XLINKS' MOROCCO-UK POWER PROJECT

Environmental Statement

Volume 2, Appendix 2.2: Onshore Geophysical Survey Report

Document Number: 6.2.2.2

PINS Reference: EN010164/APP/6.2

APFP Regulations: 5(2)(a)

November 2024

For Issue

Document status					
Version	**Purpose of document**	**Authored by**	**Reviewed by**	**Approved by**	**Review date**
For Issue	Application	SUMO GeoSurveys	Xlinks 1 Ltd	Xlinks 1 Ltd	November 2024

Prepared by:

SUMO GeoSurveys

Prepared for:

Xlinks 1 Limited

Geophysical Survey Report

Xlinks' Morocco-UK Power Project

UK Onshore Cable Corridor

Client

Xlinks Ltd

Survey Report

15835

OASIS Ref. No.

sumogeop1-526834

Date

14 October 2024

Survey Report 15835: Xlinks' Morocco-UK Power Project

Survey dates	7-30 September 2022 3-19 October 2022 21-24 November 2022 6-9 March 2023 16-19, 22-26 & 29-31 January 2024 1 & 19-22 February 2024
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Appendix B	Technical Information: Magnetic Theory
Appendix C	OASIS Data Collection Sheet
Appendix D	Data Management Plan & Archive Selection Strategy

3 SURVEY TECHNIQUE

3.1 Detailed magnetic survey (magnetometry) was chosen as the most efficient and effective method of locating the type of archaeological anomalies which might be expected at this site. All survey techniques followed the guidance set out by CIfA (2020) and the European Archaeology Council (EAC) (2016).

Bartington Grad 601-2	Traverse Interval 1.0 m	Sample Interval 0.25 m
Bartington Cart System	Traverse Interval 1.0 m	Sample Interval 0.125 m

The only processes performed on data are the following unless specifically stated otherwise:

Zero Mean Traverse	This process sets the background mean of each traverse within each grid to zero. The operation removes instrument striping effects and edge discontinuities over the whole of the data set.
Step Correction (De-stagger)	When gradiometer data are collected in 'zig-zag' fashion, stepping errors can sometimes arise. These occur because of a slight difference in the speed of walking on the forward and reverse traverses. The result is a staggered effect in the data, which is particularly noticeable on linear anomalies. This process corrects these errors.

4 SUMMARY OF RESULTS

4.1 A magnetometer survey of land for a proposed development situated in Devon has recorded several magnetic responses that have be interpreted as being of archaeological interest. Numerous ditches, pits, a round barrow, enclosures, a ring-ditch, trackways, settlements and responses associated with a WWII gun range have been recorded. Some of the anomalies correspond with heritage assets that are detailed in the Historic Environment Record (HER) while some of the responses appear to be unknown prior to the geophysical survey. Numerous responses of uncertain origin have also been plotted which could be due to combinations of agricultural and natural processes. Corroborated and conjectural former field boundaries are visible along with ploughing, land drains plus ridge and furrow ploughing. The routes of several service pipes have also been recorded throughout the survey.

5 INTRODUCTION

5.1 **SUMO GeoSurveys** was commissioned to undertake a geophysical survey for an area of 196 hectares (ha) of land between Cornborough Range and Alverdiscott, in North Devon (see Figure 01). The survey area covers an area of land for a proposed onshore cable corridor and Converter Site. This survey forms part of an archaeological investigation being undertaken by **Xlinks Ltd**.

5.2 Site Details

National Grid Reference (NGR) / Postcode	Western extent: SS 41481 27773 / EX39 5AY Eastern extend: SS 50116 24587 / EX39 4QE
Location	The western extent of the survey route is located 2 km south -west of Westward Ho and 4 km west of Bideford. The route passes through Abbotsham, below Bideford and extends eastwards into Gammaton Moor.
HER	Devon HER
OASIS Ref. No.	sumogeop1-526834
District	Torridge District
Parish	Abbotsham CP / Alwington CP / Littleham CP / Bideford CP / Alverdiscott CP / Huntshaw CP / Weare Giffard CP
Topography	Undulating
Land Use	Arable agricultural / pasture
Geology (BGS 2024)	Bedrock: Bude Formation - Sandstone Bude Formation - Mudstone and siltstone Crackington Formation - Mudstone and siltstone Bideford Formation - Sandstone Superficial: None recorded
Soils (CU 2024)	Soilscape 6: Freely draining slightly acid loamy soils Soilscape 13: Freely draining acid loamy soils over rock Soilscape 17: Slowly permeable seasonally wet acid loamy and clayey soils
Survey Methods	Magnetometer survey (fluxgate gradiometer)
Study Area	196 ha

5.3 Archaeological Background

5.3.1 A search of the Devon HER has revealed that a number of records are located along the proposed onshore cable corridor. A list of the archaeological assets with the survey areas can be seen in Table 5.4.

5.4 Table 5.4: HER Records within the Survey Areas

Field No.	MonUID	Summary
1	MDV25572	Just over two hundred flints were found during fieldwalking on fields named as Yearnsborough Land and Tooks Land on the 19th century Tithe map and Apportionment. The flints included thirty-five false starts, one hundred and three core preparation pieces, fifteen cores, twenty flakes, twelve chips, two core rejuvenation pieces, ten scrapers, one false start core, with one edge rough and battered, possibly reused as a hammerstone and six rough chisels, scoops etc.
1	MDV102155	A possible ditched enclosure, potentially of prehistoric date, is visible as cropmarks on aerial photographs of 1992, to the north of Abbotsham Court.
1	MDV102153	The earthwork remains of Abbotsham rifle range targets and earthwork mantlet are visible at Abbotsham cliff, on aerial photographs of 1945 onwards. Used as a racecourse for an unknown period after 1922.
1	MDV106683	Nineteenth century field name. The borough element may indicate an earthwork.
2	MDV106682	Nineteenth century field name. May indicate a former structure, but none marked on the Tithe map.
2	MDV102156	A possible ditched enclosure, potentially of prehistoric date, is visible as cropmarks on aerial photographs of 1992, to the north of Abbotsham Court.
4	MDV106689	Nineteenth century field name. May refer to former settlement. Record of Ploughing revealing stone setts and light cindery soil.
6	MDV102157	Two narrow parallel linear features are visible as cropmarks on aerial photographs of 1950 to 1992, to the west of East Langdon Farm Abbotsham. The date and function of the features is unknown, but it may be a continuation of a track from the south west.
9/10	MDV102157	Two narrow parallel linear features are visible as cropmarks on aerial photographs of 1950 to 1992, to the west of East Langdon Farm Abbotsham. The date and function of the features is unknown, but it may be a continuation of a track from the south west.
11	MDV122290	Late 19th century footpath, depicted on late 19th century Ordnance Survey map, linking Shamland to Black Lane running Northwest-southeast. No longer visible on 1953-1969 Ordnance Survey map.
13	MDV102126	The line of several linear field boundaries, some of which are depicted on the 1839 Tithe map for the parish of Abbotsham, are visible as earthworks and cropmarks on aerial photographs from the 1940s to the 1990s, to the west of Abbotsham village. The field boundaries fit within the surrounding extant field system, and are a mix of curvilinear boundaries and rectilinear enclosures, probable later medieval or post-medieval in date.
14	MDV102126	The line of several linear field boundaries, some of which are depicted on the 1839 Tithe map for the parish of Abbotsham,

Field No.	MonUID	Summary
		are visible as earthworks and cropmarks on aerial photographs from the 1940s to the 1990s, to the west of Abbotsham village. The field boundaries fit within the surrounding extant field system, and are a mix of curvilinear boundaries and rectilinear enclosures, probable later medieval or post-medieval in date.
15, 16, 17 & 26	MDV80668	Elongated enclosure, Abbotsham. Visible on Ordnance Survey 1880s-90s First Edition 25 inch map.
16	MDV35563	Artefact scatter in the Parish of Abbotsham, three people walking for 1 1/2 hours found; one scraper, one core, two flakes (meade).
31	MDV106687	Nineteenth century field name. May refer to a windmill.
31	MDV35562	A few pieces of flint and chert including a scraper have been found.
31	MDV106688	Nineteenth century field name. May refer to barn, but no barn marked on Tithe map.
32	MDV102106	The remains of possible former banked field boundaries of medieval or post-medieval date are visible as low earthworks on aerial photographs of the 1970s, to the north east of High Park Farm, Abbotsham.
42	MDV102359	The location of a possible removed field boundary of probable medieval date is visible on aerial photographs as a faint cropmark, to the north of Winscott, Alwington.
46	MDV104621	A large curvilinear ditch, possibly part of a prehistoric enclosure and potentially therefore of national significance. The ditch, which was originally recorded during geophysical survey, is also visible as an earthwork on LiDAR and appears to continue
70	MDV108474	Remnants of a former field system recorded by geophysical survey.
74	MDV105966	Linear boundaries identified in trench evaluation on the west side of the Torridge and interpreted as possibly forming part of a Romano-British rectilinear field system on either side of the river.
74	MDV29732	Subcircular single ditched enclosure, followed by line of hedge on north side. Recorded as cropmark by f. Griffith in June 1984.
74	MDV108418	A series of banks and ditches recorded by geophysical survey immediately north of a possible Romano-British field system.
74 & 76	MDV80719	Curvilinear enclosure, Hallsannery. Visible on Ordnance Survey 1880s-90s First Edition 25 inch map.
76	MDV131155	Crop marks possibly denoting a rectilinear enclosure associated with Roman settlement or a later farmstead. There is also the possibility that the crops marks are agricultural in origin.
83	MDV63447	Double ditched enclosure and adjacent features; recorded as a cropmark.
83, 86 & 87	MDV105967	Linear boundaries identified in trench evaluation on the east side of the Torridge and interpreted as possibly forming part of a Romano-British rectilinear field system on either side of the river.
89	MDV108424	Area of probable banks and ditches recorded by geophysical survey north west of Bryberry.
89	MDV108422	Deserted settlement shown on mid-19th century map.

Field No.	MonUID	Summary
136	MDV131120	Geophysical survey recorded a number of anomalies thought to be associated with field systems dating to the prehistoric or later period.
136	MDV131121	Geophysical survey recorded an anomaly group thought to represent an enclosure, currently of unknown date.
125 & 126	MDV80952	Curvilinear enclosure, Brownscombe. Visible on Ordnance Survey 1880s-90s First Edition 25 inch map.
166	MDV102158	Three narrow parallel linear features are visible as cropmarks on aerial photographs of 1950 to 1992, to the north west of East Langdon Farm, Abbotsham. The date and function of the features is unknown, and they may be non-archaeological in origin.
188	MDV106659	Nineteenth century field names. No crossroad shown on map.
190	MDV35560	A variety of flint artefacts including a small Late Mesolithic microlith have been found in a field named Moor on the 19th century Tithe map and Apportionment.

5.5 Aims and Objectives

5.5.1 To locate and characterise any anomalies of possible archaeological interest within the study area.

6 RESULTS

6.1 The linear survey spans multiple land parcels, and each area has been given a field number; these start at 1 in the western extremity. Magnetic responses of specific interest have been given numbers which appear in the text below, as well as on the Interpretation Figure(s).

6.2 Steep terrain in Areas 64, 66 and 81 plus waterlogging in Area 152 rendered these parts of the route unsurveyable.

6.3 *Probable Archaeology*, *Possible Archaeology* and *Uncertain* responses are discussed below for each area, while field boundaries, agricultural responses, natural anomalies, services and ferrous / magnetic disturbance are considered at the end of the results section.

6.4 Area 1

Probable / Possible Archaeology

Two discrete ditch-like responses [1.1 & 1.2] have been detected in the survey which have been assigned to the category of Probable Archaeology. They correspond with the locations of earthworks remains that were part of Abbotsham rifle range; they are visible on aerial photographs of 1945 onwards (MDV102153).

Ditch-like responses [1.3] in the west of Area 1 comprise a length of linear ditch and a semi-circular response; they have been categorised as being of Possible interest. They could have archaeological origins, perhaps associated with the former gun range (MDV102153) or they could be of greater antiquity as a possible ditched enclosure, potentially of prehistoric date (MDV102156), is located just outside the survey area.

Uncertain

A number of magnetically weak trends of uncertain origin have been plotted in the survey; they are likely to have been caused by agricultural practices though archaeological origins cannot be entirely discounted.

6.5 **Area 2**

Uncertain

An uncertain linear trend has been marked in the south-east Area 2, it is likely to be due to agricultural processes, maybe ploughing or an uncorroborated field boundary.

6.6 **Area 4**

No responses of archaeological interest or of uncertain origin have been recorded.

6.7 **Area 5**

No responses of archaeological interest or of uncertain origin have been recorded.

6.8 **Area 6**

Uncertain

A negative linear anomaly and positive trends are visible in the data which have been assigned to the category of Uncertain. They are probably due to a combination of agricultural processes and underlying geological variations.

6.9 **Area 7**

Uncertain

Discrete responses and trends of uncertain origin have been detected in Area 7; they are likely to have been caused by agricultural processes.

6.10 **Area 9 / 10**

Uncertain

A discrete ditch-like response and linear trends are visible in Areas 9/10. The discrete ditch-like response appears to extend westward into Area 11 (see **Section 6.11**), they could have archaeological origins but are likely to be due to natural or agricultural processes.

6.11 **Area 11**

Uncertain

Discrete responses and trends are visible in the survey which appear to form rectangular patters; while they could have archaeological origins, they may also be due to ridge and furrow ploughing or former field boundaries. These responses appear to extend into Areas 10 and 12.

6.12 **Area 12**

Uncertain

A couple of trends forming rectangular patterns are visible in Area 12, they have been assigned to the category of Uncertain origin. They may have archaeological origins but they could have also been caused by agricultural processes.

6.13 **Area 13**

Uncertain

A number of ditch-like responses, pit-like anomalies and trends have been detected in Area 13 which have been assigned to the category of Uncertain. The HER records several linear field boundaries that probably date to later medieval or post-medieval periods due east of the survey area. Some of these uncertain responses may be former field boundaries, however, archaeological origins cannot be entirely discounted for the anomalies.

6.14 **Area 14**

Possible Archaeology

In Area 15 discrete curving responses and curvilinear trends [14.1] are visible which have been categorised as being of Possible Archaeology. They appear to form two sub-rectangular ditched features which measure 12m x 9m and 12m x 16m.

Uncertain

A number of ditch-like anomalies and linear trends are likely to be due to a combination of agricultural and natural processes. However, archaeological origins may not be entirely discounted due to responses of archaeological interest in the vicinity (see above).

6.15 **Area 15**

Possible Archaeology

6.16 A circular response which is made up of discrete responses and trends [15.1] has been detected in Area 15; several pit-like anomalies have also been recorded within it. The anomalies probably mark the location of a sub-circular enclosure which measures some 15 m in diameter at its widest point.

Uncertain

Several discrete anomalies, linear trends and zones of increased responses have been assigned to the category of Uncertain which are likely to be due to a combination of agricultural and natural processes.

6.17 **Area 16**

Uncertain

Zones of increased response and linear trends have been detected in the dataset which could be due to agricultural processes or variations un the underlying geology; consequently, they have been categorised as Uncertain.

6.18 **Area 17**

Possible Archaeology

A series of rectilinear ditch-like responses and a pit-like anomalies [17.1] are visible in the plot which could mark the locations of enclosures and/or field systems. However, they may also indicate the location of uncorroborated former field boundaries.

Uncertain

Zones of increased response and trends of uncertain origin are likely to have agricultural and natural origins.

6.19 **Area 25**

Uncertain

Discrete ditch-like responses, trends and a rectangular anomaly are visible in Area 25 which have been assigned to the category of Uncertain. While archaeological origins cannot be discounted for all of the responses the majority are likely to have been caused by variations in the underlying geology or agricultural processes.

6.20 **Area 26**

Uncertain

Weak curvilinear trends and a zone of increased response have been recorded in the magnetic data which are likely to be due to agricultural processes or have been caused by variations in the underlying geology.

6.21 **Area 31**

Possible Archaeology

A series of linear anomalies [31.1] appear to form a small rectilinear feature, some 17 m x 22 m in size, with further associated ditches on the outside [31.2 & 31.3]. Field name evidence suggests that a windmill (MDV106687) could be located in the field; consequently, it is possible that the anomalies could be associated with ditches around such a structure.

Uncertain

A series of ditch-like responses, linear trends and pit-like anomalies have been detected which are difficult to interpret. While some in the vicinity of the enclosure [31.1] could have archaeological origins, they could also mark the routes of uncorroborated former field boundaries (see **Section 6.89**). They may also be a result of agricultural processes or underlying natural variations.

6.22 **Area 32**

Uncertain

A single ditch-like response is visible in the survey which has been assigned to the category of Uncertain; it is likely to have been caused by variations in the underlying geology.

6.23 **Area 33**

Uncertain

Two discrete linear anomalies have been detected in the south-west of Area 33. They are probably due to agricultural or agricultural processes.

6.24 **Area *35***

Uncertain

A number of segmented discrete responses and trends have been detected throughout Area 35. Archaeological origins cannot be entirely discounted, but the responses are more likely to have been caused by geological or agricultural variations.

6.25 **Area 41**

Possible Archaeology

In the south of Area 41, a circular response [41.1] has been detected. It measures some 18m in diameter and is composed of curving trends plus discrete ditch-like responses and a central discrete pit-like anomaly. These anomalies could mark the location of a round barrow.

Uncertain

A number of ditch-like anomalies, linear trends and pit-like responses could be natural or agricultural; however, archaeological origins cannot be discounted due to the possible barrow and the enclosure in the adjacent Area 42 (see **Section 6.25**).

6.26 **Area 42**

Probable / Possible Archaeology

A sub-rectangular enclosure [42.1] which measures some 40 m by 48 m, is visible in the plot, and a gap in the eastern ditch probably indicates an entrance. Weak linear trends [42.2] appear to extend beyond the enclosure; they could also mark the routes of ditches or gullies. A cluster of responses [42.3] within the enclosure may indicate a small roundhouse or pits.

Uncertain

Several trends and discrete responses are also visible which have been assigned to the category of *Uncertain*; they are mostly likely to be natural or agricultural in origin.

6.27 **Area 44**

Uncertain

A discrete ditch-like response and linear trend have been detected; the former could be an uncorroborated former field boundary while the trend is likely to be agricultural in origin.

6.28 **Area 46**

Uncertain

Several *Uncertain* discrete ditch-like anomalies and trends are visible some of which are likely to be anthropogenic in origin, but it is difficult to determine if they are of any antiquity. They

could be a result of relatively modern agricultural processes while some might be a natural effect.

6.29 **Area 58**

Uncertain

In this area ditch-like responses have been recorded; they could tentatively mark the location of a segmented enclosure, however, they could simply be an agricultural affect.

6.30 **Area 59**

No responses of archaeological interest or of uncertain origin have been recorded.

6.31 **Area 60**

Uncertain

A series of amorphous ditch-like responses, pit-like anomalies and trends are present in the data. A former woodland once existed in the area and is visible on historic mapping, it is possible that the removal of the trees and the subsequent landscaping may have causes some of the anomalies.

6.32 **Area 61**

Possible Archaeology

In the west of Area 61 a series of parallel trends [61.1] could mark the location of a double ditched enclosure; however, they could also be due to a chance alignment of underlying geological responses.

Uncertain

Discrete responses, linear trends and a zone of increased responses have been assigned to the category of uncertain.

6.33 **Area 62**

No responses of archaeological interest or of uncertain origin have been recorded.

6.34 **Area 63**

Uncertain

No responses of archaeological interest or of uncertain origin have been recorded.

6.35 ***Area 64***

No responses of archaeological interest or of uncertain origin have been recorded.

6.36 **Area 66**

Uncertain

A couple of ditch-like anomalies have been detected which appear to form a rectilinear pattern; they appear anthropogenic in origin, but they could be nothing more than uncorroborated former field divisions.

6.37 **Area 67**

No responses of archaeological interest or of uncertain origin have been recorded.

6.38 **Area 68**

No responses of archaeological interest or of uncertain origin have been recorded.

6.39 **Area 69**

No responses of archaeological interest or of uncertain origin have been recorded.

6.40 **Area 70**

Possible Archaeology

Two ditch like responses [70.1] which form a rectilinear pattern have been detected in the survey and have been assigned to the category of *Possible Archaeology*, they could form a partial enclosure which extends beyond the limits of the survey. They may be associated with a former field system that was recorded due east of Area 70 in a previous geological survey (MDV108474). A pit-like response [70.2] has also been recorded which is magnetically strong.

6.41 **Area 73**

No responses of archaeological interest or of uncertain origin have been recorded.

6.42 **Area 74**

Probable / Possible Archaeology

A large curvilinear ditch-like response [74.1] aligns with the modern field boundaries to form a large enclosure which extends beyond the limits of the survey; a break in the response indicates a southward facing entrance. The results correspond with an enclosure that is recorded in the HER (MDV29732). A number of internal responses [74.2] could indicate a second enclosure and a circular trend [74.3] could mark the location of a ring-ditch.

A series of ditch-like responses [74.4] and linear trends, one of which appears to run north and possibly turn before continuing through the enclosure [74.1] appear to form rectilinear patterns. A possible Romano-British Field System (MDV105966) is recorded in this vicinity; the anomalies could be an extension of this field system. Other linear trends and discrete strong responses [74.5] are also likely to be of interest.

6.43 **Area 76**

Uncertain

A number of linear trends have been recorded throughout the area which have been assigned to the category of *Uncertain*. They are likely to be due to a combination of agricultural processes, with many of the anomalies marking the locations of land drains. However, some of the responses may have archaeological origins given the proximity of anomalies of interest

recorded in Area 74 (see **Section 6.41**). The HER records cropmarks possibly denoting a rectilinear enclosure associated with Roman settlement or a later farmstead (MDV131155); however, there is also the possibility that the crops marks are agricultural in origin which is supported by the geophysical survey.

6.44 **Area 81**

Uncertain

A discrete linear anomaly and trends are visible in the survey which could have archaeological origins; however, they may also be uncorroborated field boundaries hence their uncertain categorisation.

6.45 **Area 82**

No responses of archaeological interest or of uncertain origin have been recorded.

6.46 **Area 83**

Possible Archaeology

In the east of Area 3 four segmented ditch-like responses [83.1] are visible in the magnetic data which have been assigned to the category of *Possible Archaeology*. The HER refers to a double ditched enclosure and adjacent features (MDV63447) plus linears that possibly form part of a Romano-British rectilinear field system (MDV105967). It is possible that the ditch-like responses could be associated with these features; however, they could also be due to a combination of natural and agricultural processes such as ploughing.

6.47 **Area 85**

Uncertain

An unusual, strong anomaly has been recorded whose origin is unclear. It appears to have a ferrous component, perhaps a result of an infilled modern feature, or it could reflect underlying geological variations.

6.48 **Area 86**

Uncertain

A discrete ditch-like response and very weak curving trends are visible in the data; the linear anomaly is on the same alignment as the ploughing so it could be agricultural, while the trends could be agricultural or geological.

6.49 **Area 87**

No responses of archaeological interest or of uncertain origin have been recorded.

6.50 **Areas 88 & 89**

Possible Archaeology

A small circular trend [88.1] has been recorded and assigned to the category of *Possible Archaeology*. The response measures some 7 m in diameter and could mark the location of a

ring-ditch. However, it is also possible that it has been caused by natural variations in the local geology.

Uncertain

A few responses of uncertain origin are visible and include discrete ditch-like responses and trends. Due south of the areas are the remains of Bryberry, a deserted settlement (MDV108422) dating to the 17th century or earlier. A number of banks and ditches were recorded in a previous geophysical survey. Some of the uncertain responses could also be associated with peripheral activity. However, in places it has been difficult to interpret the responses with any great confidence due to the underlying geological 'noise'.

6.51 **Area 91**

Possible Archaeology

Discrete ditch-like anomalies and linear trends [91.1] are visible which could form a series of fields or paddocks and a possible trackway [91.2], which could indicate an earlier alignment of the current lane that lies immediately to the north. These responses are located due east of Bryberry, a deserted settlement (MDV108422) and the responses could be an extension of the settlement, although it is not recorded in the HER extending this far west.

6.52 **Area 92**

Possible Archaeology

In the north of this area numerous linear and curvilinear ditch-like anomalies [92.1] and trends have been assigned to the category of *Possible Archaeology*. The southern limits of the readings may be marked by the linear responses [92.2] though this might mark the location of an unrecorded old field boundary. The results are tentatively interpretated as being part of a settlement which appears to extend beyond the limits of the survey. Unfortunately, the narrow survey corridor precludes a more detailed interpretation.

6.53 **Area 93**

Uncertain

A couple of ditch-like responses have been recorded crossing the survey area; these could be of archaeological interest, or they may simply be former field boundaries. Once again the small survey area has made it difficult to interpret the anomalies with great confidence, hence the *Uncertain* interpretation.

6.54 **Area 94**

Possible Archaeology

A semi-circular trend [94.1] has been recorded which has been interpreted as being of *Possible* interest. The anomaly could mark the location of a partial enclosure which has been truncated by the extensive ploughing in the area. However, the anomaly could also be due to underlying geological processes.

6.55 **Area 99**

No responses of archaeological interest or of uncertain origin have been recorded.

6.56 **Area 101**

Uncertain

Numerous ditch-like responses and linear trends have been recorded throughout Area 101. Some of the responses could mark the locations of uncorroborated former field boundaries or be due to land drains. However, archaeological origins for some of the responses cannot be entirely discounted. Increased levels background 'noise' from the underlying natural geologically has made it difficult to interpret some of the responses with confidence.

6.57 **Area 102**

No responses of archaeological interest or of uncertain origin have been recorded.

6.58 **Area 108**

Possible Archaeology

In the south-east of this area a number of ditch-like responses, pits-like anomalies and trends have been recorded [108.1] which appear to form a partial enclosure with internal responses. However, the anomalies are amorphous and sinuous which casts some doubt of them being archaeological, hence the *Possible* interpretation.

Uncertain

Numerous linear and curvilinear trends have been recorded throughout the area which likely to be due to a result of agricultural or natural processes.

6.59 **Area 109**

No responses of archaeological interest or of uncertain origin have been recorded.

6.60 **Area 110**

Uncertain

A couple of linear trends are visible within the noisy dataset associated with the natural magnetic responses.

6.61 **Area 111**

No responses of archaeological interest or of uncertain origin have been recorded.

6.62 **Areas 114, 115 & 116**

Uncertain

Numerous linear and curvilinear trends have been detected throughout the areas which have been assigned to the category of *Uncertain*. Generally, they are likely to be due to a combination of agricultural and natural processes.

6.63 **Area 125**

No responses of archaeological interest or of uncertain origin have been recorded.

6.64 **Area 126**

No responses of archaeological interest or of uncertain origin have been recorded.

6.65 **Area 136**

Possible Archaeology

The ditch-like responses [136.1] in the north-east of the area appear to join with the known field boundaries that are visible in the results, but they are oriented on a different alignment. A previous geophysical survey recorded a number of anomalies thought to be associated with field systems (MDV131120), and it is possible that the magnetic anomalies recorded here could be an extension of this field system, hence the Possible interpretation.

6.66 ***Uncertain***

A series of trends that form rectangular patterns have been detected in Area 136 which are of uncertain origin. They could be uncorroborated former field boundaries or may even have archaeological origins.

6.67 **Area 144**

No responses of archaeological interest or of uncertain origin have been recorded.

6.68 **Area 145**

Uncertain

6.69 A discrete linear response and magnetically weak trends are visible in the plot which a likely to have modern or natural origins. The discrete response could mark the location of a former field boundary and the curving trends are likely to be due to underlying geological variations.

6.70 **Area 152**

Uncertain

A cluster of large, very strong anomalies have a ferrous component and could be associated with local groundworks or dumped modern material. and linear trends are visible in Area 152 which have been assigned to the category of Uncertain. They are likely to be due to underlying geological variations, agricultural processes or areas of dumping associated with groundwork / agriculture.

6.71 **Area 160**

No responses of archaeological interest or of uncertain origin have been recorded.

6.72 **Area 161**

No responses of archaeological interest or of uncertain origin have been recorded.

6.73 **Area 164**

Uncertain

Numerous linear trends and discrete responses have been recorded across the area. While archaeological origins cannot be entirely be discounted, many former field boundaries are

present, and the responses could be uncorroborated former boundaries. Alternatively, they could be due to other agricultural processes.

6.74 **Area 165**

Uncertain

A couple of discrete ditch-like responses have been detected which have been assigned to *Uncertain*. They appear to be on the same alignment as the ploughing which has been recorded and may have the same origin or they could mark the location of uncorroborated former field boundaries.

6.75 **Area 166**

Uncertain

Amorphous discrete anomalies have been detected within an area of increased response; they have been categorised as Uncertain. While they are likely to be of natural origin they could have been caused by other modern processes.

6.76 **Area 168**

Uncertain

A linear trend has been detected in the survey and has been assigned to the category of uncertain. It is likely to have been caused by ploughing.

6.77 **Area 176**

No responses of archaeological interest or of uncertain origin have been recorded.

6.78 **Area 180**

Uncertain

Several trends have been assigned to the category of uncertain but they are likely to have been caused by a combination of underlying natural variations and relatively modern ploughing.

6.79 **Area 181**

Possible Archaeology

Segmented ditch-like responses [181.1, 181.2 & 181.3] have been detected in Area 181 and they have been assigned to the category of *Possible Archaeology*. They could be part of wide scale land divisions and/or field systems.

Uncertain

Trends of uncertain origin have also been plotted and are likely to have been caused by agricultural or natural processes.

6.80 **Area 182**

Uncertain

Linear trends have been detected in the survey and have been assigned to the category of *Uncertain*. They are likely to have been caused by underlying geological variations or agricultural processes.

6.81 **Area 183**

Uncertain

A linear trend in Area 183 could mark the location of an uncorroborated field boundary. Although, this cannot be said with great certainty hence the uncertain categorisation.

6.82 **Area 184**

Uncertain

Linear and curvilinear trends in Area 184 could have archaeological origins but they may have also be products of natural or agricultural origins. They have been assigned to the category of *Uncertain*.

6.83 **Area 188**

Uncertain

Three discrete pit-like responses have been detected in the survey along with a series of linear trends which have been assigned to the category of *Uncertain*. They could have archaeological origins but are more likely to be due to natural or agricultural processes.

6.84 **Area 189**

Uncertain

Two uncertain curvilinear trends are visible in Area 189 which are likely to have been caused by agricultural or natural processes.

6.85 **Area 190**

Uncertain

A discrete anomaly, linear and curvilinear trends plus a negative response are visible in Area 190 which have been assigned to the category of *Uncertain*. While archaeological origins cannot be entirely discounted, they are likely to be due to a combination of natural and agricultural processes.

6.86 **Area 191**

Uncertain

Linear and curvilinear trends plus discrete amorphous responses are visible in the magnetic data in Area 191, they have been categorised as being of *Uncertain origin*. They are probably due to underlying natural variations and agricultural processes.

6.87 **Area 199**

Uncertain

Discrete linear anomalies plus a series of trends have been detected in the survey which have been assigned to the categories of *Uncertain*. While archaeological origins cannot be entirely discounted, the responses could have been caused by weathering on the underlying geology or agricultural processes, for example land drains, former field boundaries etc.

6.88 **Area 203**

Uncertain

A couple of trends have been detected in Area 203 which appear to from rectangular patterns. They are probably due to ploughing.

6.89 **Area 204**

No responses of archaeological interest or of uncertain origin have been recorded.

6.90 **Area 208**

No responses of archaeological interest or of uncertain origin have been recorded.

6.91 **Area 213**

Uncertain

A segmented ditch-like response and numerous trends have been marked in Area 213 which have been assigned to the category of *Uncertain*. Some of the responses could mark the locations of former field boundaries. Only part of Area 213 was surveyed due to access restrictions, the lack of a wider context has somewhat limited confidence of the interpretation.

6.92 **Former Field Boundary – Corroborated / Conjectural**

A search of 1880 Ordnance survey Mapping and 1904 Ordnance survey Mapping (KYP 2024) has revealed that a number of former field boundaries are recorded along the route of the survey. Linear responses in Areas 1, 2, 4, 6, 7, 10, 14, 17, 25, 31, 33, 35, 41, 44, 46, 58, 60, 61, 62, 64, 67, 68, 69, 73, 81, 82, 83, 88, 89, 94, 101, 102, 108, 110, 111, 114, 115, 116, 125, 126, 136, 140, 144, 152, 164, 165, 176, 180, 183, 184, 188, 208 and 213 correspond with the route of these corroborated divisions.

Numerous other linear responses have been detected in Areas 1, 9, 31, 35, 58, 61, 73, 76, 81, 82, 88, 89, 93, 94, 101, 108, 114, 125, 126, 136, 144, 152, 164, 166, 182, 168a and 168b. They are magnetically similar to the corroborated field boundaries (see above); consequently, they have been interpreted as conjectural former field boundaries.

6.93 **Agricultural – Ridge and Furrow / Ploughing / Land Drains**

Broad parrel and widely spaced linear anomalies are visible in Areas 2, 6, 76, 81 and 101 which are due to historic ridge and furrow agricultural regimes.

Closely spaced and ill-defined parallel linear anomalies have been detected in Areas 25, 58, 59, 63, 64, 69, 83, 85, 86, 87, 88, 89, 94, 108, 110, 114, 115, 144, 145, 160, 165, 168a and

168b in some cases the responses are on multiple alignments in the same land parcel. They are due to relatively modern ploughing.

A number of negative linear responses are visible in Areas 1, 2, 41, 76, 94, 108, 114, 116, 155, 190, 191, 198, 199 and 208 which mark the routes of land drains.

6.94 **Natural / Geological / Pedological / Topographic**

Strong amorphous bands of increased magnetic background noise are visible in most of the survey areas. The alignment of the magnetic responses is generally east-west and this corresponds closely with the strike of the bedrock visible on the geological mapping (BGS 2024). In places, this elevated background noise has made interpretation of other responses of potential interest very difficult; it could also have masked weaker anomalies of interest, if present.

6.95 **Services**

Strong linear dipolar ferrous responses have been recorded in Areas 1, 25, 31, 32, 33, 35, 61, 82, 83, 85, 91, 92, 93, 101, 114, 115, 116, 136, 140, 144, 145, 168b, 180 and 181 which mark the routes of service pipes.

6.96 **Ferrous / Magnetic Disturbance**

Ferrous responses close to boundaries are due to adjacent fences, gates, roads and buildings. While a strong ferrous response on the eastern periphery of Area 136 corresponds with the location of a former building that is recorded on historic mapping. It is likely that the demolition and subsequent spreads of debris have caused the ferrous response. Smaller scale ferrous anomalies ("iron spikes") are present throughout the data and are characteristic of small pieces of ferrous debris (or brick / tile) in the topsoil; they are commonly assigned a modern origin. Only the most prominent of these are highlighted on the interpretation diagram.

7 TABLE OF RESULTS

7.1 The magnetometer survey has recorded numerous magnetic responses that have be interpreted as being of archaeological interest and they are summarised in the Table below:

7.2 **Summary of results Table**

Area	Description
1	Two discrete ditch-like responses have been detected that correspond with the locations of earthworks remains that were part of Abbotsham rifle range, they are visible on aerial photographs of 1945 onwards (MDV102153).
1	Ditch-like responses are visible in the west of Area 1, they could have archaeological origins, perhaps associated with the former gun range (MDV102153) or they could be of greater antiquity as a possible ditched enclosure, potentially of prehistoric date (MDV102156) is located just outside the survey area.
14 & 15	Curving responses which comprise discrete anomalies and trends forming irregularly shaped enclosures.
17	A series of trends indicating a possible archaeological enclosure or perhaps uncorroborated field boundaries.
31	A number of ditches possibly associated with a former windmill.
41	A circular response suggesting the existence of a barrow.
42	A sub-rectangular enclosure with an entrance on the east.

Area	Description
70	A partial enclosure and strong pit-like response may be a continuation of a former field system recorded in a previous geological survey (MDV108474).
74	A large curvilinear enclosure (extending beyond the limits of the survey) with an entrance on the south (MDV29732). A circular trend] could mark the location of a ring-ditch (MDV29732)
83	Ditch-like responses perhaps associated with a double ditched enclosure (MDV63447)
88	A possible small ring ditch.
91	Linear responses suggest a trackway and field systems.
92	A small complex of responses perhaps associated with a settlement.
94	A semi-circular response of possible archaeological interest.
108	Ditch-like responses, pits-like anomalies and trends may form a partial enclosure.
181	Segmented ditch-like responses have been detected and they could be part of wide scale land divisions and/or field systems.

8 DATA APPRAISAL & CONFIDENCE ASSESSMENT

8.1 Historic England guidelines (EH 2008) Table 4, Geology and the response to magnetometer survey, states that the typical magnetic response on the local soils / geology is variable. The results from this survey indicate the presence of response of archaeological interest; there is no *a priori* reason why archaeological features would not have been detected. However, in places, the increased levels of background 'noise' due to the underlying geologies may have masked weak responses of archaeological interest.

9 CONCLUSION

9.1 The magnetometer survey has recorded numerous magnetic responses that have be interpreted as being of archaeological interest. In Area 1 ditch-like responses have been detected that correspond with the locations of earthworks remains that were part of Abbotsham rifle range; they are visible on aerial photographs of 1945 onwards (MDV102153). Other ditch-like responses in Area 1 are also visible. They could be associated with the former gun range (MDV102153) or they could be of greater antiquity perhaps indicating a possible ditch / enclosure. In Area 14 and 15 a series of curving responses which comprise discrete anomalies and trends appear to mark the locations of irregularly shaped enclosures. A series of trends in Area 17 have been assigned to the category of Possible Archaeology; they could form rectilinear enclosure or mark the locations of uncorroborated field boundaries. In Area 31 a number of ditches could form a rectilinear enclosure possibly associated with a former windmill thought to have been in the field. In Area 41 a circular response could mark the location of a round barrow, while in Area 42 a sub-rectangular enclosure, with an eastern entrance, has also be recorded. A possible partial enclosure and strong pit-like response in Area 70 could be associated with a continuation of a former field system that was recorded in a previous geological survey (MDV108474).

9.2 In Area 74 numerous linear responses form a large enclosure and several ditch-like responses which could be part of a field system recorded in the HER. Ditch-like responses in Area 83 could be associated with a double ditched enclosure (MDV63447). A possible small ring-ditch has been plotted in Area 88. In Areas 91 numerous ditch-like anomalies and linear trends appear to form a trackway and possible fields, while in Area 92 part of a possible settlement may have been identified. A semi-circular trend in Area 94 is of possible archaeological interest. In the south-east of Area 108 a number of ditch-like responses, pits-like anomalies and trends have been recorded which appear to form a partial enclosure with internal responses. Segmented ditch-like responses have been detected in Area 3 and they have been assigned

to the category of Possible Archaeology. They could be part of wider scale land divisions and/or field systems.

9.3 Numerous responses have been detected throughout the survey which have been assigned to the category of *Uncertain*. They generally lack the defined morphology of anomalies that would ordinarily be interpreted as being of archaeological interest. The majority are likely to be due to combinations of agricultural and natural processes. However, in places, archaeological origins cannot be entirely discounted.

9.4 Corroborated and conjectural former field boundaries are visible throughout the plots, along with ploughing, land drains plus ridge and furrow ploughing. The routes of several service pipes have also been recorded throughout the survey. Elevated magnetic responses throughout the survey are associated with the naturally magnetic bedrock and superficial geology; this has made interpretation of many of the results difficult.

10 REFERENCES

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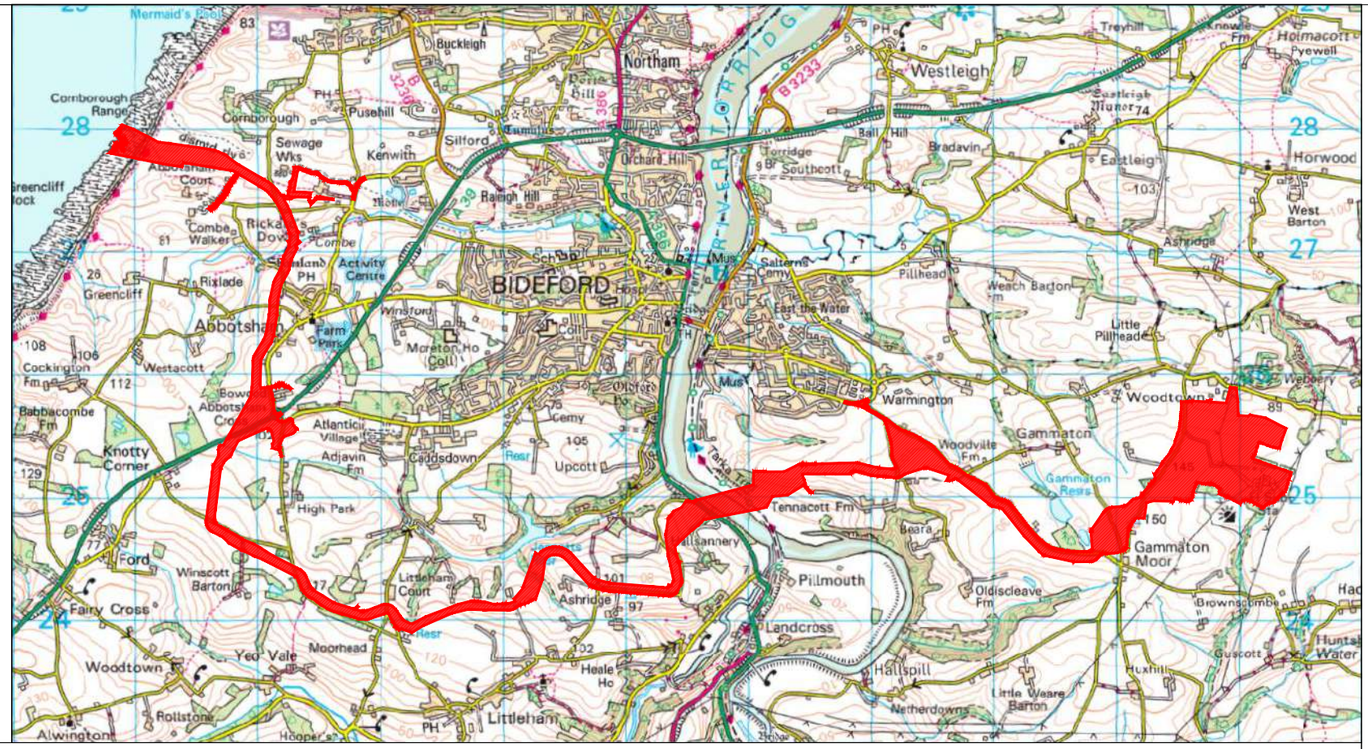
(now withdrawn, but used for evaluating suitability of soil types)

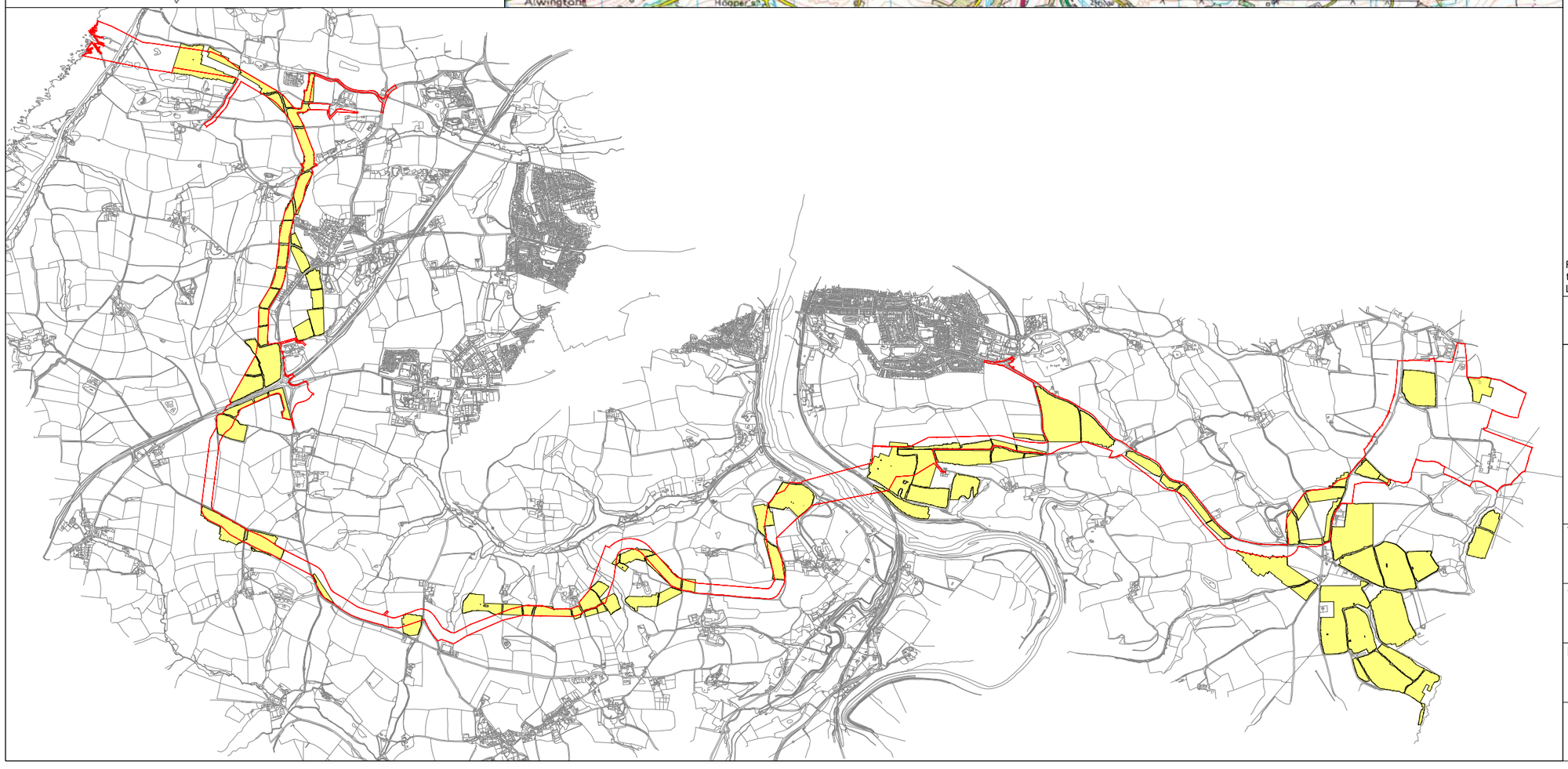
KYP 2024 *Know Your Place Online Viewer website:*
https://maps.bristol.gov.uk/kyp/?edition=devon

11 ARCHIVE

11.1 The minimally processed data, data images, XY traces and a copy of this report are stored in **SUMO GeoSurveys'** digital archive, on an internal RAID configured NAS drive in the Midlands Office. These data are also backed up to the Cloud for off-site storage**.**

11.2 The Grey Literature will be archived with OASIS and the relevant HER within a period of 12 months.





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Survey Areas

N

sumo GeoSurveys

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Site Location

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
NOT TO SCALE

Fig No:
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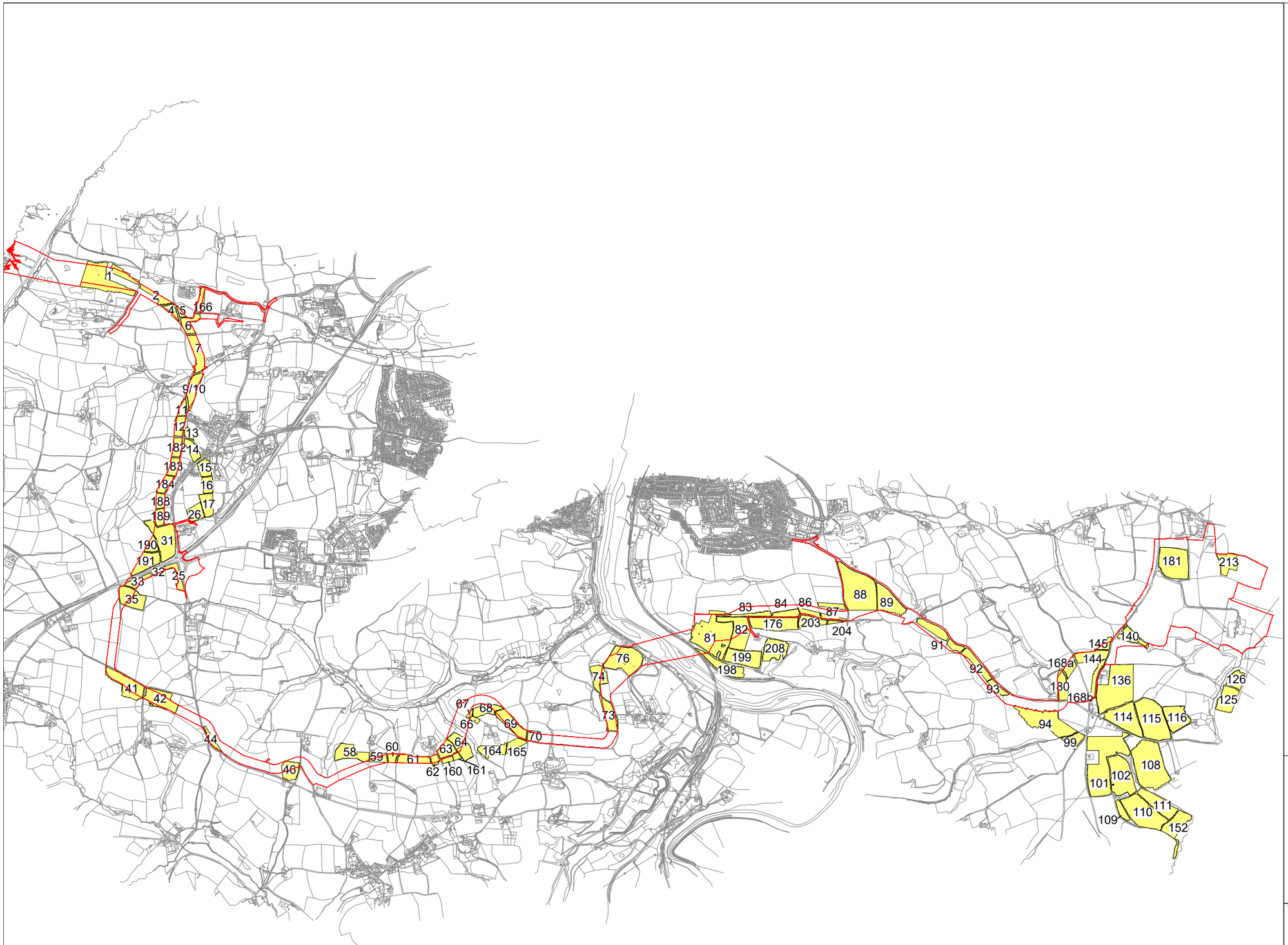

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sumo GeoSurveys

Title:
Magnetometer Survey Areas

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
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Fig No:
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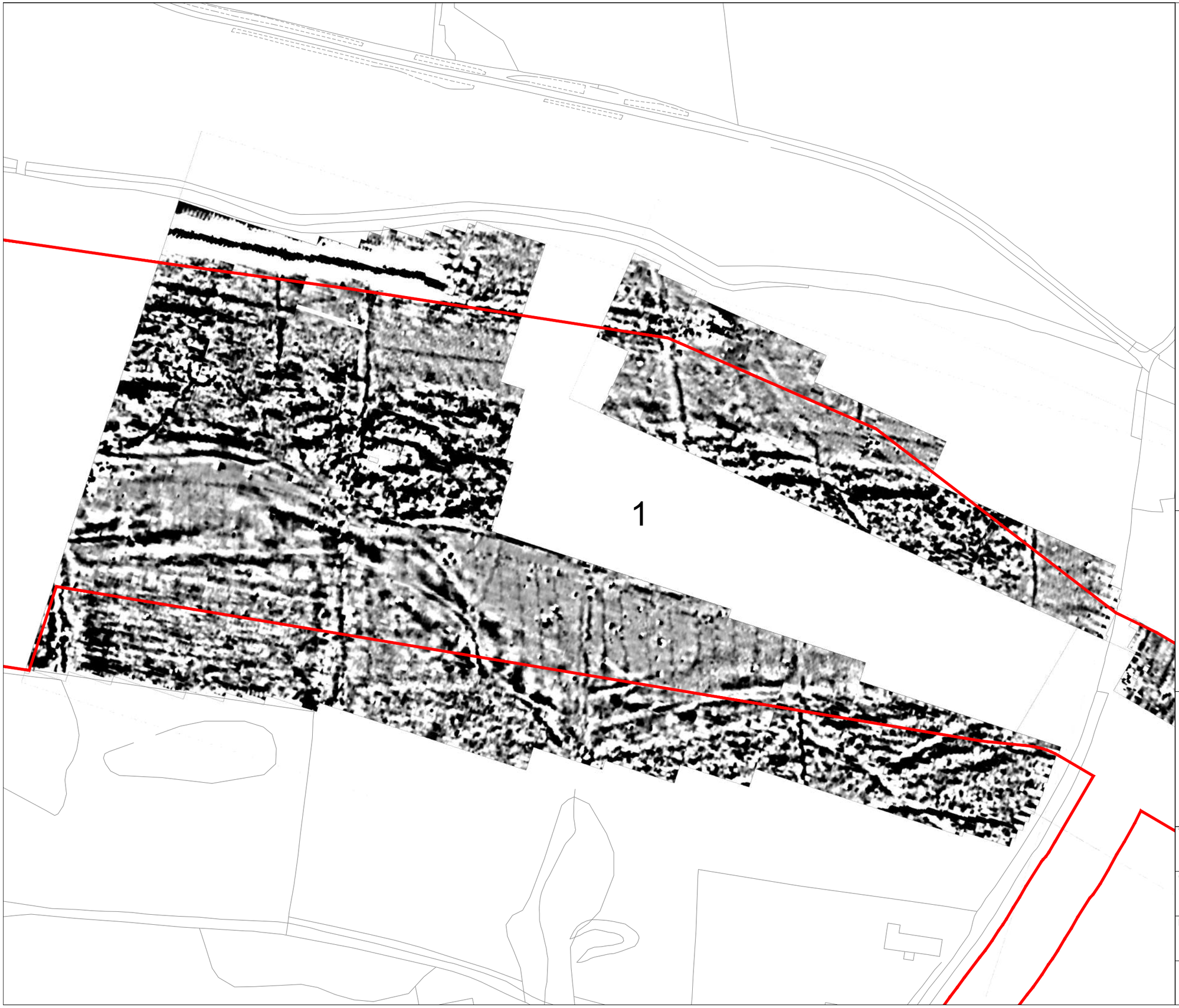

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+2nT

-1nT

sumo GeoSurveys

Title:
Magnetometer Survey - Greyscale Plots
(Area 1)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
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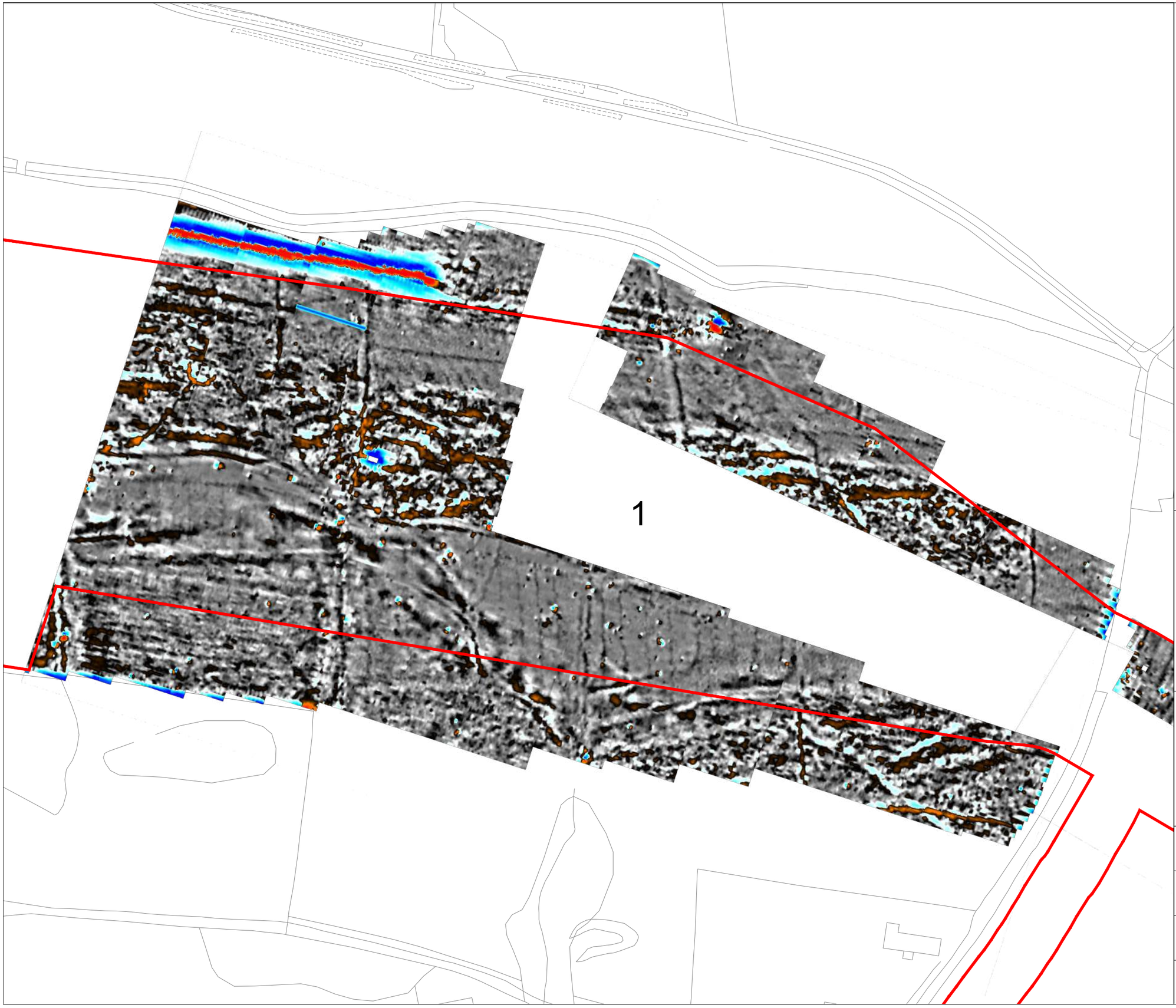
1:1500 @ A3

Fig No:
03



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sumo GeoSurveys

Title:
Magnetometer Survey - Colour Plots
(Area 1)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
04

N

KEY

- Probable archaeology (discrete anomaly / trend / increased response)
- Possible archaeology (discrete anomaly / trend / increased response)
- Uncertain Origin (discrete anomaly / trend / increased response)
- Former field boundary (corroborated)
- Former field boundary (conjectural)
- Agriculture (ridge and furrow)
- Agriculture (plough)
- Land drain
- Natural (e.g. geological / pedological)
- Magnetic disturbance
- Service
- Ferrous

sumo GeoSurveys

Title:
Magnetometer Survey - Interpretation (Area 1)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
05

N

+2nT

-1nT

sumo GeoSurveys

Title:
Magnetometer Survey - Greyscale Plots
(Areas 2, 4, 5, 6 & 166)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
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Fig No:
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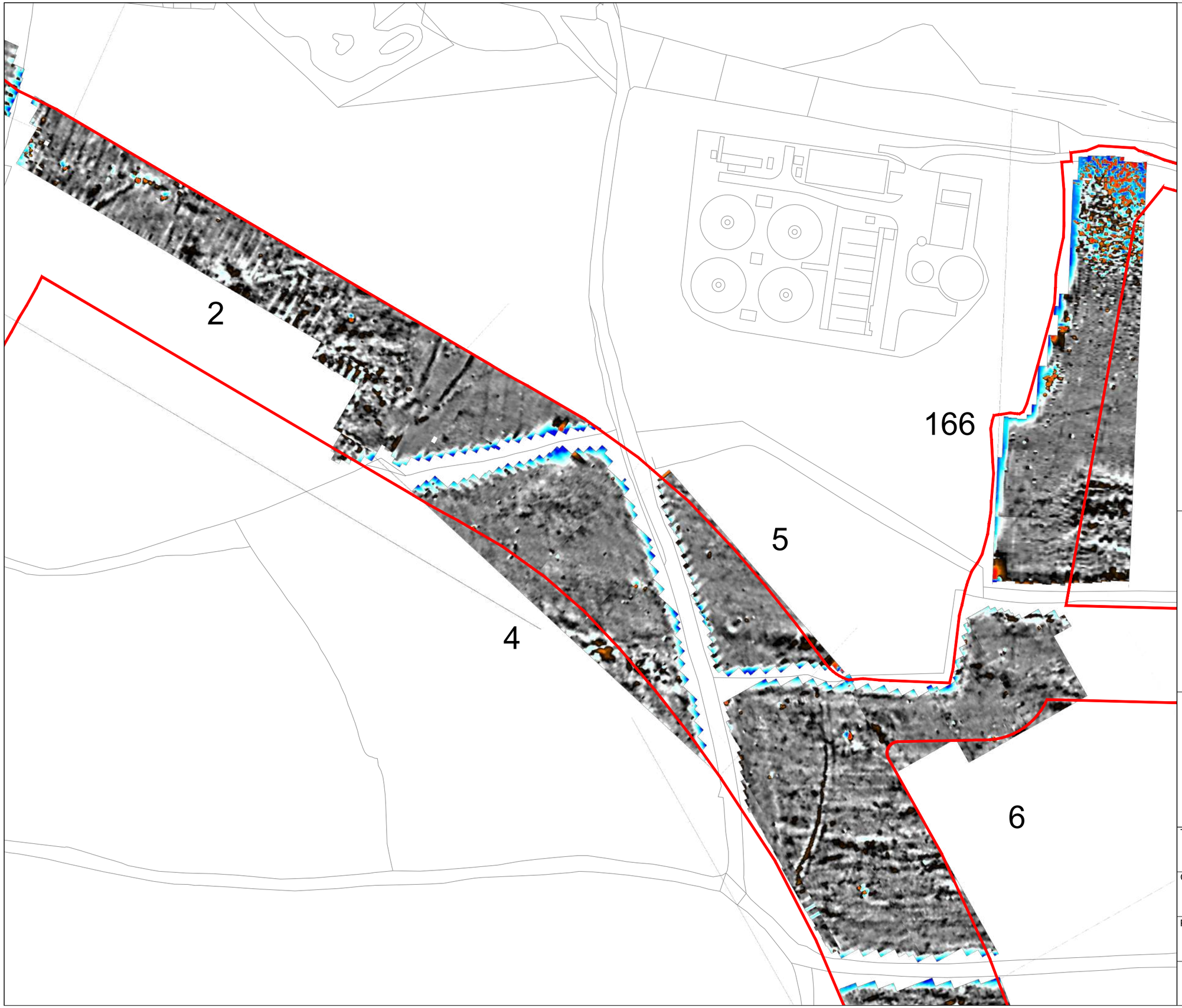


N

+100nT

-100nT

sumo GeoSurveys

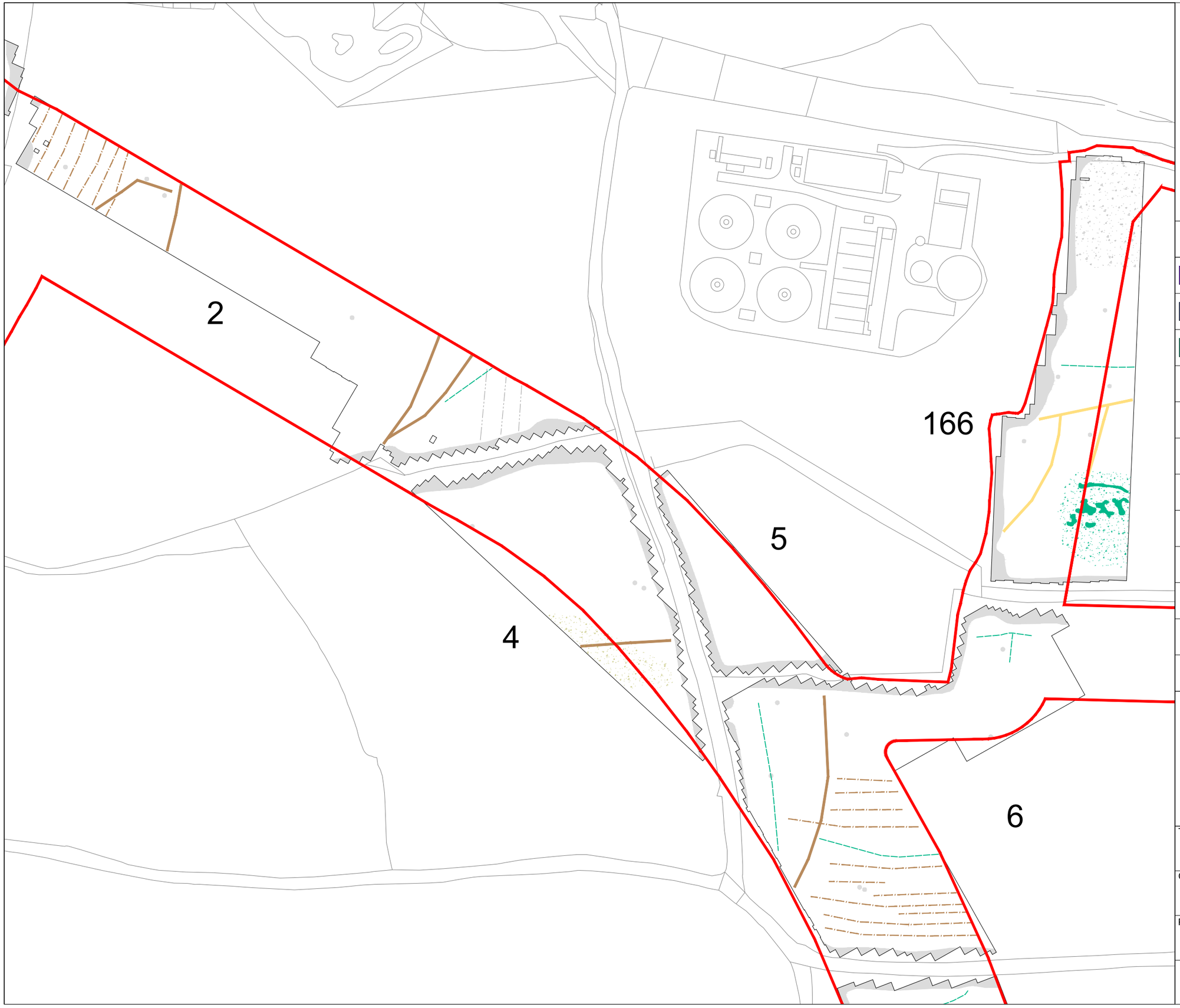
Title:
Magnetometer Survey - Colour Plots
(Areas 2, 4, 5, 6 & 166)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 80
1:1600 @ A3

Fig No:
07



N

KEY

	Probable archaeology (discrete anomaly / trend / increased response)
	Possible archaeology (discrete anomaly / trend / increased response)
	Uncertain Origin (discrete anomaly / trend / increased response)
	Former field boundary (corroborated)
	Former field boundary (conjectural)
	Agriculture (ridge and furrow)
	Agriculture (plough)
	Land drain
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

Title:
Magnetometer Survey - Interpretation
(Areas 2, 4, 5, 6 & 166)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 80
1:1600 @ A3

Fig No:
08

N

sumo GeoSurveys

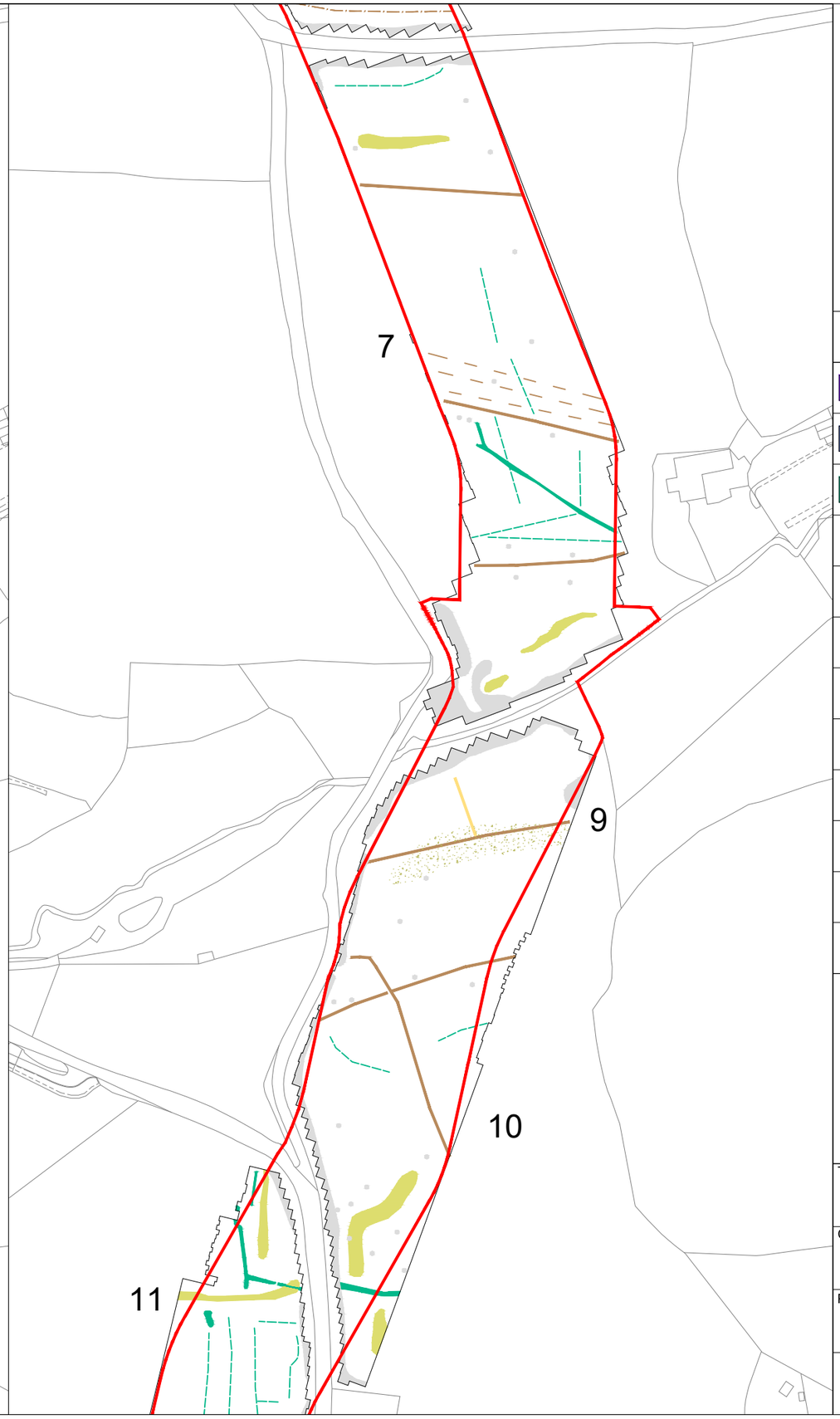
Title:
Magnetometer Survey - Greyscale and Colour Plots (Areas 7, 9 & 10)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 110
1:2200 @ A3

Fig No:
09



N

KEY

	Probable archaeology (discrete anomaly / trend / increased response)
	Possible archaeology (discrete anomaly / trend / increased response)
	Uncertain Origin (discrete anomaly / trend / increased response)
	Former field boundary (corroborated)
	Former field boundary (conjectural)
	Agriculture (ridge and furrow)
	Agriculture (plough)
	Land drain
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

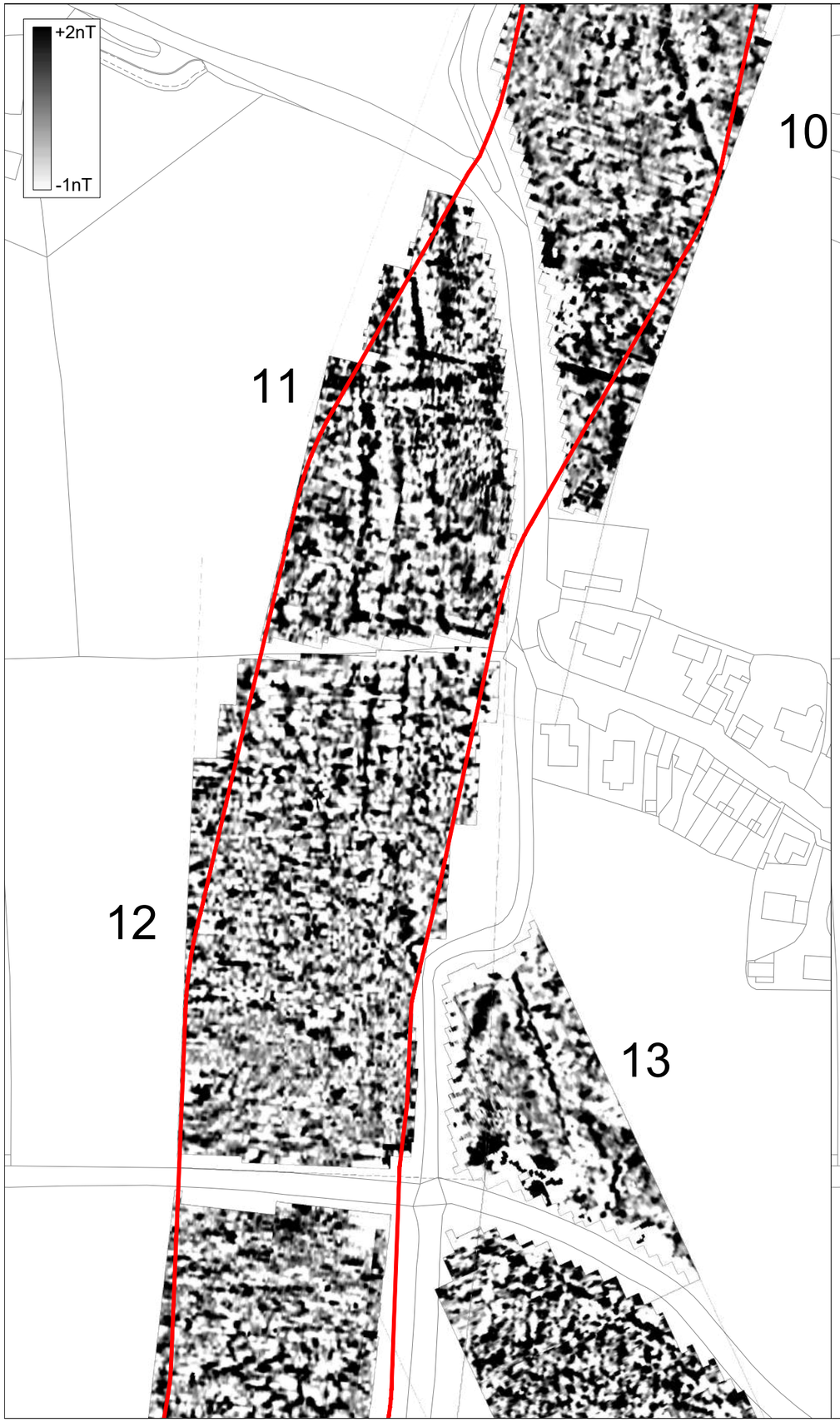
Title: Magnetometer Survey - Greyscale Plots / Interpretations (Areas 7, 9 & 10)

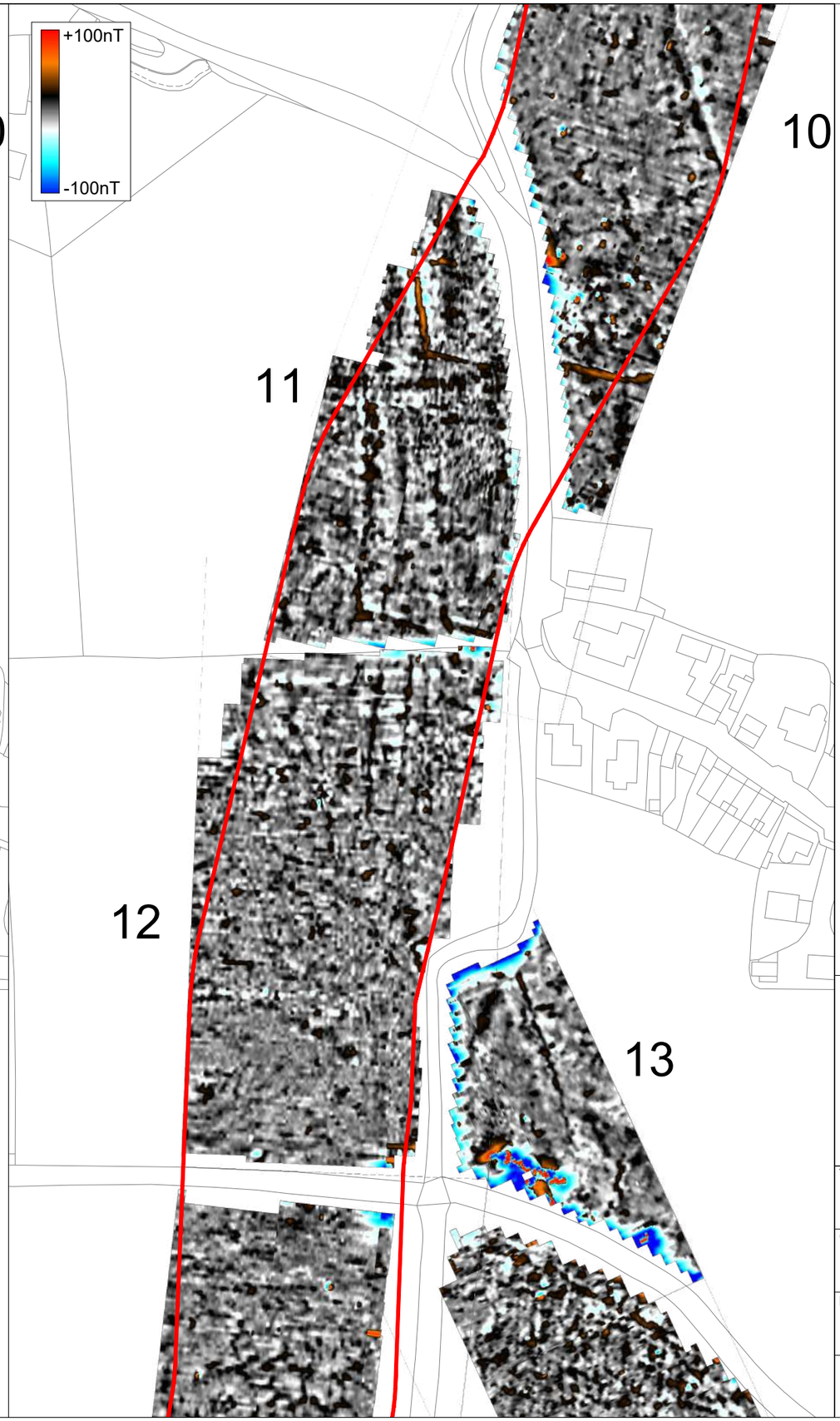
Client: Xlinks Ltd

Project: 15835 - Xlinks' Morocco-UK Power Project

Scale: 0 metres 110
1:2200 @ A3

Fig No: 10





N

sumo GeoSurveys

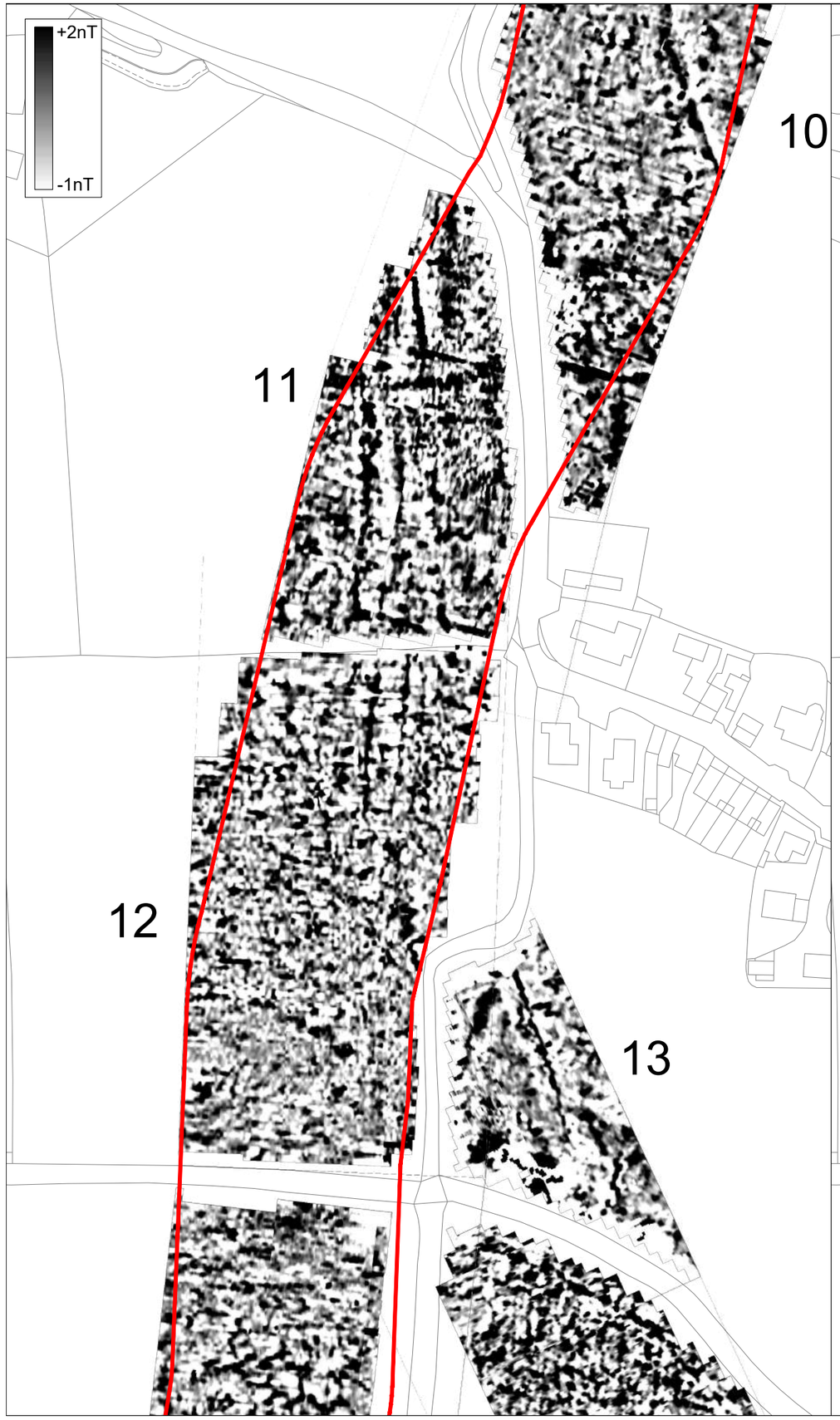
Title:
Magnetometer Survey - Greyscale and Colour Plots (Area 11, 12 & 13)

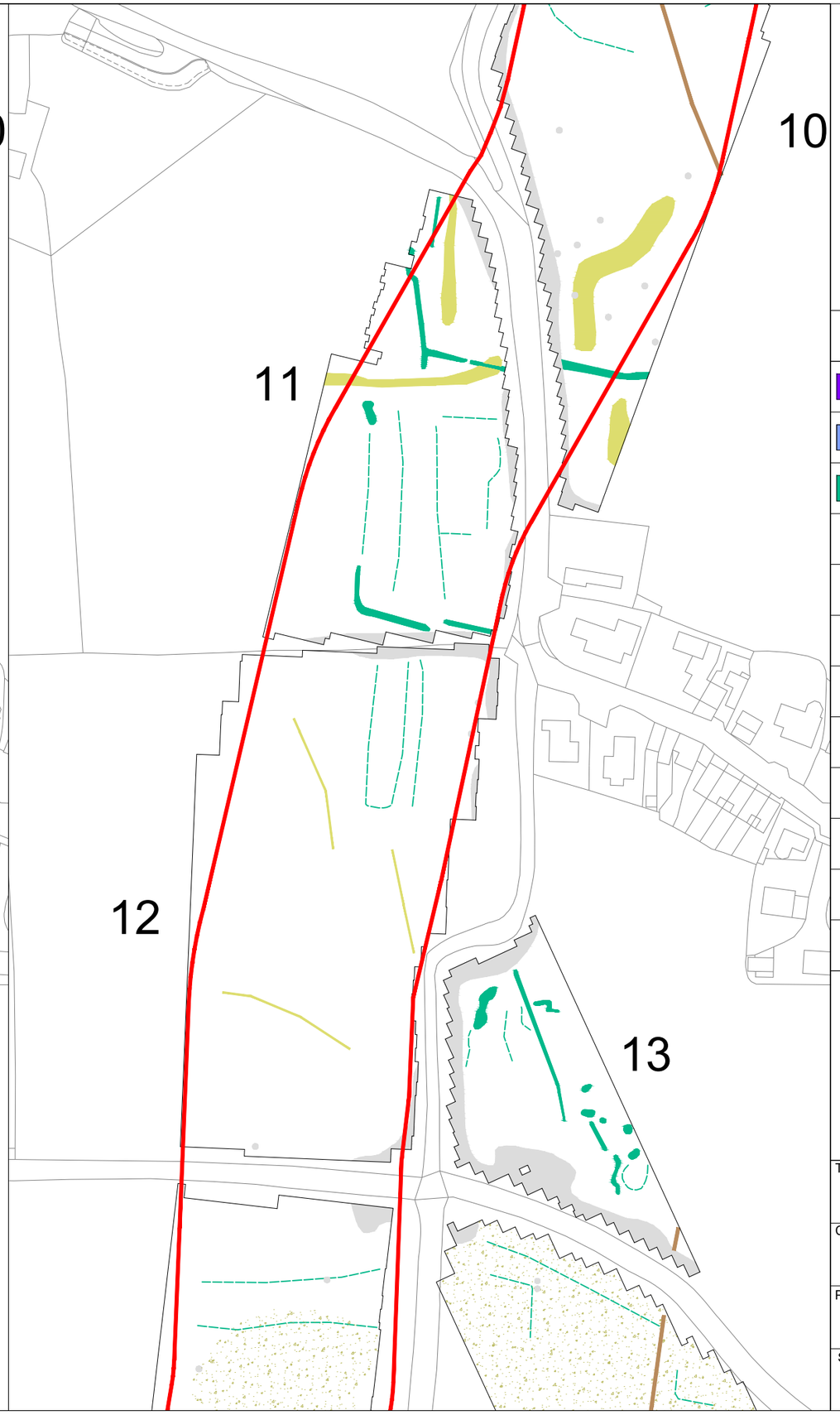
Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
11





N

KEY

	Probable archaeology (discrete anomaly / trend / increased response)
	Possible archaeology (discrete anomaly / trend / increased response)
	Uncertain Origin (discrete anomaly / trend / increased response)
	Former field boundary (corroborated)
	Former field boundary (conjectural)
	Agriculture (ridge and furrow)
	Agriculture (plough)
	Land drain
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

Title:
Magnetometer Survey - Greyscale and Colour Plots (Area 11, 12 & 13)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
12

N

+2nT

-1nT

sumo GeoSurveys

Title:
Magnetometer Survey - Greyscale Plots
(Area 14, 15, 16, 17, 26, 182, 183, 184, 188 & 189)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 125
1:2500 @ A3

Fig No:
13

N

+100nT

-100nT

sumo GeoSurveys

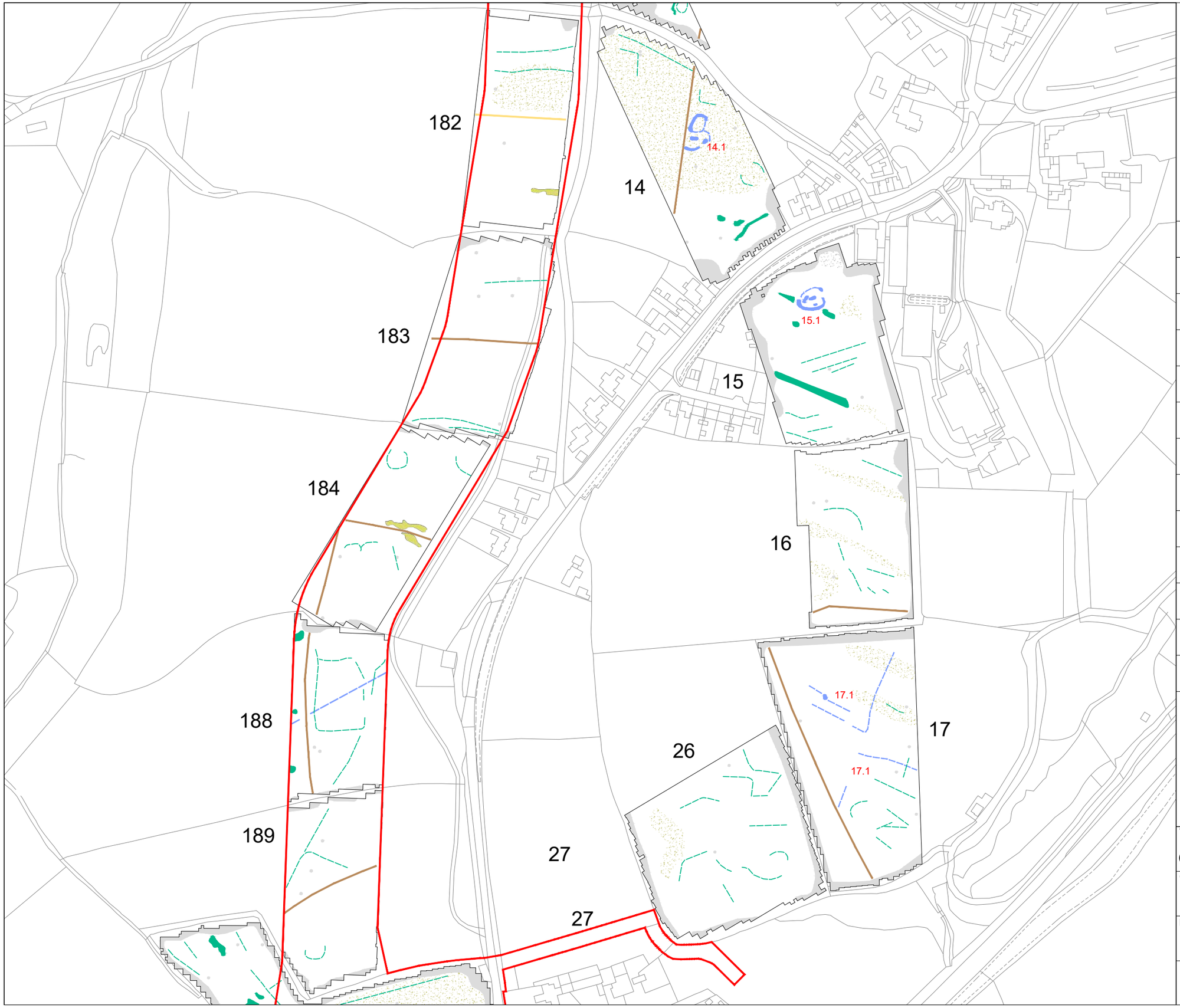
Title:
Magnetometer Survey - Colour Plots
(Area 14, 15, 16, 17, 26, 182, 183, 184, 188 & 189)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 125
1:2500 @ A3

Fig No:
14



N

KEY

	Probable archaeology (discrete anomaly / trend / increased response)
	Possible archaeology (discrete anomaly / trend / increased response)
	Uncertain Origin (discrete anomaly / trend / increased response)
	Former field boundary (corroborated)
	Former field boundary (conjectural)
	Agriculture (ridge and furrow)
	Agriculture (plough)
	Land drain
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

Title:
Magnetometer Survey - Interpretation
(Area 14, 15, 16, 17, 26, 182, 183, 184, 188 & 189)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 125
1:2500 @ A3

Fig No:
15

N

+2nT

-1nT

sumo GeoSurveys

Title:
Magnetometer Survey - Greyscale Plots
(Area 31, 190 & 191)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 80
1:1600 @ A3

Fig No:
16

+100nT

-100nT

sumo GeoSurveys

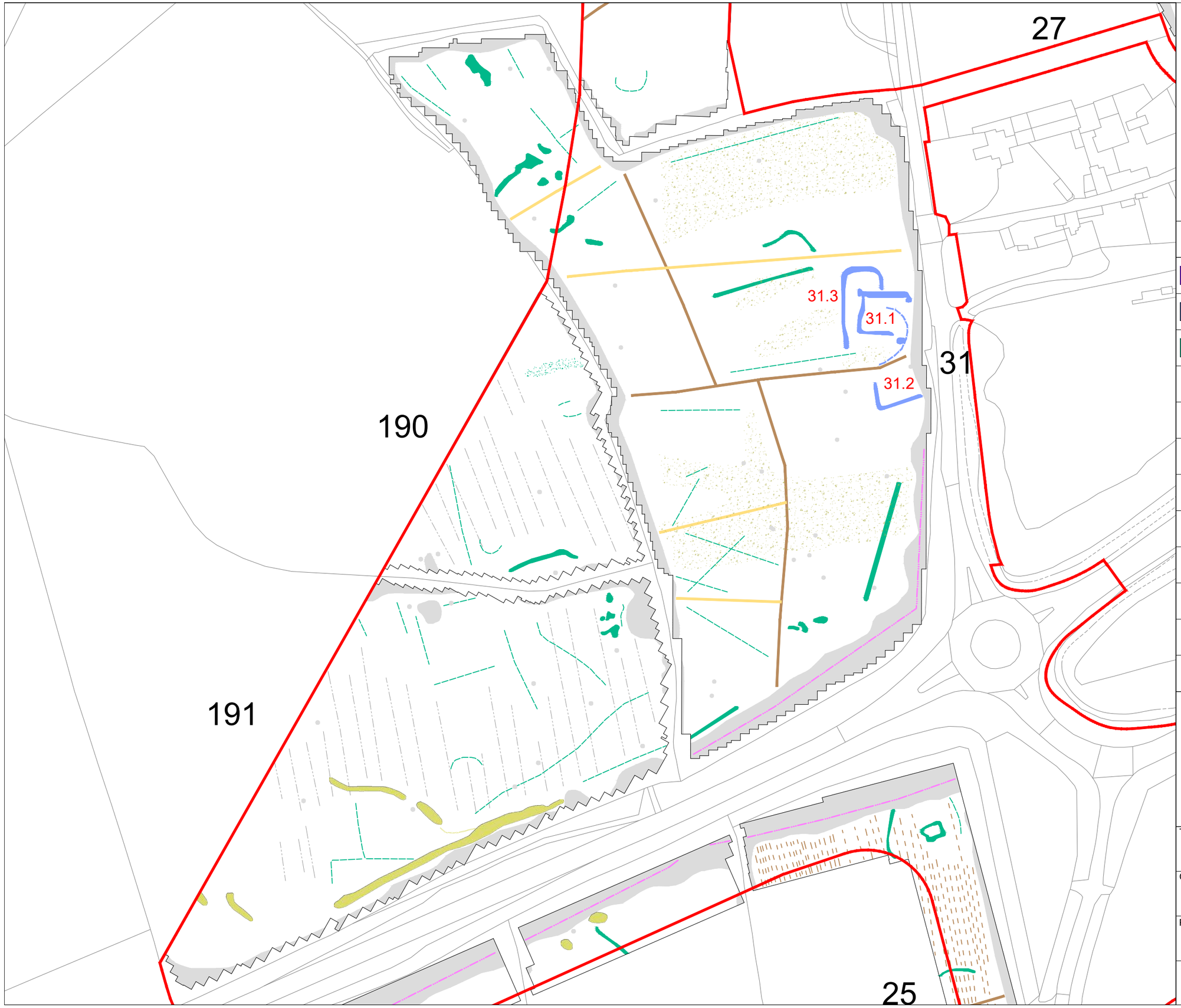
Title:
Magnetometer Survey - Colour Plots
(Area 31, 190 & 191)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 80
1:1600 @ A3

Fig No:
17



N

KEY

	Probable archaeology (discrete anomaly / trend / increased response)
	Possible archaeology (discrete anomaly / trend / increased response)
	Uncertain Origin (discrete anomaly / trend / increased response)
	Former field boundary (corroborated)
	Former field boundary (conjectural)
	Agriculture (ridge and furrow)
	Agriculture (plough)
	Land drain
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

Title:
Magnetometer Survey - Interpretation
(Area 31, 190 & 191)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 80
1:1600 @ A3

Fig No:
18

N

+2nT

-1nT

sumo GeoSurveys

Title:
Magnetometer Survey - Greyscale Plots
(Area 25, 32, 33 & 35)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 80
1:1600 @ A3

Fig No:
19

191

32

25

33

35

38

N

+100nT

-100nT

sumo GeoSurveys

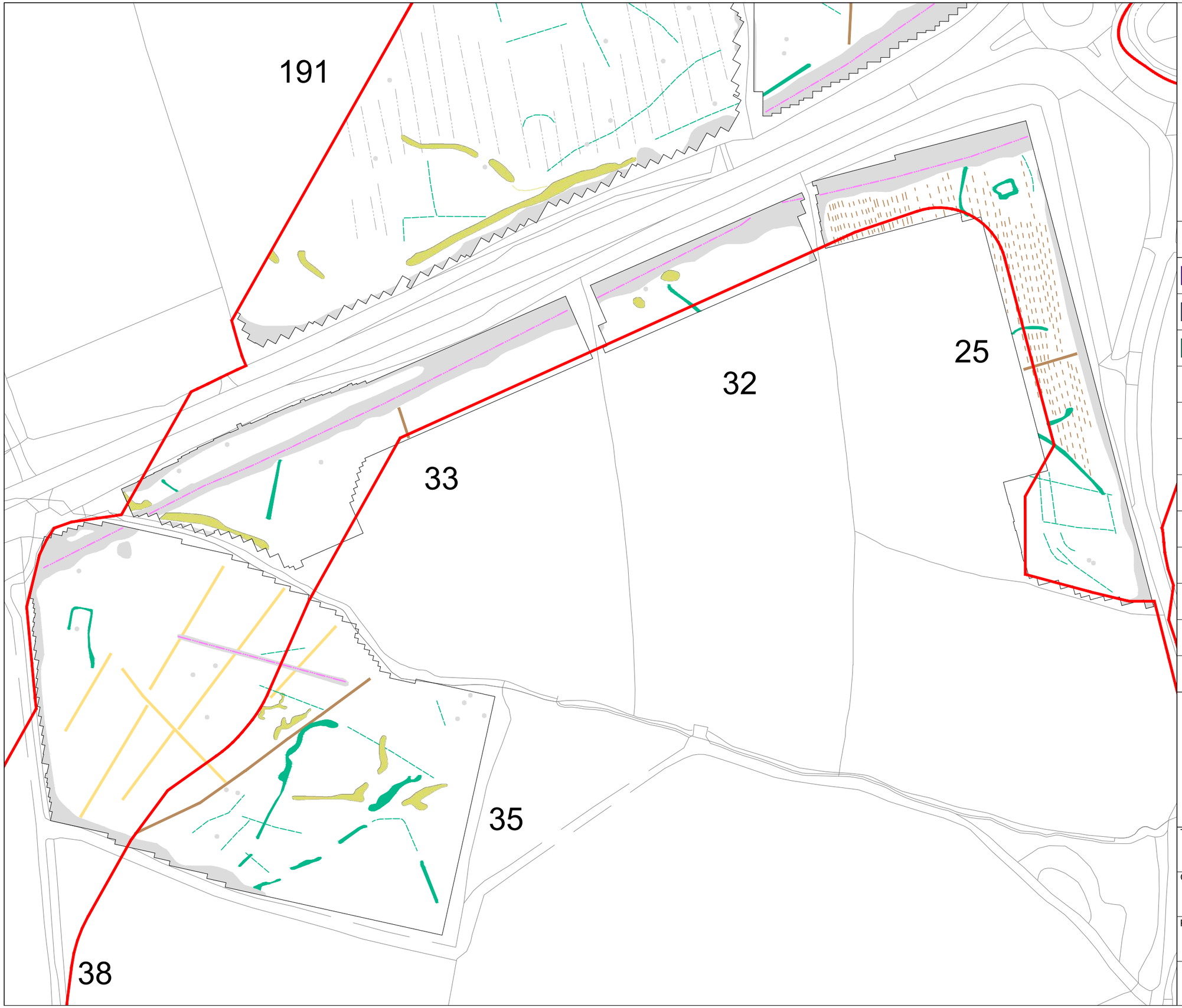
Title:
Magnetometer Survey - Colour Plots
(Area 25, 32, 33 & 35)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 80
1:1600 @ A3

Fig No:
20



N

KEY

	Probable archaeology (discrete anomaly / trend / increased response)
	Possible archaeology (discrete anomaly / trend / increased response)
	Uncertain Origin (discrete anomaly / trend / increased response)
	Former field boundary (corroborated)
	Former field boundary (conjectural)
	Agriculture (ridge and furrow)
	Agriculture (plough)
	Land drain
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

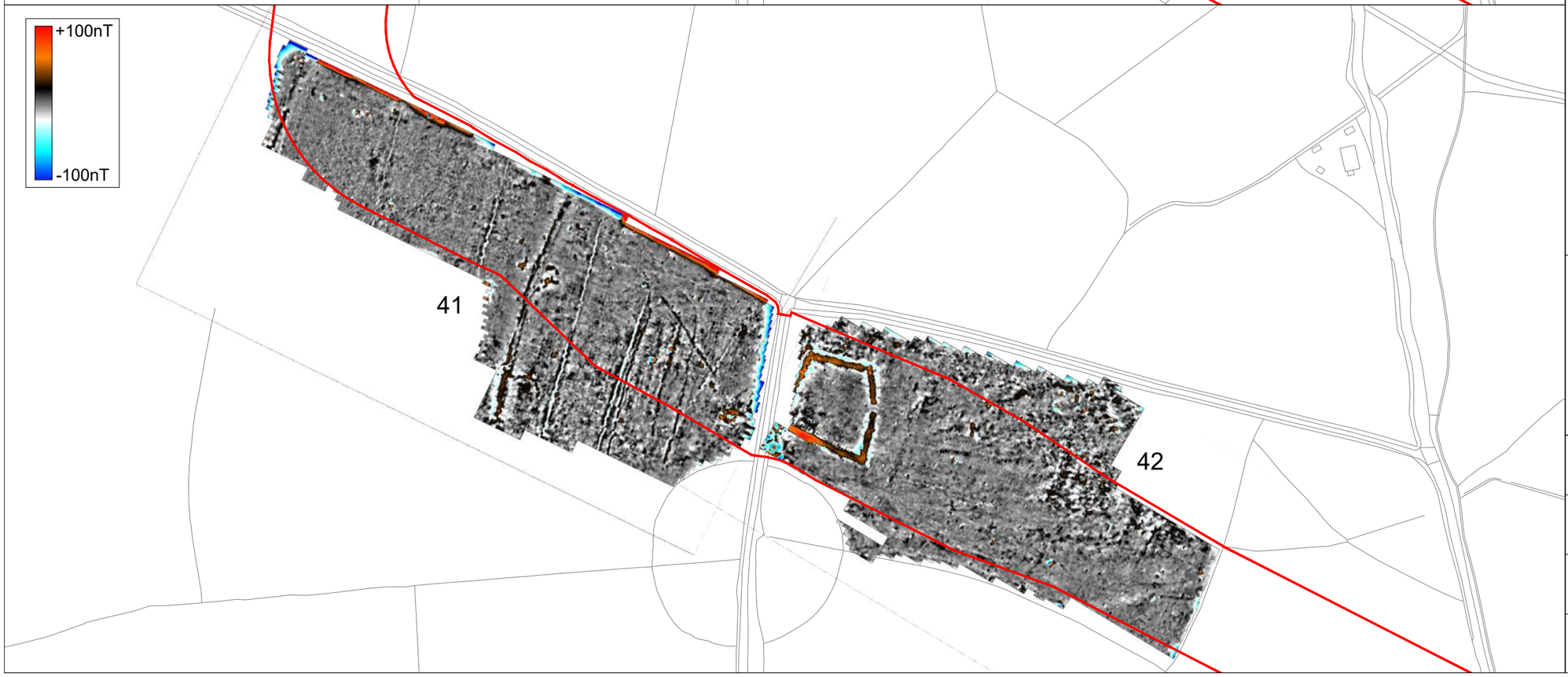
Title:
Magnetometer Survey - Interpretation
(Area 25, 32, 33 & 35)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 80
1:1600 @ A3

Fig No:
21



N

sumo GeoSurveys

Title:
Magnetometer Survey - Greyscale and Colour Plots (Areas 41 and 42)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 140
1:2800 @ A3

Fig No:
22

N

KEY

	Probable archaeology (discrete anomaly / trend / increased response)
	Possible archaeology (discrete anomaly / trend / increased response)
	Uncertain Origin (discrete anomaly / trend / increased response)
	Former field boundary (corroborated)
	Former field boundary (conjectural)
	Agriculture (ridge and furrow)
	Agriculture (plough)
	Land drain
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

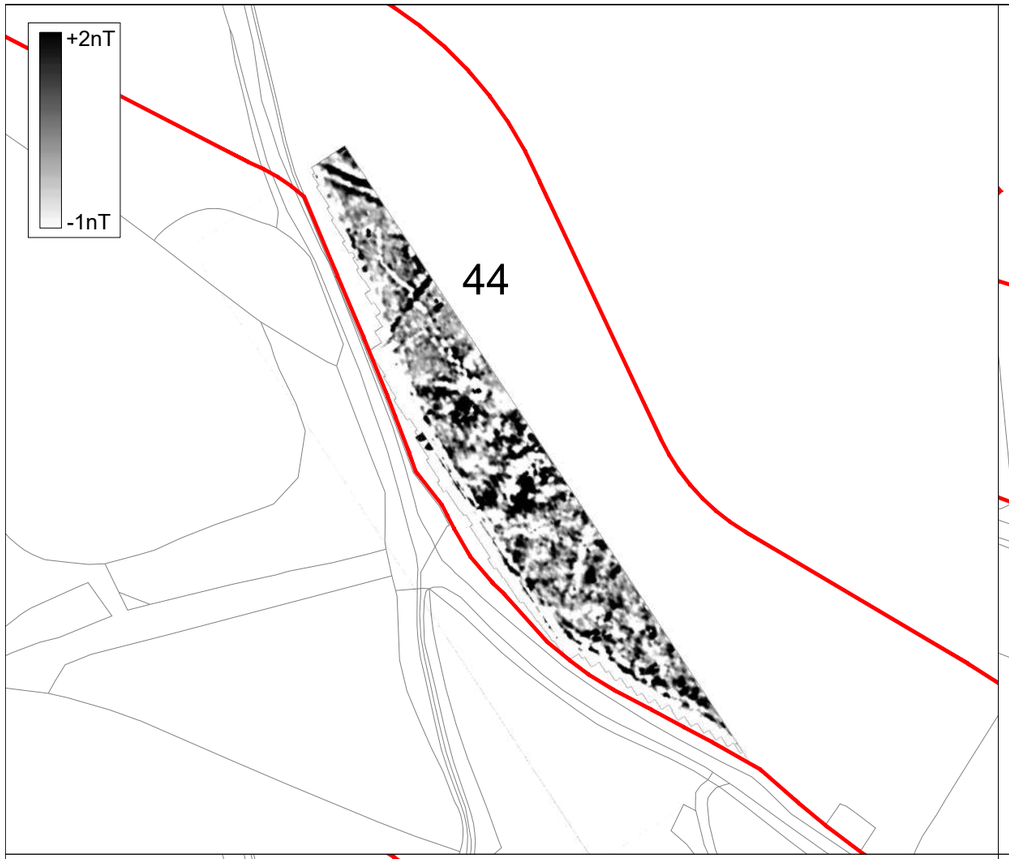
Title: Magnetometer Survey - Greyscale Plots / Interpretation (Areas 41 and 42)

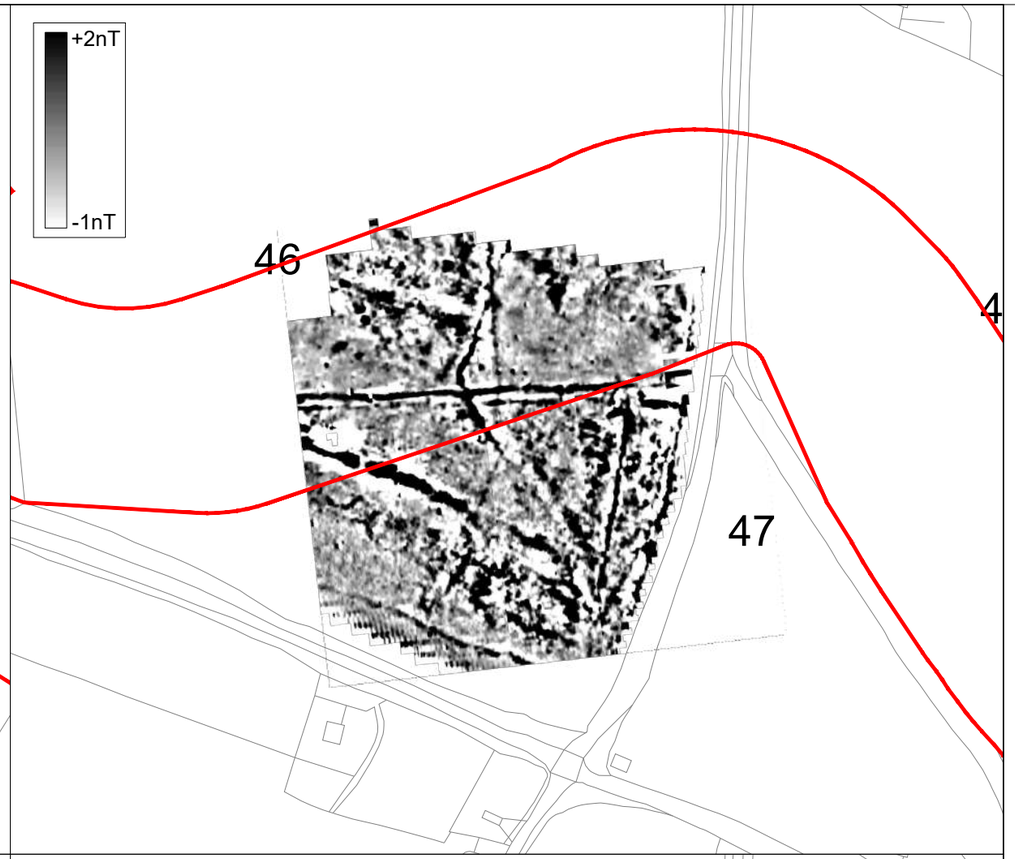
Client: Xlinks Ltd

Project: 15835 - Xlinks' Morocco-UK Power Project

Scale: 0 metres 140
1:2800 @ A3

Fig No: 23





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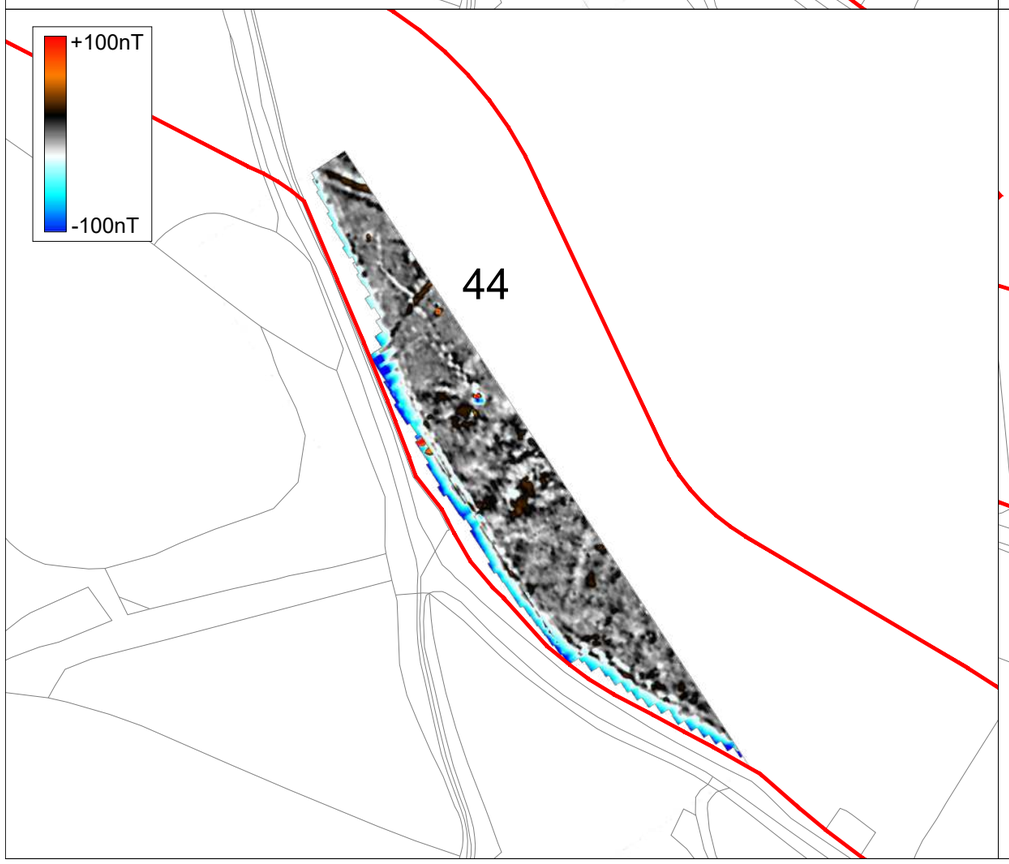
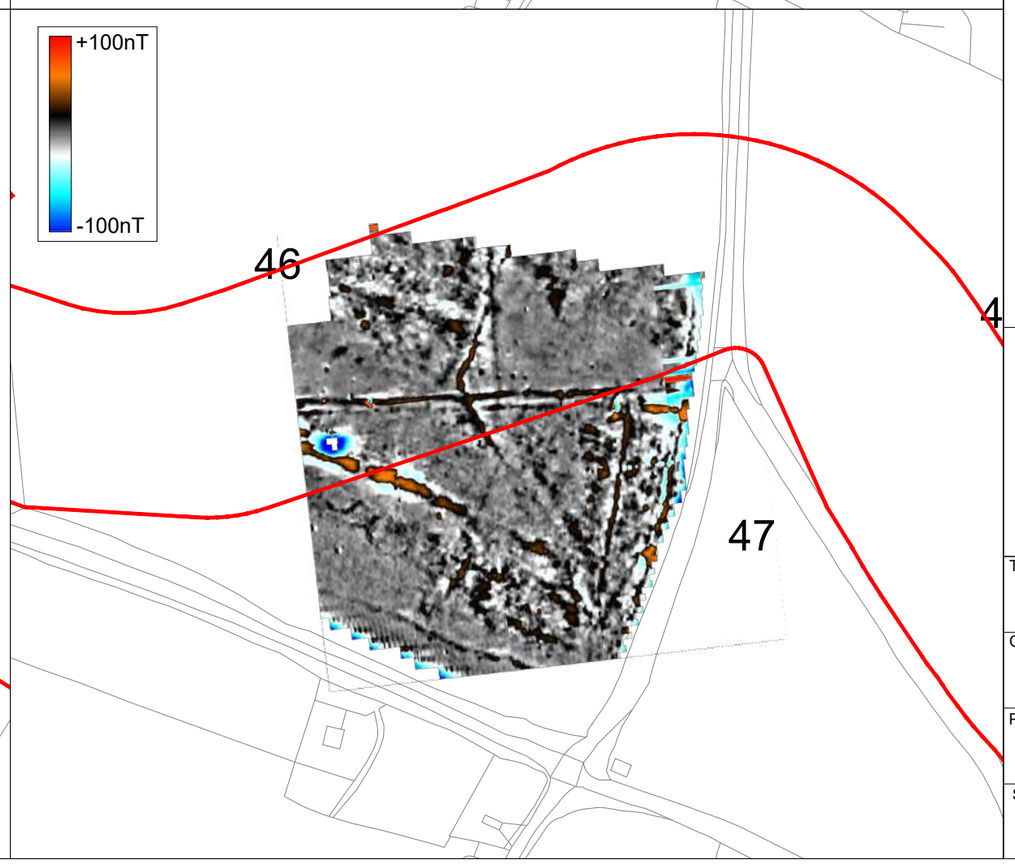




sumo GeoSurveys

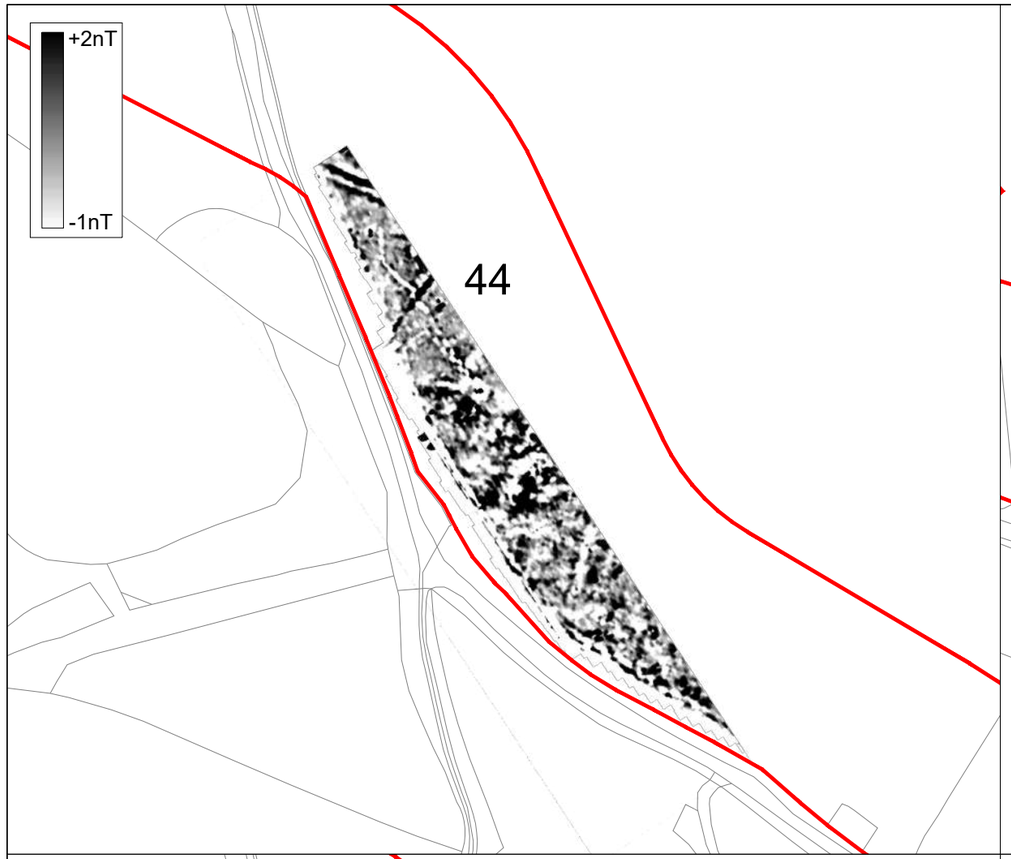
Title:
Magnetometer Survey - Greyscale and Colour Plots (Areas 44 and 47)

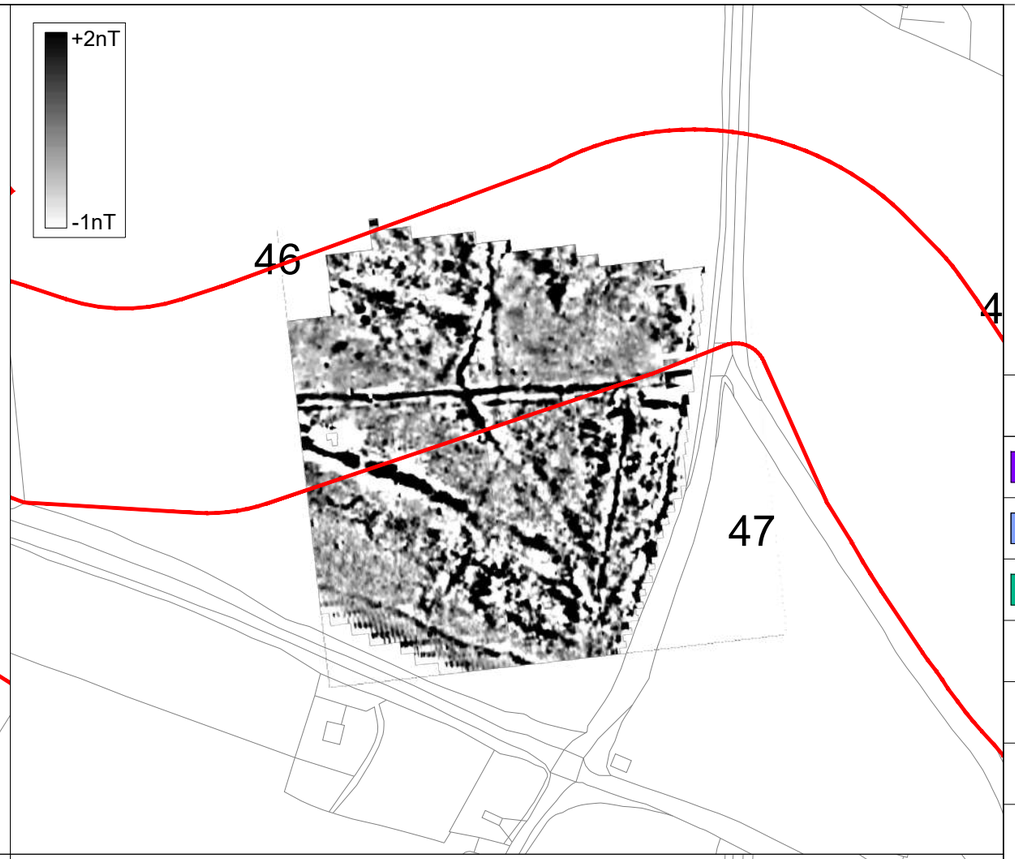
Client:
Xlinks Ltd

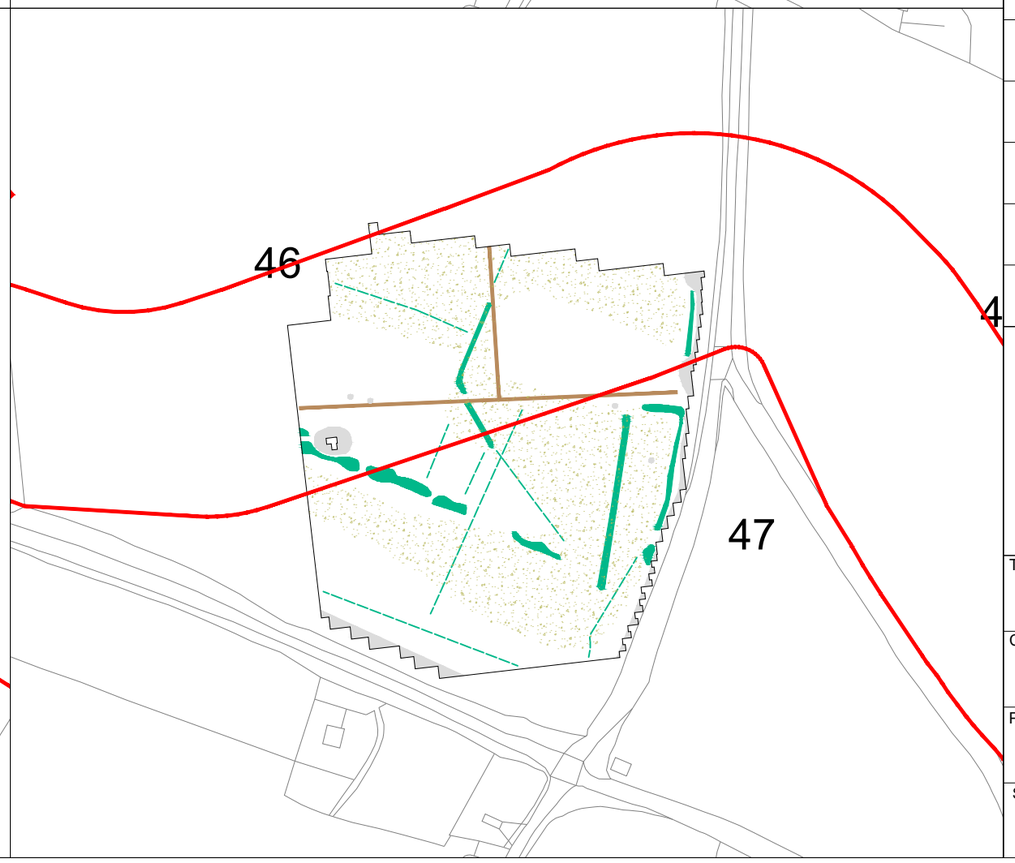
Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 100
1:2000 @ A3

Fig No:
24







N

KEY

	Probable archaeology (discrete anomaly / trend / increased response)
	Possible archaeology (discrete anomaly / trend / increased response)
	Uncertain Origin (discrete anomaly / trend / increased response)
	Former field boundary (corroborated)
	Former field boundary (conjectural)
	Agriculture (ridge and furrow)
	Agriculture (plough)
	Land drain
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

Title: Magnetometer Survey - Greyscale Plots / Interpretation (Areas 44 and 47)

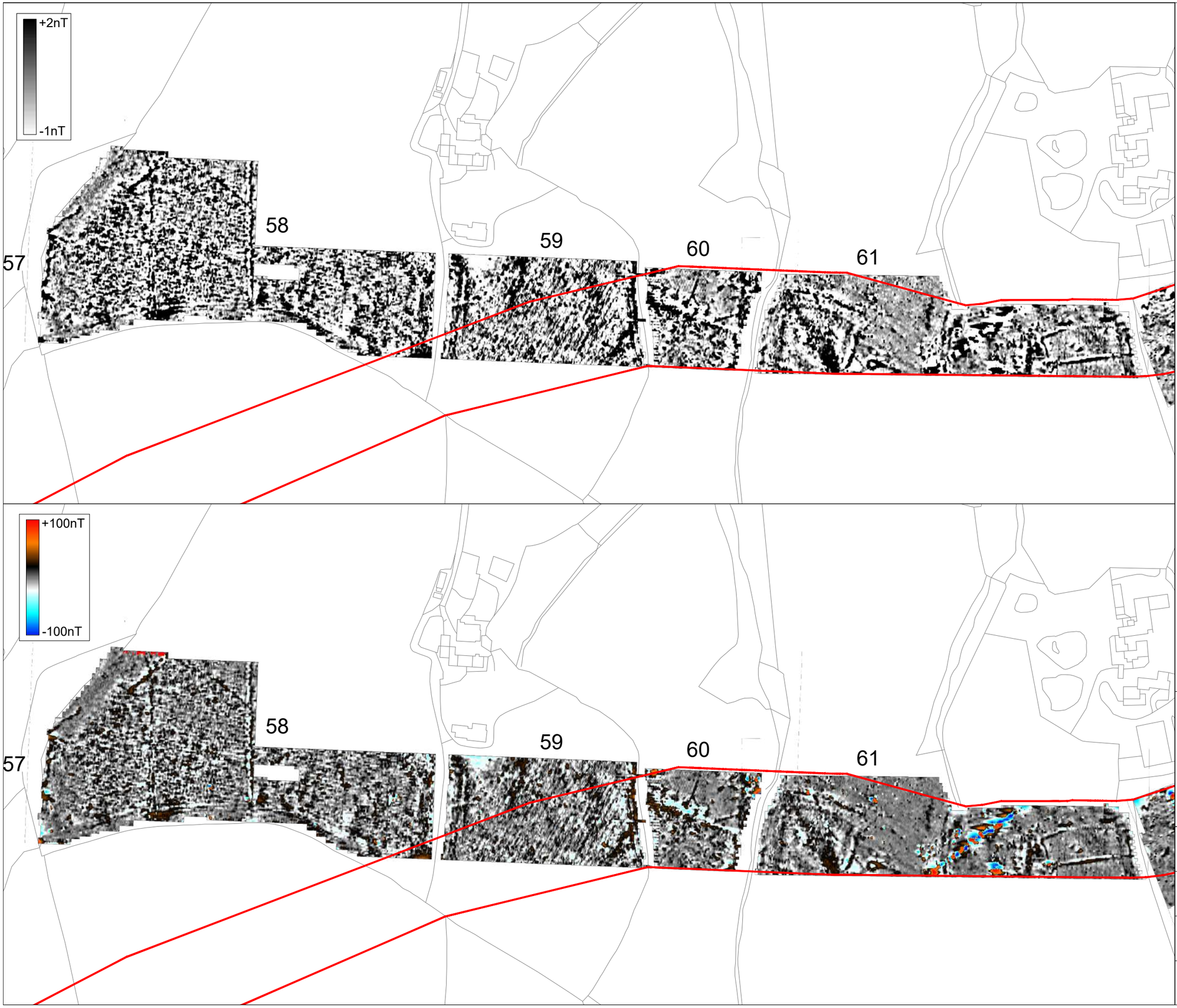
Client: Xlinks Ltd

Project: 15835 - Xlinks' Morocco-UK Power Project

Scale: 0 metres 100

1:2000 @ A3

Fig No: 25.



N

sumo GeoSurveys

Title:
Magnetometer Survey - Greyscale and Colour Plots (Areas 58, 59, 60 and 61)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 120
1:2400 @ A3

Fig No:
26

N

KEY

	Probable archaeology (discrete anomaly / trend / increased response)
	Possible archaeology (discrete anomaly / trend / increased response)
	Uncertain Origin (discrete anomaly / trend / increased response)
	Former field boundary (corroborated)
	Former field boundary (conjectural)
	Agriculture (ridge and furrow)
	Agriculture (plough)
	Land drain
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

Title: Magnetometer Survey - Greyscale Plots / Interpretation (Areas 58, 59, 60 and 61)

Client: Xlinks Ltd

Project: 15835 - Xlinks' Morocco-UK Power Project

Scale: 0 metres 120
1:2400 @ A3

Fig No: 27

N

+2nT

-1nT

sumo GeoSurveys

Title: Magnetometer Survey - Greyscale Plots (Areas 62, 63, 63, 66, 67, 68, 69, 70, 160, 161, 164 and 165)

Client: Xlinks Ltd

Project: 15835 - Xlinks' Morocco-UK Power Project

Scale: 0 metres 130

1:2600 @ A3

Fig No: 28

N

+100nT

-100nT

sumo GeoSurveys

Title: Magnetometer Survey - Colour Plots (Areas 62, 63, 63, 66, 67, 68, 69, 70, 160, 161, 164 and 165)

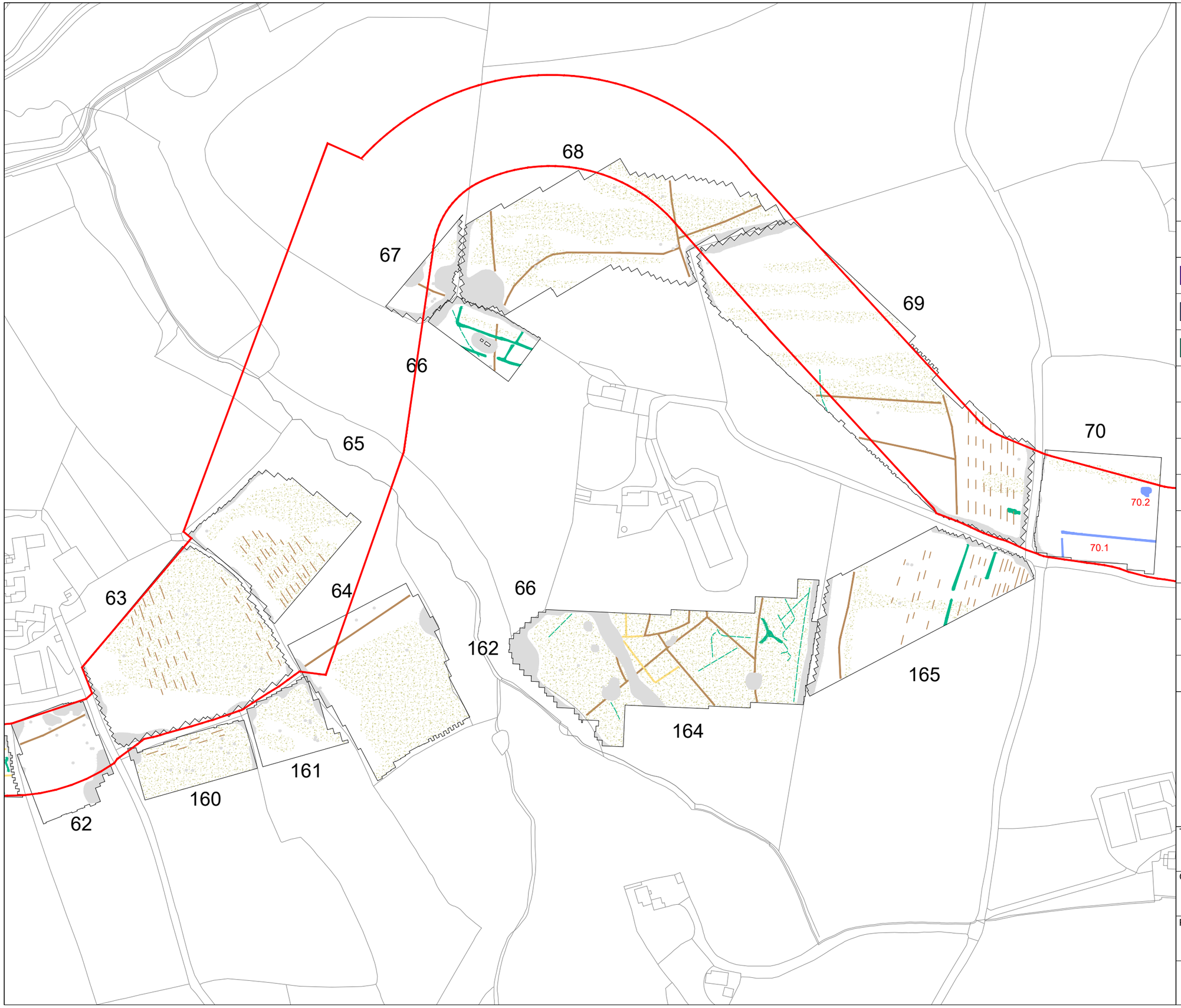
Client: Xlinks Ltd

Project: 15835 - Xlinks' Morocco-UK Power Project

Scale: 0 metres 130

1:2600 @ A3

Fig No: 29



N

KEY

	Probable archaeology (discrete anomaly / trend / increased response)
	Possible archaeology (discrete anomaly / trend / increased response)
	Uncertain Origin (discrete anomaly / trend / increased response)
	Former field boundary (corroborated)
	Former field boundary (conjectural)
	Agriculture (ridge and furrow)
	Agriculture (plough)
	Land drain
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

Title: Magnetometer Survey - Interpretation (Areas 62, 63, 63, 66, 67, 68, 69, 70, 160, 161, 164 and 165)

Client: Xlinks Ltd

Project: 15835 - Xlinks' Morocco-UK Power Project

Scale: 0 metres 130
1:2600 @ A3

Fig No: 30

N

sumo GeoSurveys

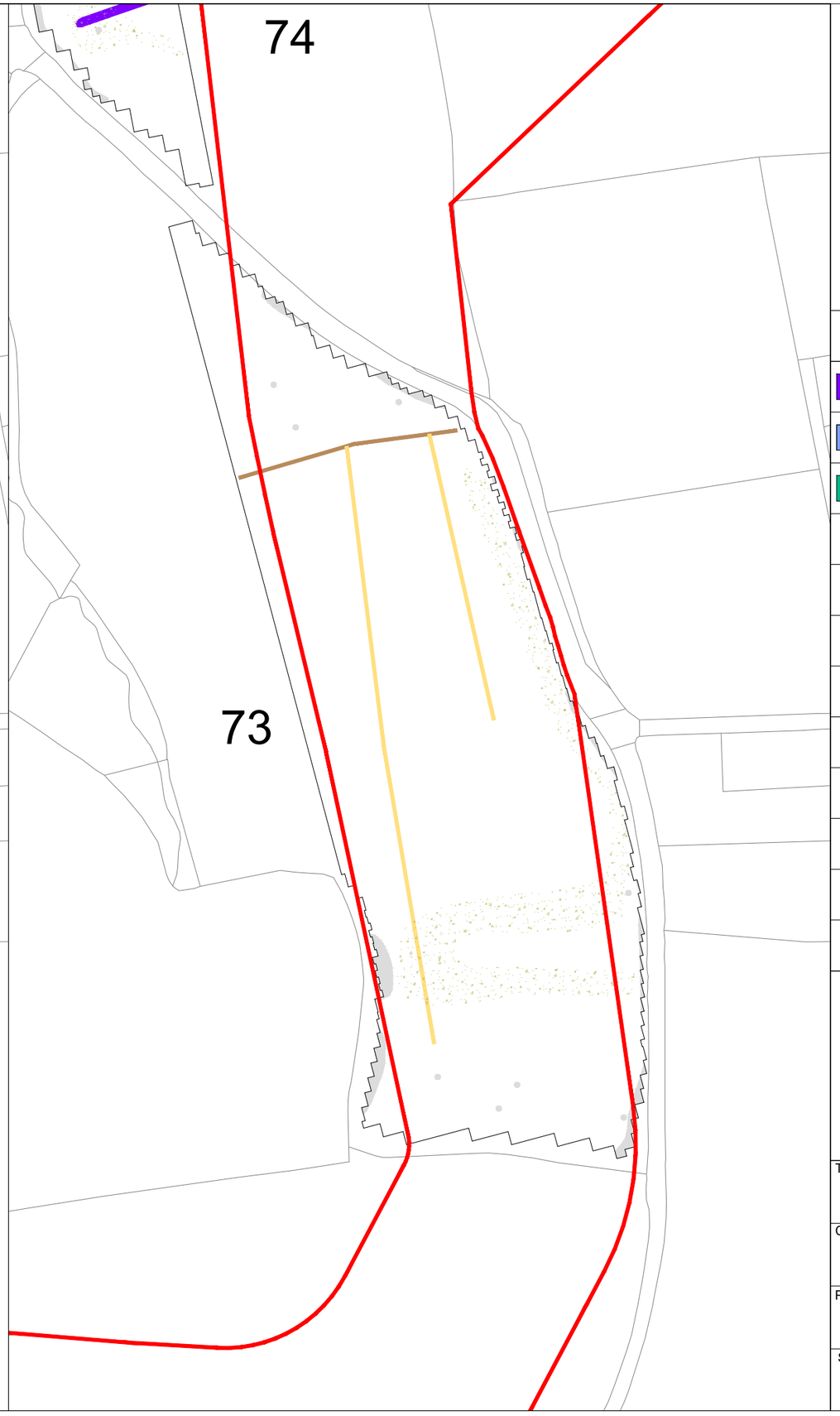
Title:
Magnetometer Survey - Greyscale and Colour Plots (Area 73)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
31



N

KEY

	Probable archaeology (discrete anomaly / trend / increased response)
	Possible archaeology (discrete anomaly / trend / increased response)
	Uncertain Origin (discrete anomaly / trend / increased response)
	Former field boundary (corroborated)
	Former field boundary (conjectural)
	Agriculture (ridge and furrow)
	Agriculture (plough)
	Land drain
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

Title:
Magnetometer Survey - Greyscale Plots / Interpretation (Area 73)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
32

159

77

76

75

74

N

+2nT

-1nT

sumo GeoSurveys

Title:
Magnetometer Survey - Greyscale Plots
(Areas 74 and 76)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
33

159

77

76

75

74

N

+100nT

-100nT

sumo GeoSurveys

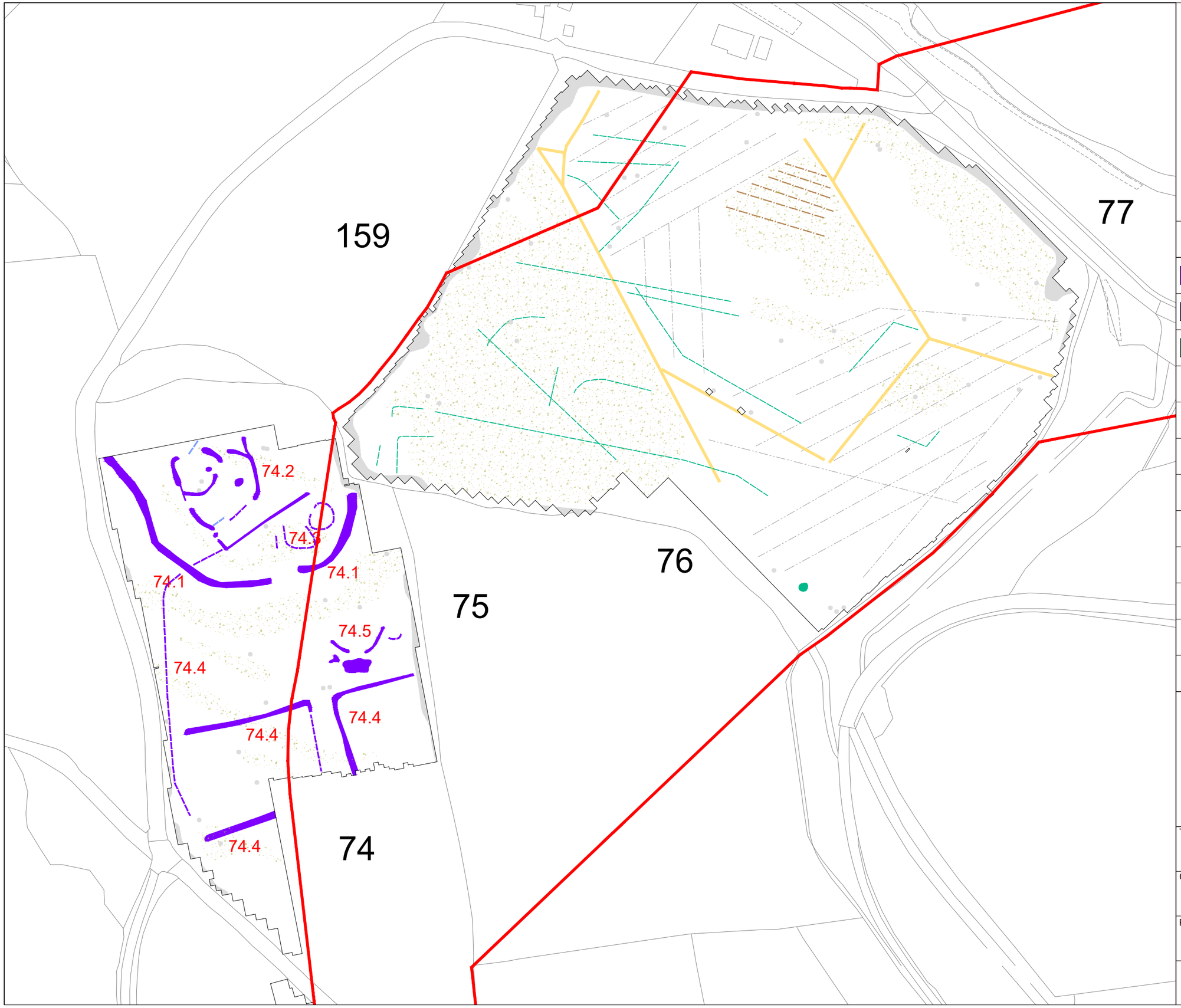
Title:
Magnetometer Survey - Colour Plots (Areas 74 and 76)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
34



KEY

	Probable archaeology (discrete anomaly / trend / increased response)
	Possible archaeology (discrete anomaly / trend / increased response)
	Uncertain Origin (discrete anomaly / trend / increased response)
	Former field boundary (corroborated)
	Former field boundary (conjectural)
	Agriculture (ridge and furrow)
	Agriculture (plough)
	Land drain
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

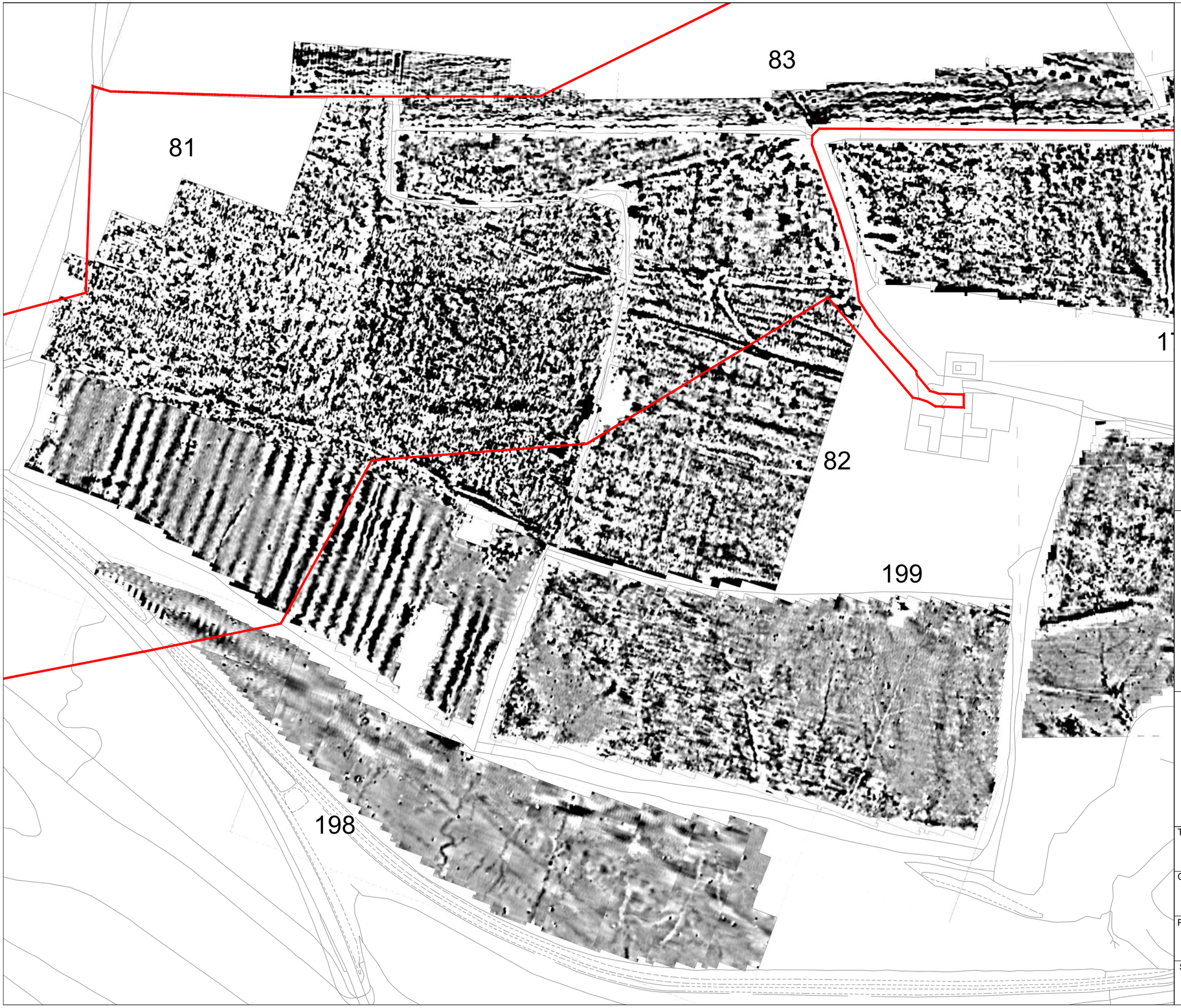
Title:
Magnetometer Survey - Interpretation (Areas 74 and 76)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
35



+2nT

-1nT

sumo GeoSurveys

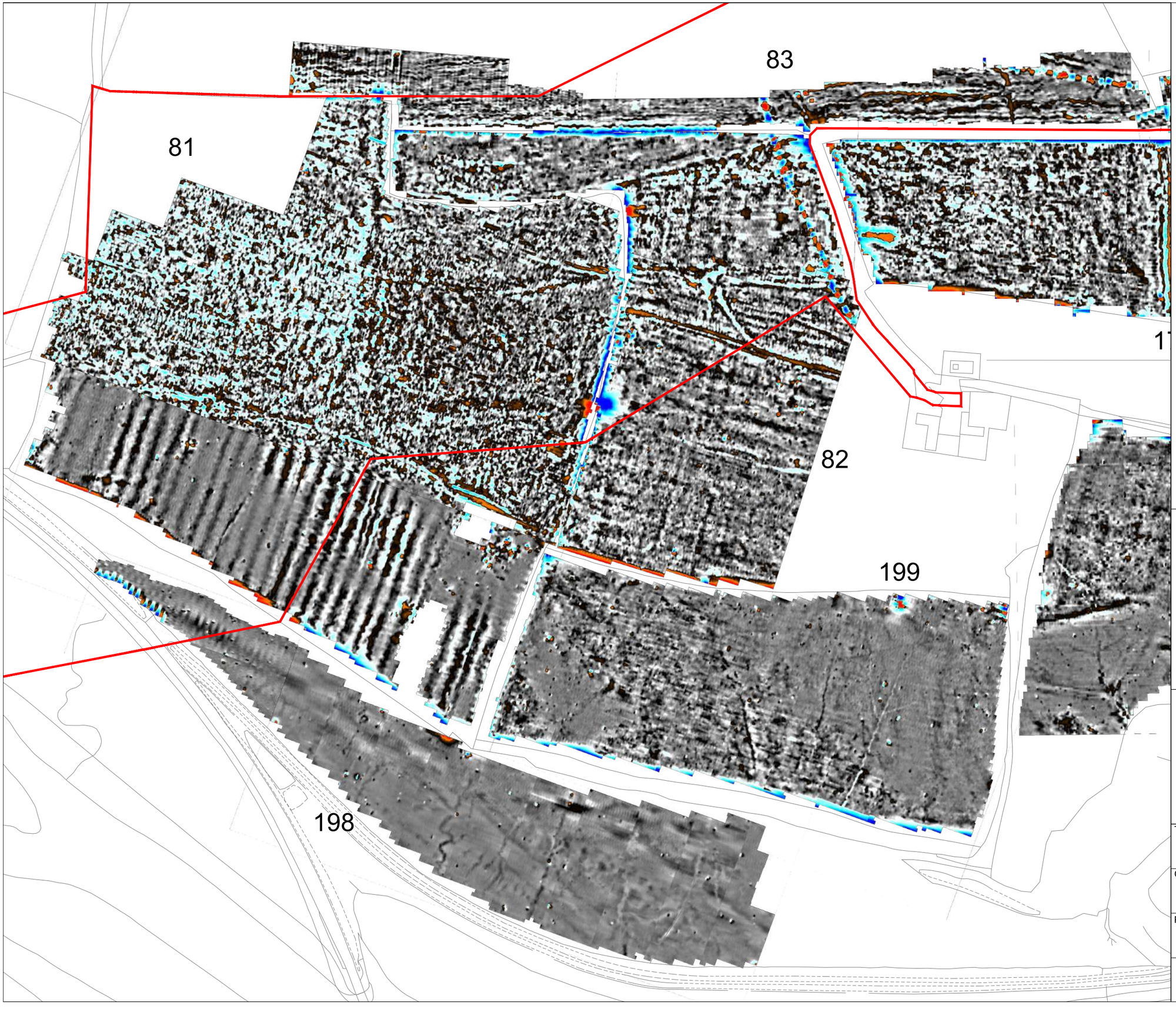
Title:
Magnetometer Survey - Greyscale Plots
(Area 81, 82, 83, 198 & 199)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 100
1:2000 @ A3

Fig No:
36



sumo GeoSurveys

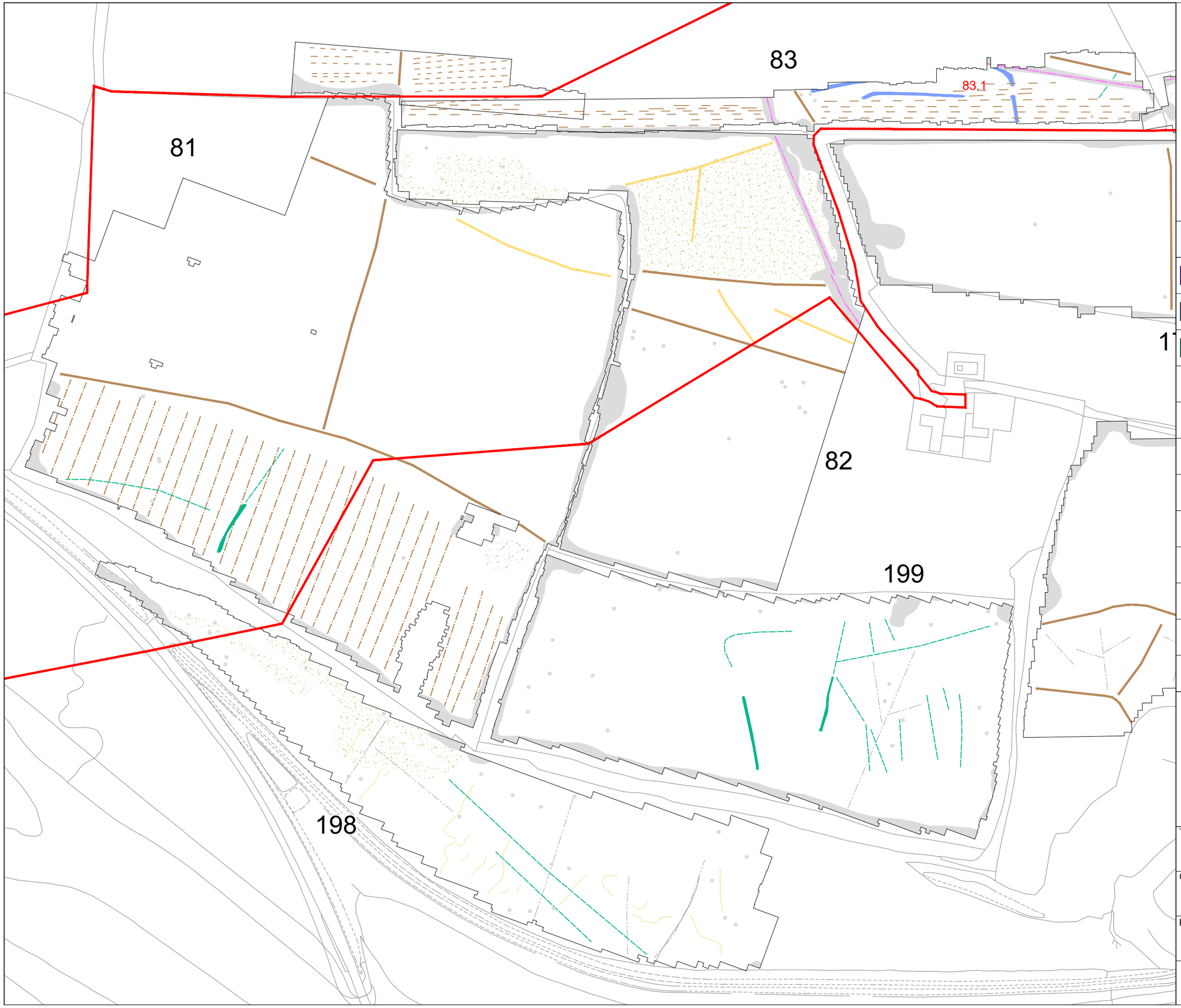
Title:
Magnetometer Survey - Colour Plots
(Area 81, 82, 83, 198 & 199)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 100
1:2000 @ A3

Fig No:
37



N

KEY

	Probable archaeology (discrete anomaly / trend / increased response)
	Possible archaeology (discrete anomaly / trend / increased response)
	Uncertain Origin (discrete anomaly / trend / increased response)
	Former field boundary (corroborated)
	Former field boundary (conjectural)
	Agriculture (ridge and furrow)
	Agriculture (plough)
	Land drain
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

Title:
Magnetometer Survey - Interpretation
(Area 81, 82, 83, 198 & 199)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 100
1:2000 @ A3

Fig No:
38

N

+2nT

-1nT

sumo GeoSurveys

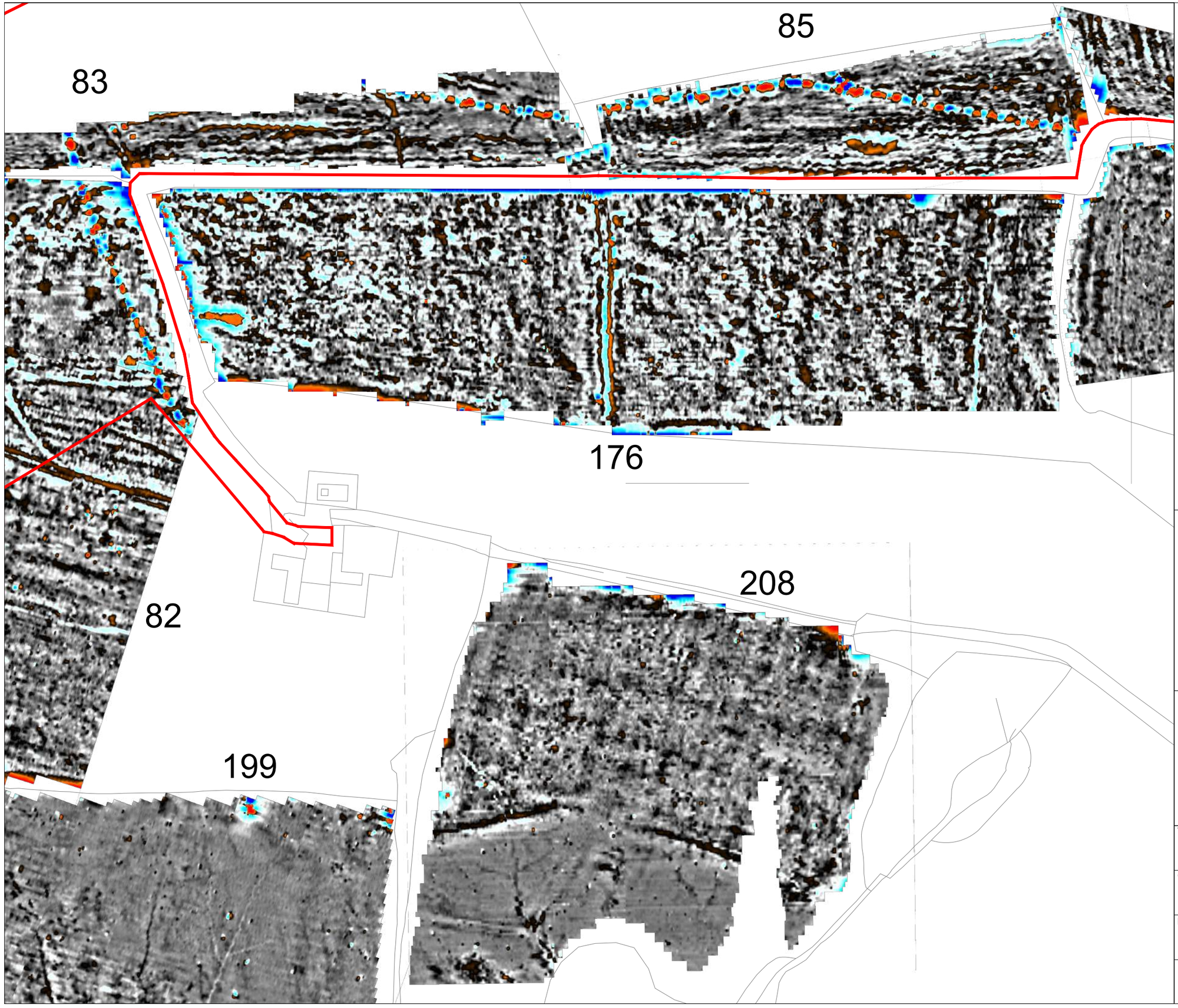
Title:
Magnetometer Survey - Greyscale Plots
(Area 85, 176 & 208)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
39



N

+100nT

-100nT

sumo GeoSurveys

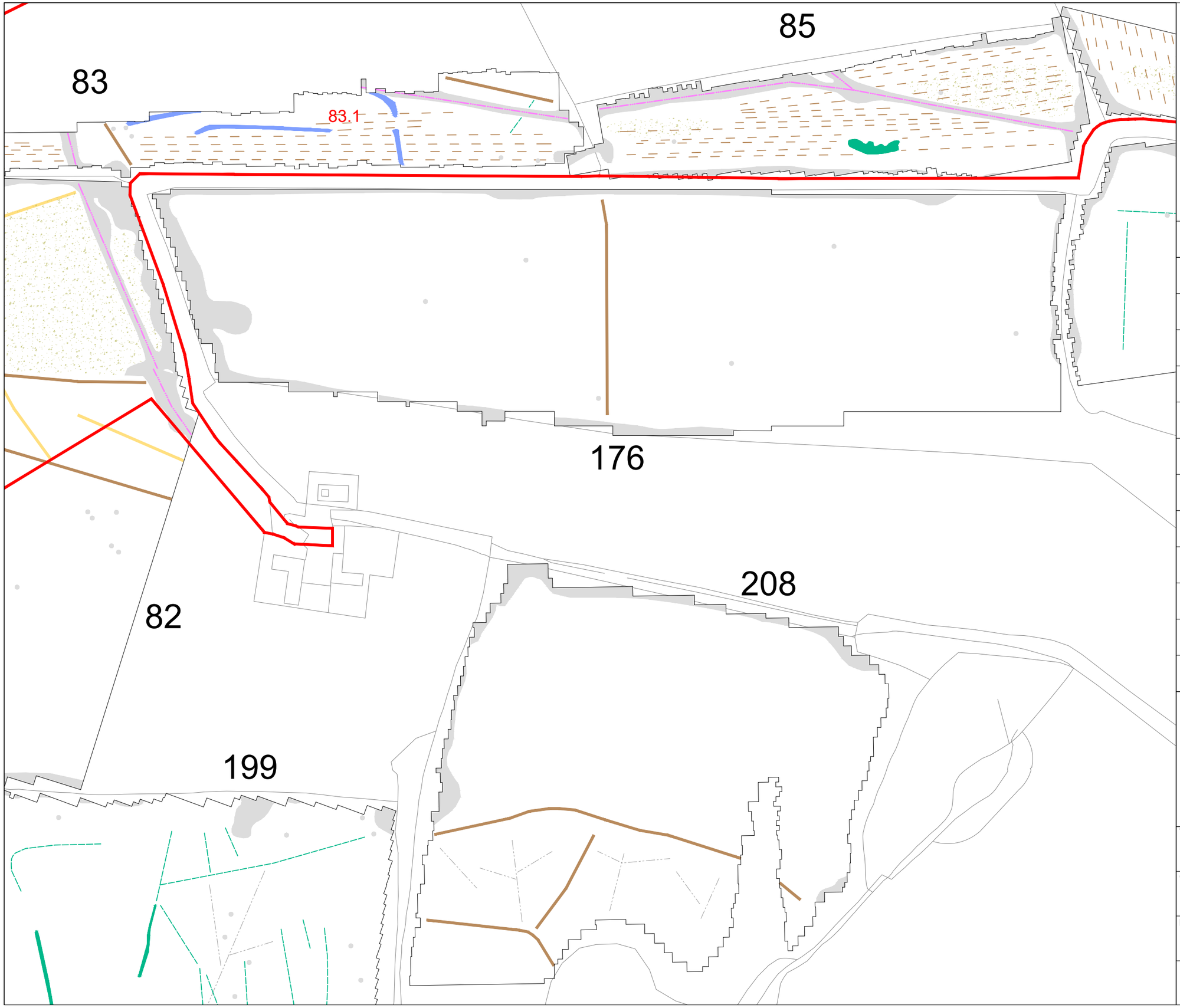
Title:
Magnetometer Survey - Colour Plots
(Area 85, 176 & 208)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
40



N

KEY

	Probable archaeology (discrete anomaly / trend / increased response)
	Possible archaeology (discrete anomaly / trend / increased response)
	Uncertain Origin (discrete anomaly / trend / increased response)
	Former field boundary (corroborated)
	Former field boundary (conjectural)
	Agriculture (ridge and furrow)
	Agriculture (plough)
	Land drain
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

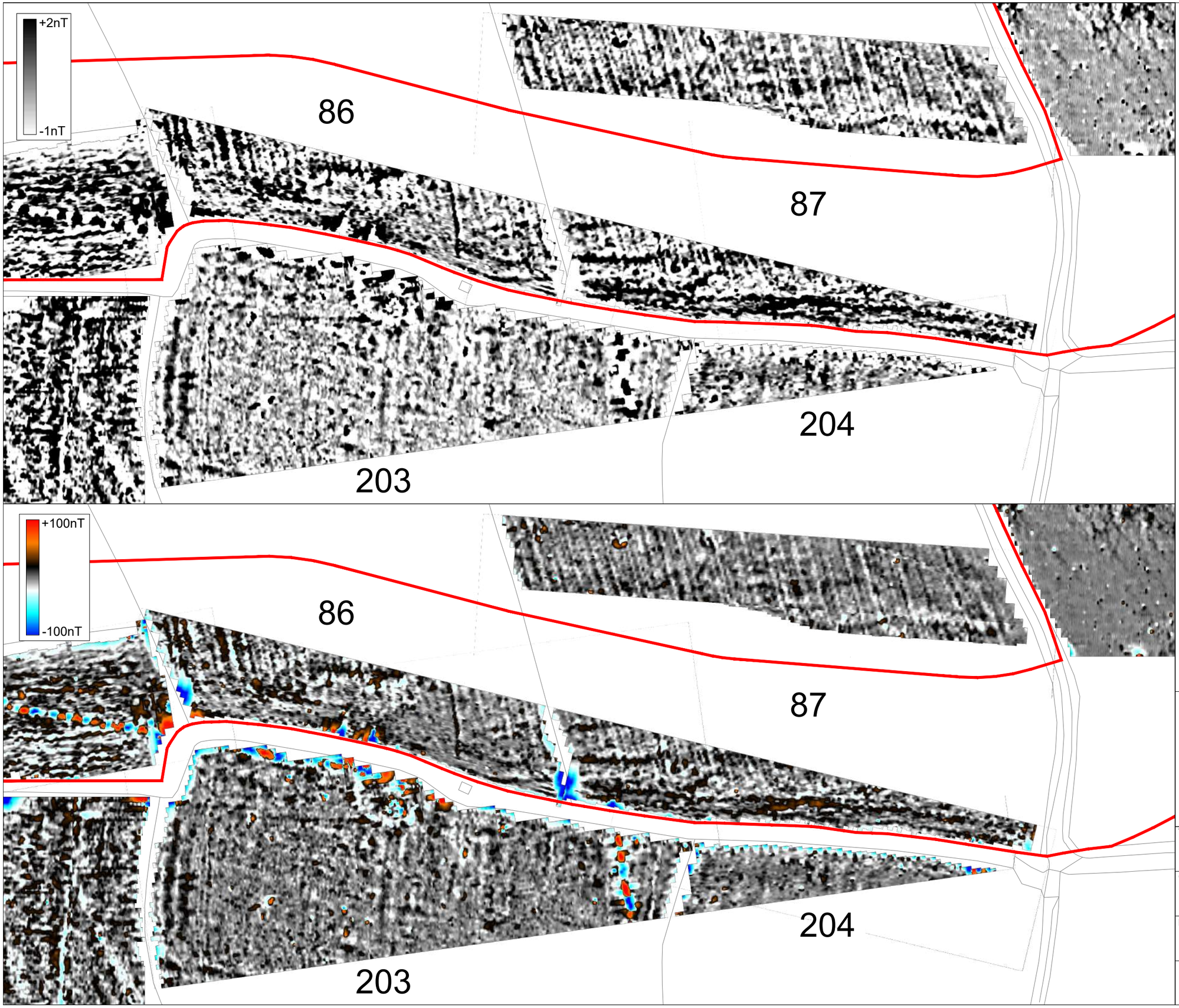
Title:
Magnetometer Survey - Interpretation
(Area 85, 176 & 208)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
41



N

sumo GeoSurveys

Title:
Magnetometer Survey - Greyscale and Colour Plots (Areas 86, 87, 203 & 204)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
42

N

KEY

	Probable archaeology (discrete anomaly / trend / increased response)
	Possible archaeology (discrete anomaly / trend / increased response)
	Uncertain Origin (discrete anomaly / trend / increased response)
	Former field boundary (corroborated)
	Former field boundary (conjectural)
	Agriculture (ridge and furrow)
	Agriculture (plough)
	Land drain
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

Title:
Magnetometer Survey - Greyscale and Colour Plots (Areas 86, 87, 203 & 204)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
43

N

+2nT

-1nT

87

88

89

204

sumo GeoSurveys

Title:
Magnetometer Survey - Greyscale Plots
(Areas 88 and 89)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 100
1:2000 @ A3

Fig No:
44

N

+100nT

-100nT

sumo GeoSurveys

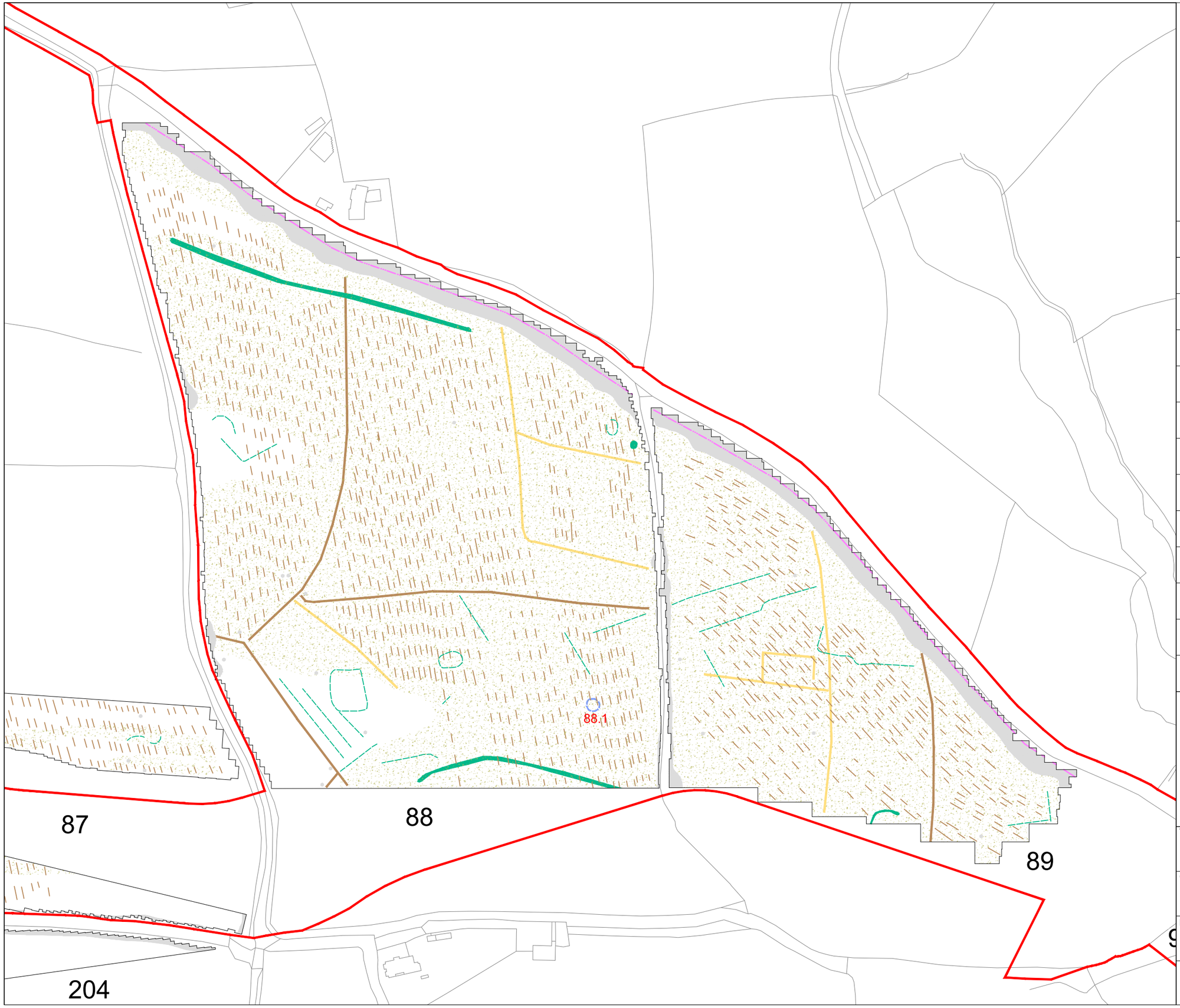
Title:
Magnetometer Survey - Colour Plots
(Areas 88 and 89)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 100
1:2000 @ A3

Fig No:
45



N

KEY

	Probable archaeology (discrete anomaly / trend / increased response)
	Possible archaeology (discrete anomaly / trend / increased response)
	Uncertain Origin (discrete anomaly / trend / increased response)
	Former field boundary (corroborated)
	Former field boundary (conjectural)
	Agriculture (ridge and furrow)
	Agriculture (plough)
	Land drain
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

Title:
Magnetometer Survey - Interpretation
(Areas 88 and 89)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 100
1:2000 @ A3

Fig No:
46

N

+2nT

-1nT

sumo GeoSurveys

Title:
Magnetometer Survey - Greyscale Plots
(Area 91)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
47

N

+100nT

-100nT

sumo GeoSurveys

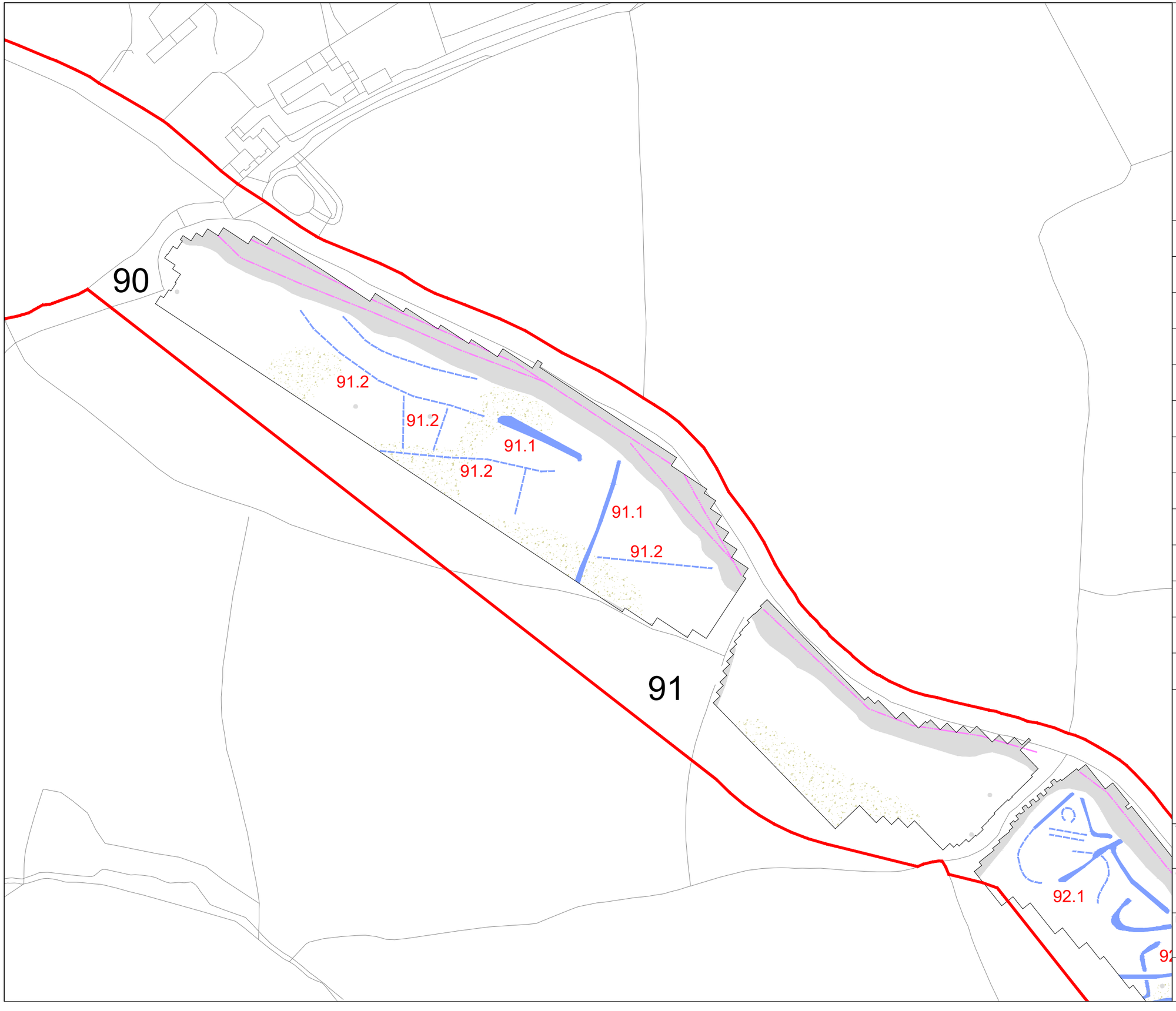
Title:
Magnetometer Survey - Colour Plots
(Area 91)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
48



N

KEY

	Probable archaeology (discrete anomaly / trend / increased response)
	Possible archaeology (discrete anomaly / trend / increased response)
	Uncertain Origin (discrete anomaly / trend / increased response)
	Former field boundary (corroborated)
	Former field boundary (conjectural)
	Agriculture (ridge and furrow)
	Agriculture (plough)
	Land drain
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

Title: Magnetometer Survey - Interpretation (Area 91)

Client: Xlinks Ltd

Project: 15835 - Xlinks' Morocco-UK Power Project

Scale: 0 metres 75
1:1500 @ A3

Fig No: 49

92

93

N

+2nT

-1nT

sumo GeoSurveys

Title:
Magnetometer Survey - Greyscale Plots
(Areas 92 and 93)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
50

N

+100nT

-100nT

sumo GeoSurveys

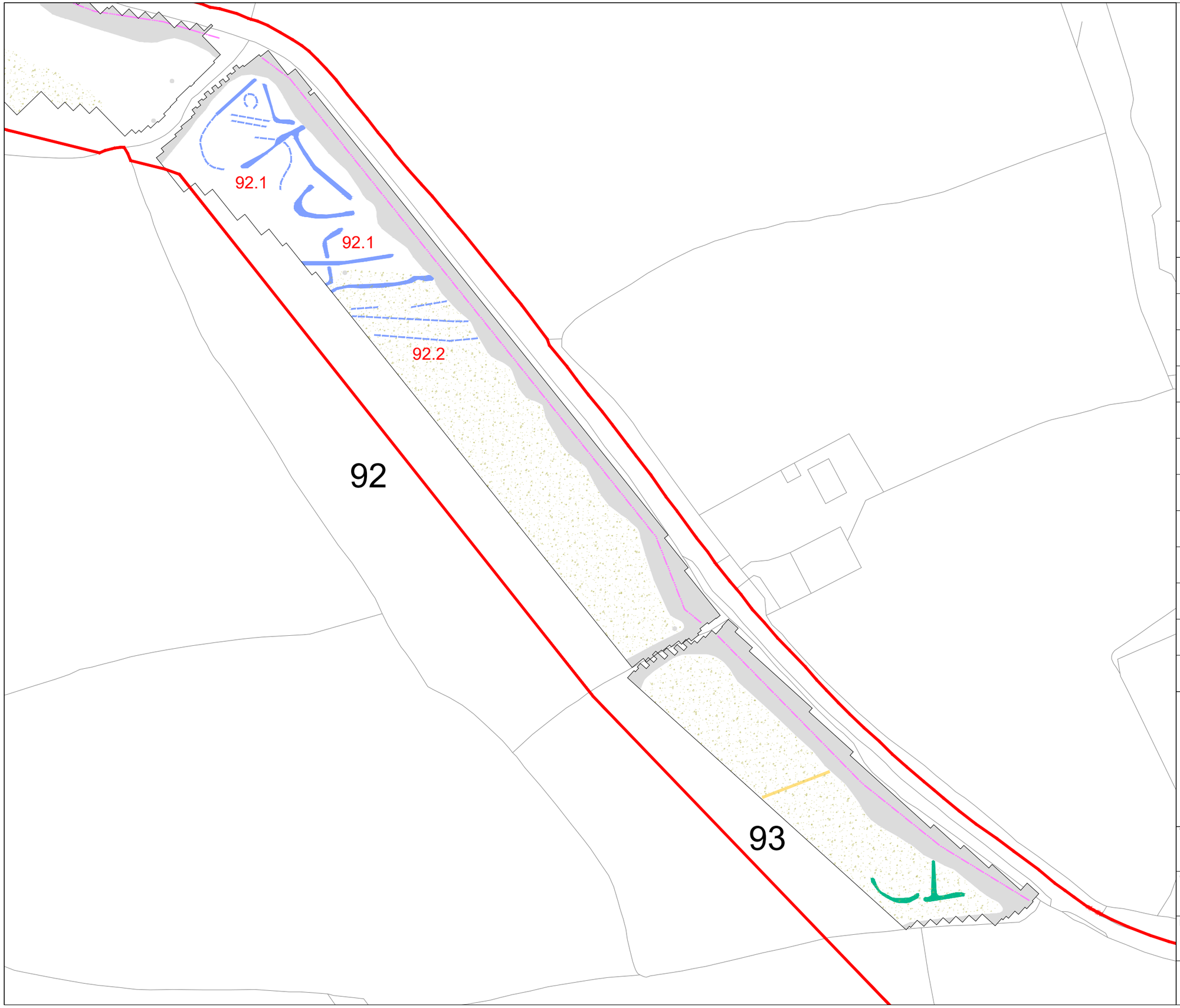
Title:
Magnetometer Survey - Colour Plots (Areas 92 and 93)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
51



N

KEY

	Probable archaeology (discrete anomaly / trend / increased response)
	Possible archaeology (discrete anomaly / trend / increased response)
	Uncertain Origin (discrete anomaly / trend / increased response)
	Former field boundary (corroborated)
	Former field boundary (conjectural)
	Agriculture (ridge and furrow)
	Agriculture (plough)
	Land drain
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

Title:
Magnetometer Survey - Interpretation (Areas 92 and 93)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
52

N

+2nT

-1nT

sumo GeoSurveys

Title:
Magnetometer Survey - Greyscale Plots
(Areas 94 and 99)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 100
1:2000 @ A3

Fig No:
53

N

+100nT

-100nT

sumo GeoSurveys

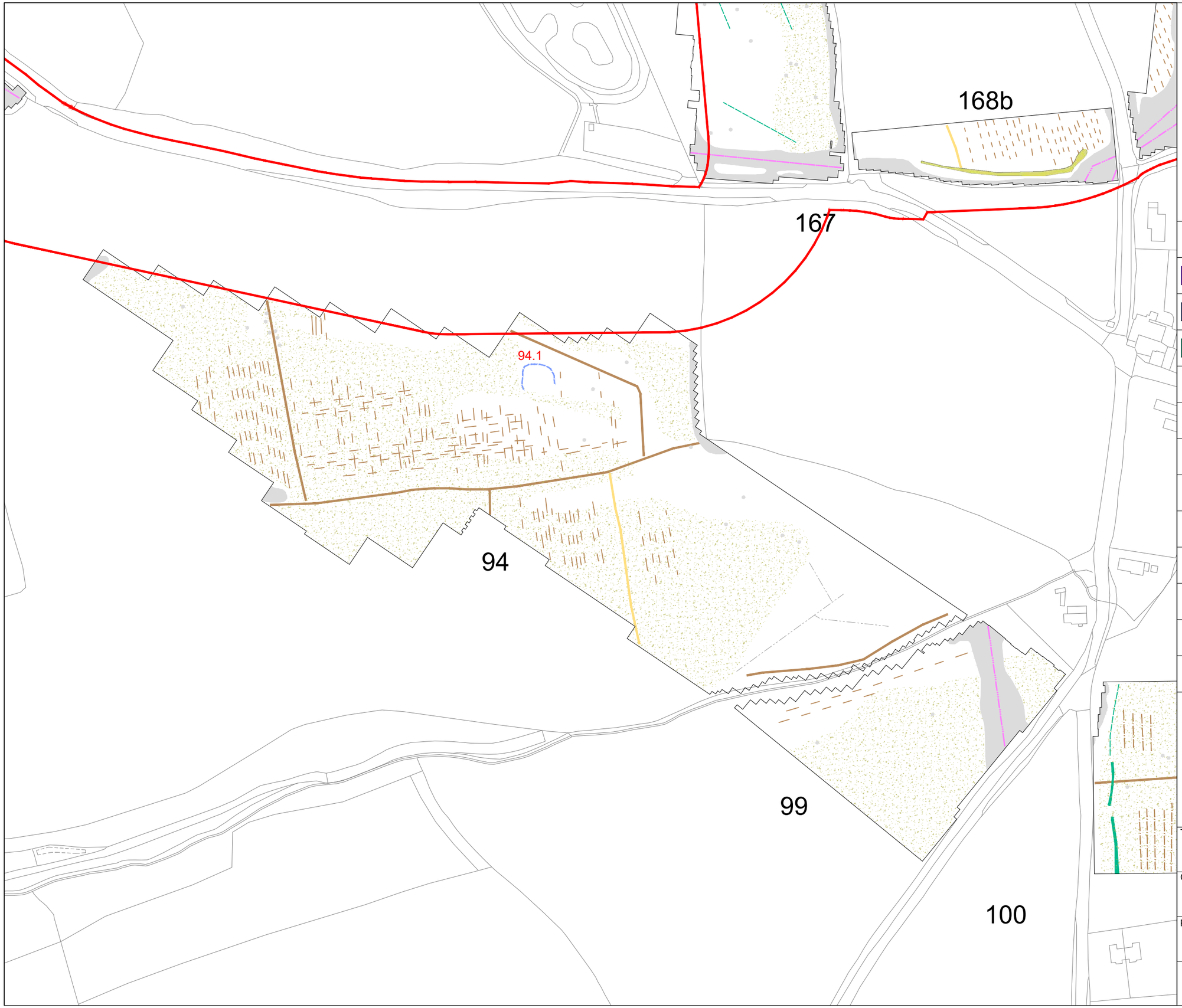
Title:
Magnetometer Survey - Colour Plots
(Areas 94 and 99)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 100
1:2000 @ A3

Fig No:
54



N

KEY

	Probable archaeology (discrete anomaly / trend / increased response)
	Possible archaeology (discrete anomaly / trend / increased response)
	Uncertain Origin (discrete anomaly / trend / increased response)
	Former field boundary (corroborated)
	Former field boundary (conjectural)
	Agriculture (ridge and furrow)
	Agriculture (plough)
	Land drain
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

Title:
Magnetometer Survey - Interpretation
(Areas 94 and 99)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 100
1:2000 @ A3

Fig No:
55

sumo GeoSurveys

Title:
Magnetometer Survey - Greyscale Plots
(Areas 101, 102 and 108)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 110
1:2200 @ A3

Fig No:
56

N

+100nT

-100nT

sumo GeoSurveys

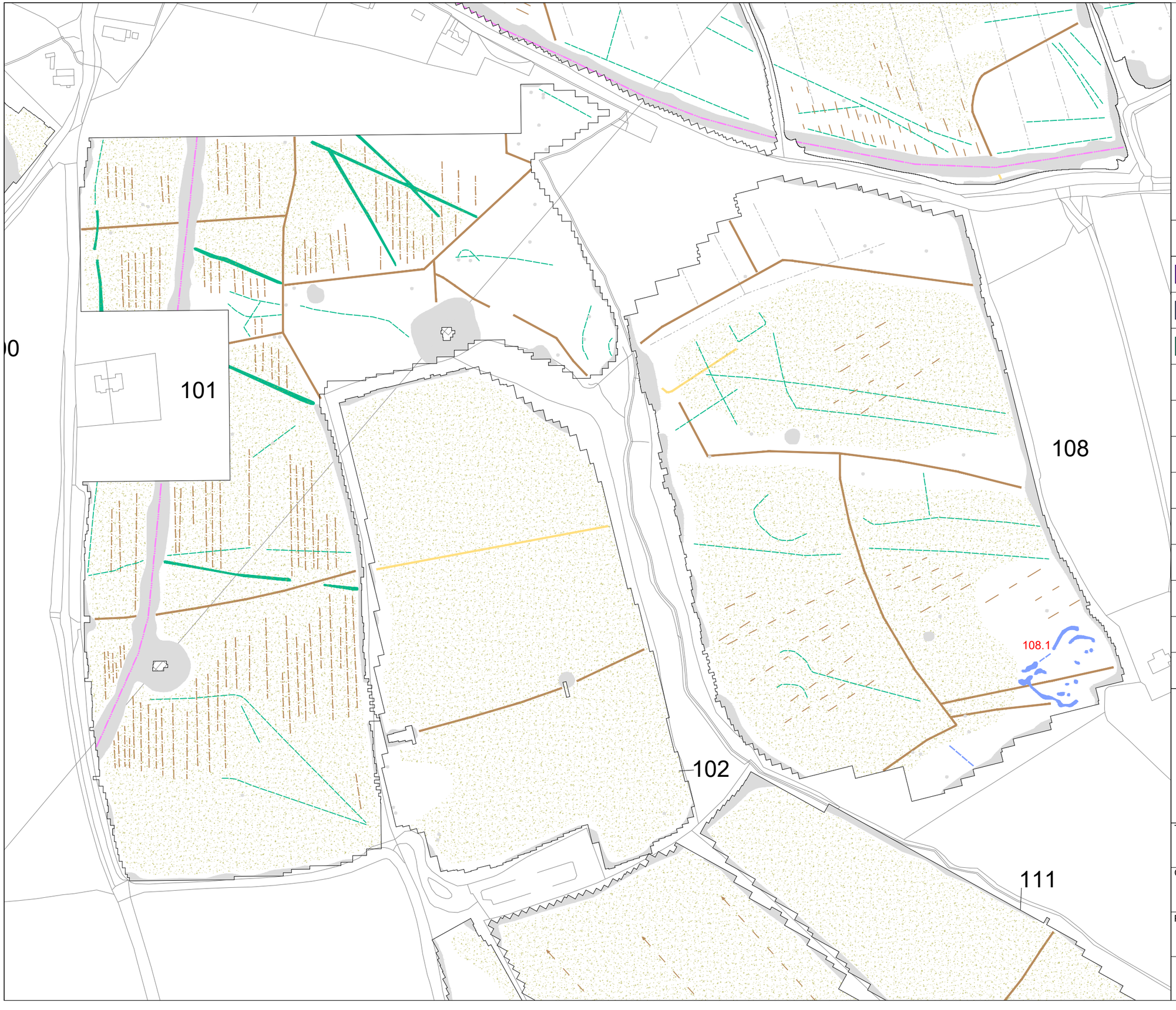
Title:
Magnetometer Survey - Colour Plots (Areas 101, 102 and 108)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 110
1:2200 @ A3

Fig No:
57



N

KEY

	Probable archaeology (discrete anomaly / trend / increased response)
	Possible archaeology (discrete anomaly / trend / increased response)
	Uncertain Origin (discrete anomaly / trend / increased response)
	Former field boundary (corroborated)
	Former field boundary (conjectural)
	Agriculture (ridge and furrow)
	Agriculture (plough)
	Land drain
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

Title:
Magnetometer Survey - Interpretation
(Areas 101, 102 and 108)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 110
1:2200 @ A3

Fig No:
58

102

111

109

110

152

N

+2nT

-1nT

sumo GeoSurveys

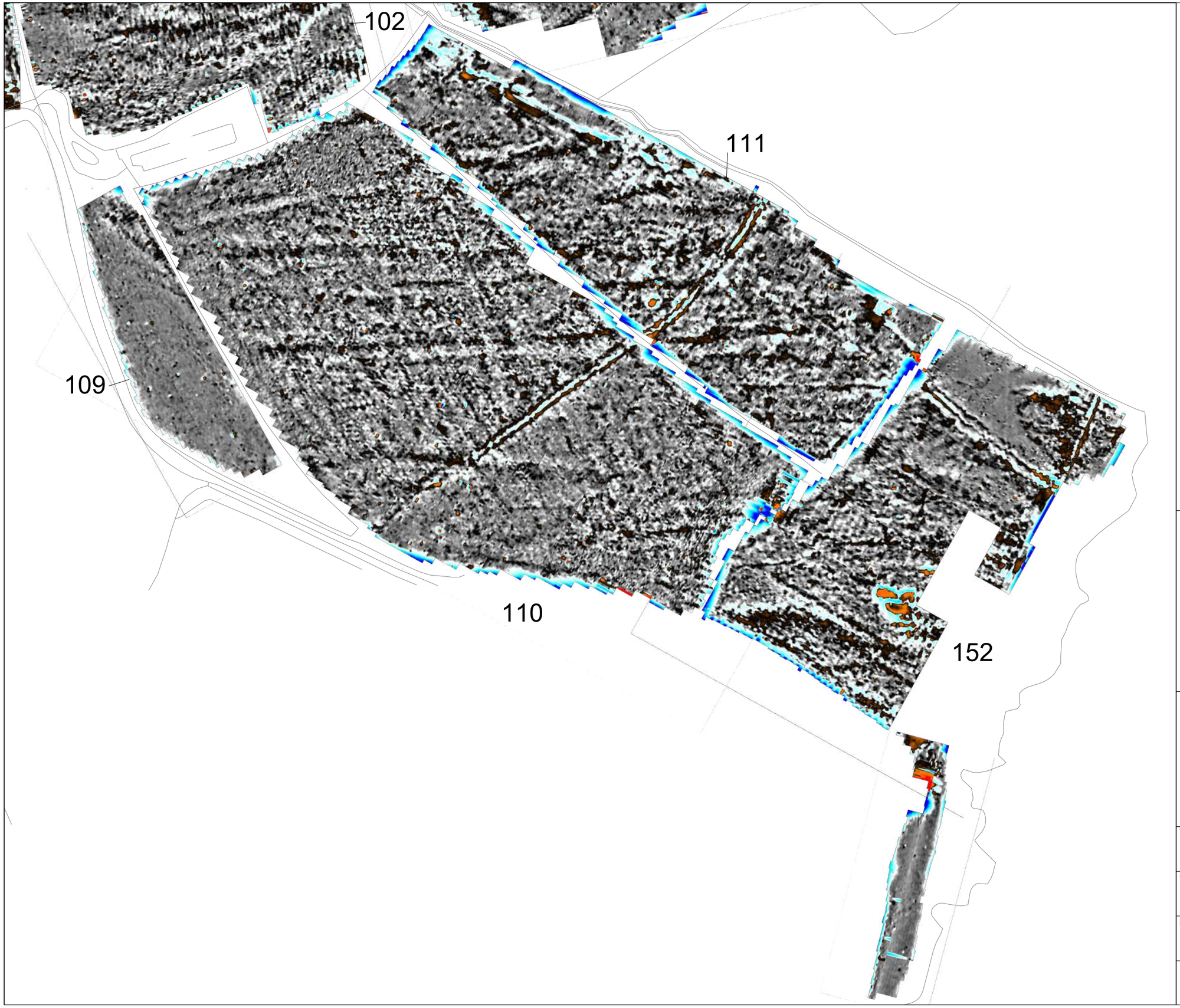
Title:
Magnetometer Survey - Greyscale Plots
(Areas 109, 110, 111 and 152)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 100
1:2000 @ A3

Fig No:
59



N

+100nT

-100nT

sumo GeoSurveys

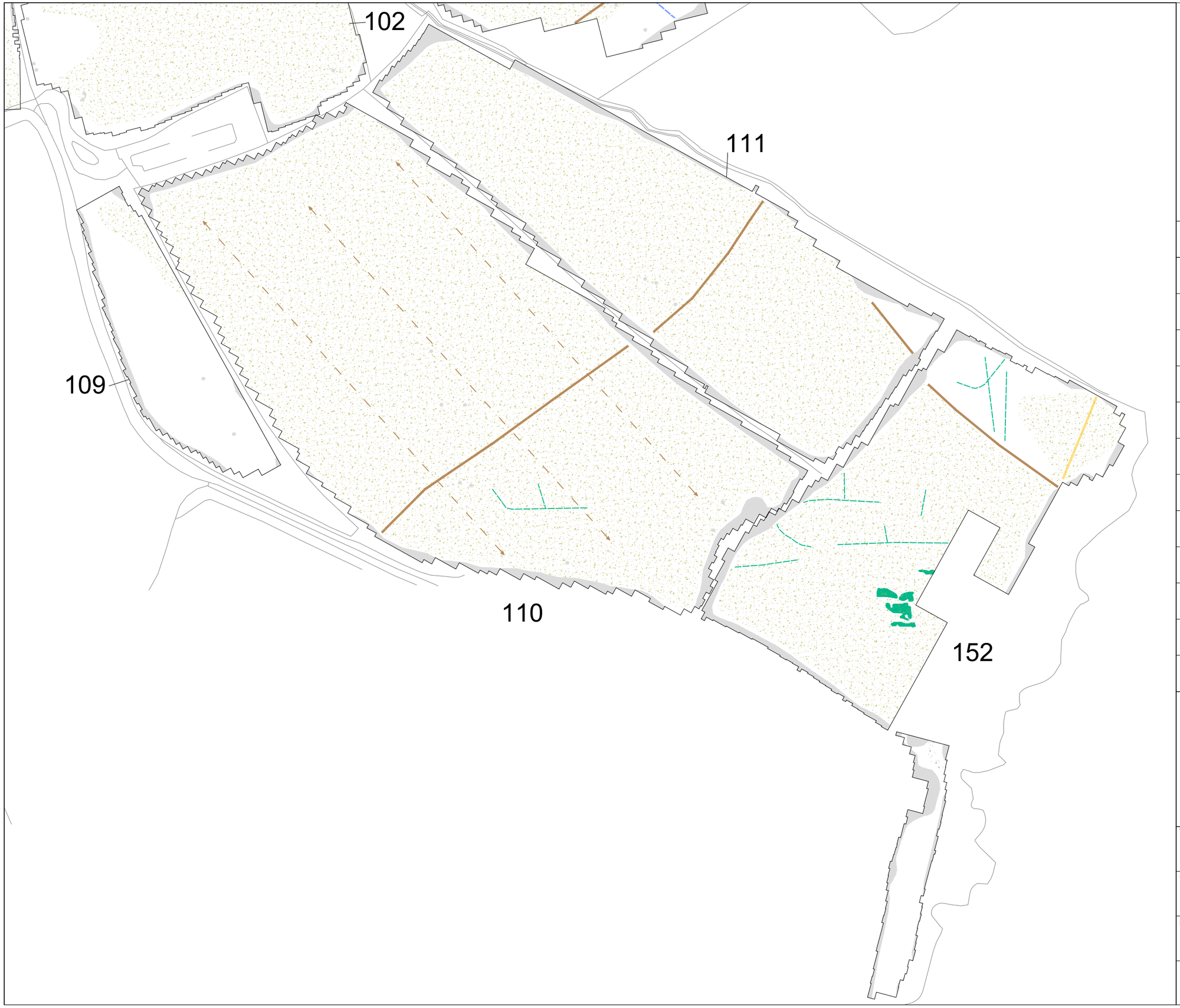
Title:
Magnetometer Survey - Colour Plots (Areas 109, 110, 111 and 152)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 100
1:2000 @ A3

Fig No:
60



N

KEY

	Probable archaeology (discrete anomaly / trend / increased response)
	Possible archaeology (discrete anomaly / trend / increased response)
	Uncertain Origin (discrete anomaly / trend / increased response)
	Former field boundary (corroborated)
	Former field boundary (conjectural)
	Agriculture (ridge and furrow)
	Agriculture (plough)
	Land drain
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

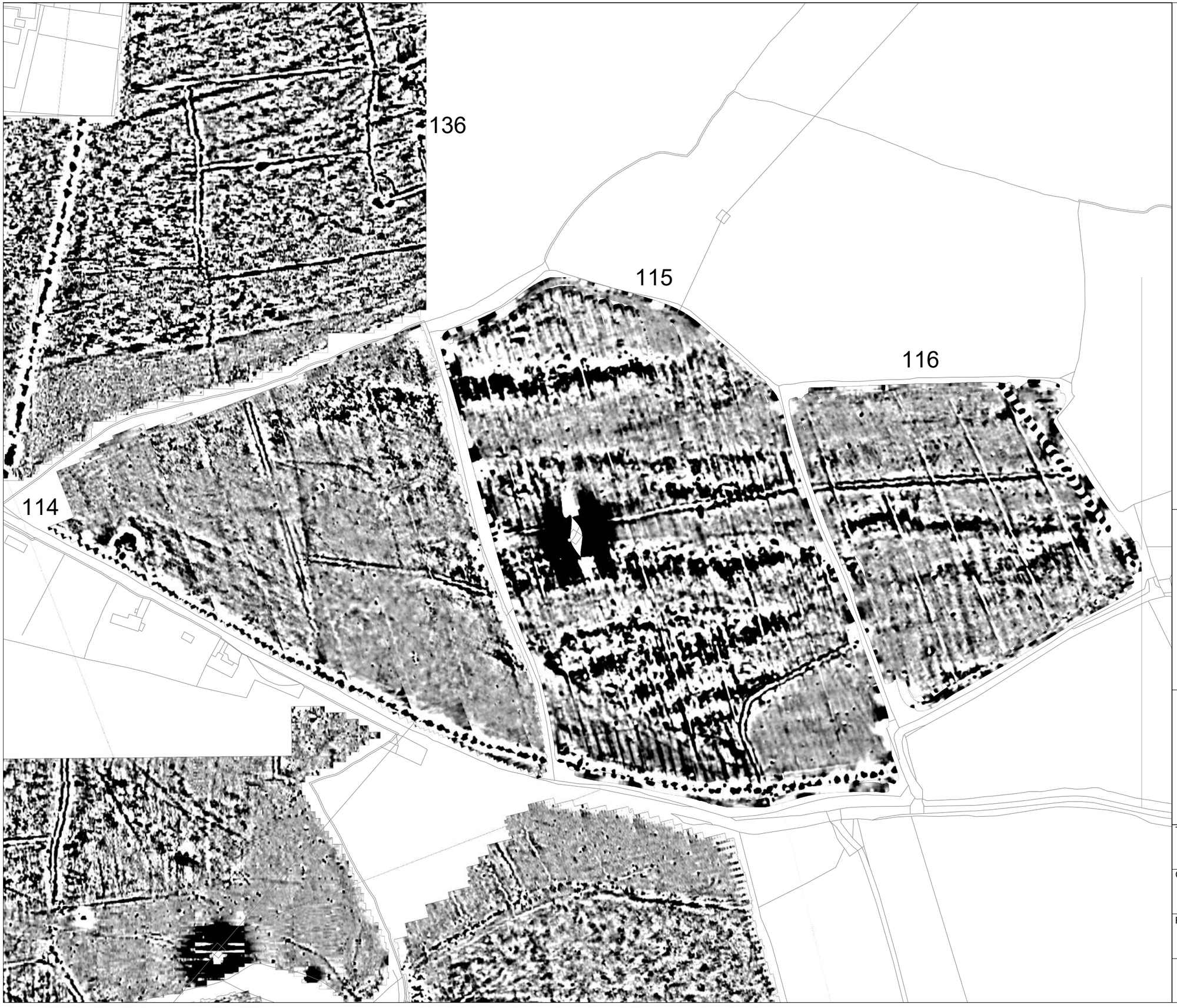
Title:
Magnetometer Survey - Interpretation
(Areas 109, 110, 111 and 152)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 100
1:2000 @ A3

Fig No:
61



N

+2nT

-1nT

sumo GeoSurveys

Title:
Magnetometer Survey - Greyscale Plots
(Areas 114, 115 and 116)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 110
1:2200 @ A3

Fig No:
62

N

+100nT

-100nT

sumo GeoSurveys

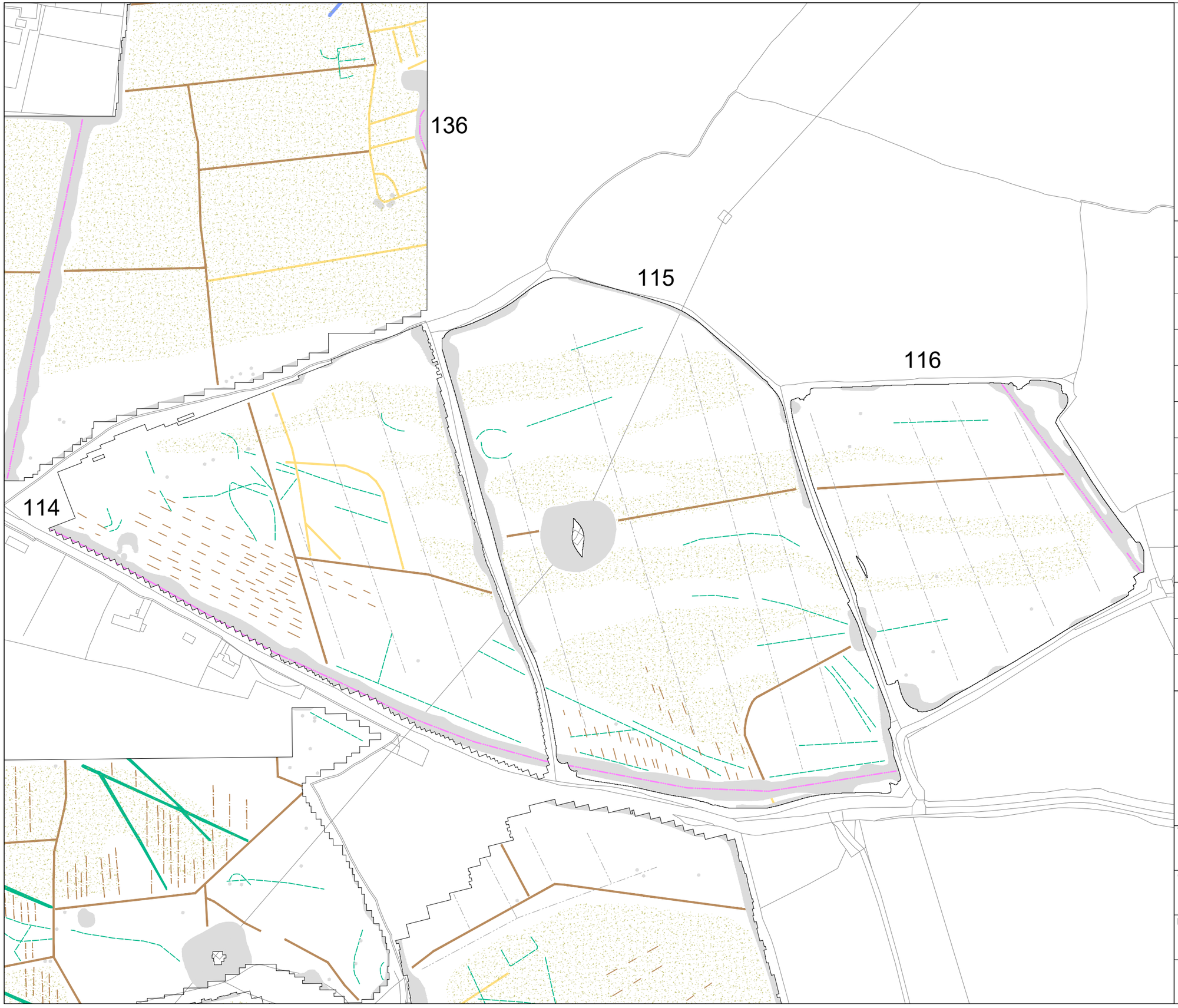
Title:
Magnetometer Survey - Colour Plots (Areas 114, 115 and 116)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 110
1:2200 @ A3

Fig No:
63



N

KEY

	Probable archaeology (discrete anomaly / trend / increased response)
	Possible archaeology (discrete anomaly / trend / increased response)
	Uncertain Origin (discrete anomaly / trend / increased response)
	Former field boundary (corroborated)
	Former field boundary (conjectural)
	Agriculture (ridge and furrow)
	Agriculture (plough)
	Land drain
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

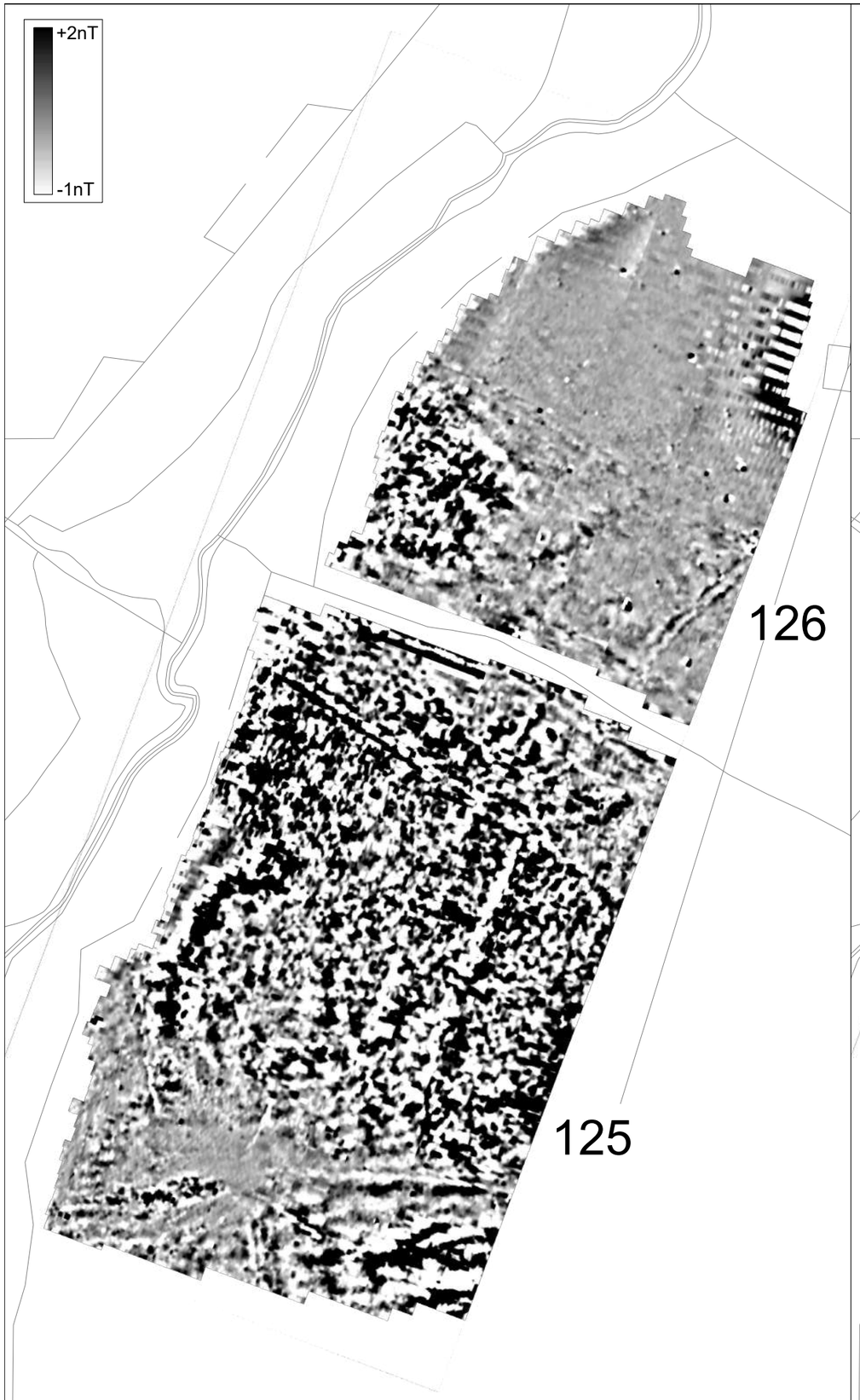
Title:
Magnetometer Survey - Interpretation
(Areas 114, 115 and 116)

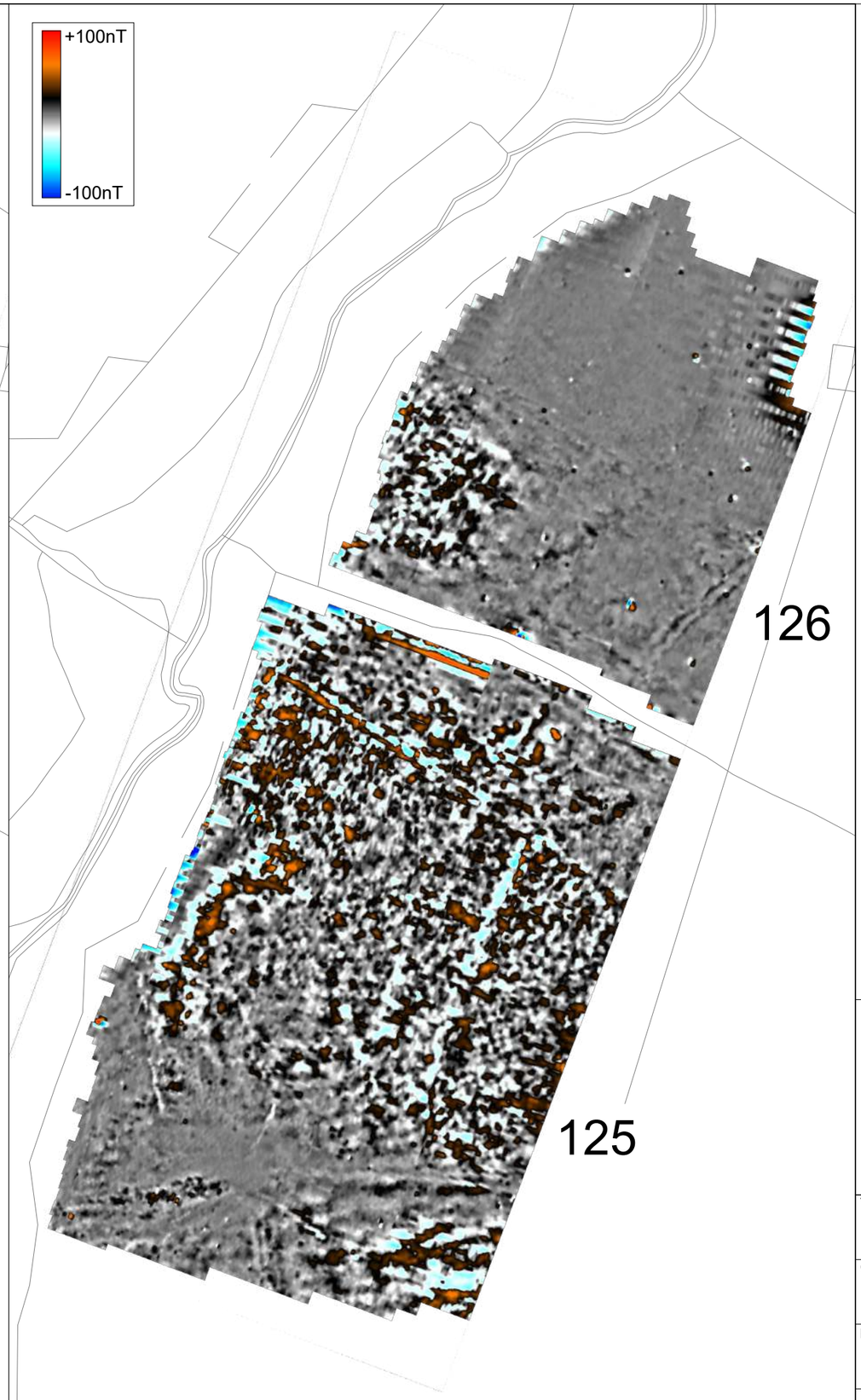
Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 110
1:2200 @ A3

Fig No:
64





N

sumo GeoSurveys

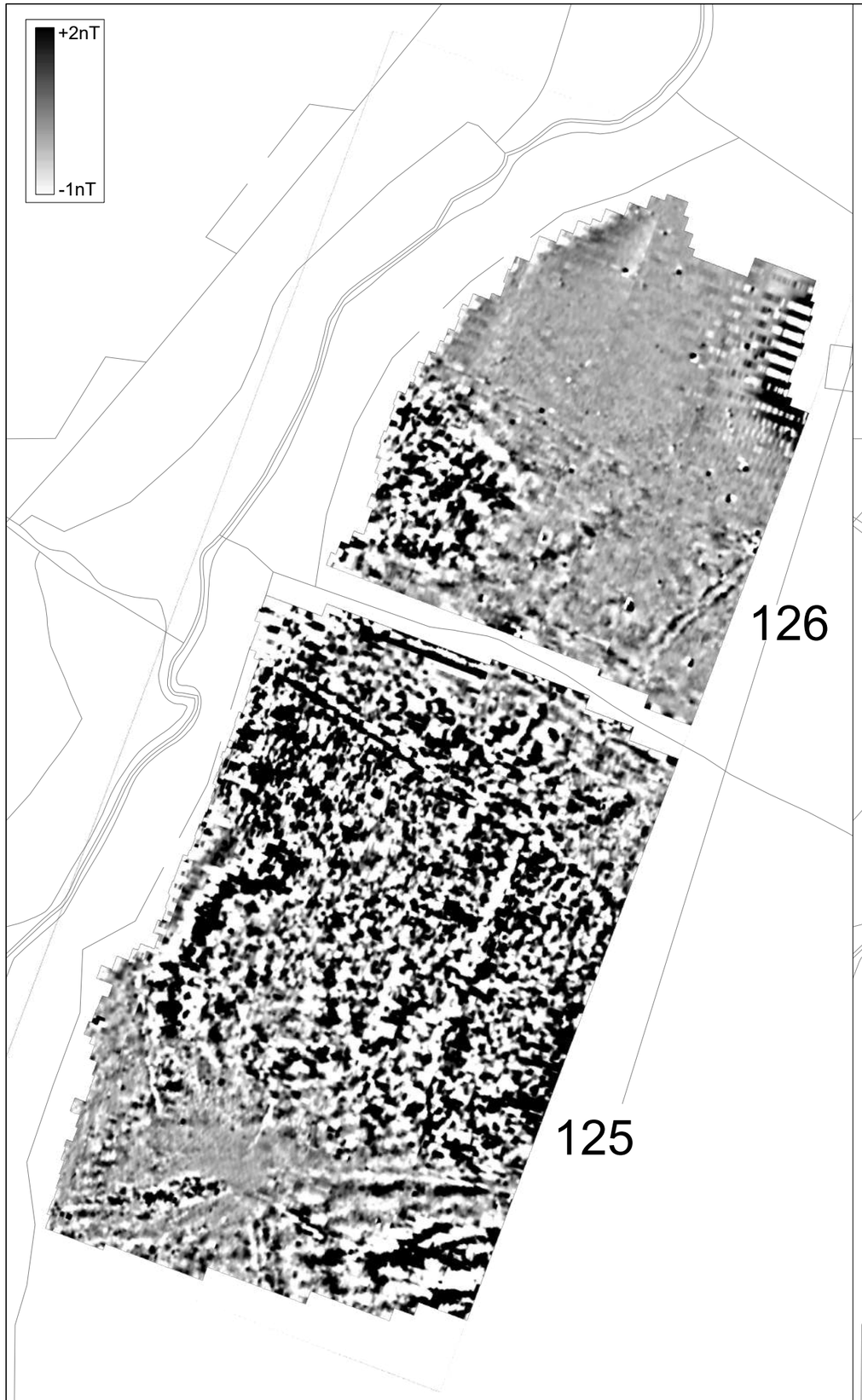
Title:
Magnetometer Survey - Greyscale and Colour Plots (Areas 125 and 126)

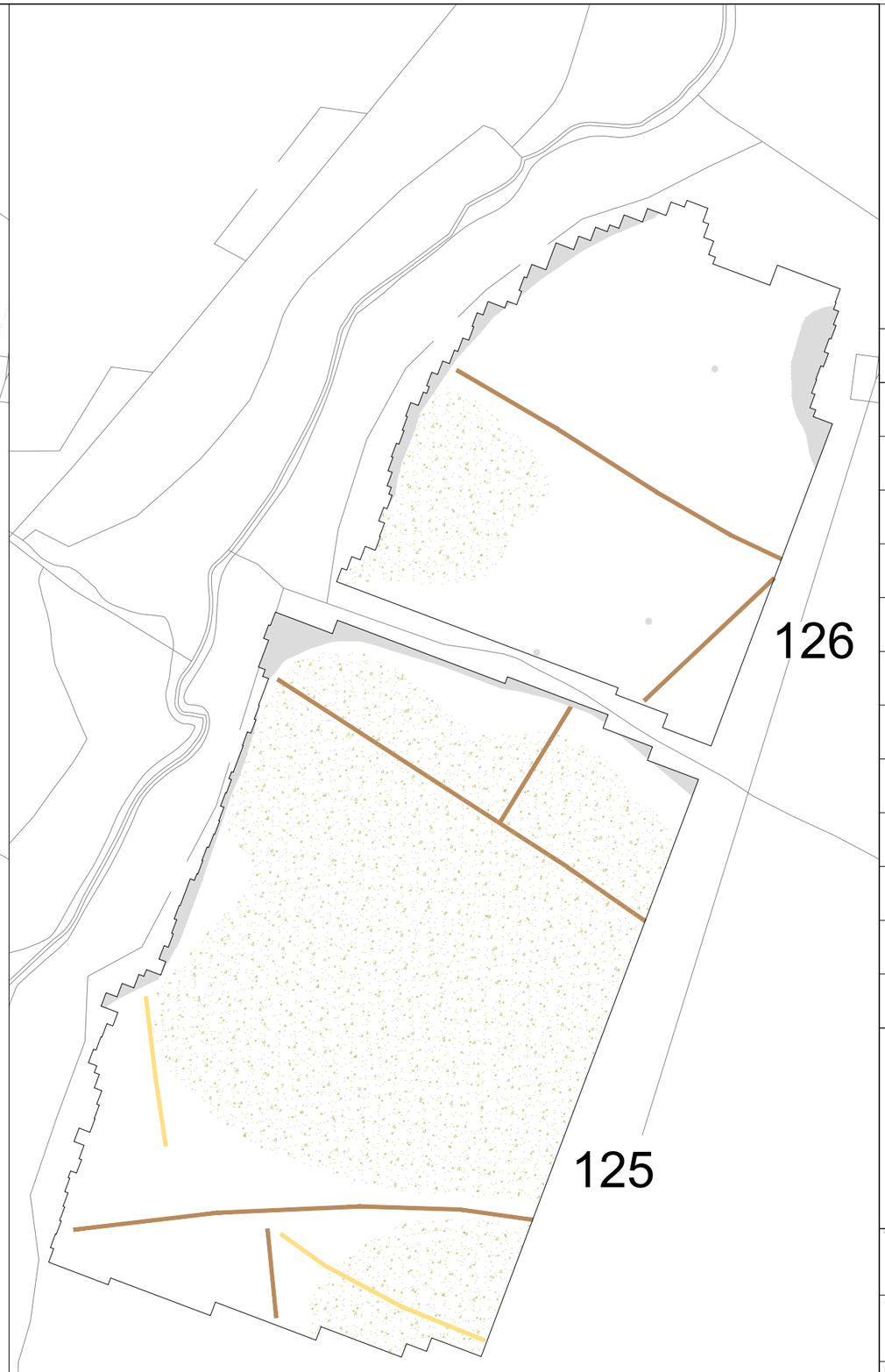
Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
65





N

KEY

	Probable archaeology (discrete anomaly / trend / increased response)
	Possible archaeology (discrete anomaly / trend / increased response)
	Uncertain Origin (discrete anomaly / trend / increased response)
	Former field boundary (corroborated)
	Former field boundary (conjectural)
	Agriculture (ridge and furrow)
	Agriculture (plough)
	Land drain
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

Title:
Magnetometer Survey - Greyscale Plots and Interpretation (Areas 125 and 126)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
66

144

136

114

N

sumo GeoSurveys

Title:
Magnetometer Survey - Greyscale Plot
(Areas 136)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
67

144

136

114

N

sumo GeoSurveys

Title: Magnetometer Survey - Colour Plot (Areas 136)

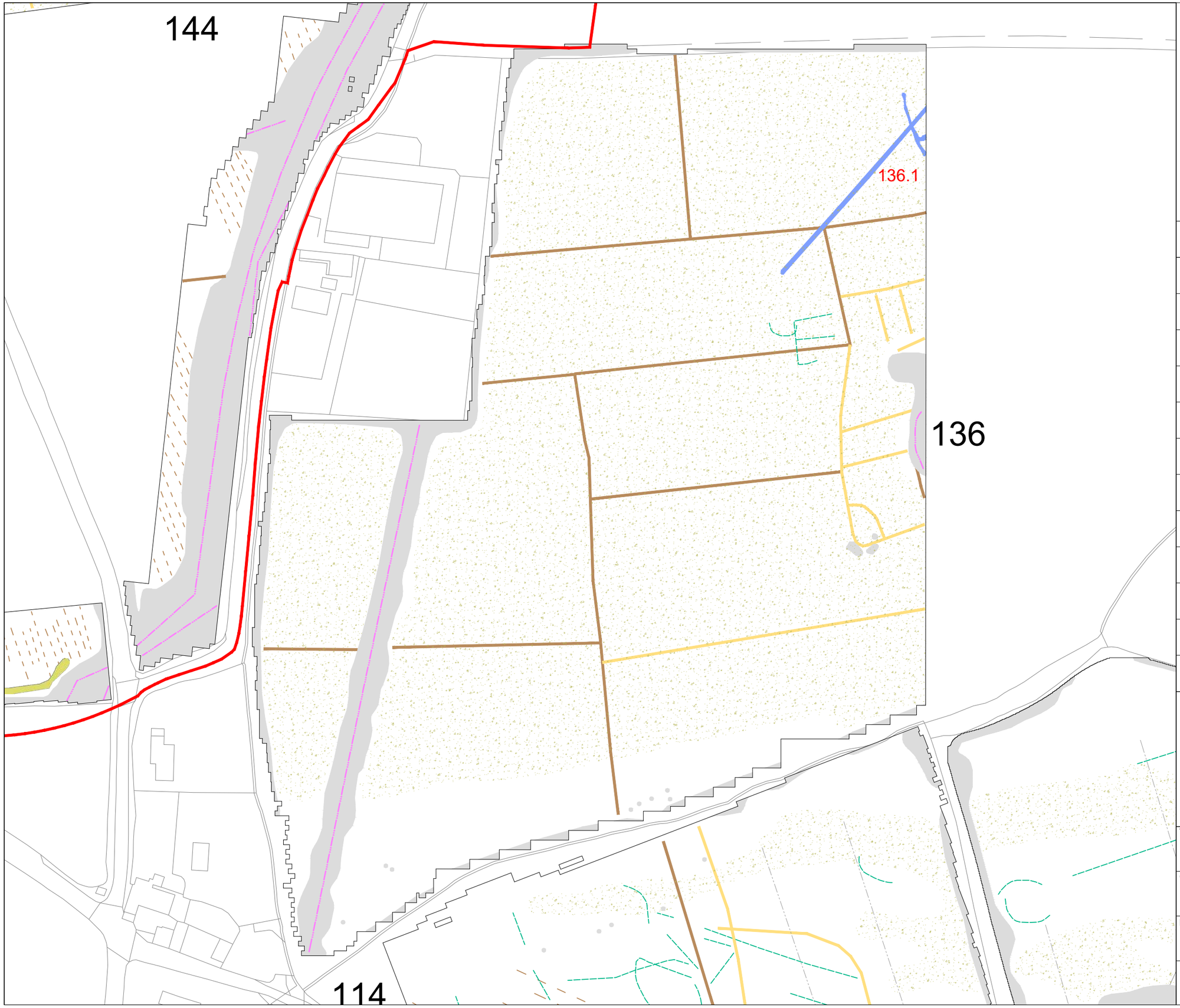
Client: Xlinks Ltd

Project: 15835 - Xlinks' Morocco-UK Power Project

Scale: 0 metres 75

1:1500 @ A3

Fig No: 68



N

KEY

	Probable archaeology (discrete anomaly / trend / increased response)
	Possible archaeology (discrete anomaly / trend / increased response)
	Uncertain Origin (discrete anomaly / trend / increased response)
	Former field boundary (corroborated)
	Former field boundary (conjectural)
	Agriculture (ridge and furrow)
	Agriculture (plough)
	Land drain
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

Title: Magnetometer Survey - Interpretation (Areas 136)

Client: Xlinks Ltd

Project: 15835 - Xlinks' Morocco-UK Power Project

Scale: 0 metres 75
1:1500 @ A3

Fig No: 69

N

sumo GeoSurveys

Title:
Magnetometer Survey - Greyscale Plots
(Areas 144, 145, 168a, 168b and 180)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 100
1:2000 @ A3

Fig No:
70

145

144

168a

180

168b

167

N

+100nT

-100nT

sumo GeoSurveys

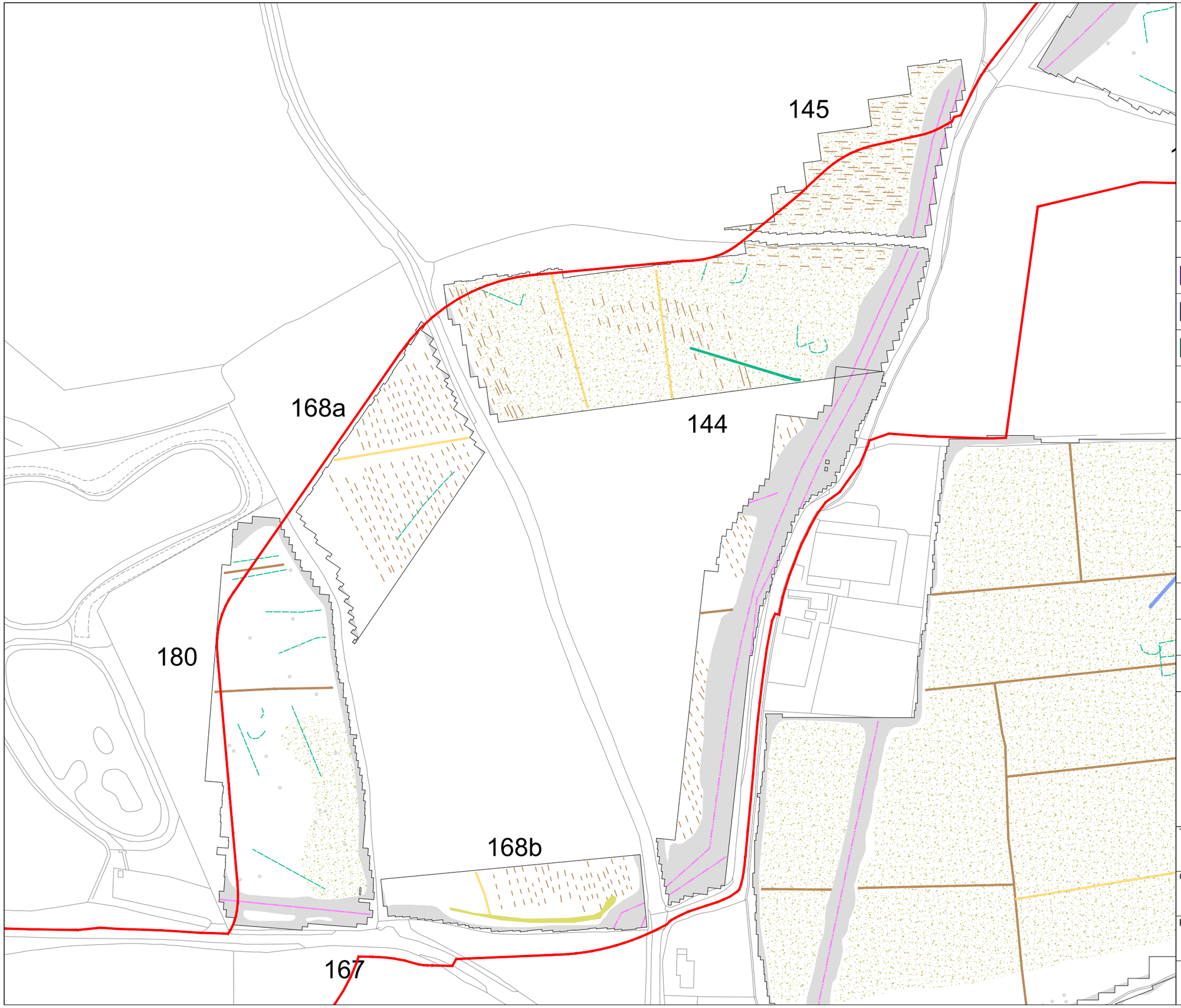
Title:
Magnetometer Survey - Colour Plots
(Areas 144, 145, 168a, 168b and 180)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 100
1:2000 @ A3

Fig No:
71



N

KEY

	Probable archaeology (discrete anomaly / trend / increased response)
	Possible archaeology (discrete anomaly / trend / increased response)
	Uncertain Origin (discrete anomaly / trend / increased response)
	Former field boundary (corroborated)
	Former field boundary (conjectural)
	Agriculture (ridge and furrow)
	Agriculture (plough)
	Land drain
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

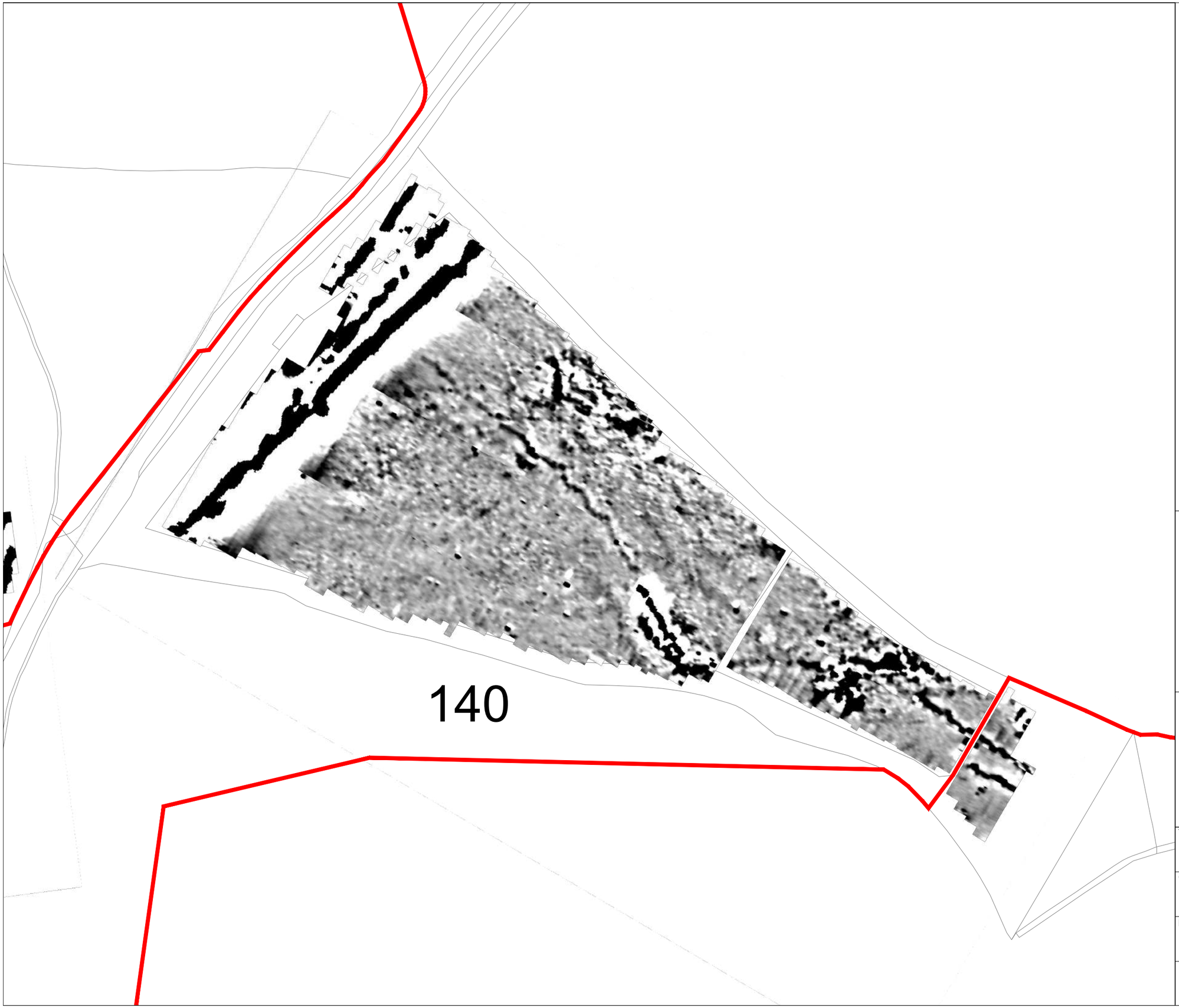
Title:
Magnetometer Survey - Interpretation
(Areas 144, 145, 168a, 168b and 180)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 100
1:2000 @ A3

Fig No:
72



N

+2nT

-1nT

sumo GeoSurveys

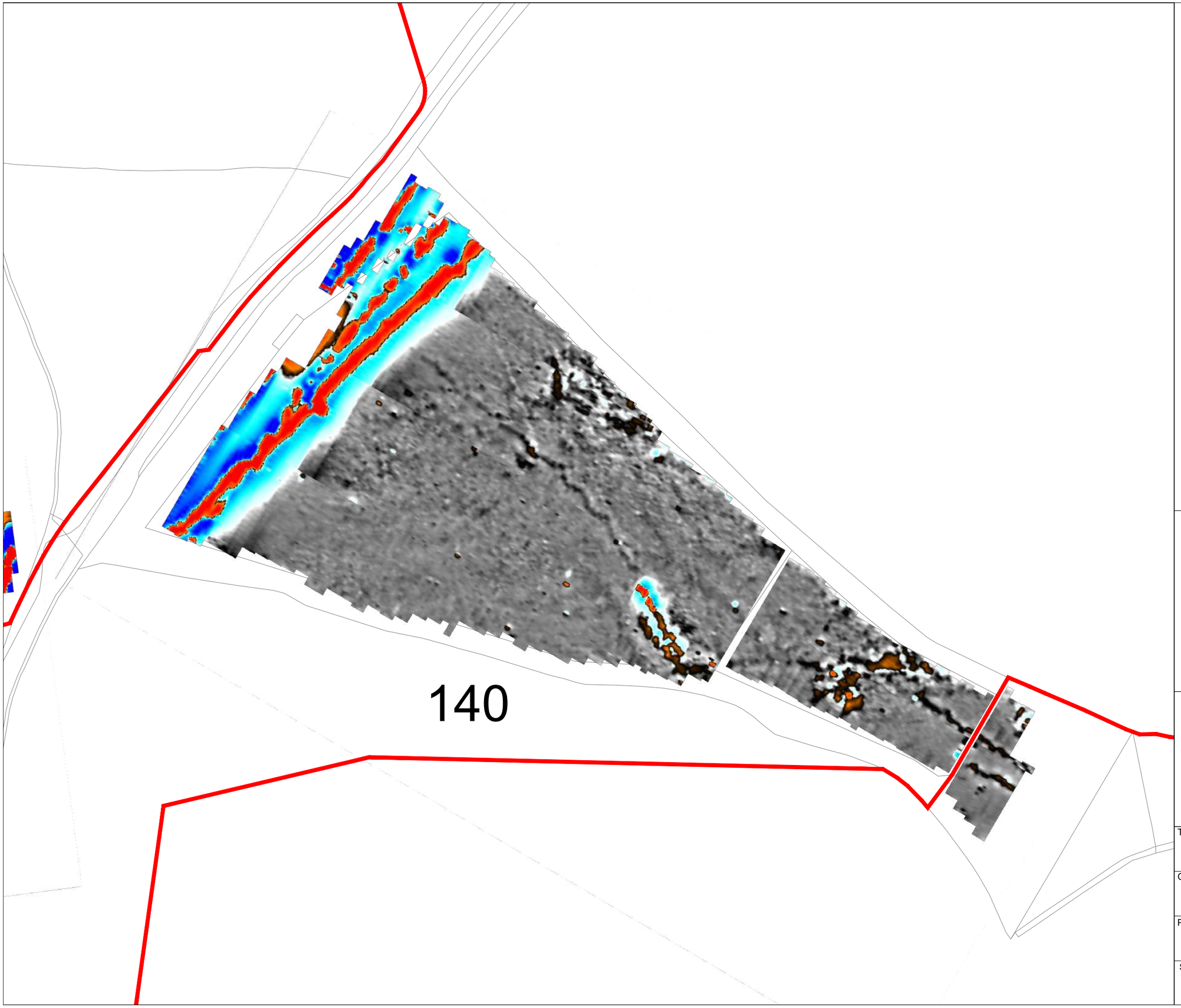
Title:
Magnetometer Survey - Greyscale Plot
(Areas 140)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 50
1:1000 @ A3

Fig No:
73



N

+100nT

-100nT

sumo GeoSurveys

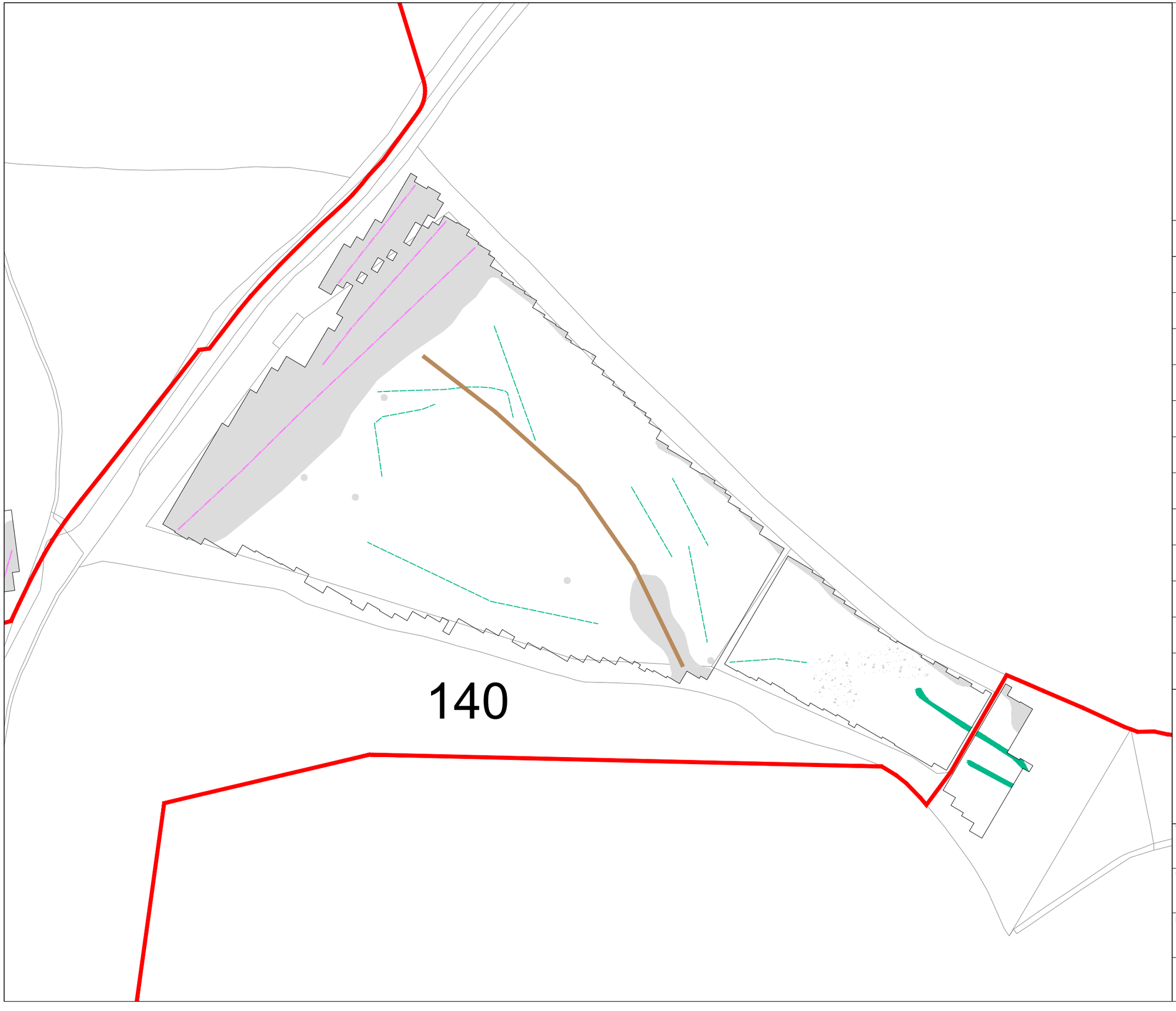
Title:
Magnetometer Survey - Colour Plot
(Area 140)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 50
1:1000 @ A3

Fig No:
74



N

KEY

	Probable archaeology (discrete anomaly / trend / increased response)
	Possible archaeology (discrete anomaly / trend / increased response)
	Uncertain Origin (discrete anomaly / trend / increased response)
	Former field boundary (corroborated)
	Former field boundary (conjectural)
	Agriculture (ridge and furrow)
	Agriculture (plough)
	Land drain
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

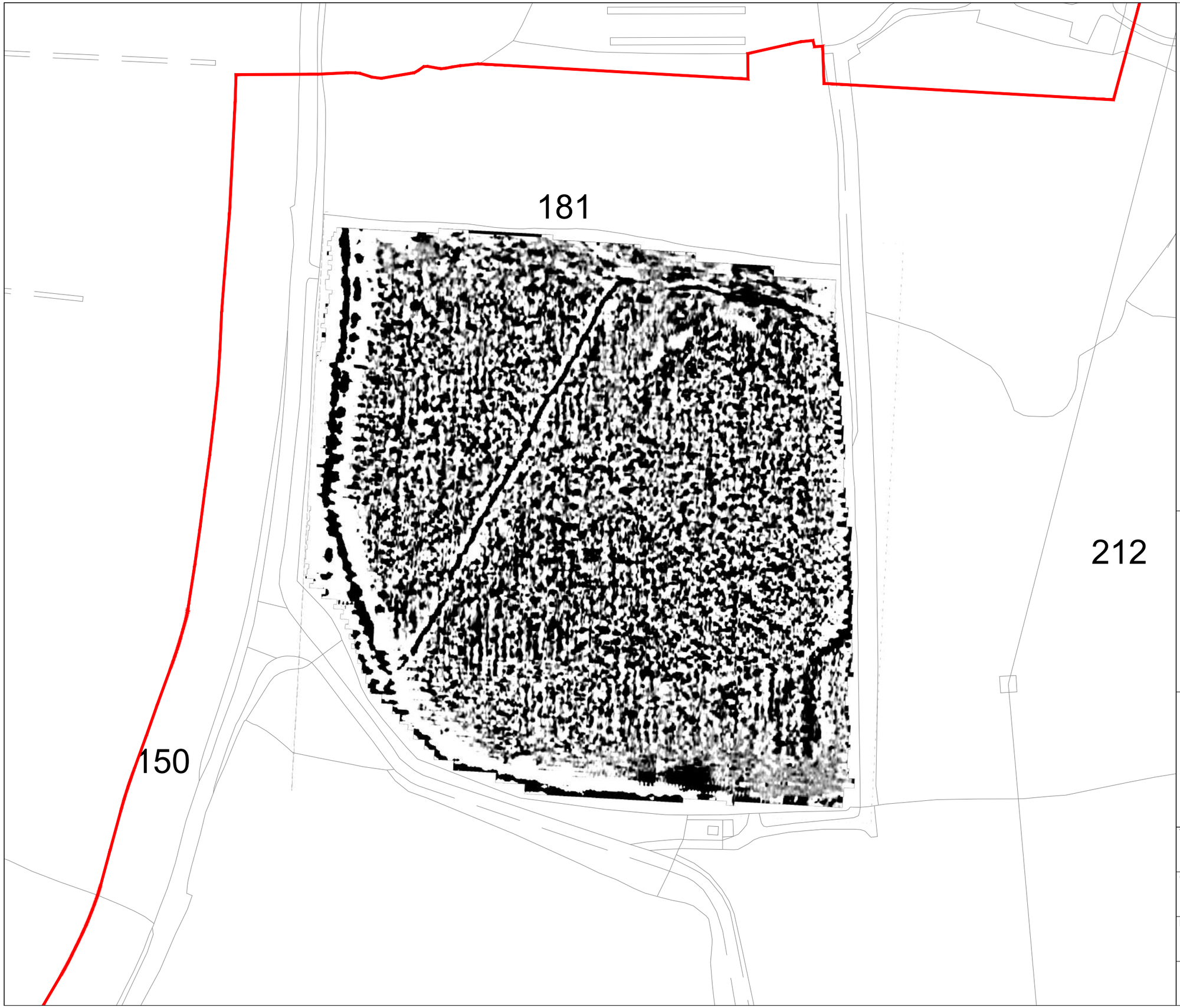
Title:
Magnetometer Survey - Interpretation
(Area 140)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 100
1:2000 @ A3

Fig No:
75



N

+2nT

-1nT

sumo GeoSurveys

Title:
Magnetometer Survey - Greyscale Plot
(Area 181)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
76

181

212

150

N

+100nT

-100nT

sumo GeoSurveys

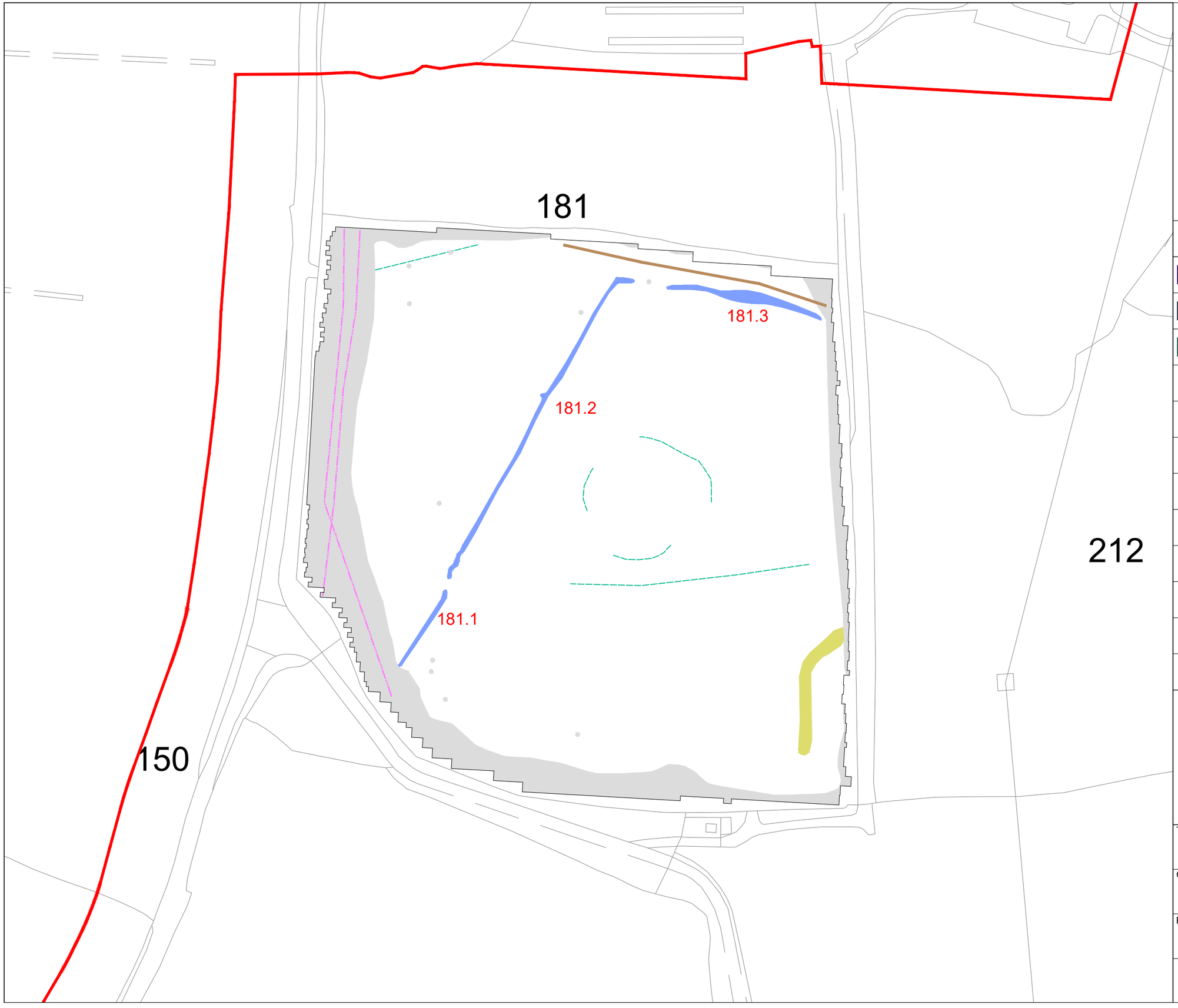
Title:
Magnetometer Survey - Colour Plot
(Area 181)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
77



N

KEY

	Probable archaeology (discrete anomaly / trend / increased response)
	Possible archaeology (discrete anomaly / trend / increased response)
	Uncertain Origin (discrete anomaly / trend / increased response)
	Former field boundary (corroborated)
	Former field boundary (conjectural)
	Agriculture (ridge and furrow)
	Agriculture (plough)
	Land drain
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

Title: Magnetometer Survey - Interpretation (Area 181)

Client: Xlinks Ltd

Project: 15835 - Xlinks' Morocco-UK Power Project

Scale: 0 metres 75
1:1500 @ A3

Fig No: 78

213

142

N

+2nT

-1nT

sumo GeoSurveys

Title:
Magnetometer Survey - Greyscale Plot
(Area 213)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 50
1:1000 @ A3

Fig No:
79

N

+100nT

-100nT

sumo GeoSurveys

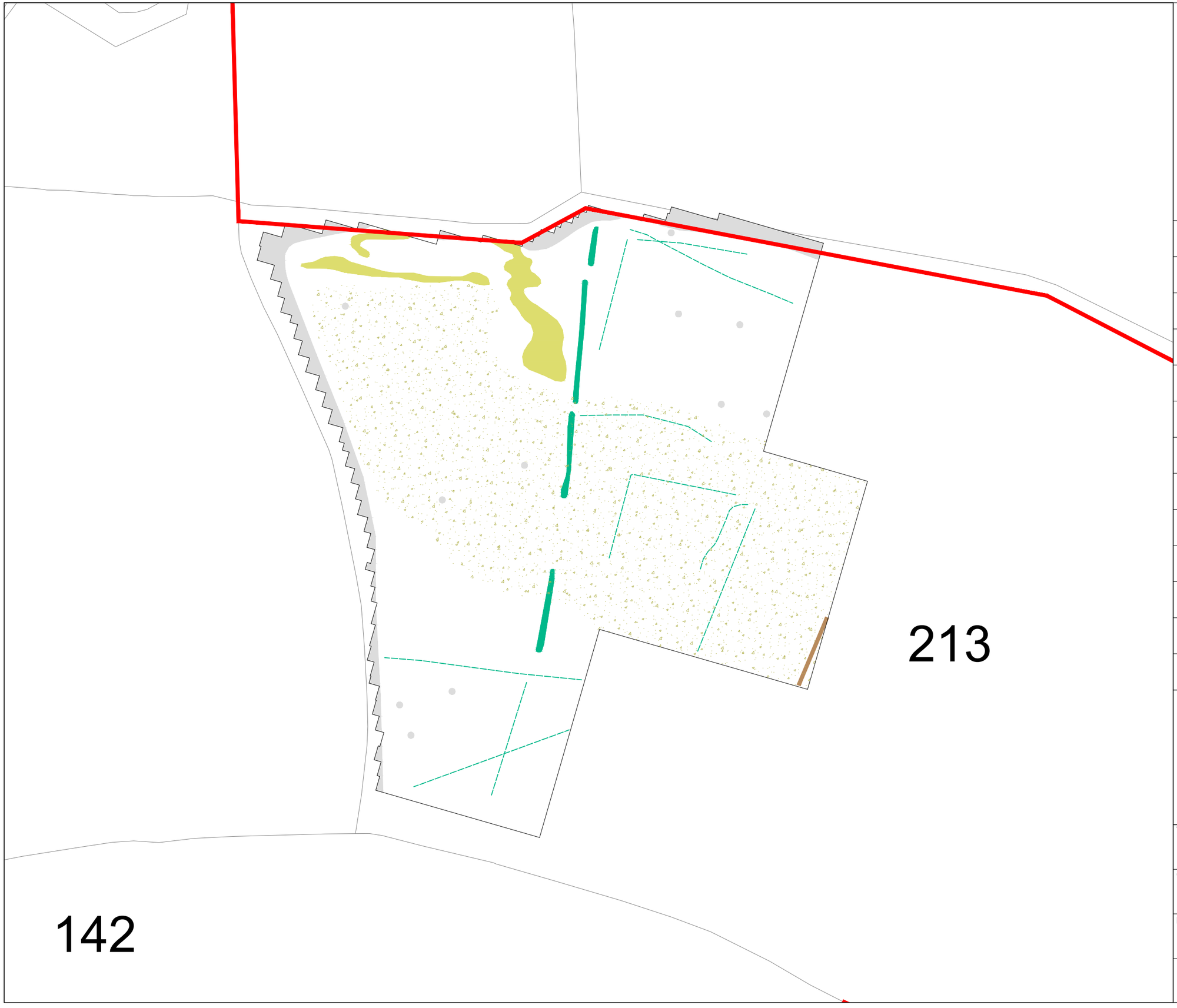
Title:
Magnetometer Survey - Colour Plot
(Area 213)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 50
1:1000 @ A3

Fig No:
80



N

KEY

	Probable archaeology (discrete anomaly / trend / increased response)
	Possible archaeology (discrete anomaly / trend / increased response)
	Uncertain Origin (discrete anomaly / trend / increased response)
	Former field boundary (corroborated)
	Former field boundary (conjectural)
	Agriculture (ridge and furrow)
	Agriculture (plough)
	Land drain
	Natural (e.g. geological / pedological)
	Magnetic disturbance
	Service
	Ferrous

sumo GeoSurveys

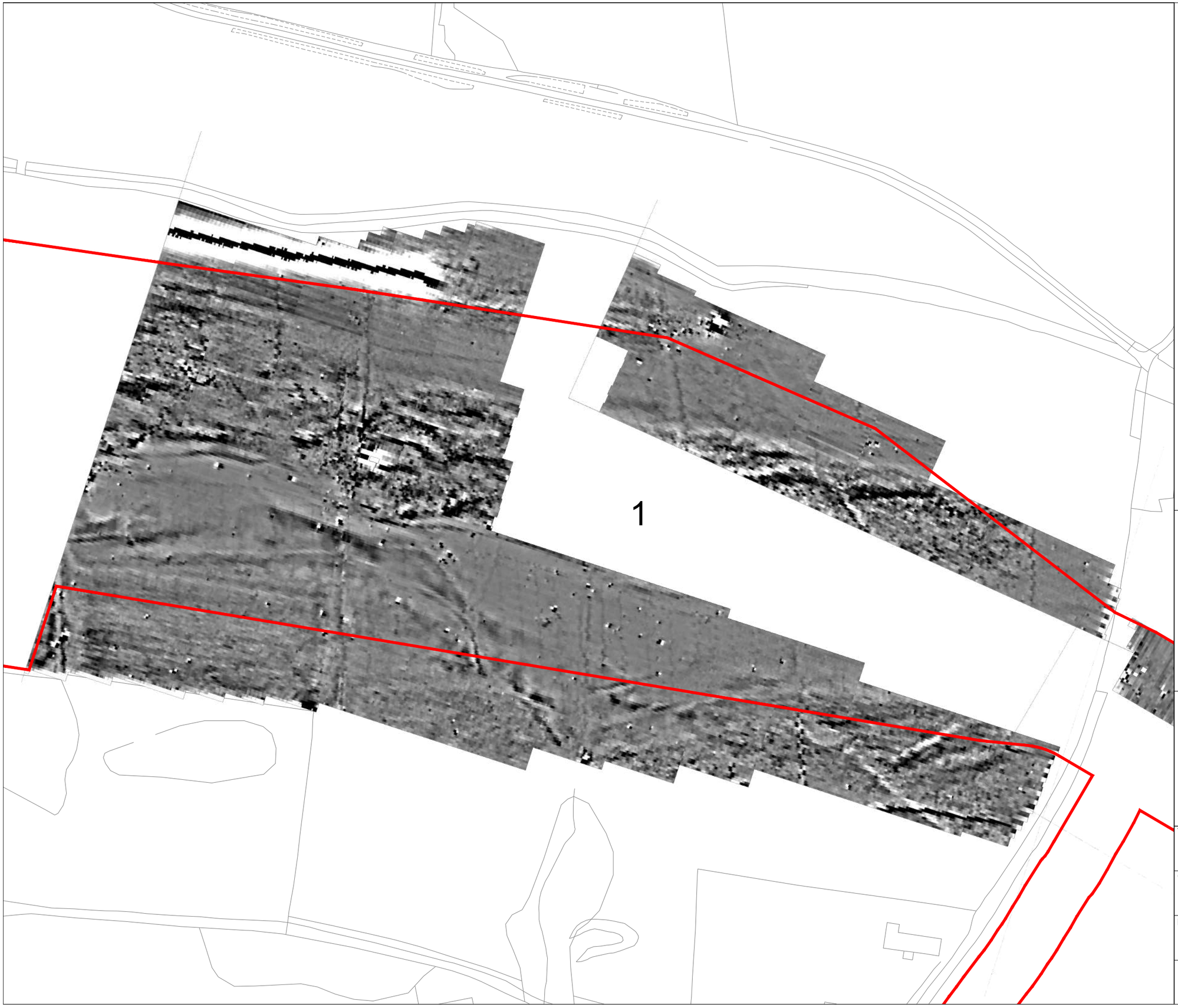
Title:
Magnetometer Survey - Interpretation
(Area 213)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 50
1:1000 @ A3

Fig No:
81



N

+10nT

-10nT

sumo GeoSurveys

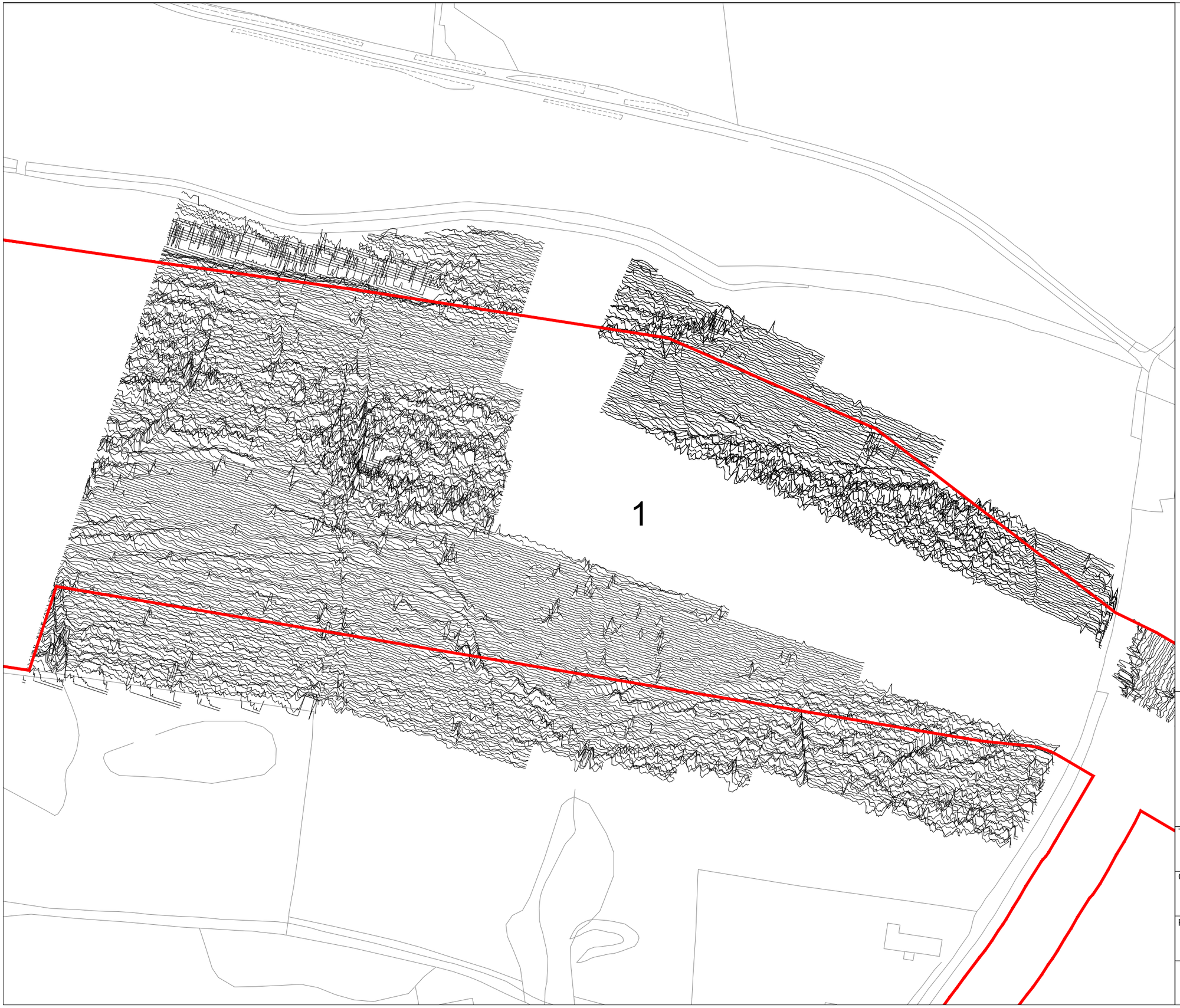
Title:
Minimally Processed Data - Greyscale Plot (Area 1)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
82



N

sumo GeoSurveys

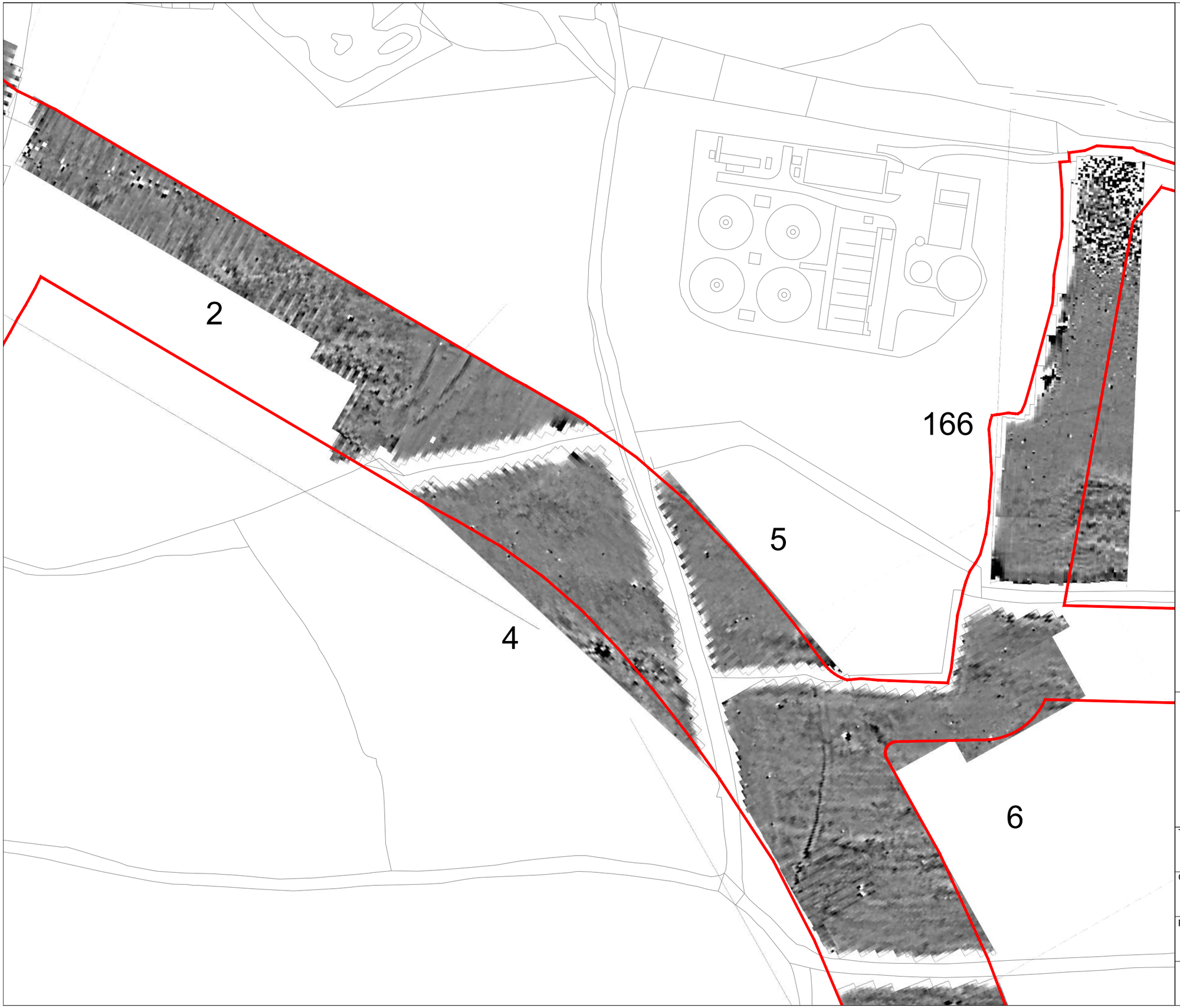
Title:
XY Trace Plots (clipped at +/-15nT)
(Area 1)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
83



N

+10nT

-10nT

sumo GeoSurveys

Title: Minimally Processed Data - Greyscale Plot (Areas 62, 63, 63, 66, 67, 68, 69, 70, 160, 161, 164 and 165)

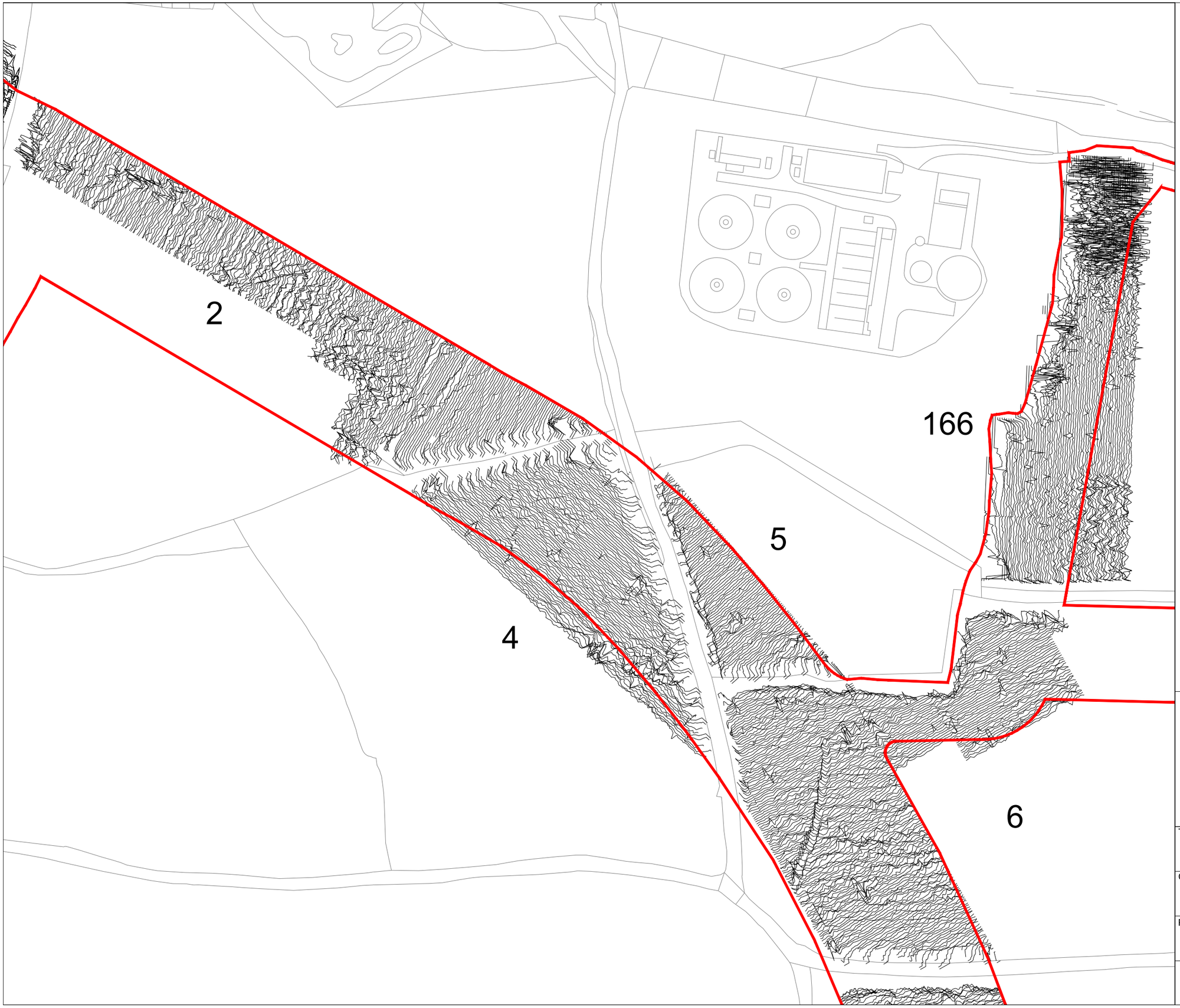
Client: Xlinks Ltd

Project: 15835 - Xlinks' Morocco-UK Power Project

Scale: 0 metres 75

1:1500 @ A3

Fig No: 84



N

sumo GeoSurveys

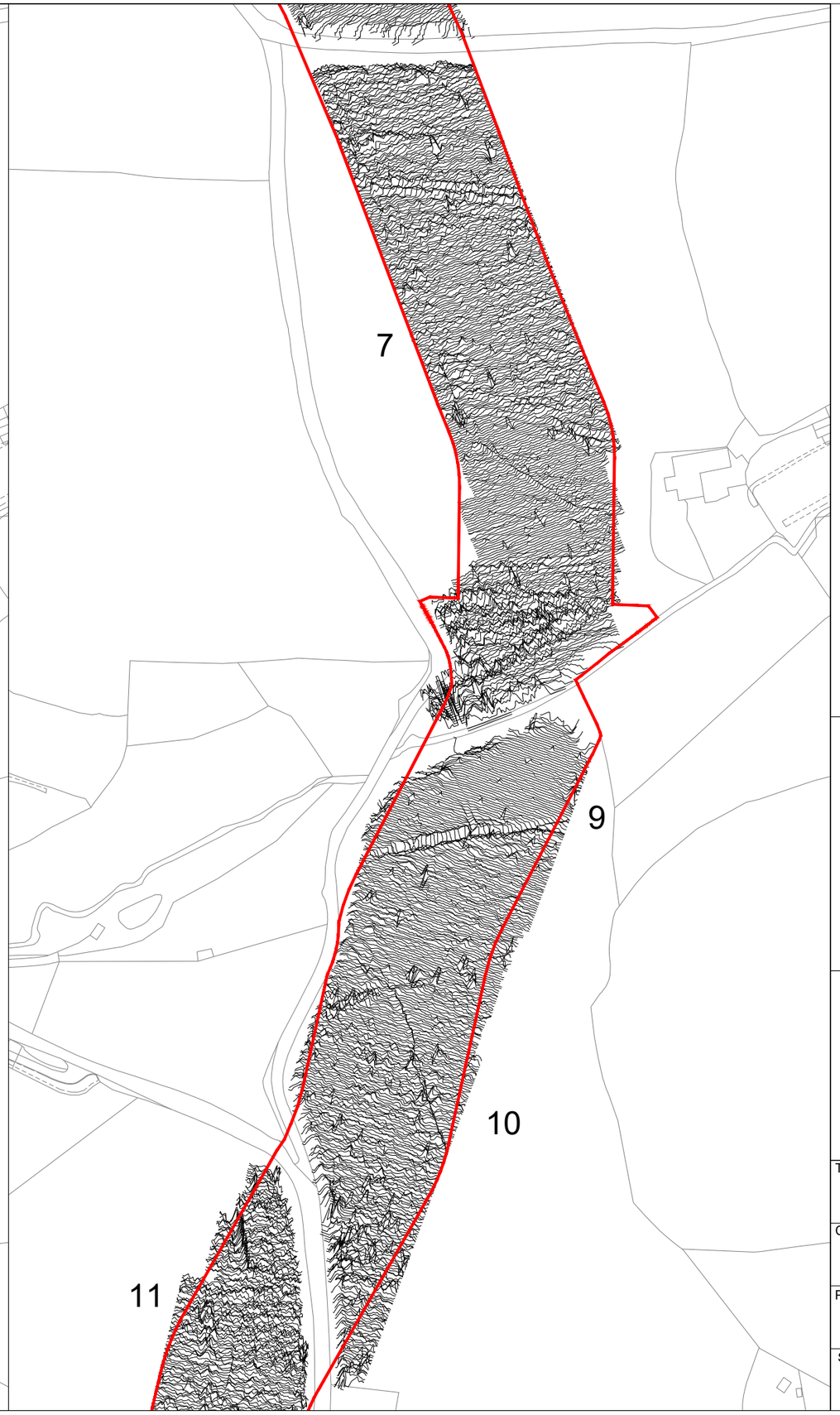
Title: XY Trace Plots (clipped at +/-15nT) (Areas 62, 63, 63, 66, 67, 68, 69, 70, 160, 161, 164 and 165)

Client: Xlinks Ltd

Project: 15835 - Xlinks' Morocco-UK Power Project

Scale: 0 metres 75
1:1500 @ A3

Fig No: 85



N

+10nT

-10nT

sumo GeoSurveys

Title: Minimally Processed Data - Greyscale Plot / XY Trace Plots (clipped at +/-15nT) (Areas 7, 9 & 10)

Client: Xlinks Ltd

Project: 15835 - Xlinks' Morocco-UK Power Project

Scale: 0 metres 110

1:2200 @ A3

Fig No: 86

10

11

12

13

10

11

12

13

N

+10nT

-10nT

sumo GeoSurveys

Title: Minimally Processed Data - Greyscale Plot / XY Trace Plots (clipped at +/-15nT) (Area 11, 12 & 13)

Client: Xlinks Ltd

Project: 15835 - Xlinks' Morocco-UK Power Project

Scale: 0 metres 75

1:1500 @ A3

Fig No: 87

182
14
183
15
184
16
188
17
26
189
27
27

N

+10nT
-10nT

sumo GeoSurveys

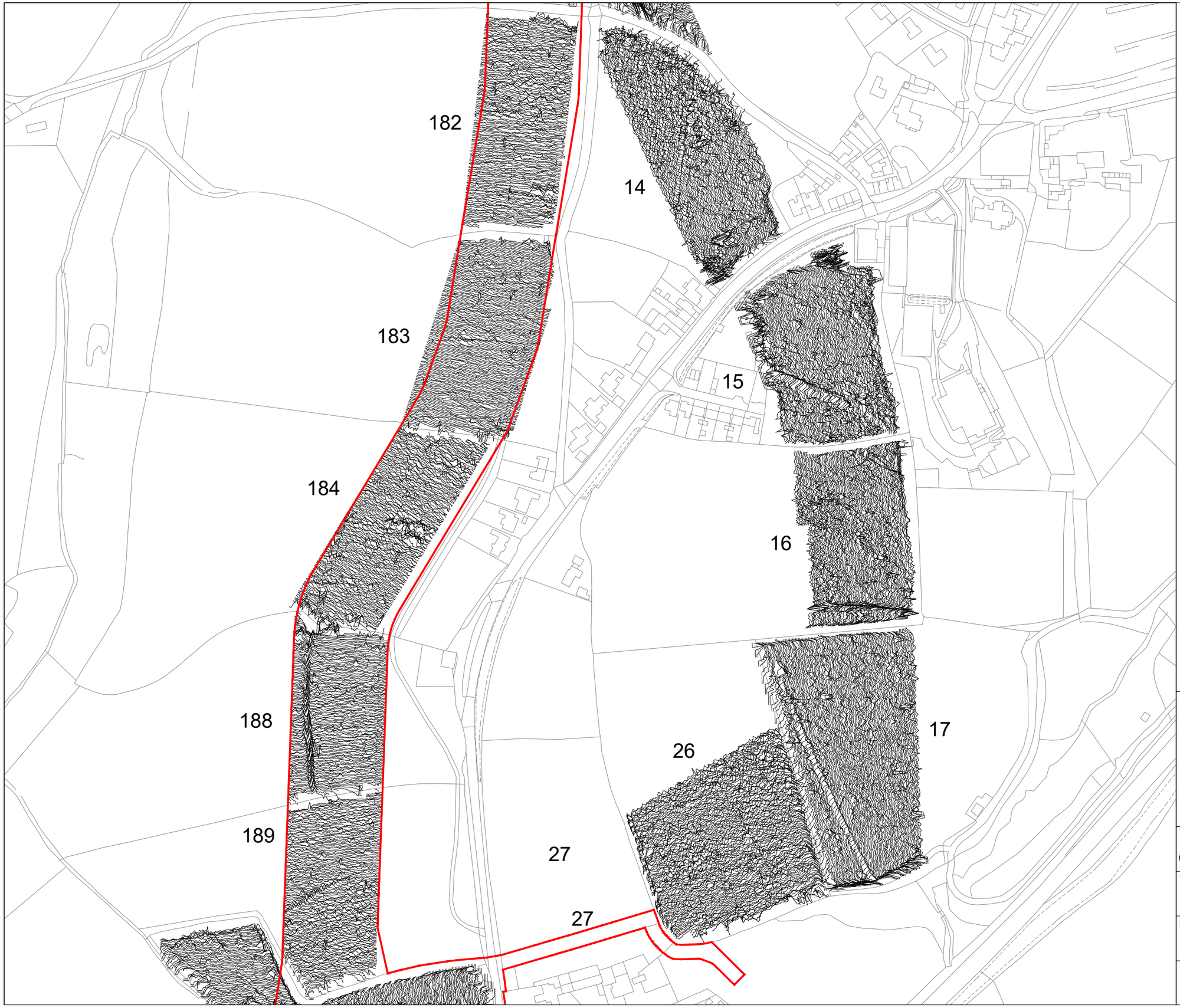
Title:
Minimally Processed Data - Greyscale Plot
(Area 14, 15, 16, 17, 26, 182, 183, 184, 188 & 189)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 125
1:2500 @ A3

Fig No:
88



N

sumo GeoSurveys

Title:
XY Trace Plots (clipped at +/-15nT)
(Area 14, 15, 16, 17, 26, 182, 183, 184, 188 & 189)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 125
1:2500 @ A3

Fig No:
89

27

31

190

191

25

N

+10nT

-10nT

sumo GeoSurveys

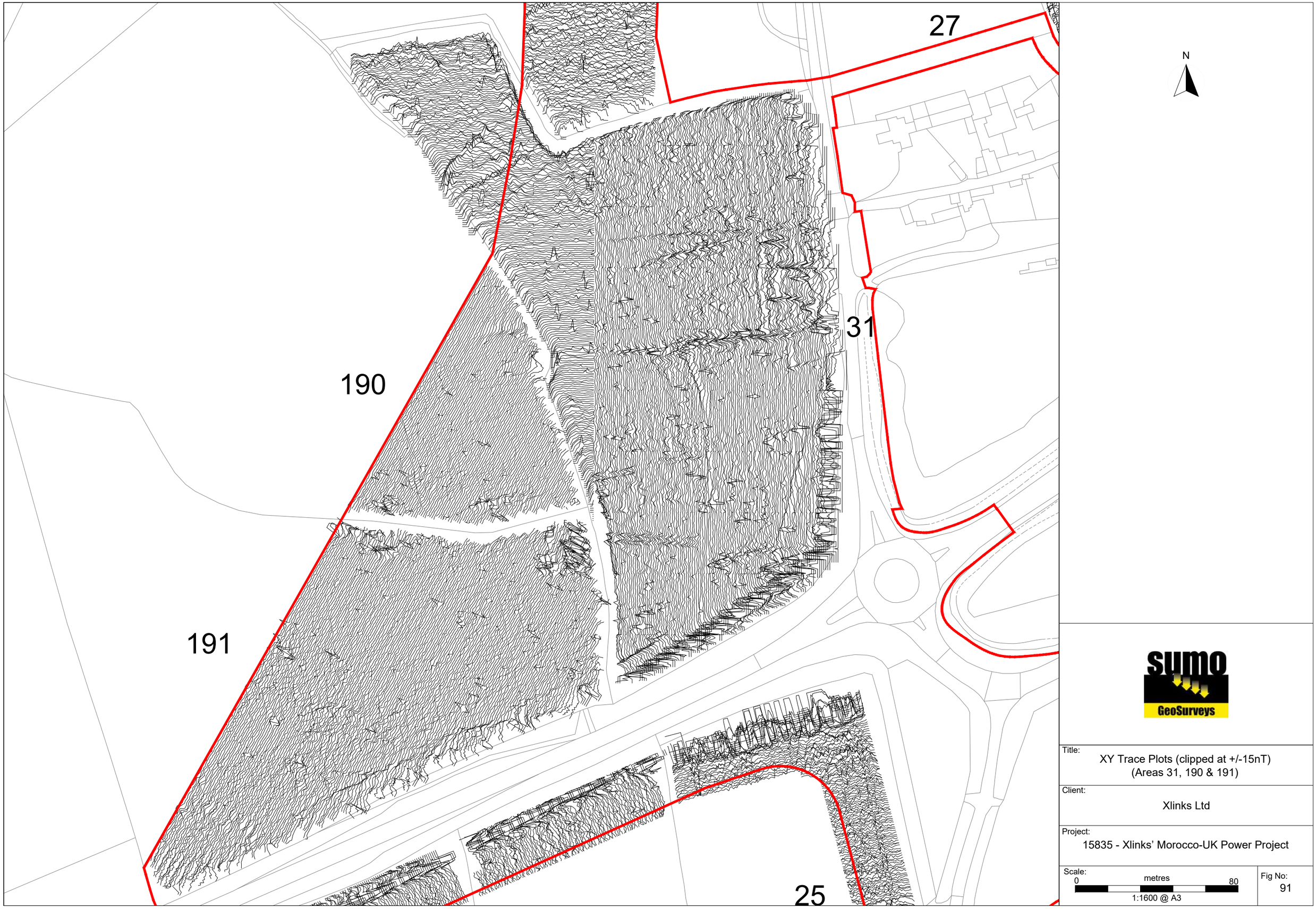
Title:
Minimally Processed Data - Greyscale Plot
(Areas 31, 190 & 191)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 80
1:1600 @ A3

Fig No:
90



sumo GeoSurveys

Title:
XY Trace Plots (clipped at +/-15nT)
(Areas 31, 190 & 191)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 80
1:1600 @ A3

Fig No:
91

191

32

25

33

35

38

N

+10nT

-10nT

sumo GeoSurveys

Title:
Minimally Processed Data - Greyscale Plots
(Areas 25, 32, 33 & 35)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 80
1:1600 @ A3

Fig No:
92

191

32

25

33

35

38

N

sumo GeoSurveys

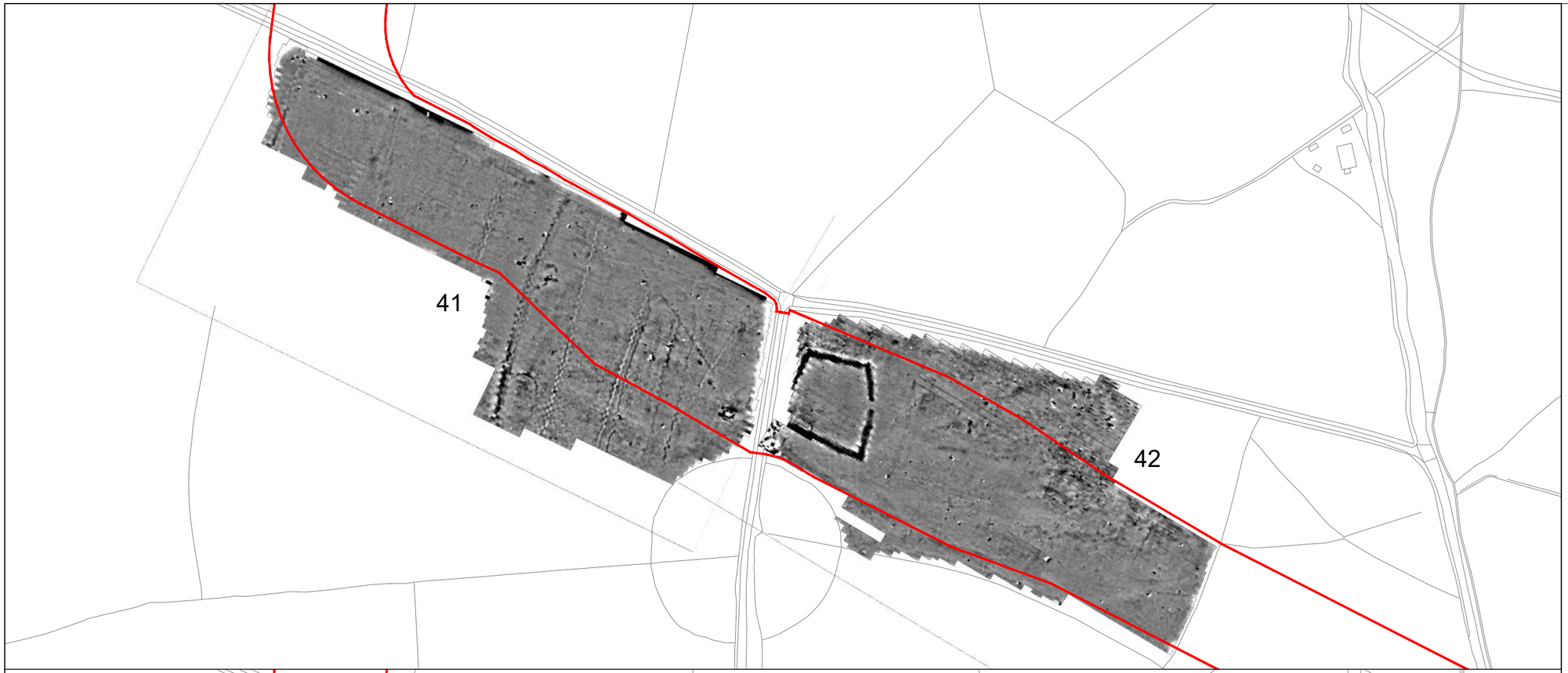
Title:
XY Trace Plots (clipped at +/-15nT)
(Areas 25, 32, 33 & 35)

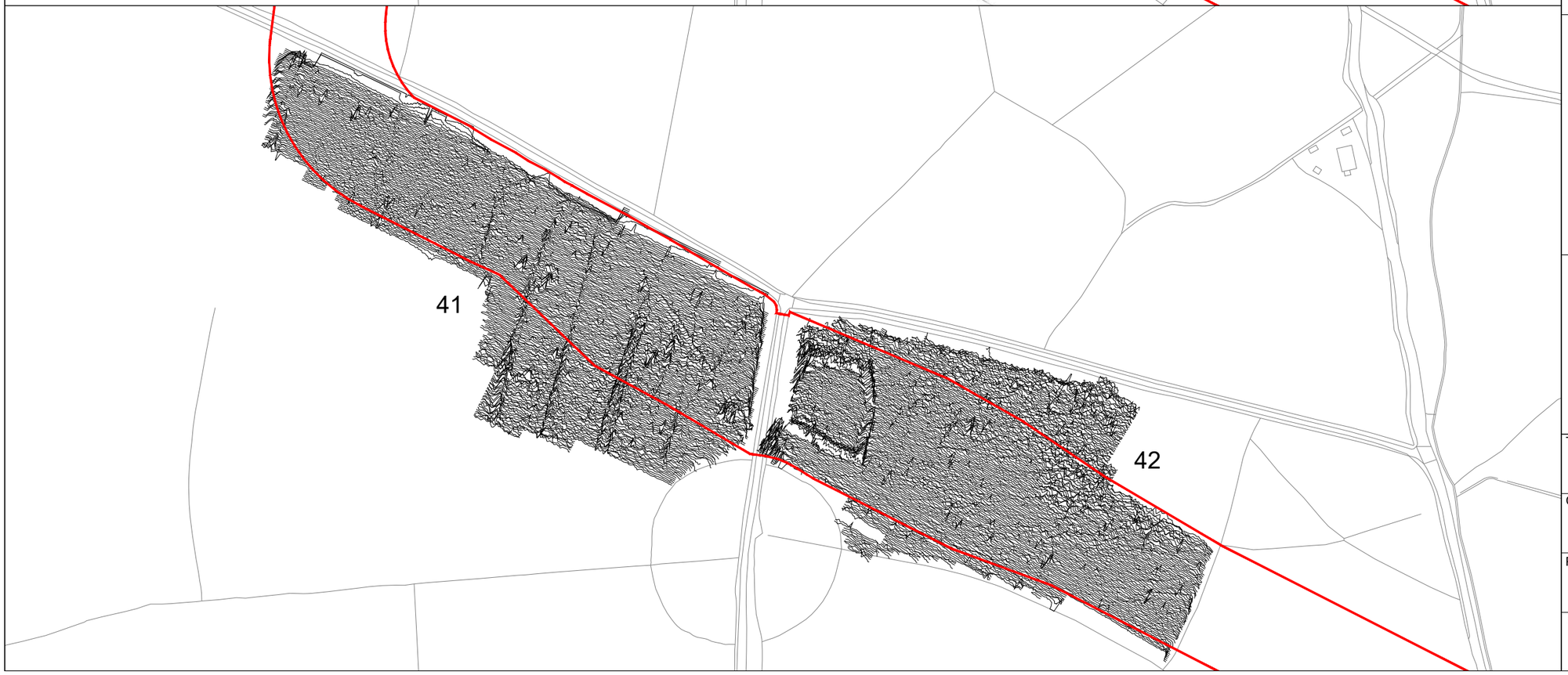
Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 80
1:1600 @ A3

Fig No:
93





N

+10nT

-10nT

sumo GeoSurveys

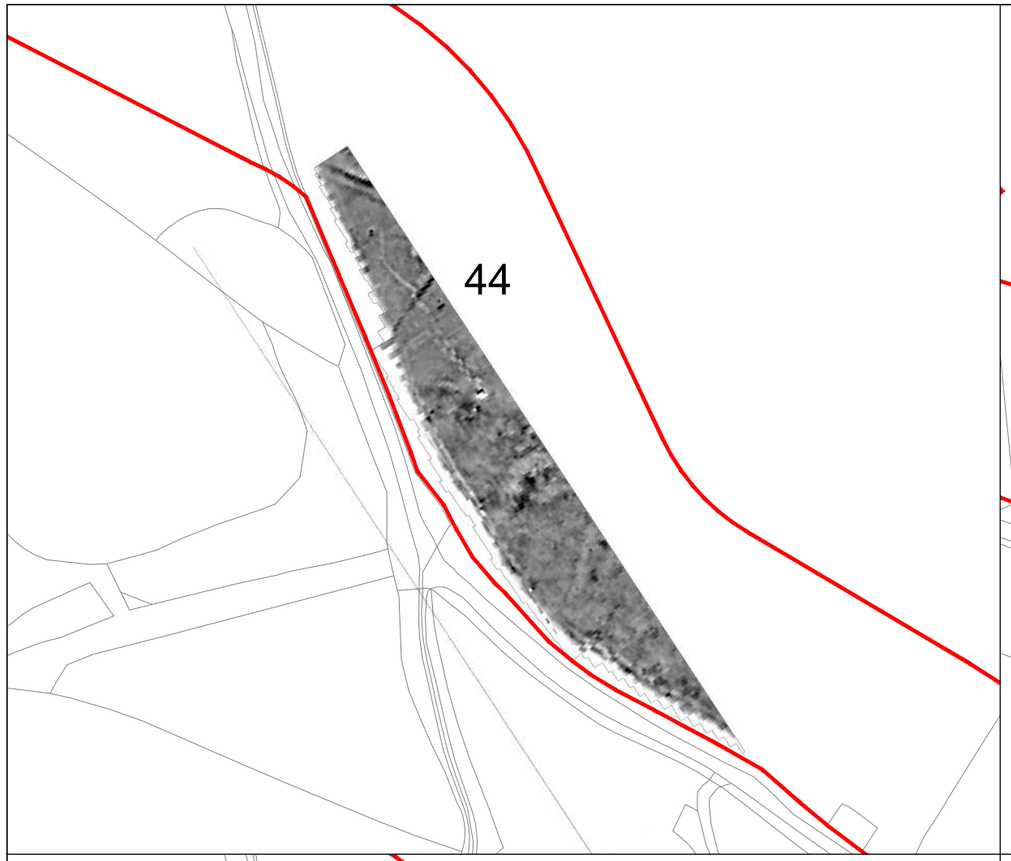
Title:
Minimally Processed Data - Greyscale Plot / XY Trace Plots (clipped at +/-15nT)
(Area 41 and 42)

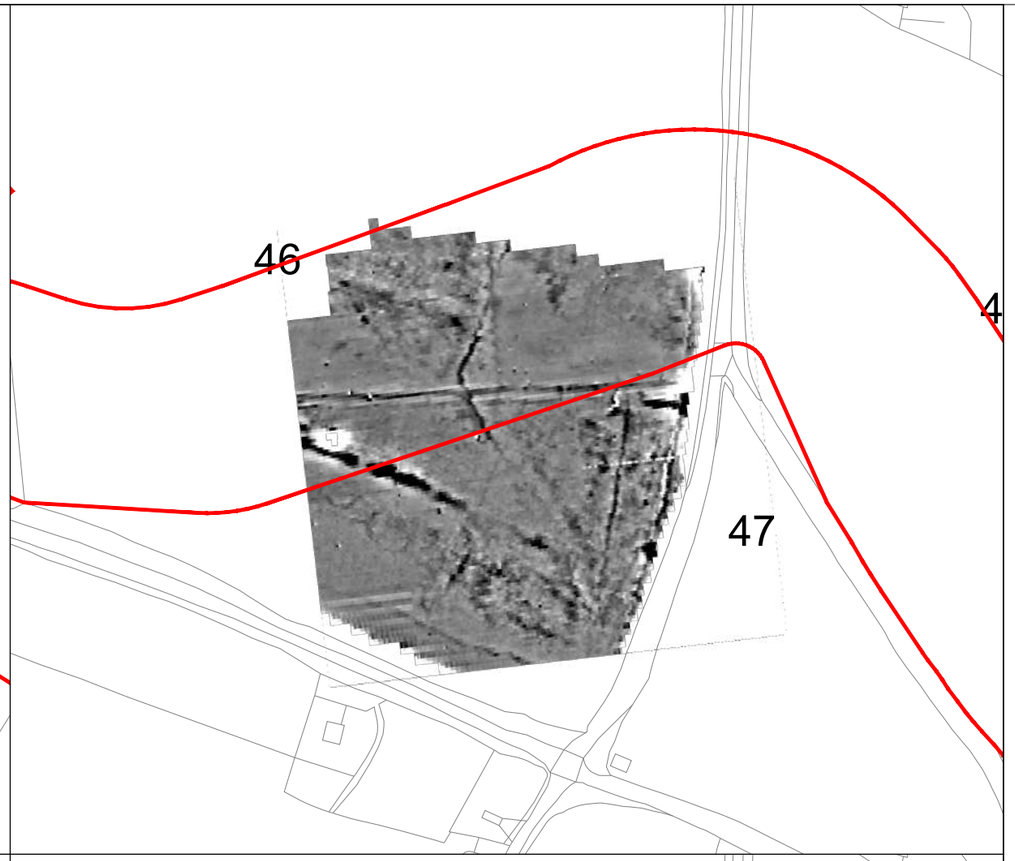
Client:
Xlinks Ltd

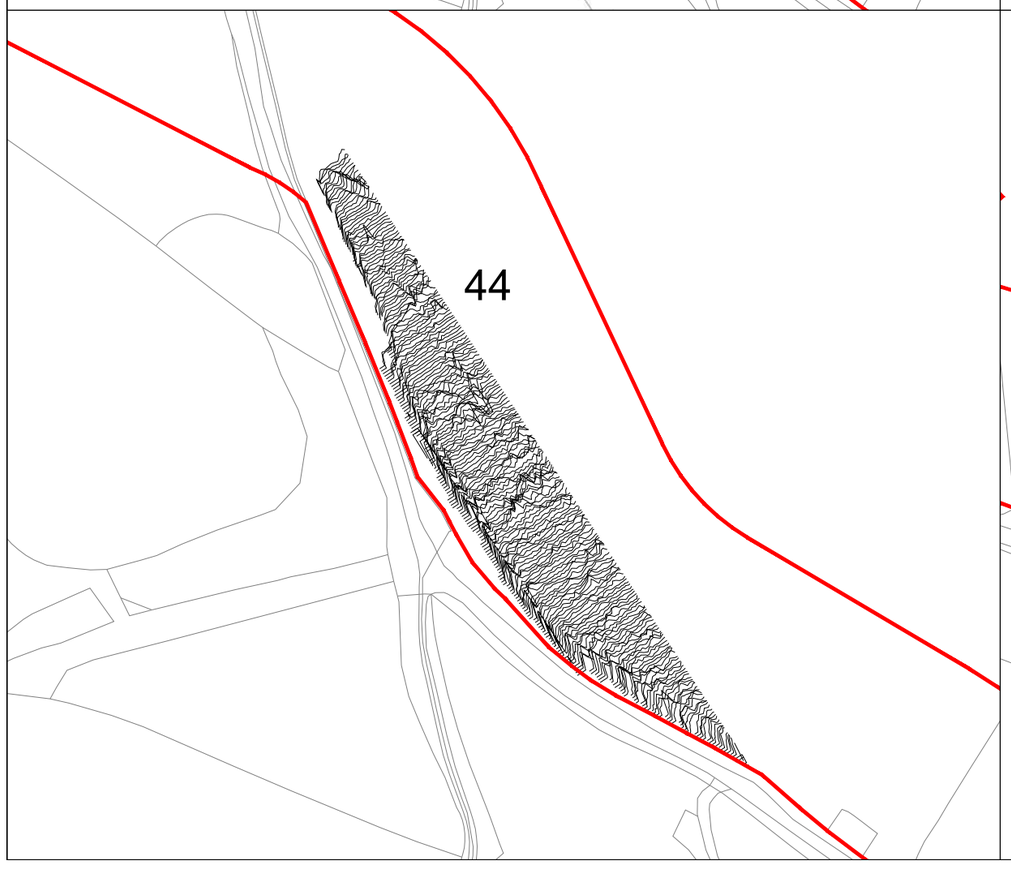
Project:
15835 - Xlinks' Morocco-UK Power Project

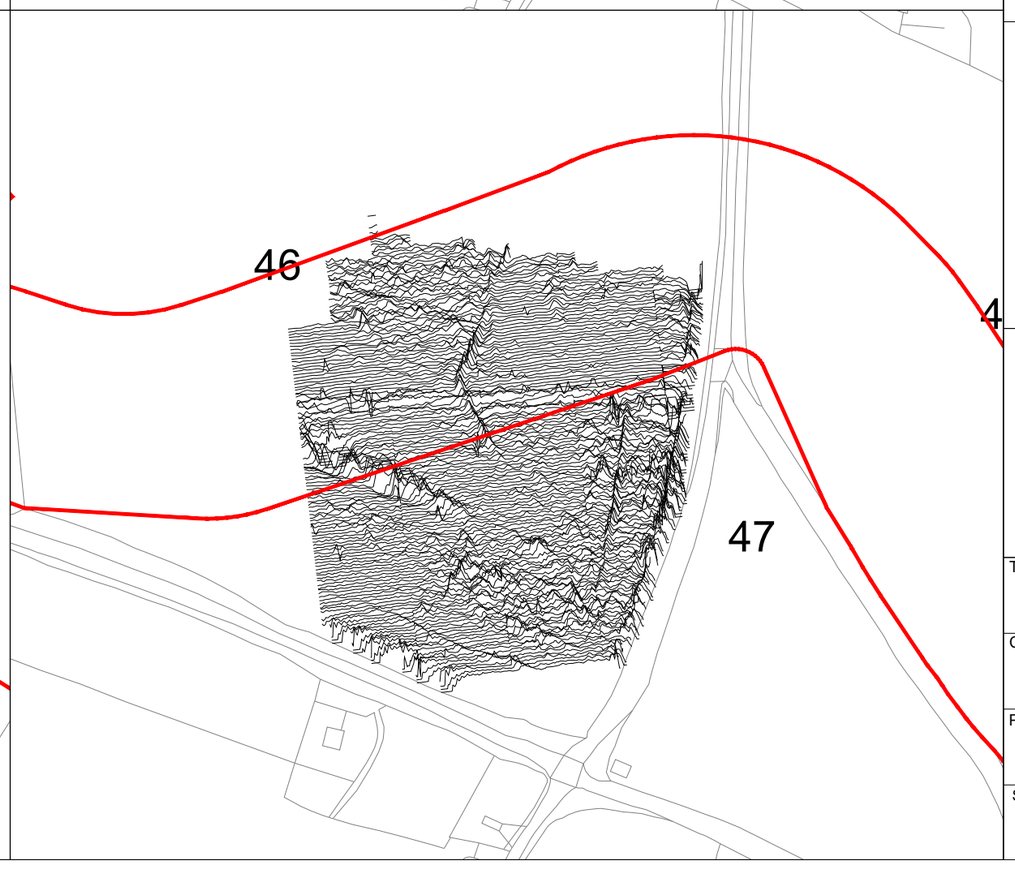
Scale:
0 metres 140
1:2800 @ A3

Fig No:
94









N

+10nT

-10nT

sumo GeoSurveys

Title: Minimally Processed Data - Greyscale Plots / XY Trace Plots (clipped at +/-15nT) (Area 44 and 47)

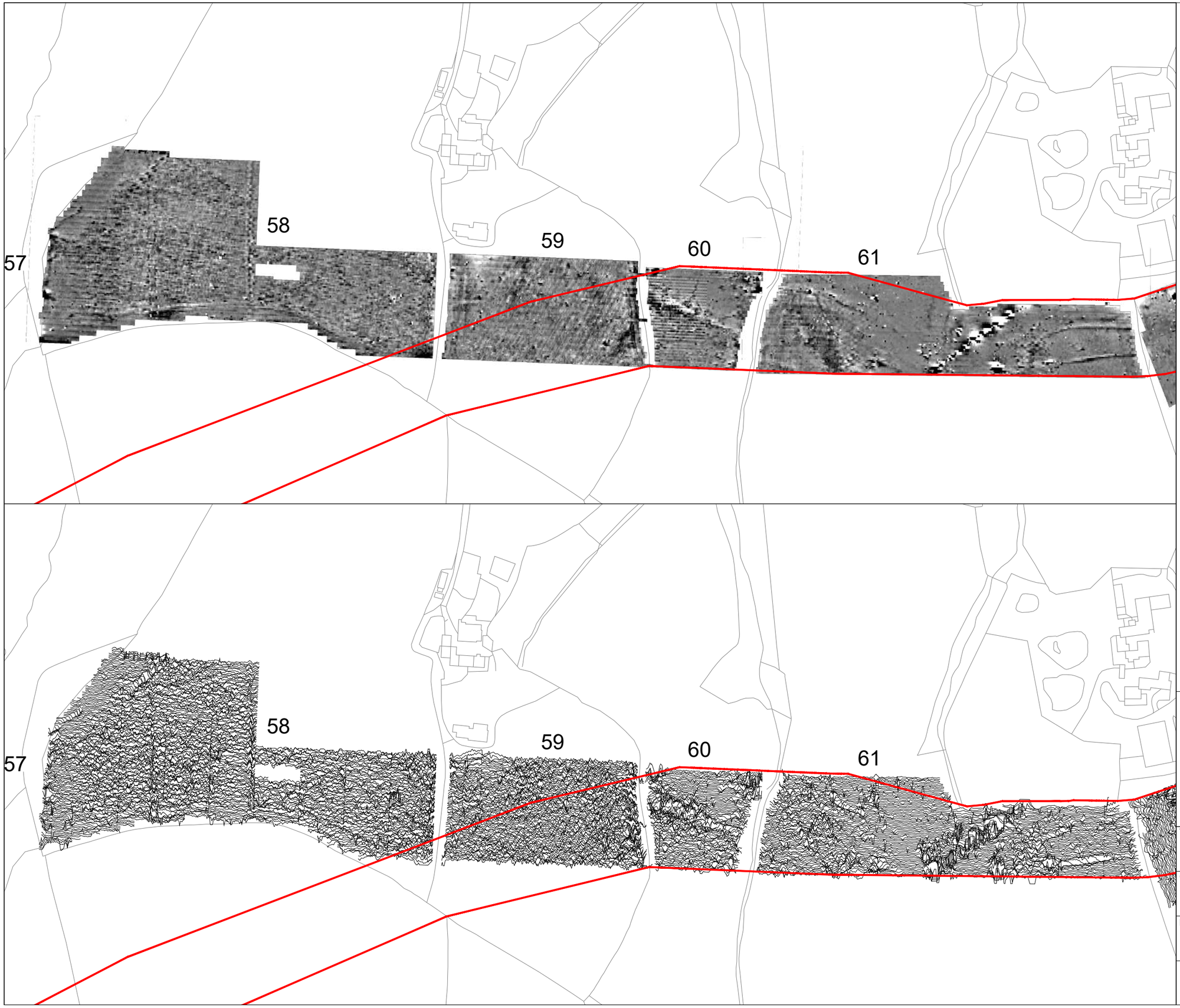
Client: Xlinks Ltd

Project: 15835 - Xlinks' Morocco-UK Power Project

Scale: 0 metres 100

1:2000 @ A3

Fig No: 95



N

sumo GeoSurveys

Title: Minimally Processed Data - Greyscale Plot / XY Trace Plots (clipped at +/-15nT) (Area 58, 59, 60, and 61)

Client: Xlinks Ltd

Project: 15835 - Xlinks' Morocco-UK Power Project

Scale: 0 metres 120

1:2400 @ A3

Fig No: 96

N

+10nT

-10nT

sumo GeoSurveys

Title: Minimally Processed Data - Greyscale Plots (Areas 62, 63, 63, 66, 67, 68, 69, 70, 160, 161, 164 and 165)

Client: Xlinks Ltd

Project: 15835 - Xlinks' Morocco-UK Power Project

Scale: 0 metres 130

1:2600 @ A3

Fig No: 97

N

sumo GeoSurveys

Title: XY Trace Plots (clipped at +/-15nT) (Areas 62, 63, 63, 66, 67, 68, 69, 70, 160, 161, 164 and 165)

Client: Xlinks Ltd

Project: 15835 - Xlinks' Morocco-UK Power Project

Scale: 0 metres 130
1:2400 @ A3

Fig No: 98

74

73

74

73

N

+10nT

-10nT

sumo GeoSurveys

Title: Minimally Processed Data - Greyscale Plots / XY Trace Plots (clipped at +/-15nT) (Area 73)

Client: Xlinks Ltd

Project: 15835 - Xlinks' Morocco-UK Power Project

Scale: 0 metres 75

1:1500 @ A3

Fig No: 99

159

77

76

75

74

N

+10nT

-10nT

sumo GeoSurveys

Title:
Minimally Processed Data - Greyscale Plots
(Areas 74 and 76)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
100

N

sumo GeoSurveys

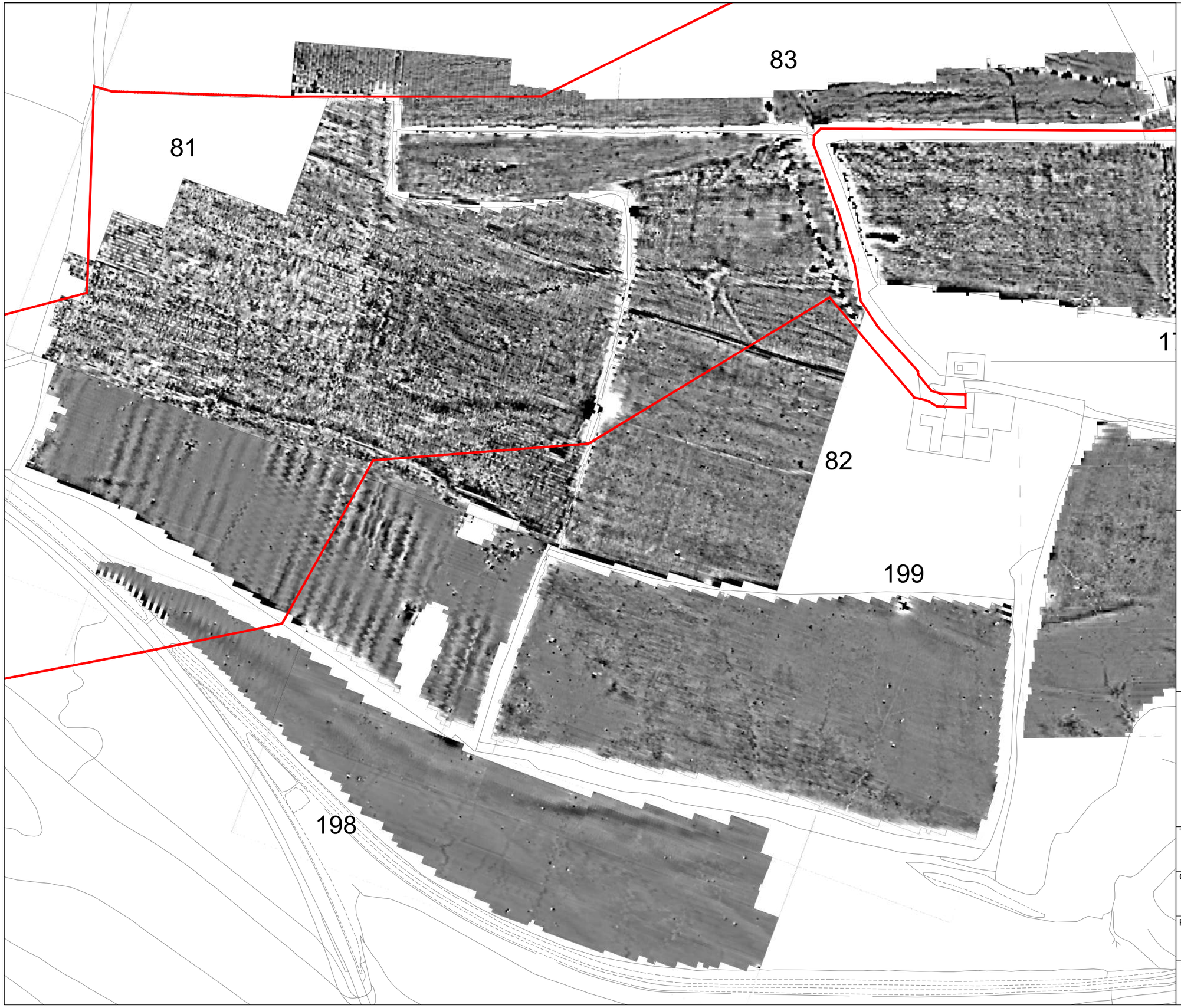
Title:
XY Trace Plots (clipped at +/-15nT)
(Areas 74 and 76)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
101



N

+10nT

-10nT

sumo GeoSurveys

Title:
Minimally Processed Data - Greyscale Plots
(Areas 81, 82, 83, 198 & 199)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 100
1:2000 @ A3

Fig No:
102

N

sumo GeoSurveys

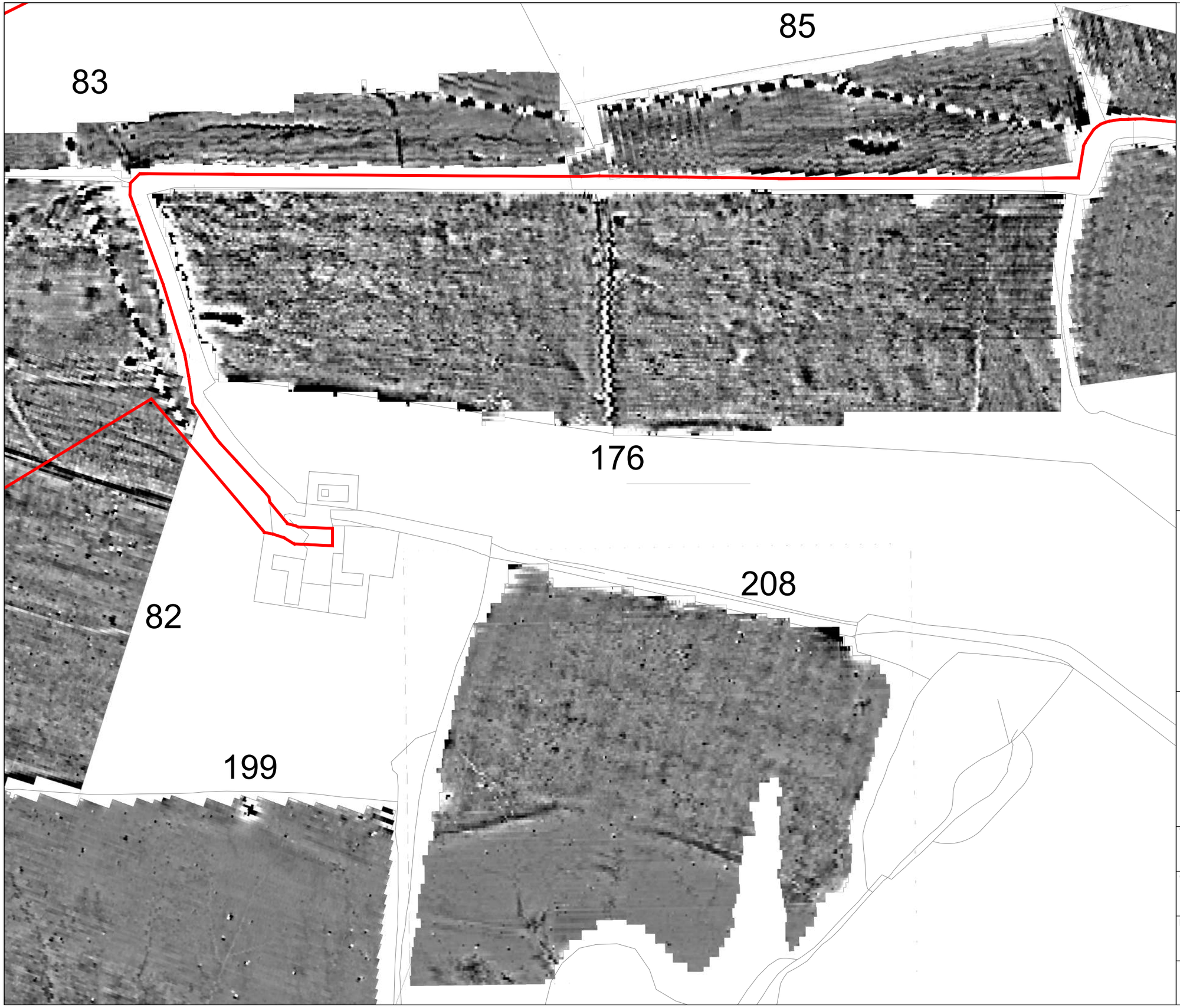
Title:
XY Trace Plots (clipped at +/-15nT)
(Areas 81, 82, 83, 198 & 199)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 100
1:2000 @ A3

Fig No:
102



N

+10nT

-10nT

sumo GeoSurveys

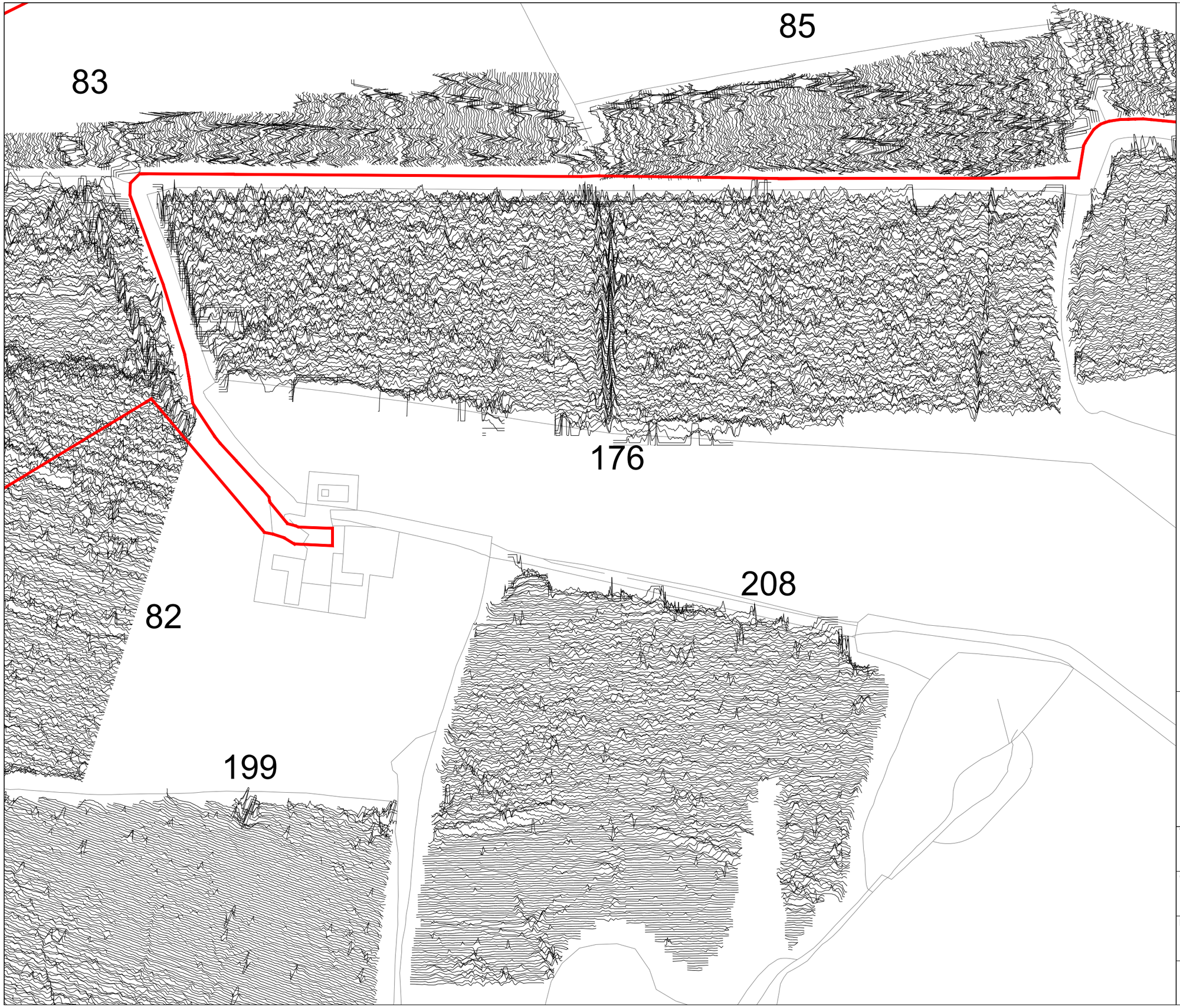
Title:
Minimally Processed Data - Greyscale Plots
(Areas 85, 176 & 208)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
104



N

sumo GeoSurveys

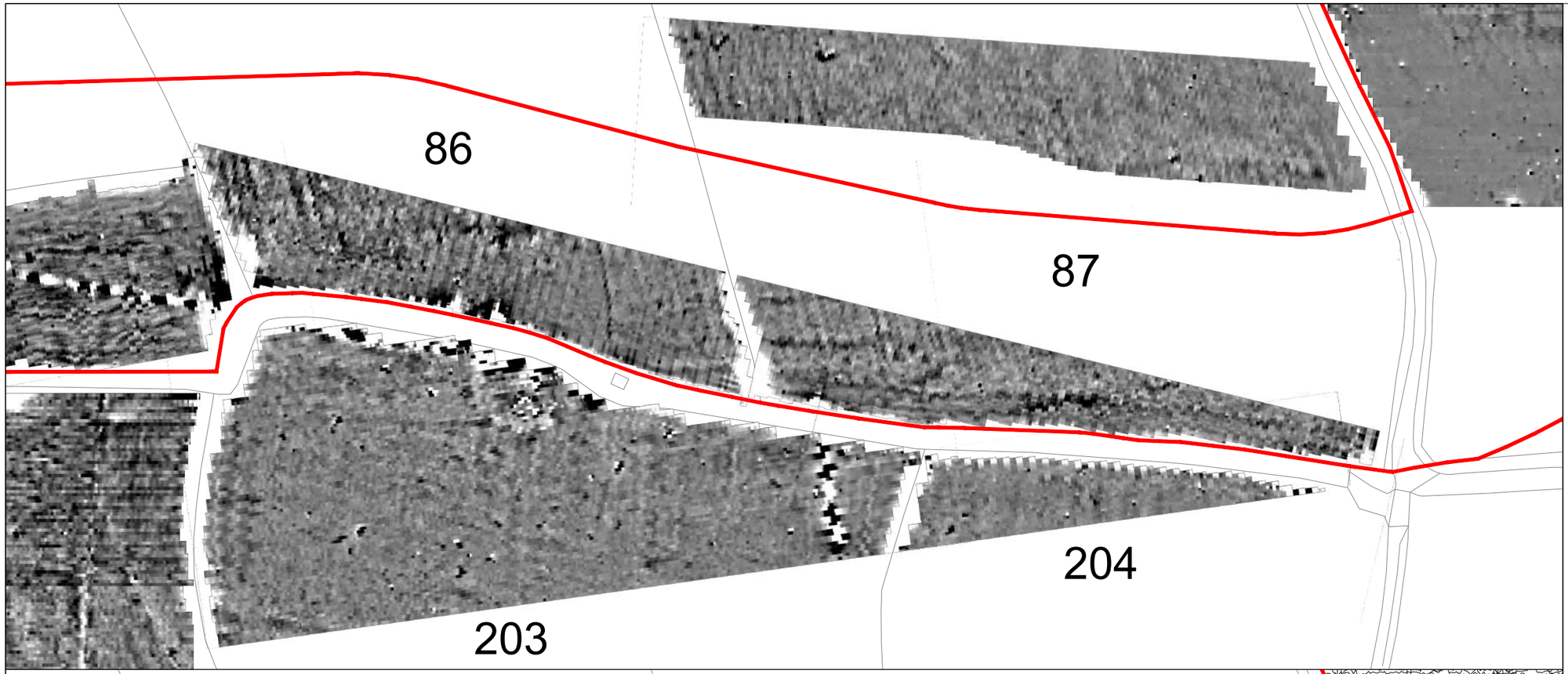
Title:
XY Trace Plots (clipped at +/-15nT)
(Areas 85, 176 & 208)

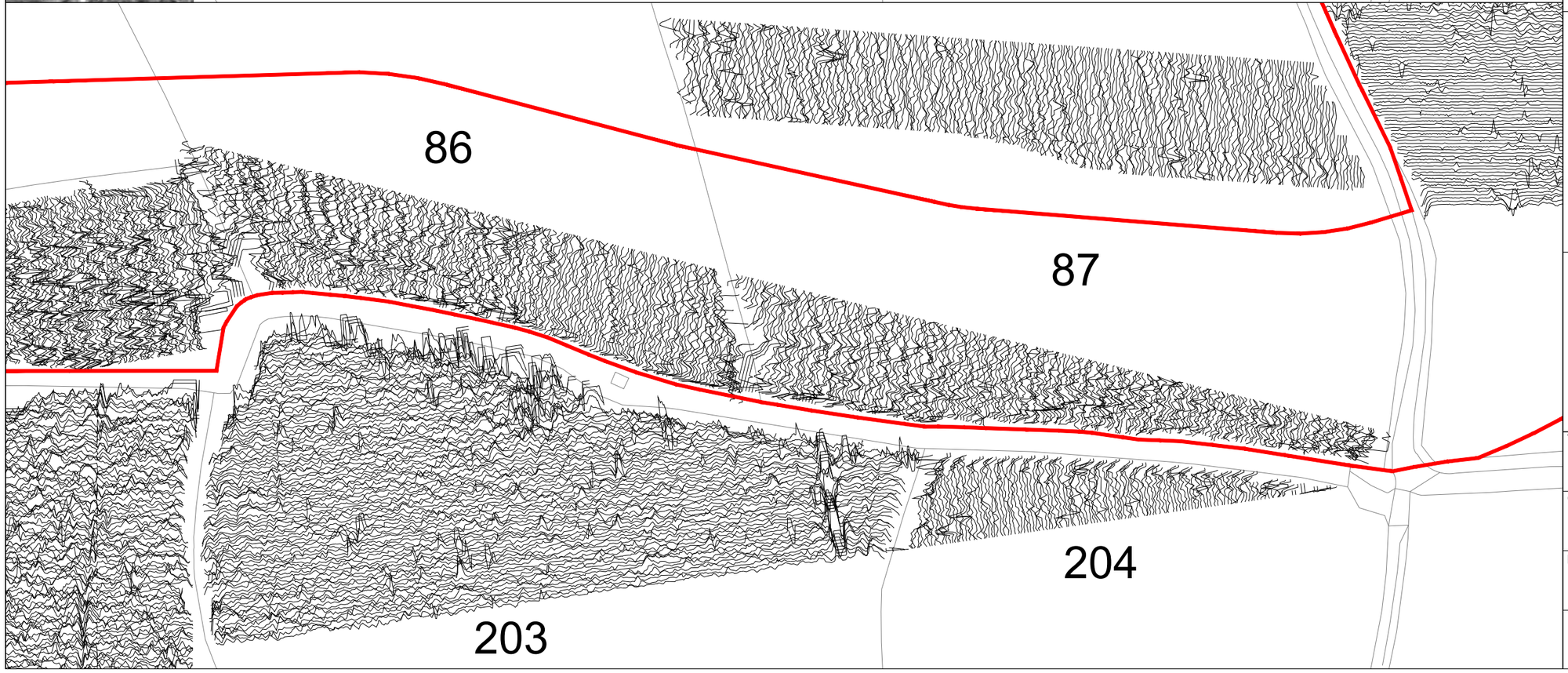
Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
105





N

+10nT

-10nT

sumo GeoSurveys

Title: Minimally Processed Data - Greyscale Plots / XY Trace Plots (clipped at +/-15nT) (Areas 86, 87, 203 & 204)

Client: Xlinks Ltd

Project: 15835 - Xlinks' Morocco-UK Power Project

Scale: 0 metres 75

1:1500 @ A3

Fig No: 106

N

+10nT

-10nT

87

88

89

204

sumo GeoSurveys

Title:
Minimally Processed Data - Greyscale Plots
(Areas 88 and 89)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 100
1:2000 @ A3

Fig No:
107

N

sumo GeoSurveys

Title:
XY Trace Plots (clipped at +/-15nT)
(Areas 88 and 89)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 100
1:2000 @ A3

Fig No:
108

N

+10nT

-10nT

sumo GeoSurveys

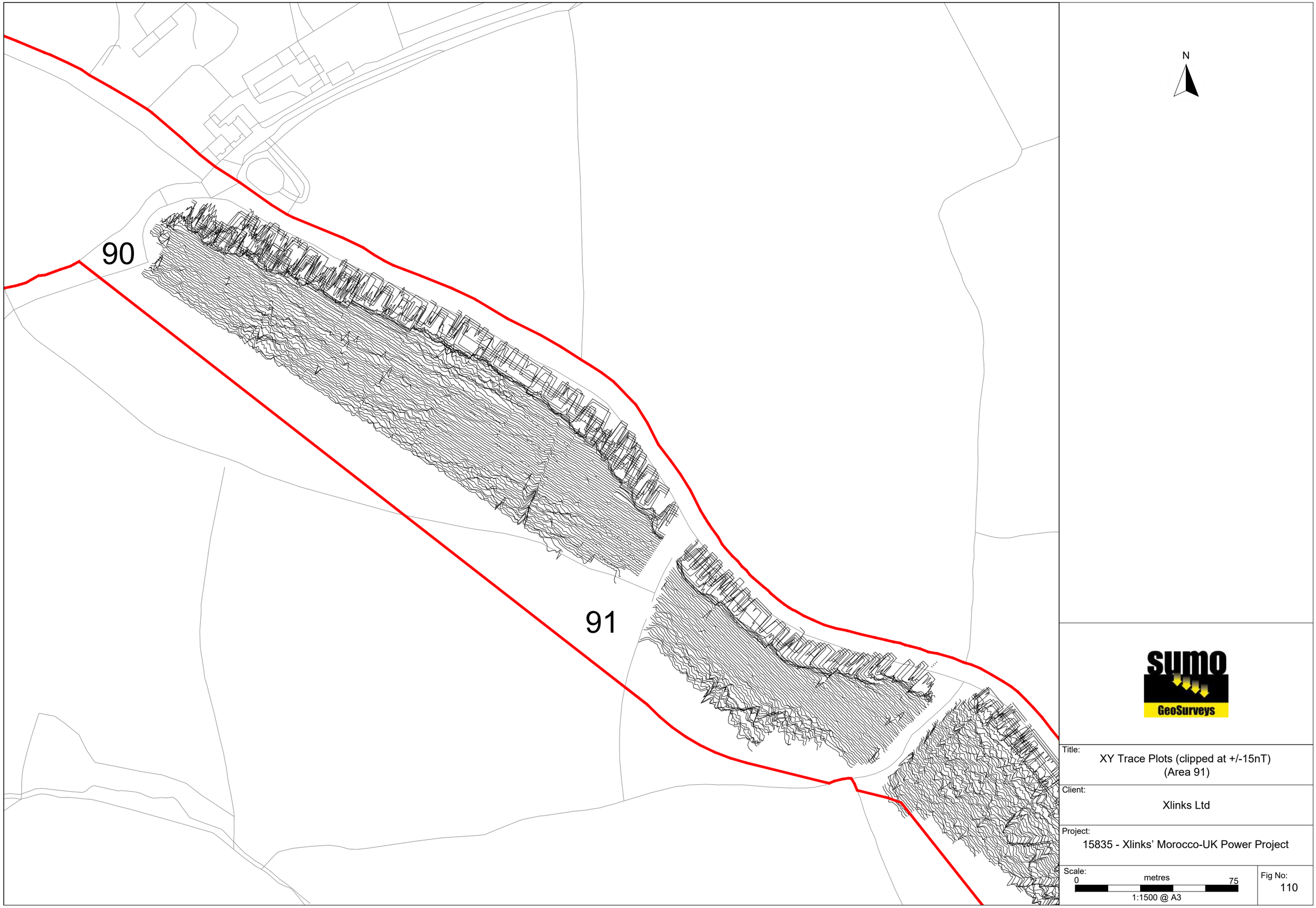
Title:
Minimally Processed Data - Greyscale Plots (Area 91)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
109



sumo GeoSurveys

Title:
XY Trace Plots (clipped at +/-15nT)
(Area 91)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
110

92

93

N

+10nT

-10nT

sumo GeoSurveys

Title:
Minimally Processed Data - Greyscale Plots
(Areas 92 and 93)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
111

N

sumo GeoSurveys

Title:
XY Trace Plots (clipped at +/-15nT)
(Areas 92 and 93)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
112

N

+10nT

-10nT

sumo GeoSurveys

Title:
Minimally Processed Data - Greyscale Plots
(Areas 94 and 99)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 100
1:2000 @ A3

Fig No:
113

sumo GeoSurveys

Title:
XY Trace Plots (clipped at +/-15nT)
(Areas 94 and 99)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 100
1:2000 @ A3

Fig No:
114

N

+10nT

-10nT

sumo GeoSurveys

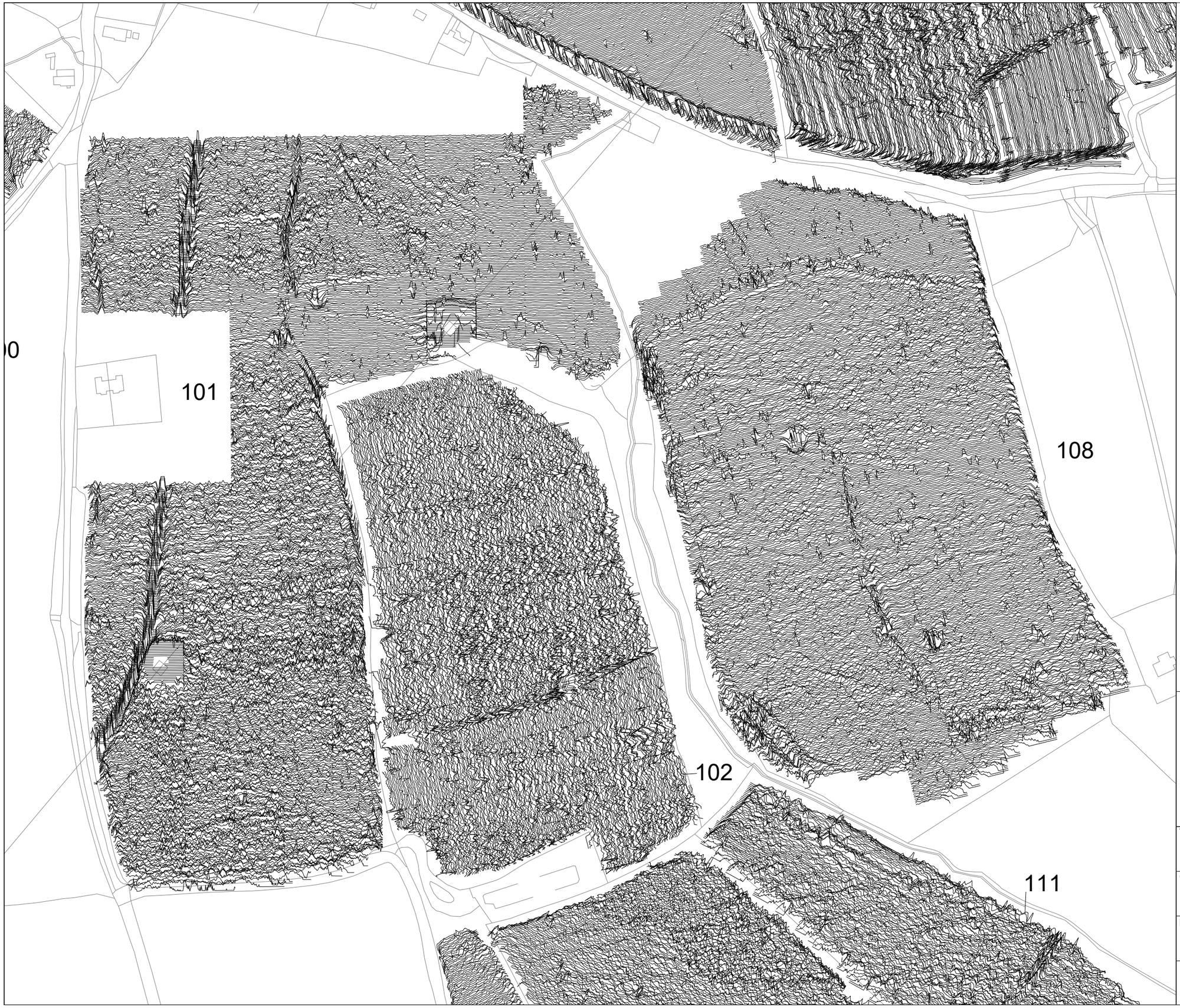
Title:
Minimally Processed Data - Greyscale Plots
(Areas 101, 102 and 108)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 110
1:2200 @ A3

Fig No:
115



N

sumo GeoSurveys

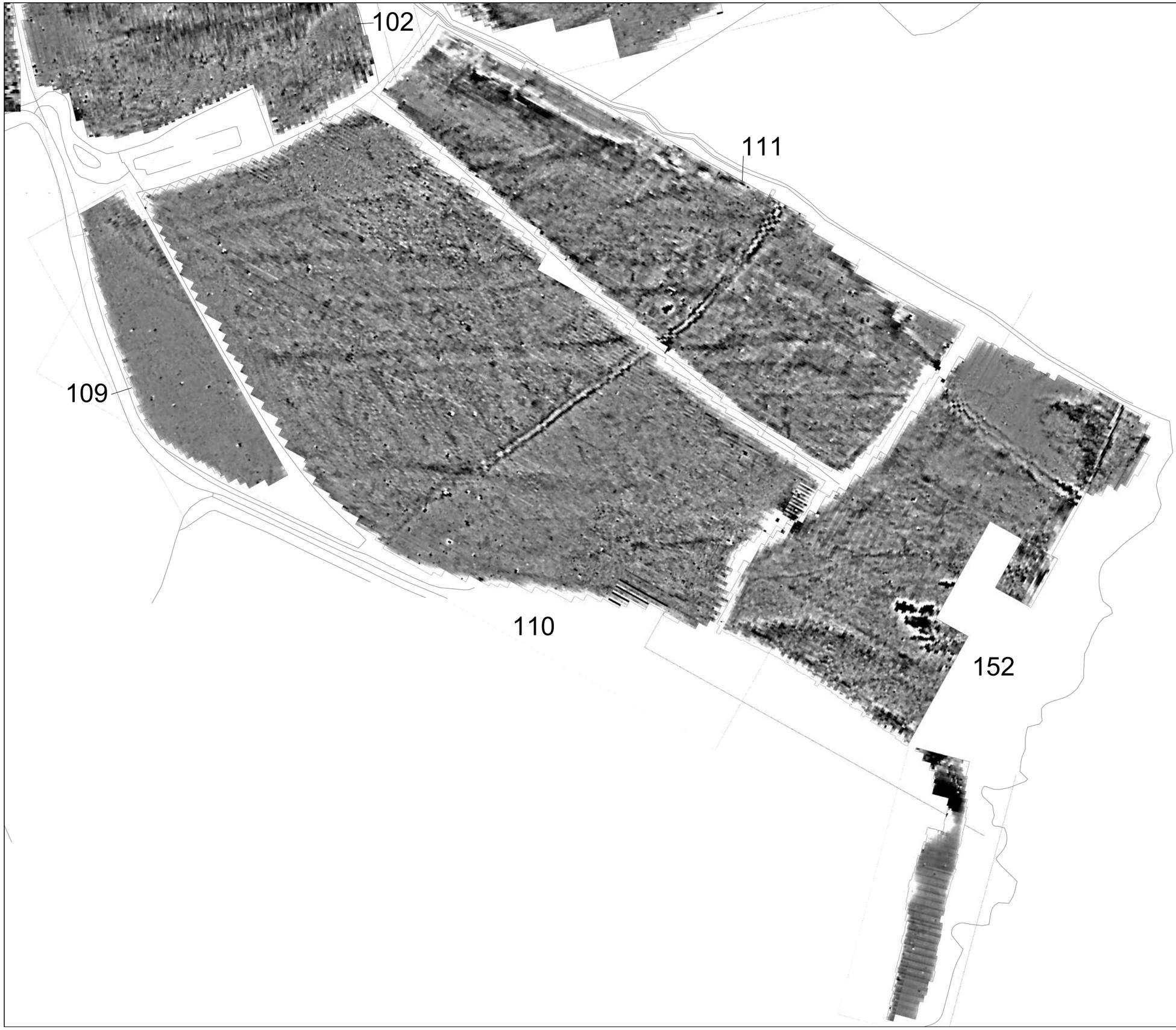
Title:
XY Trace Plots (clipped at +/-15nT)
(Areas 101, 102 and 108)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 110
1:2200 @ A3

Fig No:
116



N

+10nT

-10nT

sumo GeoSurveys

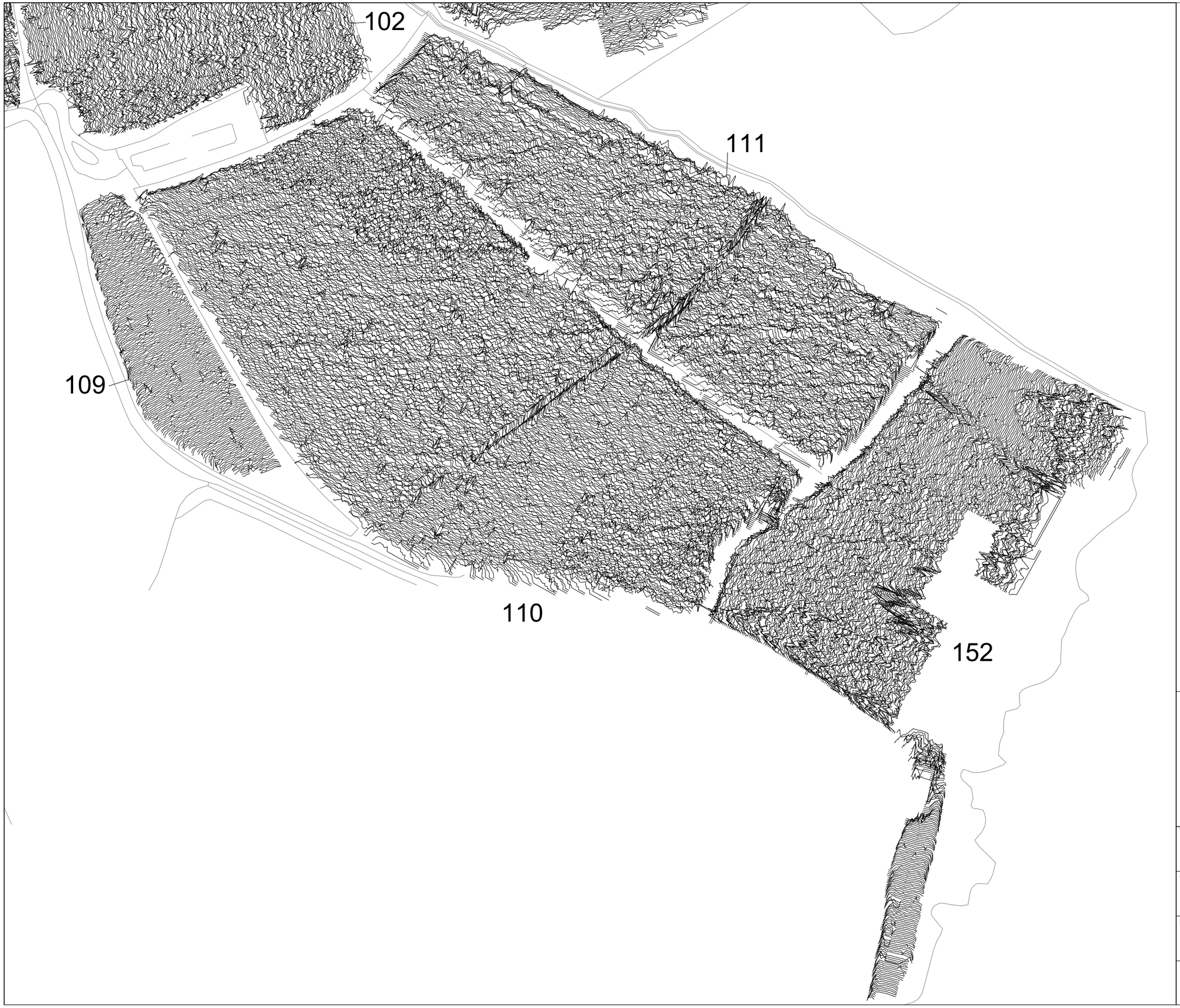
Title:
Minimally Processed Data - Greyscale Plots
(Areas 109, 110, 111 and 152)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 100
1:2000 @ A3

Fig No:
117



N

sumo GeoSurveys

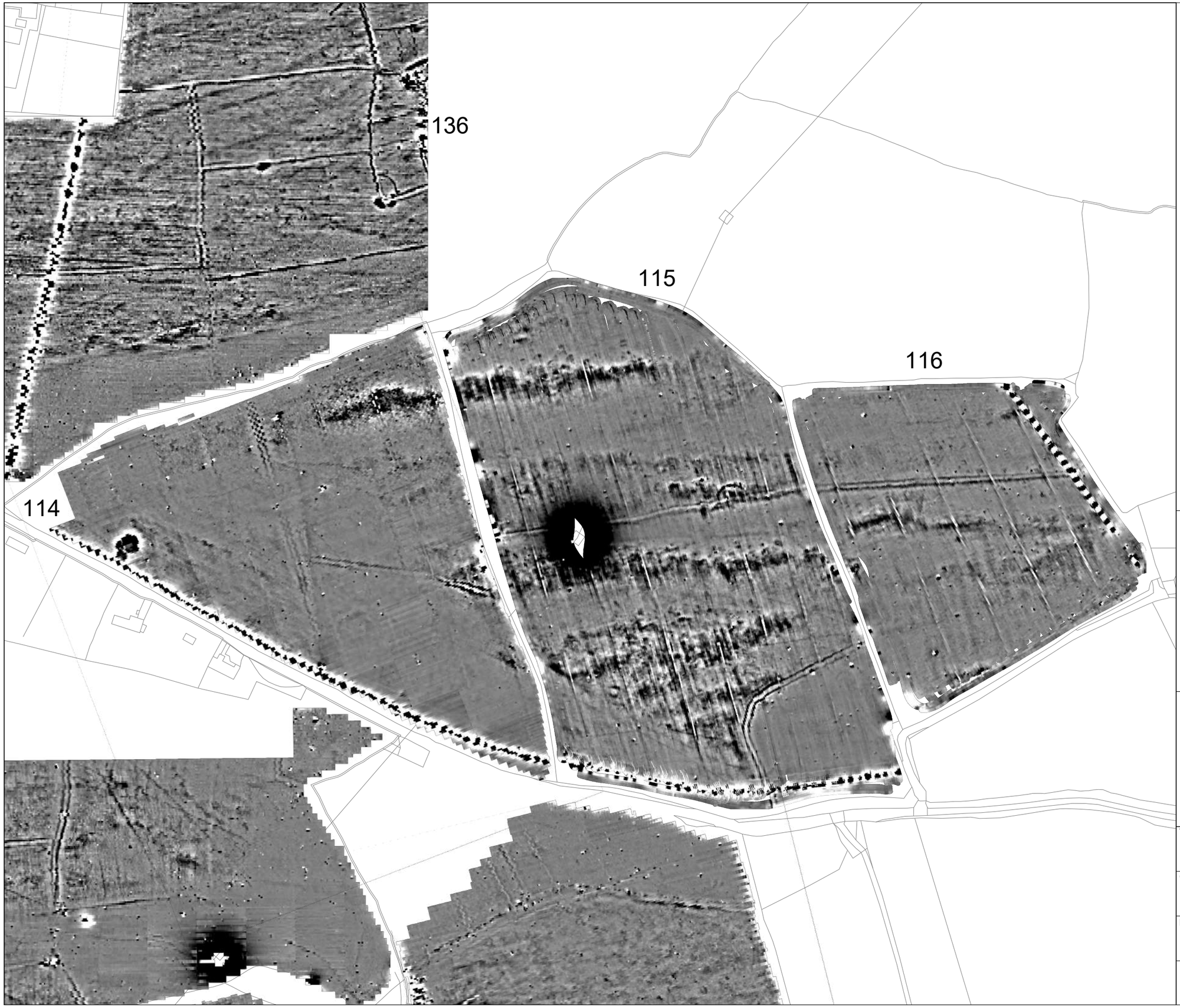
Title:
XY Trace Plots (clipped at +/-15nT)
(Areas 109, 110, 111 and 152)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 100
1:2000 @ A3

Fig No:
118



N

+10nT

-10nT

sumo GeoSurveys

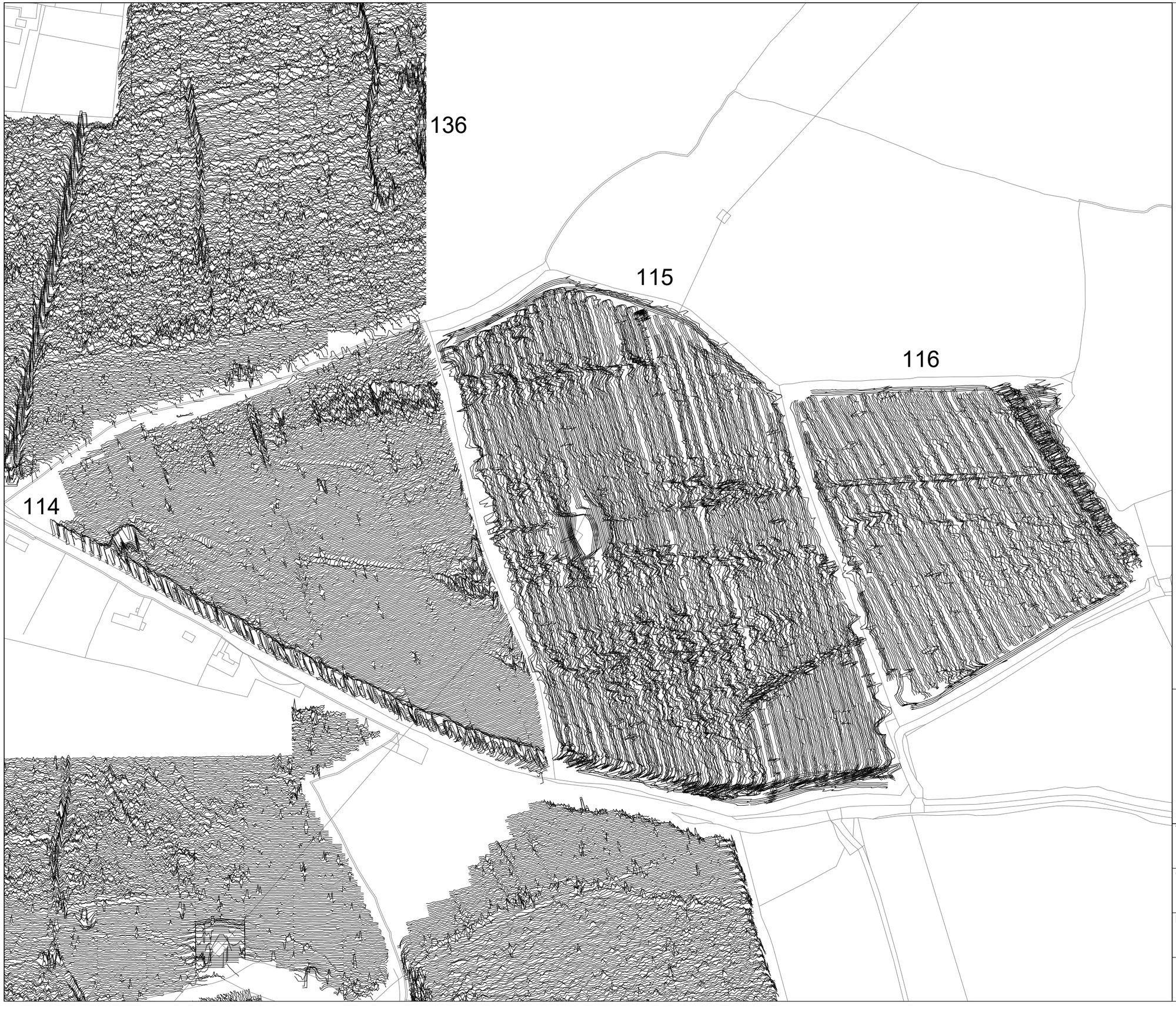
Title:
Minimally Processed Data - Greyscale Plots
(Areas 114, 115 and 116)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 110
1:2200 @ A3

Fig No:
119



N

sumo GeoSurveys

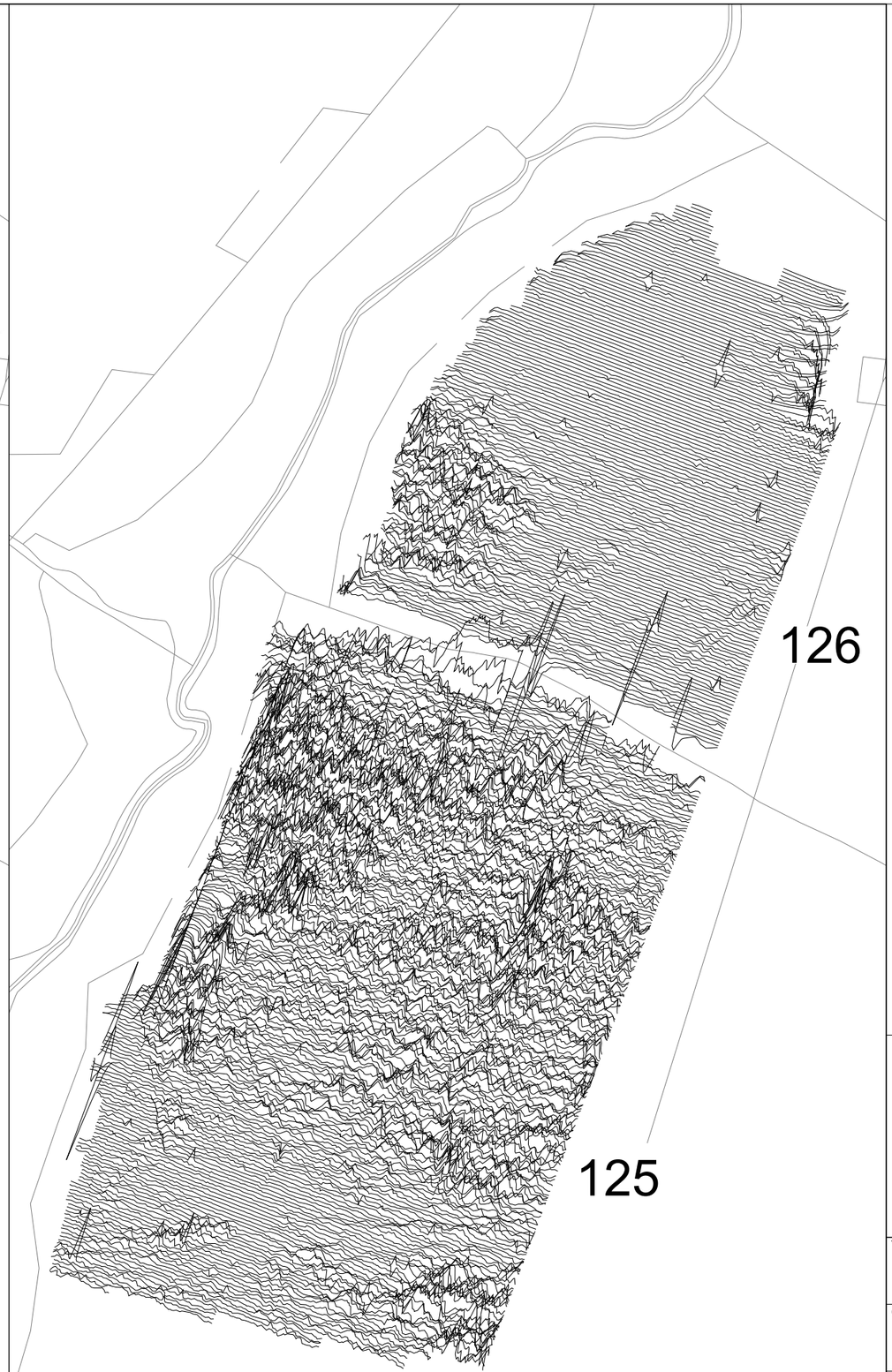
Title:
XY Trace Plots (clipped at +/-15nT)
(Areas 114, 115 and 116)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 110
1:2200 @ A3

Fig No:
120



N

sumo GeoSurveys

Title: Minimally Processed Data - Greyscale Plot / XY Trace Plots (clipped at +/-15nT) (Areas 125 and 126)

Client: Xlinks Ltd

Project: 15835 - Xlinks' Morocco-UK Power Project

Scale: 0 metres 75
1:1500 @ A3

Fig No: 121

144

136

114

N

+10nT

-10nT

sumo GeoSurveys

Title:
Minimally Processed Data - Greyscale Plots
(Area 136)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
122

144

136

114

N

sumo GeoSurveys

Title:
XY Trace Plots (clipped at +/-15nT)
(Area 136)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
123

145

144

168a

168b

180

167

N

+10nT

-10nT

sumo GeoSurveys

Title:
Minimally Processed Data - Greyscale Plots
(Area 144, 145, 168a, 168b & 180)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 100
1:2000 @ A3

Fig No:
124

145

168a

144

180

168b

167

N

sumo GeoSurveys

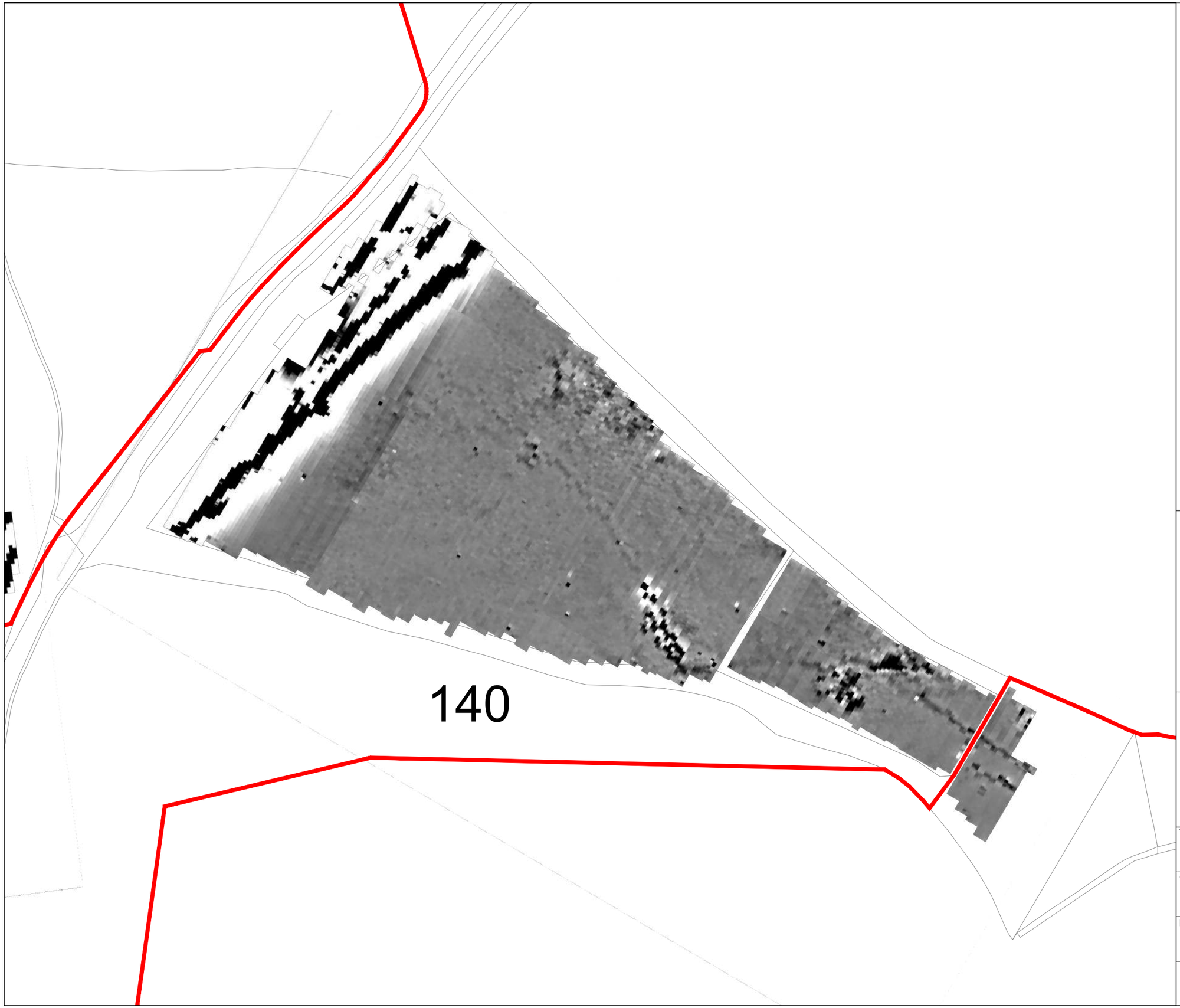
Title:
XY Trace Plots (clipped at +/-15nT)
(Area 144, 145, 168a, 168b & 180)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 100
1:2000 @ A3

Fig No:
125



N

+10nT

-10nT

sumo GeoSurveys

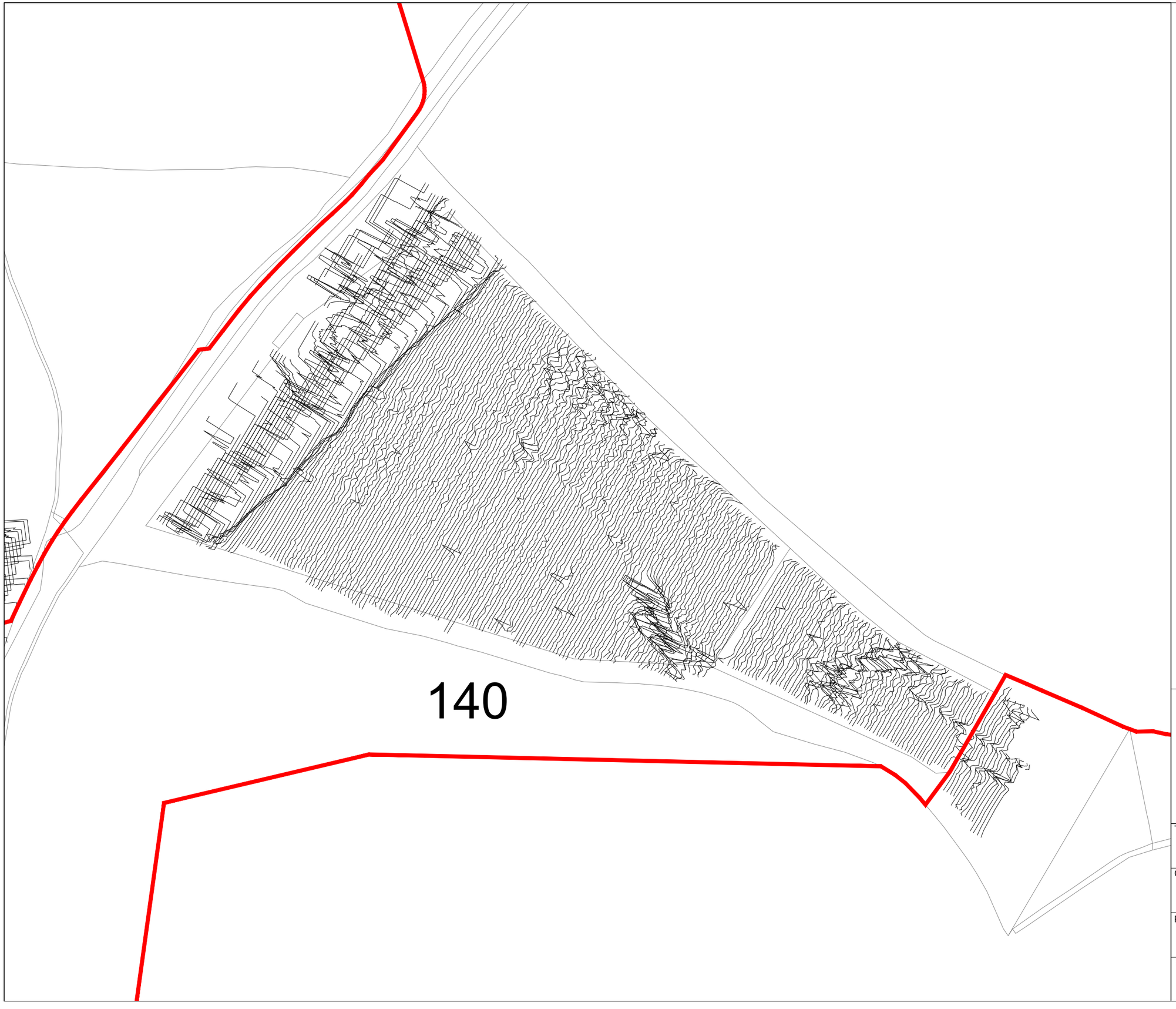
Title:
Minimally Processed Data - Greyscale Plot
(Area 140)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 50
1:1000 @ A3

Fig No:
126



N

sumo GeoSurveys

Title:
XY Trace Plots (clipped at +/-15nT)
(Area 140)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 50
1:1000 @ A3

Fig No:
127

N

+10nT

-10nT

sumo GeoSurveys

Title:
Minimally Processed Data - Greyscale Plot
(Area 181)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
128

N

sumo GeoSurveys

Title:
XY Trace Plots (clipped at +/-15nT)
(Area 181)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 75
1:1500 @ A3

Fig No:
129

N

+10nT

-10nT

sumo GeoSurveys

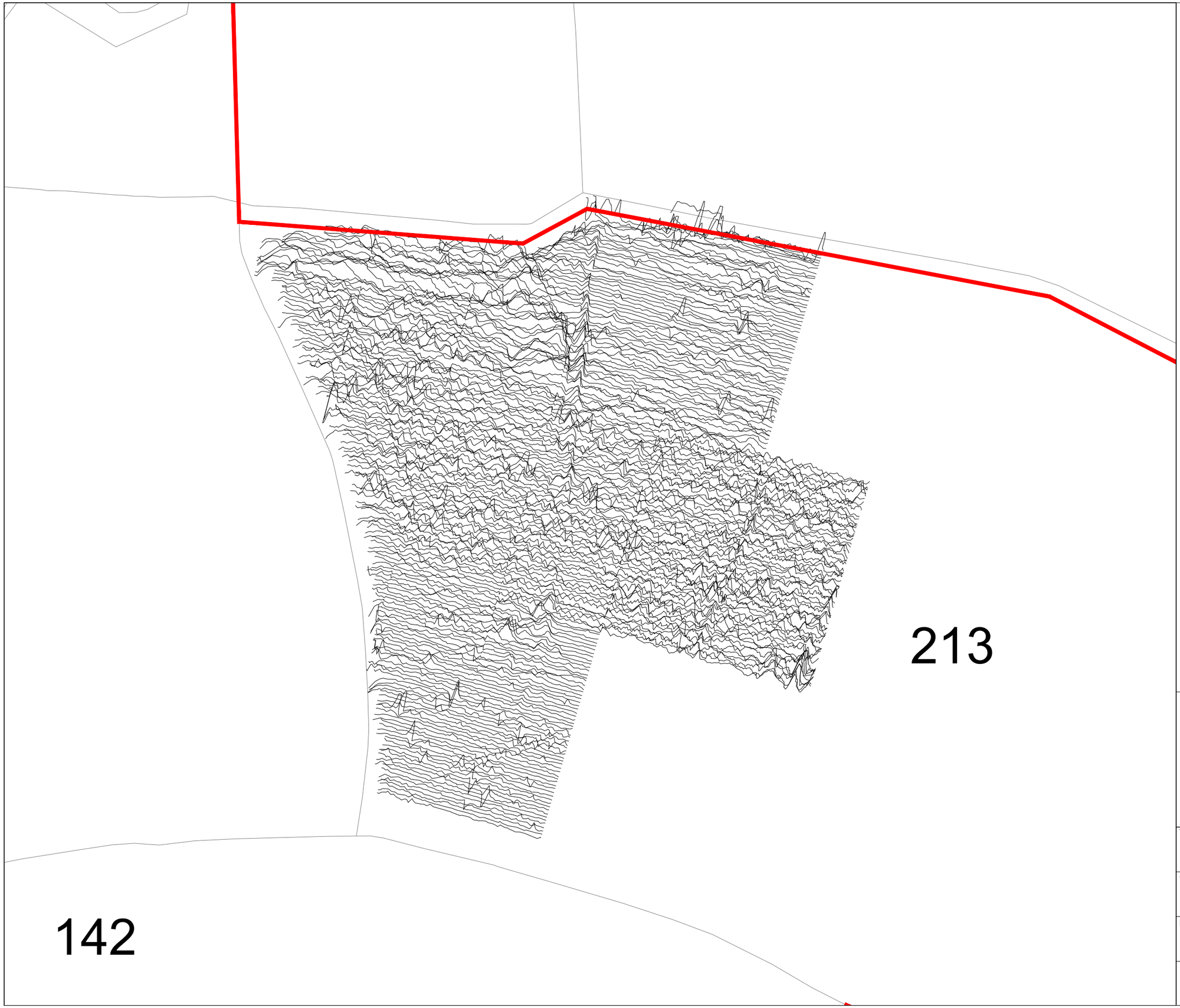
Title:
Minimally Processed Data - Greyscale Plot
(Area 213)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 50
1:1000 @ A3

Fig No:
130



N

sumo GeoSurveys

Title:
XY Trace Plots (clipped at +/-15nT)
(Area 213)

Client:
Xlinks Ltd

Project:
15835 - Xlinks' Morocco-UK Power Project

Scale:
0 metres 50
1:1000 @ A3

Fig No:
131

Appendix A - Technical Information: Magnetometer Survey Method

Grid Positioning

For hand held gradiometers the location of the survey grids has been plotted together with the referencing information. Grids were set out using a Trimble R8 Real Time Kinematic (RTK) VRS Now GNSS GPS system.

An RTK GPS (Real-time Kinematic Global Positioning System) can locate a point on the ground to a far greater accuracy than a standard GPS unit. A standard GPS suffers from errors created by satellite orbit errors, clock errors and atmospheric interference, resulting in an accuracy of 5m-10m. An RTK system uses a single base station receiver and a number of mobile units. The base station re-broadcasts the phase of the carrier it measured, and the mobile units compare their own phase measurements with those they received from the base station. This results in an accuracy of around 0.01m.

Technique	Instrument	Traverse Interval	Sample Interval
Magnetometer	Bartington Grad 601-2	1.0m	0.25m
Magnetometer	Bartington Cart System	1.0m	0.125m

Instrumentation:

Bartington instruments operate in a gradiometer configuration which comprises fluxgate sensors mounted horizontally, set 1.0m apart. The fluxgate gradiometer suppresses any diurnal or regional effects. The instruments are carried, or cart mounted, with the bottom sensor approximately 0.1-0.3m from the ground surface. At each survey station, the difference in the magnetic field between the two fluxgates is measured in nanoTesla (nT). The sensitivity of the instrument can be adjusted; for most archaeological surveys the most sensitive range (0.1nT) is used. Generally, features up to 1m deep may be detected by this method, though strongly magnetic objects may be visible at greater depths.

Bartington Grad 601-2

Hand-Held: Data will be collected using a Bartington Grad 601-2. The instrument consists of two paired sensors and readings are logged at 0.25m centres along traverses 1.0m apart across 30m grids. The collection of data at 0.25m centres provides an appropriate methodology balancing cost and time with resolution as per Historic England guidelines

Bartington Cart System

Data will be collected using a cart carrying four paired Bartington magnetic sensors. Each data point is geographically referenced using an on-board Trimble RTK survey grade GPS system. Readings will be taken at 0.125m centres along traverses 1.0m apart.

Data Processing

Zero Mean Traverse	This process sets the background mean of each traverse within each grid to zero. The operation removes striping effects and edge discontinuities over the whole of the data set.
Step Correction (De-stagger)	When gradiometer data are collected in 'zig-zag' fashion, stepping errors can sometimes arise. These occur because of a slight difference in the speed of walking on the forward and reverse traverses. The result is a staggered effect in the data, which is particularly noticeable on linear anomalies. This process corrects these errors.

Display

Greyscale/ Colourscale Plot	This format divides a given range of readings into a set number of classes. Each class is represented by a specific shade of grey, the intensity increasing with value. All values above the given range are allocated the same shade (maximum intensity); similarly, all values below the given range are represented by the minimum intensity shade. Similar plots can be produced in colour, either using a wide range of colours or by selecting two or three colours to represent positive and negative values. The assigned range (plotting levels) can be adjusted to emphasise different anomalies in the data-set.

Interpretation Categories

In certain circumstances (usually when there is corroborative evidence from desk-based or excavation data) very specific interpretations can be assigned to magnetic anomalies (for example, *Roman Road, Wall,* etc.) and where appropriate, such interpretations will be applied. The list below outlines the generic categories commonly used in the interpretation of the results.

Archaeology / Probable Archaeology	This term is used when the form, nature and pattern of the responses are clearly or very probably archaeological and /or if corroborative evidence is available. These anomalies, whilst considered anthropogenic, could be of any age.
Possible Archaeology	These anomalies exhibit either weak signal strength and / or poor definition, or form incomplete archaeological patterns, thereby reducing the level of confidence in the interpretation. Although the archaeological interpretation is favoured, they may be the result of variable soil depth, plough damage or even aliasing as a result of data collection orientation.
Industrial / Burnt-Fired	Strong magnetic anomalies that, due to their shape and form or the context in which they are found, suggest the presence of kilns, ovens, corn dryers, metal-working areas or hearths. It should be noted that in many instances modern ferrous material can produce similar magnetic anomalies.
Former Field Boundary (probable & possible)	Anomalies that correspond to former boundaries indicated on historic mapping, or which are clearly a continuation of existing land divisions. Possible denotes less confidence where the anomaly may not be shown on historic mapping but nevertheless the anomaly displays all the characteristics of a field boundary.
Ridge & Furrow	Parallel linear anomalies whose broad spacing suggests ridge and furrow cultivation. In some cases, the response may be the result of more recent agricultural activity.
Agriculture (ploughing)	Parallel linear anomalies or trends with a narrower spacing, sometimes aligned with existing boundaries, indicating more recent cultivation regimes.
Land Drain	Weakly magnetic linear anomalies, quite often appearing in series forming parallel and herringbone patterns. Smaller drains may lead and empty into larger diameter pipes, which in turn usually lead to local streams and ponds. These are indicative of clay fired land drains.
Natural	These responses form clear patterns in geographical zones where natural variations are known to produce significant magnetic distortions.
Magnetic Disturbance	Broad zones of strong dipolar anomalies, commonly found in places where modern ferrous or fired materials (e.g. brick rubble) are present.
Service	Magnetically strong anomalies, usually forming linear features are indicative of ferrous pipes/cables. Sometimes other materials (e.g. pvc) or the fill of the trench can cause weaker magnetic responses which can be identified from their uniform linearity.
Ferrous	This type of response is associated with ferrous material and may result from small items in the topsoil, larger buried objects such as pipes, or above ground features such as fence lines or pylons. Ferrous responses are usually regarded as modern. Individual burnt stones, fired bricks or igneous rocks can produce responses similar to ferrous material.
Uncertain Origin	Anomalies which stand out from the background magnetic variation, yet whose form and lack of patterning gives little clue as to their origin. Often the characteristics and distribution of the responses straddle the categories of *Possible Archaeology* / *Natural* or (in the case of linear responses) *Possible Archaeology* / *Agriculture*; occasionally they are simply of an unusual form.

Where appropriate some anomalies will be further classified according to their form (positive or negative) and relative strength and coherence (trend: weak and poorly defined).

Appendix B - Technical Information: Magnetic Theory

Detailed magnetic survey can be used to effectively define areas of past human activity by mapping spatial variation and contrast in the magnetic properties of soil, subsoil and bedrock. Although the changes in the magnetic field resulting from differing features in the soil are usually weak, changes as small as 0.1 nanoTeslas (nT) in an overall field strength of 48,000 (nT), can be accurately detected.

Weakly magnetic iron minerals are always present within the soil and areas of enhancement relate to increases in *magnetic susceptibility* and permanently magnetised *thermoremanent* material.

Magnetic susceptibility relates to the induced magnetism of a material when in the presence of a magnetic field. This magnetism can be considered as effectively permanent as it exists within the Earth's magnetic field. Magnetic susceptibility can become enhanced due to burning and complex biological or fermentation processes.

Thermoremanence is a permanent magnetism acquired by iron minerals that, after heating to a specific temperature known as the Curie Point, are effectively demagnetised followed by re-magnetisation by the Earth's magnetic field on cooling. Thermoremanent archaeological features can include hearths and kilns; material such as brick and tile may be magnetised through the same process.

Silting and deliberate infilling of ditches and pits with magnetically enhanced soil creates a relative contrast against the much lower levels of magnetism within the subsoil into which the feature is cut. Systematic mapping of magnetic anomalies will produce linear and discrete areas of enhancement allowing assessment and characterisation of subsurface features. Material such as subsoil and non-magnetic bedrock used to create former earthworks and walls may be mapped as areas of lower enhancement compared to surrounding soils.

Magnetic survey is carried out using a fluxgate gradiometer which is a passive instrument consisting of two sensors mounted vertically 1m apart. The instrument is carried about 30cm above the ground surface and the top sensor measures the Earth's magnetic field whilst the lower sensor measures the same field but is also more affected by any localised buried feature. The difference between the two sensors will relate to the strength of a magnetic field created by this feature, if no field is present the difference will be close to zero as the magnetic field measured by both sensors will be the same.

Factors affecting the magnetic survey may include soil type, local geology, previous human activity and disturbance from modern services.

OASIS Summary for sumogeop1-526834

OASIS ID (UID)	sumogeop1-526834
Project Name	Xlinks' Morocco-UK Power Project
Sitename	Xlinks Morocco to UK Power Project
Sitecode	15835
Project Identifier(s)	15835
Activity type	Geophysical Survey, Magnetometry Survey, MAGNETOMETRY SURVEY
Planning Id	
Reason For Investigation	Planning requirement
Organisation Responsible for work	SUMO Geophysics Ltd.
Project Dates	07-Sep-2022 - 22-Feb-2024

Location	Xlinks Morocco to UK Power Project NGR : SS 46587 24971 LL : 51.00361359484996, -4.187911419505236 12 Fig : 246587,124971 NGR : SS 43240 24026 LL : 50.99421838328124, -4.235164382556438 12 Fig : 243240,124026 NGR : SS 43240 24026 LL : 50.99421838328124, -4.235164382556438 12 Fig : 243240,124026 NGR : SS 42220 26158 LL : 51.01309838800247, -4.25061082117017 12 Fig : 242220,126158 NGR : SS 45552 25302 LL : 51.00631594852671, -4.202795050115165 12 Fig : 245552,125302 NGR : SS 48997 24831 LL : 51.00299853129092, -4.153527335207973 12 Fig : 248997,124831 NGR : SS 42048 26337 LL : 51.014658051001064, -4.253142423943951 12 Fig : 242048,126337 NGR : SS 42092 26226 LL : 51.01367671302445, -4.252462947148329 12 Fig : 242092,126226 NGR : SS 43623 24299 LL : 50.99677823972926, -4.229829948535666 12 Fig : 243623,124299 NGR : SS 49054 24671 LL : 51.00156966694048, -4.152644198280397 12 Fig : 249054,124671 NGR : SS 49388 25030 LL : 51.00488829471904, -4.14804422567367 12 Fig : 249388,125030 NGR : SS 49434 25345 LL : 51.00772790907271, -4.147518978988624 12 Fig : 249434,125345 NGR : SS 49518 25220 LL : 51.00662813805104, -4.146275143087426 12 Fig : 249518,125220 NGR : SS 49981 25569 LL : 51.00988836225933, -4.139816182237141 12 Fig : 249981,125569

Administrative Areas	Country : England County/Local Authority : Devon Local Authority District : Torridge Parish : Bideford Parish : Littleham Parish : Abbotsham Parish : Weare Giffard Parish : Alverdiscott Parish : Alwington Parish : Huntshaw
Project Methodology	A temporary grid system was established over the site and marked out using canes. The location of the grid will was set out using an RTK GPS system theoretically accurate to some 0.01m and referenced to OS co-ordinates. Hand Held: Data was collected using a Bartington Grad 601-2. The instrument consists of two paired sensors (see below) and readings are logged at 0.25m centres along traverses 1.0m apart across 30m grids. Two sensors mounted 1m horizontally apart and very accurately aligned to nullify the effects of the earth's magnetic field. Cart: Data was also collected using a cart carrying four paired Bartington magnetic sensors. Four sensors mounted 1m horizontally apart and very accurately aligned to nullify the effects of the earth's magnetic field. Each data point is geographically referenced using an on-board Trimble RTK survey grade GPS system. Readings will be taken at 0.125m centres along traverses 1.0m apart. The collection of data provides an appropriate methodology balancing cost and time with resolution as per Historic England guidelines. Readings relate to the difference in localised magnetic anomalies compared with the general magnetic background.

Project Results	The magnetometer survey has recorded numerous magnetic responses that have be interpreted as being of archaeological interest. In Area 1 ditch-like responses have been detected that correspond with the locations of earthworks remains that were part of Abbotsham rifle range; they are visible on aerial photographs of 1945 onwards (MDV102153). Other ditch-like responses in Area 1 are also visible. They could be associated with the former gun range (MDV102153) or they could be of greater antiquity perhaps indicating a possible ditch / enclosure. In Area 14 and 15 a series of curving responses which comprise discrete anomalies and trends appear to mark the locations of irregularly shaped enclosures. A series of trends in Area 17 have been assigned to the category of Possible Archaeology; they could form rectilinear enclosure or mark the locations of uncorroborated field boundaries. In Area 31 a number of ditches could form a rectilinear enclosure possibly associated with a former windmill thought to have been in the field. In Area 41 a circular response could mark the location of a round barrow, while in Area 42 a sub-rectangular enclosure, with an eastern entrance, has also be recorded. A possible partial enclosure and strong pit-like response in Area 70 could be associated with a continuation of a former field system that was recorded in a previous geological survey (MDV108474). In Area 74 numerous linear responses form a large enclosure and several ditch-like responses which could be part of a field system recorded in the HER. Ditch-like responses in Area 83 could be associated with a double ditched enclosure (MDV63447). A possible small ring-ditch has been plotted in Area 88. In Areas 91 numerous ditch-like anomalies and linear trends appear to form a trackway and possible fields, while in Area 92 part of a possible settlement may have been identified. A semi-circular trend in Area 94 is of possible archaeological interest. In the south-east of Area 108 a number of ditch-like responses, pits-like anomalies and trends have been recorded which appear to form a partial enclosure with internal responses. Segmented ditch-like responses have been detected in Area 3 and they have been assigned to the category of Possible Archaeology. They could be part of wider scale land divisions and/or field systems. Numerous responses have been detected throughout the survey which have been assigned to the category of Uncertain. They generally lack the defined morphology of anomalies that would ordinarily be interpreted as being of archaeological interest. The majority are likely to be due to combinations of agricultural and natural processes. However, in places, archaeological origins cannot be entirely discounted. Corroborated and conjectural former field boundaries are visible throughout the plots, along with ploughing, land drains plus ridge and furrow ploughing. The routes of several service pipes have also been recorded throughout the survey. Elevated magnetic responses throughout the survey are associated with the naturally magnetic bedrock and superficial geology; this has made interpretation of many of the results difficult.

Keywords	Firing Range - 20TH CENTURY - FISH Thesaurus of Monument Types Enclosure - UNCERTAIN - FISH Thesaurus of Monument Types Rectilinear Enclosure - UNCERTAIN - FISH Thesaurus of Monument Types Ditch - UNCERTAIN - FISH Thesaurus of Monument Types Barrow - UNCERTAIN - FISH Thesaurus of Monument Types Rectangular Enclosure - UNCERTAIN - FISH Thesaurus of Monument Types Pit - UNCERTAIN - FISH Thesaurus of Monument Types Coaxial Field System - UNCERTAIN - FISH Thesaurus of Monument Types Ring Ditch - UNCERTAIN - FISH Thesaurus of Monument Types Trackway - UNCERTAIN - FISH Thesaurus of Monument Types Ridge And Furrow - MEDIEVAL - FISH Thesaurus of Monument Types Plough Marks - 20TH CENTURY - FISH Thesaurus of Monument Types Drainage System - 20TH CENTURY - FISH Thesaurus of Monument Types Field Boundary - POST MEDIEVAL - FISH Thesaurus of Monument Types Pipeline - 20TH CENTURY - FISH Thesaurus of Monument Types
Funder	Private or public corporation Xlinks Ltd
HER	Devon Historic Environment Record - unRev - STANDARD
Person Responsible for work	Thomas Cockcroft
HER Identifiers	
Archives	

Report generated on: 14 Oct 2024, 09:24

Appendix D – Data Management Plan & Archive Selection Strategy

Data Management Plan

Project ID / OASIS ID

SUMO-15835 / sumogeop1-526834

Project Name

Xlinks' Morocco-UK Power Project

Project Description

SUMO GeoSurveys was commissioned to undertake a geophysical survey of an area outlined for a proposed onshore cable corridor

Client

Xlinks Ltd

Project Manager

Thomas Cockcroft

Field Leader

Jordan Morris BA / Liam Brice-Bateman BA / Robert Knight BA MA

Date DMP created

12.01.2024

Date DMP last updated

14.10.2024

Version

3

Technique - data

Detailed magnetic survey.

Manual – cart - other

Handheld and cart mounted magnetometers

Documentation and metadata

All documentation and data produced are stored on SUMO servers in a specific job file.

Data storage, access and back-up

- SUMO Secure server during the project life set up in a RAID configuration (a RAID configuration incorporates a level of data redundancy meaning if a single hard drive in fails data can still be restored).
- Snap shots of the data will be made at several intervals during the day to allow data to be restored for up to 30 days if changed / deleted.
- Once the final report has been completed data will be moved onto NAS drive set up in a RAID configuration.
- All data is backed up to an off-site location (Cloud storage).

Archive Selection Strategy

Digital Data

Selection

It is proposed that only the final version of all born digital documents (reports, images and CAD files) will be selected for inclusion in the Preserved Archive. All raw and processed survey data will be included in the preserved archive. Below is what will constitute the selected archive:

- Raw data in XYZ format .csv and .png plus .pgw world file
- Processed data as .png plus .pgw world file
- Final survey report .pdf
- CAD and Vector graphics (interpretations) in .dwg format

De-selected digital data

The de-selected material will be retained on the SUMO Secure server and Cloud storage.

Documents

Not applicable – no archive

Materials

Not applicable – no archive

- Archaeological Geophysics
- Engineering Geophysics
- Measured Building Services
- Utility and Topographic Services
- Aerial Surveys
- Rail Surveys

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SUMO Services Ltd, incorporated under the laws of England and Wales,
Company Registration No.4275993.
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