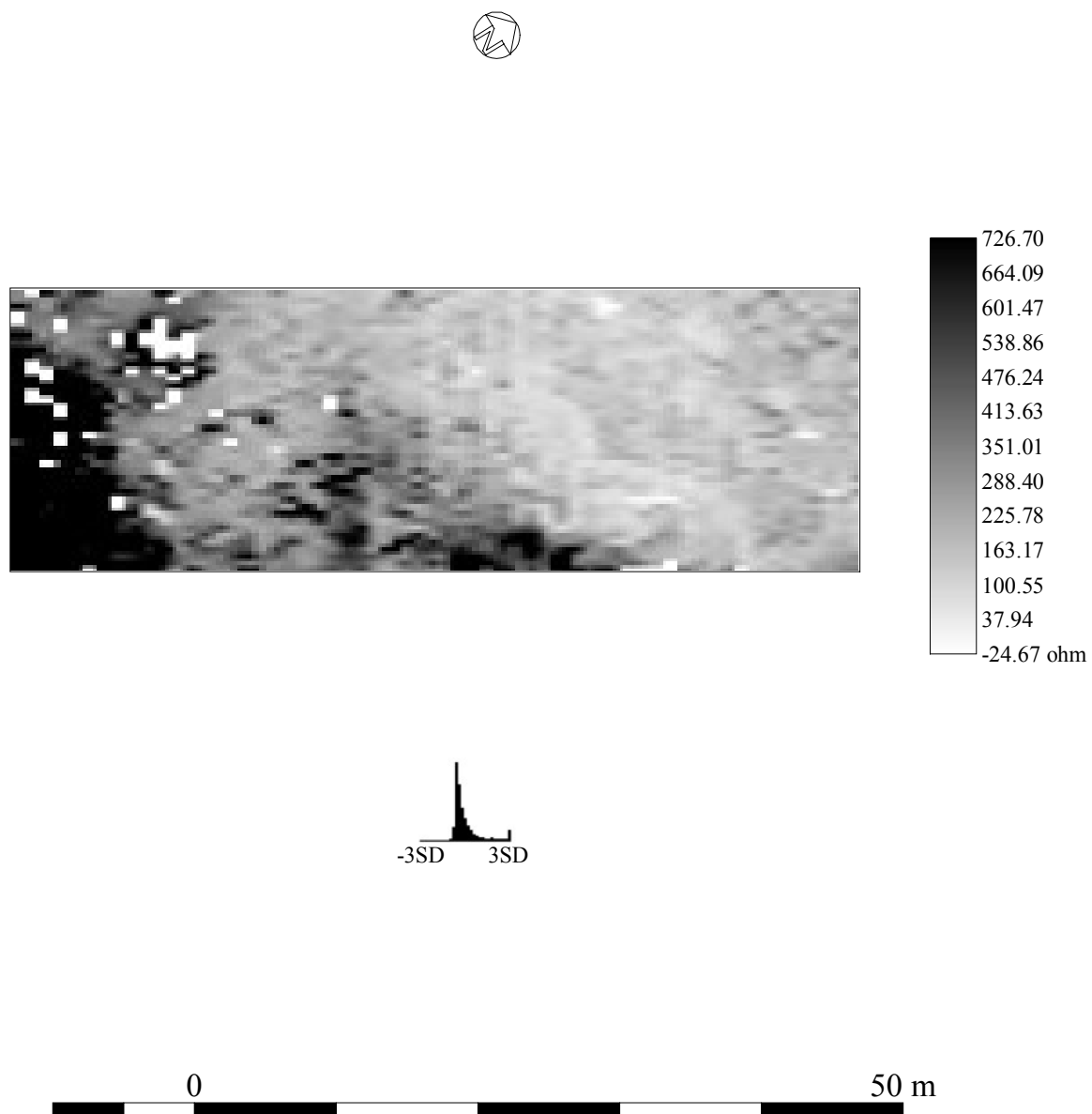


Figure 16: Area 2 Resistivity Survey
Grey Scale Plot
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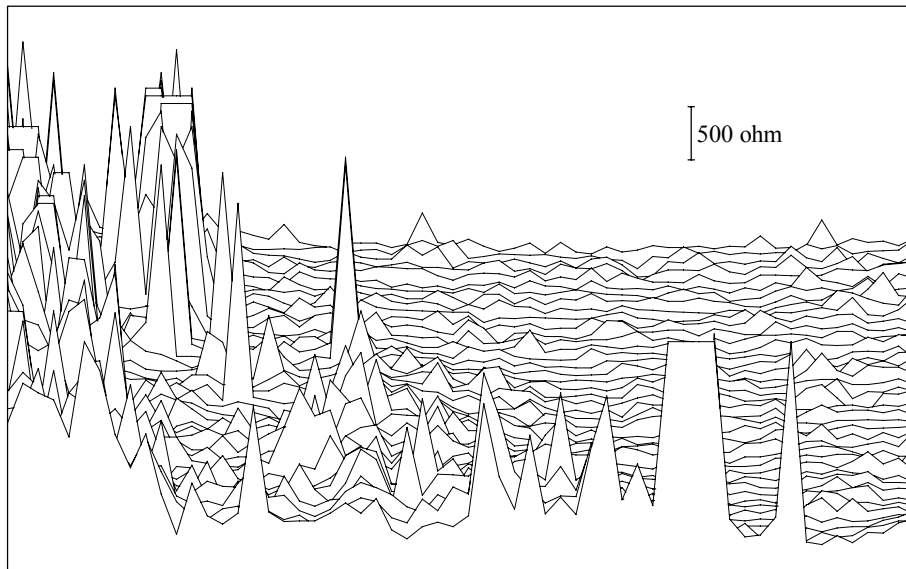
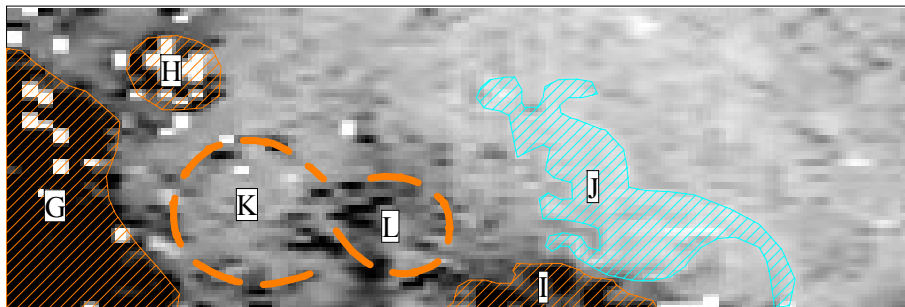
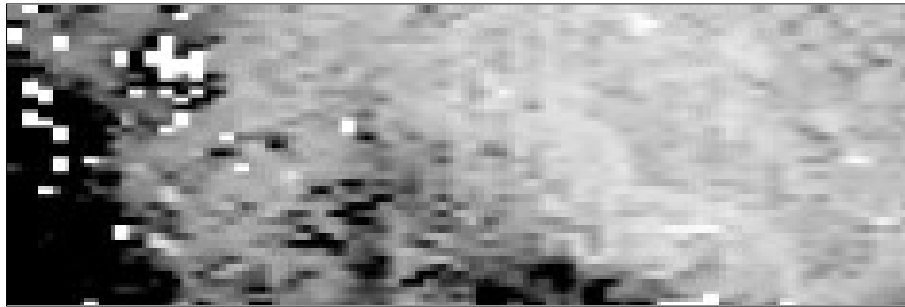


Figure 17: Area 2 Resistivity Survey
X-Y Plot
Scale 1:500







-  Enhanced resistance anomaly
-  Possible enhanced resistance anomaly
-  Area of enhanced resistance
-  Area of reduced resistance



Figure 18: Area 2 Resistivity Survey
Interpretation
Scale 1:500

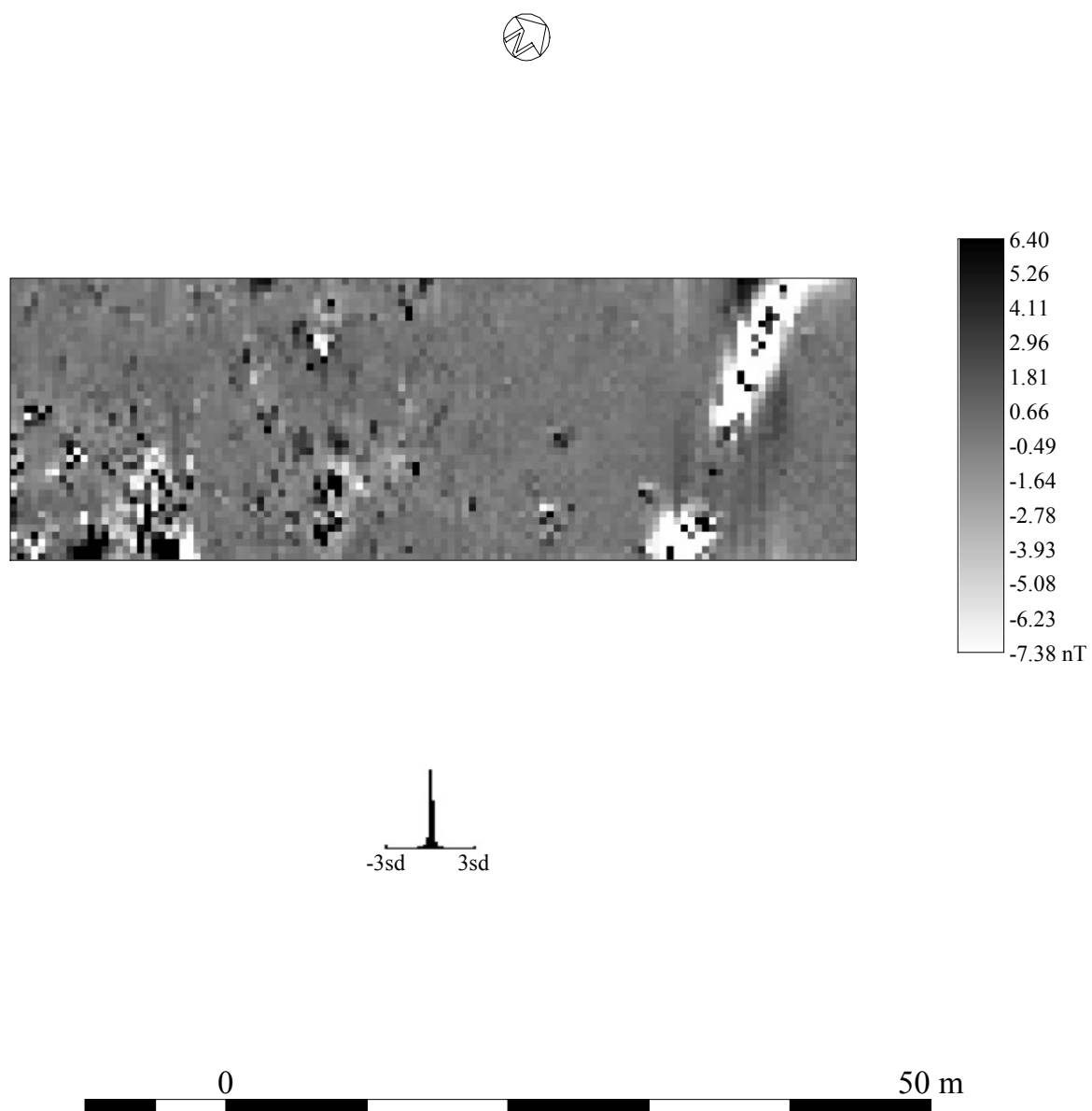


Figure 19: Area 2 Fluxgate Gradiometer Survey
Grey Scale Plot
Scale 1:500

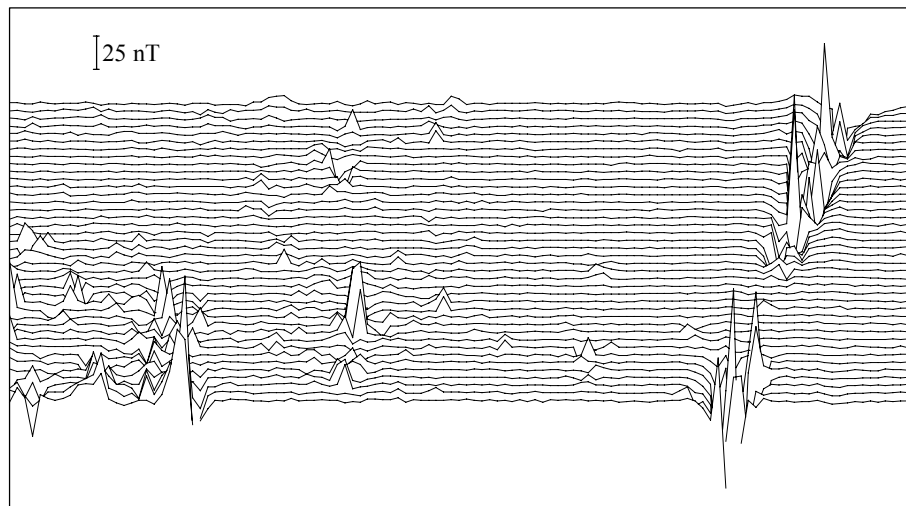
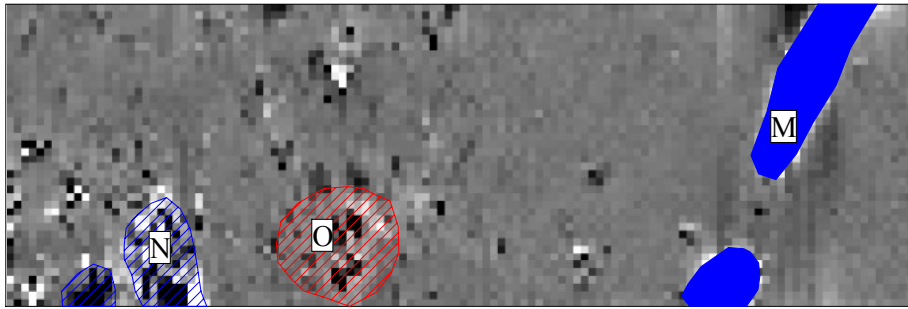
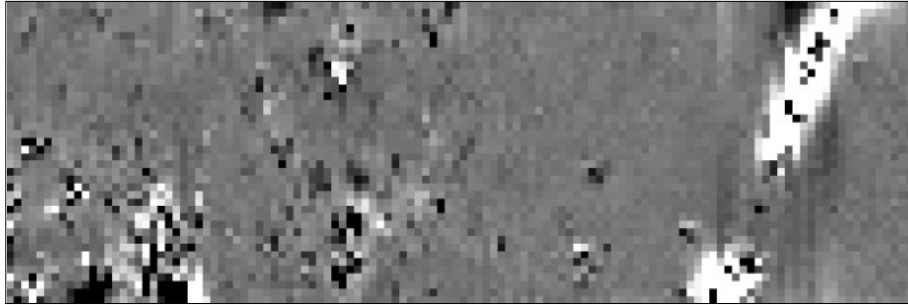


Figure 20: Area 2 Fluxgate Gradiometer Survey
X-Y Plot
Scale 1:500






-  Ferromagnetic anomaly
-  Area of very high magnetic variability
-  Area of magnetic anomaly



Figure 21: Area 2 Fluxgate Gradiometer Survey
Interpretation
Scale 1:500

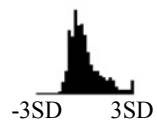
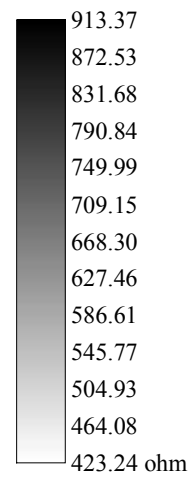
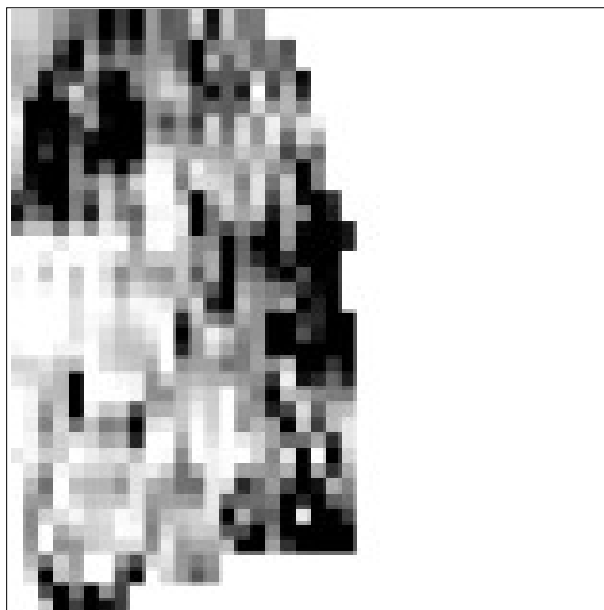


Figure 22: Area 3 Resistivity Survey
Grey Scale Plot
Scale 1:250

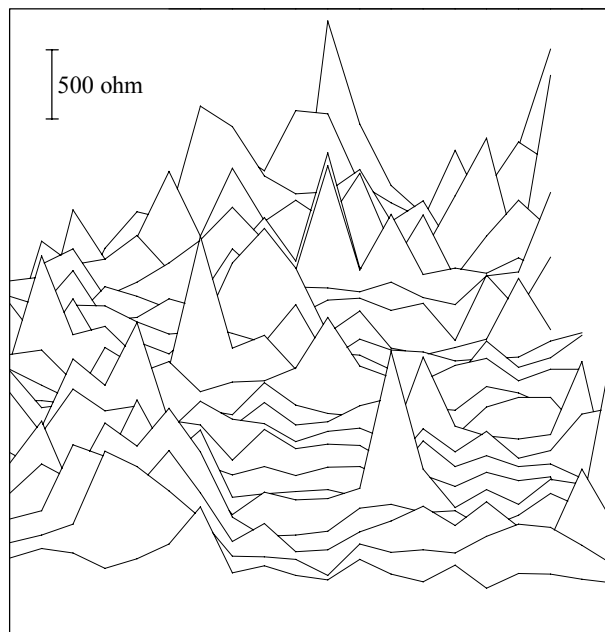
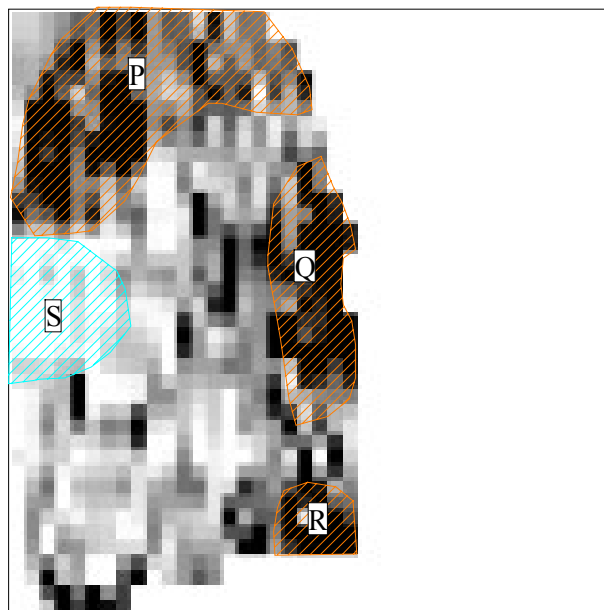


Figure 23: Area 3 Resistivity Survey
X-Y Plot
Scale 1:250





-  Area of enhanced resistance
-  Area of reduced resistance

Figure 24: Area 3 Resistivity Survey
Interpretation
Scale 1:250

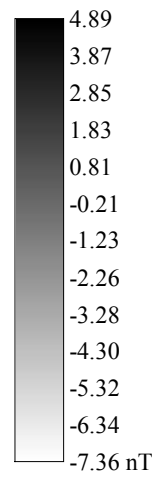
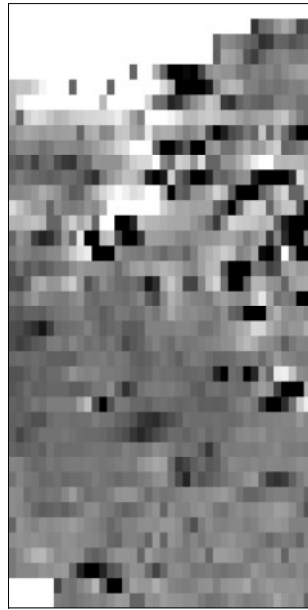


Figure 25: Area 3 Fluxgate Gradiometer Survey
Grey Scale Plot
Scale 1:250

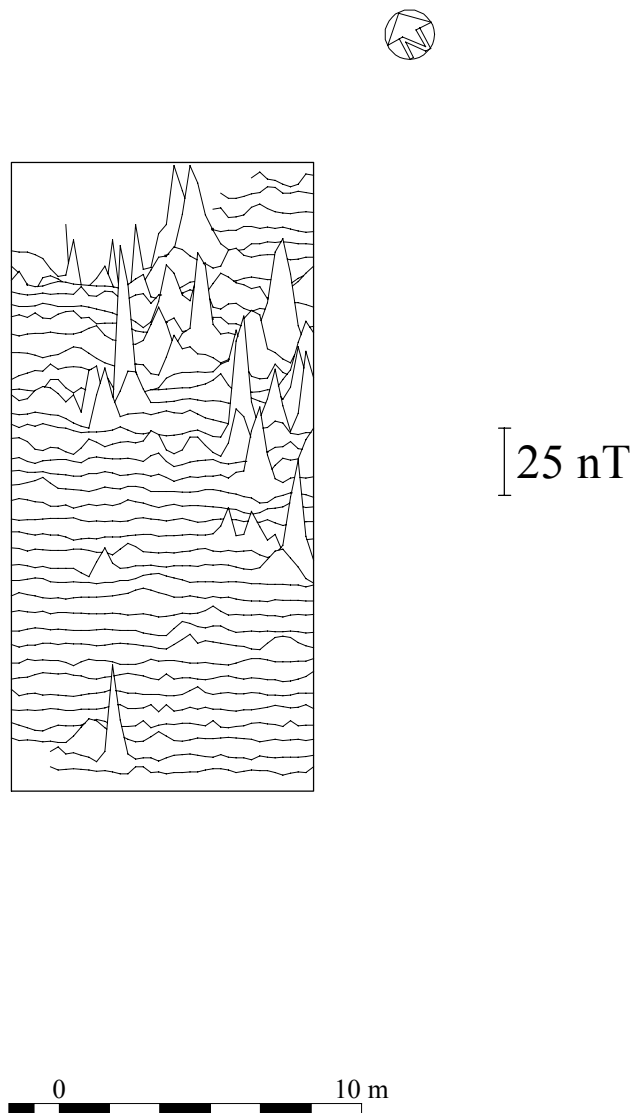
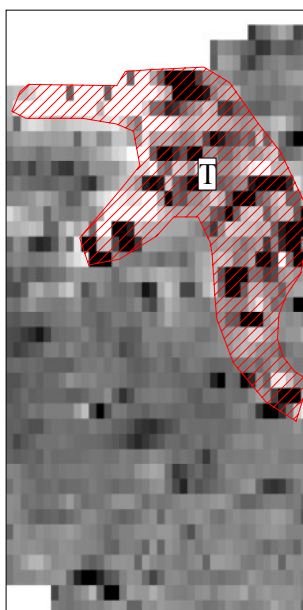
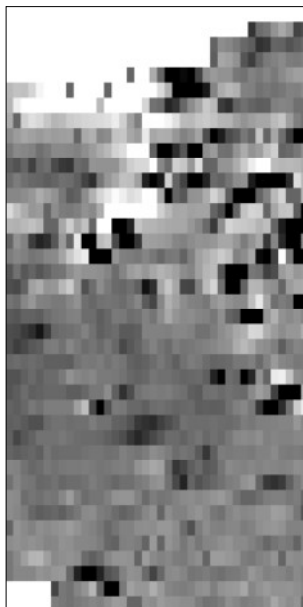


Figure 26: Area 3 Fluxgate Gradiometer Survey
X-Y Plot
Scale 1:250



Area of magnetic anomaly

Figure 27: Area 3 Fluxgate Gradiometer Survey
Interpretation
Scale 1:250

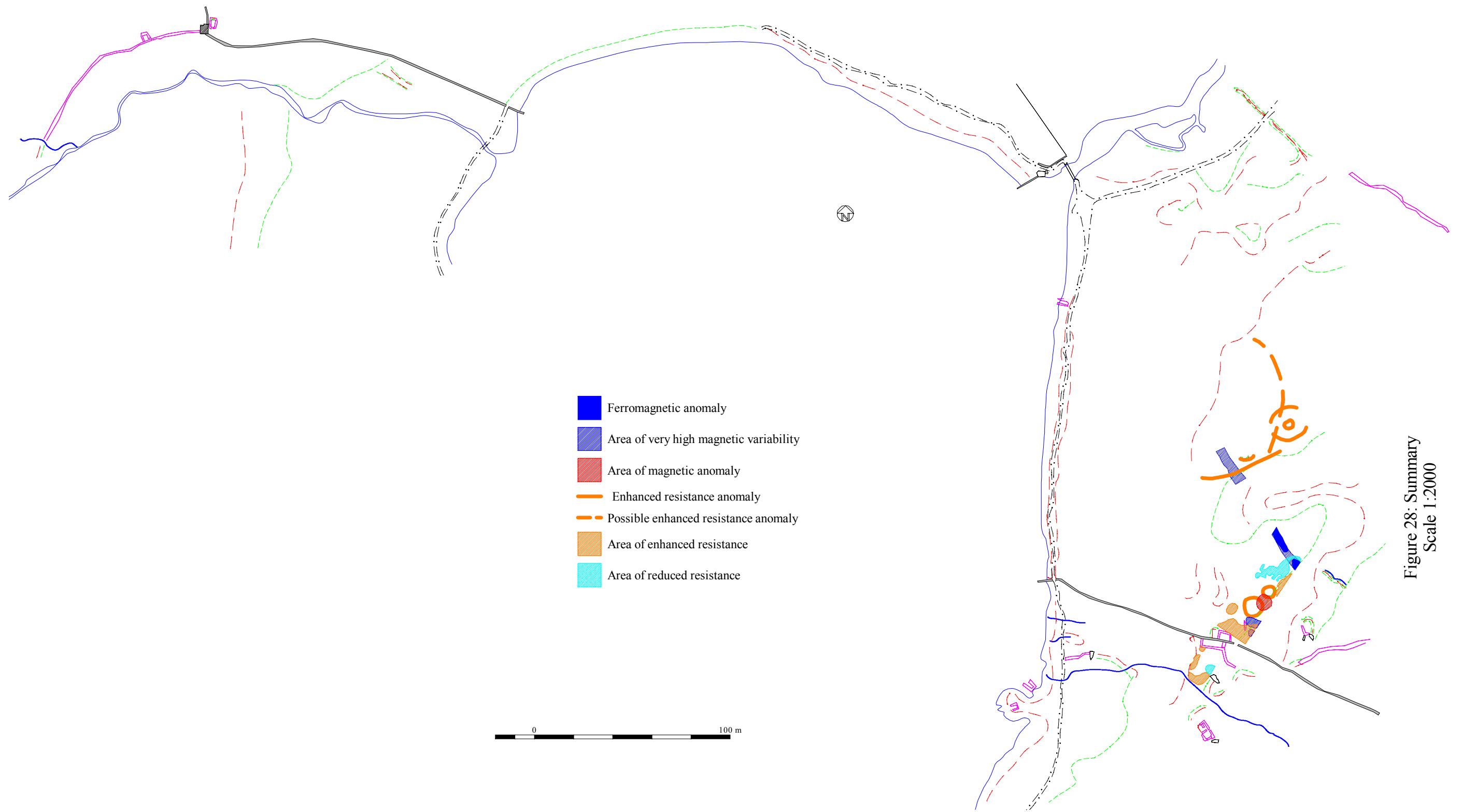


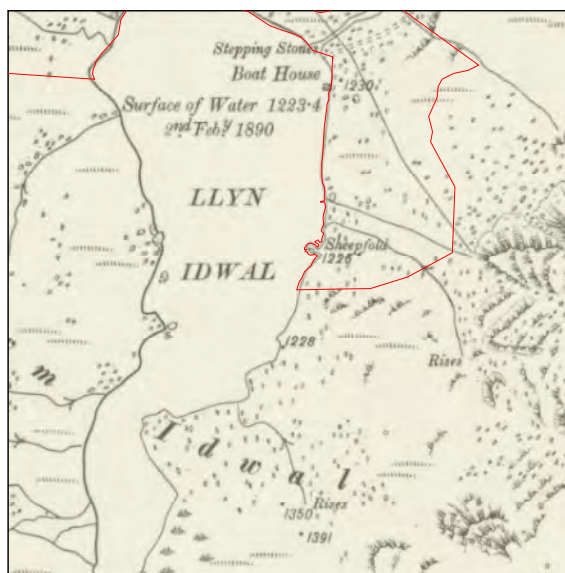
Figure 28: Summary
Scale 1:2000



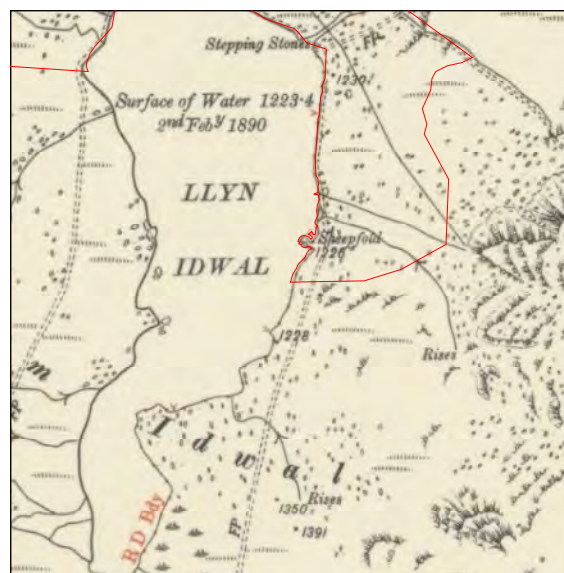
1888



1901



1920



1953

Figure 29: Extracts from the Ordnance Survey 1:10,560 maps
Caernarvonshire XVII. SE
Rescaled to 1:10,000



Plate 1: Panorama of the survey area



Plate 2: 46226, looking NW



Plate 3: 46226 looking SE



Plate 4: Blocked inglenook fire in 46226



Plate 5: Later sheep pen in 46226



Plate 6: 46796 and 46819



Plate 7: 46271, looking north



Plate 8: 46227



Plate 9: 46822



Plate 10: 46820



Plate 11: 46821



Plate 12: 46817



Plate 13: 46809



Plate 14: 46810



Plate 15: 46803



Plate 16: 46807



Plate 17: 46823



Plate 18: 46228

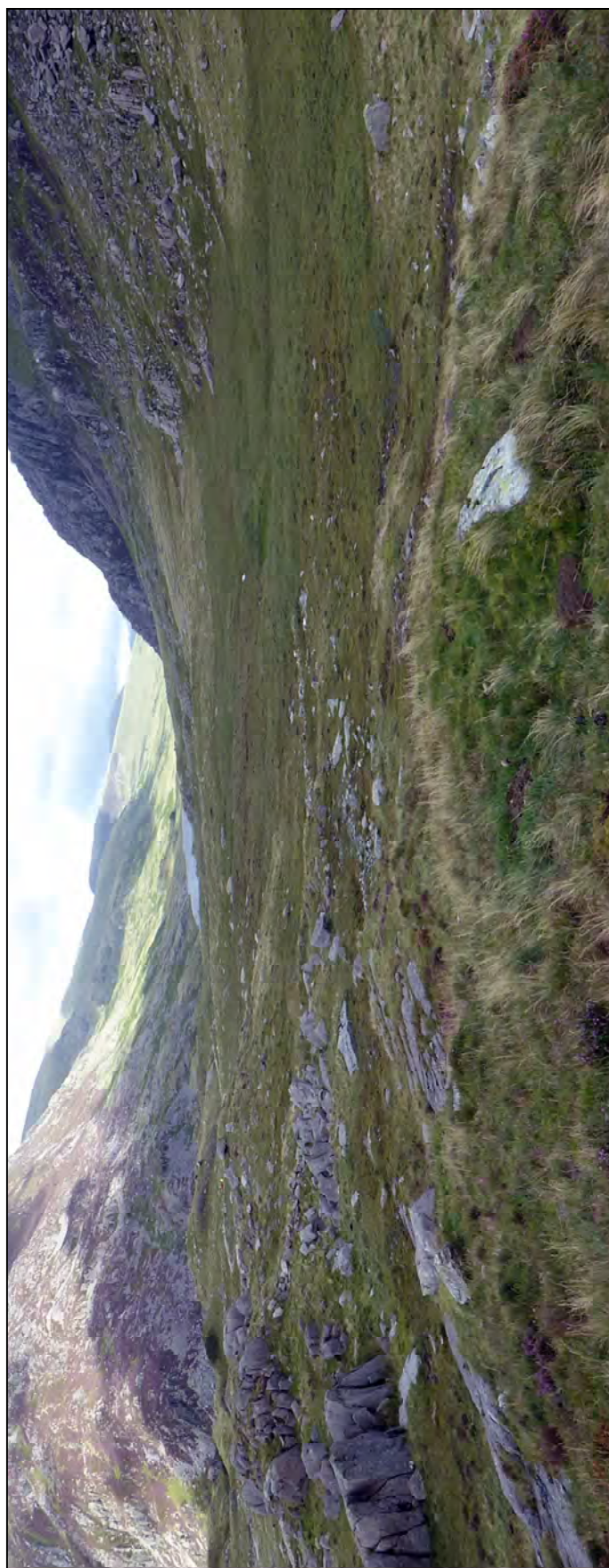


Plate 19: Panorama showing the relationship between 46228 and its continuation



Plate 20: 46223



Plate 21: Entrance through 46223



Plate 22: 46236



Plate 23: 46815



Plate 24: 46222



Plate 25: 46816



Plate 26: Artefacts from 46824



Plate 27: Artefacts from 46825