

ARCHAEOLOGICAL  
SERVICES  
DURHAM UNIVERSITY

for  
**URS**

on behalf of



Creyke Beck Substation  
Dogger Bank Offshore Wind Farm  
East Riding of Yorkshire

geophysical survey

report 3009  
October 2012



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## **1. Summary**

### **The project**

- 1.1 This report presents the results of geophysical surveys conducted for the proposed Dogger Bank Creyke Beck project in the East Riding of Yorkshire, as part of the Dogger Bank offshore wind farm development. The works comprised geomagnetic survey of cable routes and areas around an electricity substation totalling approximately 20ha.
- 1.2 The works were commissioned by URS Infrastructure & Environment UK Limited (URS) on behalf of Forewind Limited and conducted by Archaeological Services Durham University.

### **Results**

- 1.3 Possible soil-filled features have been identified in Areas 2 and 7.
- 1.4 Magnetic anomalies corresponding to the locations of former field boundaries as shown by the Ordnance Survey have been identified in Areas 2 and 5.
- 1.5 Features of probable geological origin have been identified.
- 1.6 Features relating to land drainage have been identified in Areas 2, 3, 4 and 9.
- 1.7 Modern services have been detected in Areas 5, 7 and 8.
- 1.8 An area of made ground has been identified in Area 7.

## 2. Project background

### Location (Figure 1)

- 2.1 The proposed development scheme is located to the south of Beverley in the East Riding of Yorkshire. A 50m wide corridor was surveyed from the site of a proposed converter station (NGR TA 0459 3479) south-east to the electricity substation at Creyke Beck, north of Cottingham (NGR: TA 0474 3603).
- 2.2 The works comprised 13 surveys totalling approximately 20ha through open farmland along the proposed cable route and around the existing electricity substation.

### Development proposal

- 2.3 The Dogger Bank Creyke Beck project is the first stage of the development of Dogger Bank offshore wind farm, comprising up to two projects generating up to 2.4GW. The onshore infrastructure includes a transition bay where the cables come ashore, a buried DC cable route, up to two converter stations near and then an AC cable route to the National Grid Creyke Beck substation.

### Objective

- 2.4 The project specific and generic objectives of the surveys were:
- to establish the presence of early prehistoric settlement and activity
  - to identify areas of late prehistoric and Roman settlement and enclosure
  - to establish the presence or absence of any archaeological anomalies within the area of proposed development
  - to define the extent of any such anomalies
  - to characterise, if possible, any features or anomalies recorded
  - to inform the requirement for further archaeological works (if required)

### Methods statement

- 2.5 The surveys have been undertaken in accordance with a Written Scheme of Investigation (WSI) provided by URS Infrastructure & Environment UK Limited (URS) and approved by the Archaeology Manager for Humber Archaeology Partnership (Appendix).

### Dates

- 2.6 Fieldwork was undertaken between 25th and 28th September 2012. This report was prepared for 31st October 2012.

### Personnel

- 2.7 Fieldwork was conducted by Andrew Platell, Natalie Swann, Nathan Thomas and Richie Villis (Supervisor). The geophysical data were processed by Richie Villis. This report was prepared by Richie Villis with illustrations by Janine Watson and edited by Duncan Hale, the Project Manager.

### Archive/OASIS

- 2.8 The site code is **HDBS12**, for **Humberside Dogger Bank Substation 2012**. The survey archive will be supplied on CD to the client for deposition with the project archive in due course. Archaeological Services Durham University is registered with the **Online**

Access to the Index of archaeological investigations project (**OASIS**). The OASIS ID number for this project is **archaeol3-136498**.

### **3. Historical and archaeological background**

3.1 The site of proposed converter stations and the majority of the DC cable route have already been surveyed (Archaeological Services 2012). The following summarizes the results of those surveys.

#### **Proposed converter stations site**

3.2 Possible soil-filled features were identified. In Area 4 a weak curvilinear anomaly broadly corresponds to the location of a suggested Bronze Age barrow. Otherwise the potential archaeological features are discrete and isolated.

3.3 Former field boundaries, as shown on Ordnance Survey maps from the 1850 1st edition to the present day, have been identified. Modern agricultural features have also been detected.

#### **Proposed cable route**

3.4 Many anomalies have been detected along the proposed cable route, reflecting several different types of feature, and these have been variously interpreted as being either geological or geomorphological in origin (for example solution hollows and fissures in the bedrock), possibly archaeological (typically ditch and pit features) or more recent (such as former field boundaries and land drains).

3.5 Of the likely archaeological features identified, possible enclosure remains have been identified in several of the Areas: 2, 6, 27 & 28, 36 & 37, 20, 43, 45, 49, 81 & 82. Possible ring-ditches, which are often associated with prehistoric round-houses, were identified in three Areas: 27, 20 and 49. Three anomalies appear to reflect small square ditched features (Areas 2 & 68); these could possibly be the remains of square barrows, an Iron Age burial practice common in eastern Yorkshire. Isolated, discrete, features have been identified in many of the survey areas along the proposed cable route.

3.6 Former field boundaries, ditches and tracks, depicted on Ordnance Survey maps from the 1st editions in the 1850s to the present day, have been detected in many of the survey areas.

3.7 Systems of land drainage and modern agricultural ploughing regimes have been detected in many of the survey areas. Modern services have also been identified in a number of the areas.

#### **Overview of archaeological and historical background**

3.8 The information below is taken from the WSI prepared by URS on behalf of Forewind Limited, presented with only minor amendments.

3.9 The following section gives an overview of the known archaeology (heritage assets) within a 500m radius of the Proposed Scheme which has been collated through desk-based assessment. This description should be read with reference to Appendix 2 of the WSI, as the reference numbers in brackets in the text below are indicated on

those figures; the reference numbers relate to the Heritage Asset Gazetteer for the scheme. There are no known heritage assets within the proposed 50m corridor.

### **Palaeolithic (500,000-10,000 BC)**

- 3.10 Evidence for Palaeolithic activity in the study area has been largely removed by the extent of the last glaciation. Despite limited evidence from this period there is a potential for palaeoarchaeological and palaeoenvironmental remains in the low-lying land close to the coast at Ulrome. A Rapid Coastal Zone Assessment funded by English Heritage (ARS 2008) at Ulrome caravan park found organic deposits (18037) in the form of animal bones from the cliffside. These have not been specifically dated other than that they were from the prehistoric period. The same survey uncovered a prehistoric battle axe (15531). A little further inland to the west of Ulrome a series of finds comprising a pestle, pot and weight, described in the HER records as marginal finds (18381), were recovered from a spot directly on the planned cable route. These finds have not been dated and are listed as being from anywhere between the Palaeolithic (unlikely) to the medieval.
- 3.11 The changes in sea level and the build up of alluvium, both naturally over a long period of time but more recently as the result of human activity, could serve to mask but also to protect any remains of this period.

### **Mesolithic (10,000–4,000 BC)**

- 3.12 Although there is a potential for Mesolithic remains within the Holderness region, no known evidence exists within the study area corridor. Mesolithic societies were nomadic hunter gatherers; evidence for their presence may be widespread and ephemeral. The nomadic nature of their lifestyle means that few, if any, semi-permanent camps would have been established, which in turn reduces the possibility of finding any substantial structural remains. Any Mesolithic (or Palaeolithic) remains that are encountered would be regarded as being of at least regional significance.
- 3.13 The Humber Wetlands project has added greatly to our general understanding of activities in the wider wetland region during the Mesolithic and Neolithic periods, especially with regard to the hunter-gatherer communities and how they might have utilised the landscape. The Mesolithic period was characterised by environmental change including changing sea levels, rising temperatures and subsequent variations in associated vegetation. There was a rise in sea level after the Devensian glaciation, slowly infilling the previously mainly dry English Channel. However, the sea level rise was neither continuous nor consistent, but was punctuated with many small recessions.
- 3.14 The Mesolithic period in the Humber Wetlands is mainly represented by flint scatters representing transient hunting camps, which have mostly been found near to the larger meres and alongside rivers within Holderness, with occasional tools of Mesolithic date having also been found. As stated above, Mesolithic settlement sites are extremely rare, but the low-lying land of Holderness, with its freshwater meres, offered numerous possibilities for hunter gatherers. Finds from the region include a bone harpoon found at nearby Withow in 1902. Numerous finds of microliths have been made, along with blades and scrapers from a number of sites overlooking Skipsea Mere (Harrison 2000); recent work on a possible timber structure on the margins of the mere at Round Hill suggests that it may have been in use during the

Mesolithic period. Some of the associated flintwork also probably dates to the Mesolithic period (Van de Noort and Ellis 1995).

### **Neolithic (4,000–2,400 BC)**

- 3.15 Evidence for the later prehistoric periods (Neolithic and Bronze/Iron Age), once societies have started to become more sedentary and agrarian-based, is more common. This is often in the form of crop-marks indicating the remains of buried features such as enclosures for farmsteads and/or corrals and the ditches associated with the surrounding field systems along with various types of funerary monuments, principally barrows.
- 3.16 The Humber Wetlands project has highlighted the slow pace at which new farming practices were taken up during the Neolithic and how older, more traditional hunting strategies persisted well into the Bronze Age. There appears to be small-scale woodland clearance occurring in Holderness during the early part of the Neolithic, and certainly by the early Bronze Age large areas of woodland in Holderness had been cleared in order to facilitate pastoral agriculture. One theory is that the Wetlands were a highly important and vital resource during the Mesolithic and early part of the Neolithic, but that this dependence decreased during later prehistory as settlement became focused on the higher and drier parts of the region.
- 3.17 Neolithic archaeology in the region is represented mainly by flint production sites and transit camps of Neolithic or possibly early Bronze Age date. In contrast to the lack of Palaeolithic and Mesolithic evidence, Neolithic material can be found in parts of the study area corridor. This would seem to indicate that there is possibly either more land available for exploitation and/or that the population had increased. If there is more land available for exploitation then this in turn would seem to suggest that the water levels of the lakes and meres is dropping and that possibly the vegetation cover of the land is more penetrable.
- 3.18 Evidence from pollen analysis carried out as part of the Humber Wetland Surveys suggests that farming in the area was focused mainly on stockbreeding, as opposed to arable production (Van de Noort 2004). During the Neolithic period there was a move away from the wetlands that was necessitated by the change from a hunter-gather lifestyle towards farming; however, the area may have continued to be utilised for hunting and fishing as well as an area to graze livestock.
- 3.19 A potential Neolithic/Bronze Age circular ditched enclosure (351), visible as a cropmark on aerial photographs, is recorded close to the coastline just north of Barmston Drain. The feature consists of two concentric ditched enclosures with a central circular ditch. The outer ditch measures 26m in diameter. It was not visible when the area was surveyed in 2009, but infilled ditches may survive below ground.
- 3.20 A site comprising two possible barrows of either Neolithic or Bronze Age date are located immediately east of Creyke Beck substation. Additionally a hoard of Neolithic axeheads (861) and a stone macehead (862) were discovered to the south-east of the substation in a residential area adjacent to Dunswell Road. Another findspot of a stone axehead is located just to the west of the hamlet of Burshill, south-west of Brandesburton. A further site possibly of two round barrows (18737) dated to the Neolithic/Bronze Age is recorded at Hall Ings.

- 3.21 To the west of Ulrome, the remains of a pot were discovered (3757) and tentatively dated to between the late Neolithic to late Iron Age. A possible barrow site and settlement evidence (see below) recorded at the same location would suggest the remains were of a later period than the Neolithic however.

**Bronze Age (2,400–700 BC)**

- 3.22 The Humber Wetlands project has provided evidence and understanding of perhaps most significantly the utilisation of the salt-marsh environment, and the apparent non-exploitation of the eutrophic (nutrient rich) wetlands during the Bronze Age. The project has also provided further insight into the interaction between the Bronze Age people and their environment, and new thoughts on the ideas behind votive offerings in wetland environments.
- 3.23 Ritual activity in and around the wetlands took place on a large scale through the Bronze Age, hence a large quantity of tools, weapons and ornaments have been found in the wetland mires. It seems that the religious belief behind these votive offerings was the idea that the uncultivable lands were inhabited by gods, spirits and the ancestors (Van de Noort 2004).
- 3.24 The number, geographical range and diversity of site types and finds from the Bronze Age clearly show an increase in both the availability of land for exploitation and in the size, organisation and permanence of the societies at the time. Bronze Age culture is widely recognised as becoming almost fully settled and adopting an agricultural way of life. This is reflected in the greater permanence of the monuments that remain in the modern landscape. This is particularly noticeable in the study area in the number of round barrows used for burials. Barrows/possible barrows have been recorded across the study corridor though they are more common on the higher ground.
- 3.25 On the coastal cliffs to the north of Ulrome, a late Middle Bronze Age lake dwelling site (350) was discovered near the Barmston Drain. It is dated to the later Bronze Age/early Iron Age and was excavated in 1960-1 although some discoveries had been made during the 19th century. A socketed axe was found in peat in 1866, a 'lake dwelling' in 1883, and artefacts including a stone axe, a grooved and perforated stone and a bone 'axehead' were also discovered. Excavations in 1960–1 suggested that the occupation was not a lake dwelling, but occupied a marshy hollow within a former lake surface. Structures included hearths, ovens, pits, post holes, and cobbled areas. Structural timbers occasionally survived and uncalibrated radiocarbon dates of around 1000BC were obtained from some. A bronze socketed spearhead with a wooden peg through the socket and attached to one of the timbers was also found. Concentric ditches are reportedly visible on an NMR AP. A re-evaluation of the site revealed other features, including wood in the upper peat dating to a much earlier period, and suggesting a Middle Bronze Age settlement located partly on the gravels at the mere edge, partly on the existing peat, with later peat formation in the late Bronze Age/Iron Age, when there was some further activity.
- 3.26 A series of Bronze Age barrow sites, one of which is a scheduled monument (21233/832), are sited to the east of Creyke Beck substation (832, 833, 6618, 14122 and 14123). A further two barrow sites (6614 and 6618) are located a little further to the north on the other side of the A1079 and have accompanying earthwork features comprising enclosures and field systems suggesting a potentially extensive



settlement of this period within the western end of the proposed cable route corridor, potentially sited on a settlement site which has existed since the Neolithic based on similar, but less substantial evidence from this period (see above). No further Bronze Age evidence is known between Creyke Beck and the Leven Drain, where a possible Bronze or Iron Age square barrow (19102) was sited just to the south of the canal. Above Brandesburton are another two possible round barrow sites, one on Warleycross Hill (3003) and the other just to the north (1689). A final possible round barrow site was identified to the west of Ulrome (3757). A possible Bronze Age/early Iron Age barrow or hut is recorded at West Furze (3757).

- 3.27 Directly on the proposed route of the cable directly north of Weatherhill Farm is the findspot of a Bronze Age axehead of the Arretton Down type. The remaining Bronze Age evidence is situated on the coastal cliffs and beachfront. A bronze spearhead (4409) was found on the beach adjacent to Seaside Caravan Park to the east of Ulrome. Further north at the mouth of Barmston Main Drain a collection of flints (19706) dated to the Bronze Age were discovered on Barmston cliffs.

### **Iron Age (800 BC–AD 43)**

- 3.28 With the gradual transition from the Bronze Age into the Iron Age and then the cultural influence of the Roman invasion the pattern of activity within the study area changes. In several places the existing occupation and activity has been seen to continue, probably without interruption, through a period of several hundreds of years, for example the settlement and activity on the coast east of Ulrome.
- 3.29 The Roman invasion corresponds with the historic documentation of Britain. It was noted by the Roman historian Tacitus that the powerful Ancient Britannic nation of the Brigantes appear to have inhabited Durham, Cumberland, Westmoreland, Lancashire and almost all of Yorkshire at the time of the invasion. Ptolemy (and later the medieval historian Richard of Cirencester) record a people called the Parisi as living in the region now known as the East Riding of Yorkshire (Poulson 1840).
- 3.30 Poulson (1840) highlights the theories of 19th-century historians Baxter and Whittaker that the Parisi did not constitute a separate tribe, but were merely the Cangi (or Herdsmen) of the Brigantes. Horsley conjectures they were separated from the proper Brigantes by a line drawn from the Ouse, or Humber, to one of the bays on the coast north of those rivers. The district inhabited by the Parisi is considered to be that portion of the East Riding now known as Holderness (Poulson 1840).
- 3.31 As well as these known settlement sites, the Iron Age in the East Riding is notable for the development of the Arras culture, typified by the presence of square burial mounds. One of these has been positively identified within the study area (1497) north-west of Creyke Beck substation.
- 3.32 There are records of other crop mark sites within the higher areas of the study area which have morphologically been dated to the Iron Age/Romano-British period; these include a ditch system and enclosure system (6578) south-east of Tickton; a mortuary enclosure and droveway (8117) south-east of Burshill; two ditches containing Iron Age pottery sherds north of Ulrome on the coast (18396 and 18630); and a box drain ditch and animal bone find (15807) and a double ditch or two-pit feature (15809) at Ulrome caravan park. These coastal settlements are probably connected to the find of a Corieltavian coin (13459) on Ulrome sands and a Corieltavian stater (8022) on Barmston beach further to the north.

### **Romano-British (AD 43-410)**

- 3.33 By the Roman period it appears that the woodlands of the region had been largely cleared, and vegetation was determined by both farming and pastoralism. Post-Roman there was a certain amount of regeneration of the woodland within the Humber Wetlands, but this was to decline rapidly once again with the onset of the Norman period.
- 3.34 The way the wetlands within the Humber basin were utilised in Roman times appears to be very different to that of prehistory. There is evidence for a growing inter-relationship of the wetlands and the surrounding higher and drier ground, following on from systems set out in the later Iron Age. The wetlands were probably utilised from base settlements situated on higher grounds, and goods were produced for use outside of the wet Humber lowlands. The nature of goods and the extent to which they were traded still remains decidedly unclear (Van de Noort 2004).
- 3.35 Much of the settlement evidence dating to the Romano-British period has foundations in the Iron Age as described above. The distribution of the Iron Age/Romano-British sites appears to be concentrated in a band broadly running north-east to south-west to the east and south-east of Brandesburton and Leven (Humber Field Archaeology 2008). This generally coincides with the slightly higher ground which suggests that the low-lying area to the west may again have become wetter thus restricting activity and exploitation (Van de Noort 2004). The one Romano-British settlement is recorded north of Ulrome, though this is thought to be a temporary encampment (3758) and comprised a filled in trench containing pottery and animal bones. Two further ditches containing Romano-British pottery have been found around Ulrome: one due east of the encampment site on the coast (6668), and the other within the caravan park (15808).
- 3.36 The other Romano-British evidence within the study area comprises findspots. Three of these are located in close proximity around Ivy Farm and County Farm to the north of Creyke Beck: a coin (15552), a steelyard balance arm (18541) and a collection of both Romano-British and medieval finds including a brooch and coins (18515). A rimsherd (355) was also found on the coast by Barmston Main Drain.

### **Medieval (AD 410-1540)**

- 3.37 Before the Norman Conquest, the lands in Holderness were held by various tenants of the crown. Anglo-Saxon lands were subject to the "Trinoda necessitas," or three great services, which comprised military service, the assisting in building and defending royal castles, and keeping the highways and bridges in proper repair (Poulson 1840). Domesday is the first correct record of information on landholders in the Holderness region.
- 3.38 The distribution of medieval activity within the study area appears to fall in to a distinct pattern of a series of settlements of various sizes all located at or above the 5m contour along with a series of smaller settlements such as granges, moated sites and farms lying in the areas between these larger sites.
- 3.39 The larger settlements are mostly first recorded in the Domesday Book of 1086 though, as mentioned above, the language of the origin of their names could indicate earlier origins, e.g. Leven and North Frodingham.

- 3.40 All of these settlements and others just outside the study area have given their names to the parishes. The place-name evidence for these main settlements in the study area is as follows:
- Beeford is first recorded in Domesday Book; in the reign of Edward the Confessor it belonged to Ulf, an Englishman of some note, whose castle is supposed to have been at Aldborough.
  - Brandesburton is first recorded in 1086 as Brantisburtone, the name deriving from the Old English burh and tun and the Old Scandinavian personal name meaning 'fortified farmstead of a man called Brandr' (Mills 1991).
  - Burshill, first recorded as Bristehil in the 12th century the name means 'hill with a landslip or rough ground' from the Old English byrst and hyll (Mills 1998, 64).
  - Leven also first recorded in Domesday as Levuene though it appears to have originated as a Celtic name for the stream. Its name variously being interpreted as 'smooth one' (Mills, 1998, 220) or Leuan, the name of a Celtic water nymph.
  - North Frodingham is first recorded as Frotingham in 1086 and as North Frothyngham in 1297. The name derives from an Old English personal name and inga and ham meaning 'homestead of the family or followers of a man called Frod(a)' (Mills, 1998, 145).
  - Routh is first recorded in 1086 as Rutha the name deriving from the Old Scandinavian hruthr possibly meaning 'rough shaly ground' (Mills 1998, 292), however, Holderness (1881, 28) gives an alternative of 'a forest clearing'.
  - Ulrome or Ulram is first recorded in 1086 as Ulfreham, that is the ham or abode of Ulf, who was probably its earliest Saxon owner ([www.genuki.org.uk](http://www.genuki.org.uk)).
  - Tickton is first recorded in 1086 and derives its name from the Anglian meaning either 'Tica's farm' or 'kid farm' (VCH 1989).
  - Woodmansey or 'woodman's pool', was first recorded in the late 13th century and derives its name from Anglian (VCH 1989).
- 3.41 This place-name evidence suggests that the settlements seen in the modern landscape have derived from agricultural activity with four of the names referring to 'farmsteads' and a further three to 'homesteads'. In turn this would seem to imply that the landscape was being widely exploited for farming and had been cleared or drained to that effect. There is evidence for a more dispersed population across the landscape in the form of shrunken villages (e.g. Brandesburton). In addition to this, all of the settlements within the modern landscape retain elements of their medieval origins. This can be seen in the form of the layout of the historic core. The best example of which is probably at Leven where the tithe and enclosure maps show a 'classic' medieval street plan of narrow plots arranged at right angles to the road through the then village. Elements of this layout can still be seen along the northern part of the modern settlement. The origins can also be seen in the discovery of numerous finds of medieval pottery and other artefacts within the settlements as part of their ongoing evolution.
- 3.42 Records of known medieval assets within the study area corridor comprise manor estates of the period with associated features such as fishponds, assets associated with current settlements, and occasional examples of isolated features associated with farming practices of the period.
- 3.43 A linear earthwork (1565) of possible medieval date is located just south of Field House Farm to the east of Tickton.

- 3.44 Ridge and furrow plough features (6559) have been recorded on the outskirts of Weel to the south of Carr Lane but were not visible during the site visit. Further examples of ridge and furrow have been recorded within the study area corridor associated with the site of a shrunken village that formed the medieval foundations of Ulrome (15382) which comprises ditch earthworks, ponds and a croft, and of Woodmansey (9729). Evidence of Woodmansey's medieval heritage is also recorded on Kings Street which is the site of a medieval gateway (9077) and a lantern turret (9260). A windmill mound or beacon is recorded at Dringhoe Manor Farm (9513) south east of Ulrome.
- 3.45 Further examples of shrunken settlements have been identified at Burshill (11032) where aerial photographs reveal earthworks and one cropmark to the east of the present settlement. The OS 1855 6" map shows 'Ancient Enclosure' and 'Old Bank' at this site.
- 3.46 During the medieval period fish was popular because of the observance of fast days, which forbade eating red meat. Fishponds were more usually associated with monasteries but became popular with manor houses and estates. Several examples of these are sited within the study area at Manor House Farm north of Brandesburton (2996) and at Hall Garth to the west of Leven (19598). Also at Hall Garth is the former site of the medieval parish church of St Faith (3713) which was demolished in the 19th century. A church is recorded at Leven in Domesday. Adjacent to this is the site of a medieval well (3714).
- 3.47 Three moated sites are recorded in the study area and would have been associated with an important building or estate and would have reflected its important status. They are located at Hampston Hill south of Woodmansey (6615), the monastic site of Croo Grange north east of Beeford (6666) and one just south of Manor House Farm (15201) to the north of Brandesburton.
- 3.48 The remaining records of medieval activity within the study area detail findspots. A clay smoking pipe and pot (15811) and pottery (15812) all of either medieval or post-medieval date, were discovered to the east of Woodmansey either side of the Beverley to Barmston drain. Further north a potsherd was found at Leven (19727) and a 14th-century gold heart-shaped brooch (19770) was found within the clay eroded from the cliffs at Skipsea Beach in 2001.

#### **Post-medieval (AD 1541-1901)**

- 3.49 The post-medieval period saw the increasing industrialisation of the Humber area, the influence of which spread into the agricultural areas of the East Riding and Holderness. Such influences could be seen in a requirement for better transport links and the development of settlements as well as more modern techniques in farming and land management. Much of the landscape underwent a series of changes: open fields were enclosed in the 18th century and drainage systems were introduced to correspond to newly established hedgerows. Both natural and medieval drainage channels were also incorporated into the new network. Lanes and roadways were built replacing trackways and farms were established. Sites of historic minerals extraction are also evident.
- 3.50 The majority of post-medieval records comprise buildings, namely private houses, schools and commercial buildings such as public houses within current settlements

(3763, 6980, 8686, 9957, 12273, 12314, 12315, 12317, 12371, 12682, 12685, 12688, 13002, 13205, 13207, 13208, 13252, 15031, 15037, 15038, 15039, 15040, 15141, 15205, 15206, 15207, 15208, 15238 and 20136). New isolated farm settlements are also represented (12693, 12695, 12699, 13006, 13204, 13276, 15030 and 20838). Two post-medieval churches are documented: the Church of St Peter (5016) built in 1896-97 to the south-east of Woodmansey and the Church of St Andrew (6356) in Ulrome, which technically has medieval origins to its tower and one reused 15th-century window, but otherwise was mainly constructed in 1876-7. A Wesleyan Methodist Chapel (15029), shown on the 6" first edition map of 1854 is also located in Ulrome.

- 3.51 Developing transport links during this period are represented within the HER records. Running north-south across the southernmost section of the study area is the line of Hull to Scarborough Railway (8811) which was constructed in the 19th century and is still in operation. The Bridlington Branch Railway was authorised to the Hull and Selby Railway on June 29th 1845, the day before the H&SR was taken over by the York and North Midland Railway. Opening in 1846, the line left the Hull and Selby Railway at Dairycoates, but in 1848 the section at Dairycoates closed to passengers.
- 3.52 Two milestone are located to the sides of what are now 'A' roads: one next to the A1035 (11409) and the other lying beside the A165 (15204). The development of new road routes necessitated the building of new road bridges. Five bridges are listed in the HER: Tickton bridge (12268), Ox Pasture bridge (12308), Sneerholmes road bridge (12309) and the site of Figham bridge (12310), which are all situated over the Beverley to Barmston drain at Woodmansey; and New Road bridge (13113) just west of Burshill. The development and upkeep of new roads was helped to be paid for by the introduction of toll gates. One such gate is recorded on the road through Routh village (13278).
- 3.53 Minerals have been extracted in the East Riding for centuries, chiefly for building purposes, including chalk, limestone, gravel and clay. Chalk (industrial quality, e.g. for whiting, for crushing as aggregate and as agricultural lime), glacial or fluvio-glacial sands and gravel (for aggregate), clay (formerly for brick and tile production, but now mainly quarried from borrow pits as a lining for sea and river defence works), and peat (for horticultural use) are all still extracted in the county (Humber Field Archaeology 2008).
- 3.54 Sites of post-medieval sand pit and gravel extraction sites are recorded around Leven. Old sand pits are recorded south-west of Heigholme Hall (13058), north of Carr Lane (13184) and north-west of High Farm near Routh (13203). An old gravel pit extraction site is recorded at Barff Hill (13124) north of Burshill.
- 3.55 A linear earthwork (13236) dated to the post-medieval period is recorded on Butts Hill just south of Burshill and represents an old embankment though it is not known the exact nature of the feature that once stood there. The site of an osier bed lies just to the north of the Leven Drain (13251).
- 3.56 The final entry for the post-medieval period is the former site of a set of stocks at Woodmansey (19552). They were designed for the feet only and stood near the Altisadora Inn but had disappeared by the 1830s.

### Modern (AD 1901 to the present day)

- 3.57 There are four records from the modern period all relating to the Second World War. Two bombing decoy sites are located within the study area: the first (18423) was sited to the south of Beeford to the west of Pinder hill Farm, and the second (18425) to the west of Routh. A former guard post at the entrance to a Second World War Prisoner of War Camp (19947) survives in front of Park View House, off Long Lane, Woodmansey. The present owner of Park View believes that the POW camp was in the field behind her house. A pillbox (9988) is located at the coast by Barmston Drain.

### Undated

- 3.58 A total of 26 assets are recorded as 'undated'. These comprise a series of low-value earthwork features such as ditches and enclosures of unknown provenance (1495, 1498, 1499, 1500, 1501, 2941, 3010, 3062, 3406, 6555, 6600, 6663, 11031, 12864, 19045, 19046, 19047, 19408, 19378, 19436, 19439 and 19458), findspots (4279, 6165 and 20523) and an undated sand pit (13004).

## 4. Landuse, topography and geology

- 4.1 Landuse along the proposed cable route typically comprises arable land, with wheat and oilseed rape being the most common crop types. At the time of survey the crop had been harvested, with some of the fields ploughed and others in stubble. The fields to the north of the A1079, between the proposed converter stations and the previously surveyed cable route, were in pasture for cattle. See table below for details.

Area	Size (ha)	Landuse	NGR (centre)
1	1.59	arable – ploughed	TA 04111 35868
2	1.80	arable – ploughed	TA 04349 35665
3	0.60	arable – ploughed	TA 04463 35507
4	1.28	arable – stubble & ploughed	TA 04560 35355
5	5.59	arable – stubble	TA 04537 34794
6	2.02	arable – stubble	TA 04595 34664
7	0.86	arable – stubble	TA 04738 34946
8	1.48	arable – stubble	TA 04726 34797
9	1.65	pasture	TA 04288 36256
10	0.75	pasture	TA 04393 36075
11	0.90	pasture – improved	TA 04573 36307
12	1.20	pasture – improved	TA 04607 36139
13	0.60	pasture – improved	TA 04659 36244

- 4.2 The survey areas were all predominantly level with a mean elevation of approximately 10m OD.
- 4.3 The underlying solid geology of the proposed cable route comprises Late Cretaceous chalks, with Flamborough Chalk to the north and Burnham Chalk to the south, which are overlain by sands and gravels of uncertain origin and Devensian till.

## 5. Geophysical survey Standards

- 5.1 The surveys and reporting were conducted in accordance with English Heritage guidelines, *Geophysical survey in archaeological field evaluation* (David, Linford & Linford 2008); the Institute for Archaeologists (IfA) *Standard and Guidance for archaeological geophysical survey* (2011); the IfA Technical Paper No.6, *The use of geophysical techniques in archaeological evaluations* (Gaffney, Gater & Ovenden 2002); and the Archaeology Data Service *Guide to Good Practice: Geophysical Data in Archaeology* (Schmidt & Ernenwein 2011).

### Technique selection

- 5.2 Geophysical survey enables the relatively rapid and non-invasive identification of sub-surface features of potential archaeological significance and can involve a suite of complementary techniques such as magnetometry, earth electrical resistance, ground-penetrating radar, electromagnetic survey and topsoil magnetic susceptibility survey. Some techniques are more suitable than others in particular situations, depending on site-specific factors including the nature of likely targets; depth of likely targets; ground conditions; proximity of buildings, fences or services and the local geology and drift.
- 5.3 In this instance it was considered likely that cut features such as ditches and pits might be present along the cable route and at the converter site, and that other types of feature such as trackways, wall foundations and fired structures (for example kilns and hearths) might also be present.
- 5.4 Given the anticipated shallowness of targets and the non-igneous geological environment of the study area a geomagnetic technique, fluxgate gradiometry, was considered appropriate for detecting the types of feature mentioned above. This technique involves the use of hand-held magnetometers to detect and record anomalies in the vertical component of the Earth's magnetic field caused by variations in soil magnetic susceptibility or permanent magnetisation; such anomalies can reflect archaeological features.

### Field methods

- 5.5 A 30m grid was established across each survey area and related to the Ordnance Survey national grid using Leica GS15 global navigation satellite systems (GNSS) with real-time kinematic (RTK) corrections typically providing 10mm accuracy.
- 5.6 Measurements of vertical geomagnetic field gradient were determined using Bartington Grad601-2 dual fluxgate gradiometers. A zig-zag traverse scheme was employed and data were logged in 30m grid units. The instrument sensitivity was nominally 0.03nT, the sample interval was 0.25m and the traverse interval was 1m, thus providing 3,600 sample measurements per 30m grid unit.
- 5.7 Data were downloaded on site into a laptop computer for initial processing and storage and subsequently transferred to a desktop computer for processing, interpretation and archiving.

### Data processing

- 5.8 Geoplot v.3 software was used to process the geophysical data and to produce continuous tone greyscale images of the raw (minimally processed) data for each

survey area and to produce trace plots of selected areas. The greyscale images and interpretations are presented in Figures 2 – 9; the trace plots are provided in Figure 10. In the greyscale images, positive magnetic anomalies are displayed as dark grey and negative magnetic anomalies as light grey. Palette bars relate the greyscale intensities to anomaly values in nanoTesla.

5.9 The following basic processing functions have typically been applied to the data:

<i>clip</i>	clips data to specified maximum or minimum values; to eliminate large noise spikes; also generally makes statistical calculations more realistic
<i>zero mean traverse</i>	sets the background mean of each traverse within a grid to zero; for removing striping effects in the traverse direction and removing grid edge discontinuities
<i>destagger</i>	corrects for displacement of geomagnetic anomalies caused by alternate zig-zag traverses
<i>despike</i>	locates and suppresses iron spikes in gradiometer data
<i>interpolate</i>	increases the number of data points in a survey to match sample and traverse intervals; in this instance the data have been interpolated to 0.25m x 0.25m intervals

#### **Interpretation: anomaly types**

5.10 Colour-coded geophysical interpretations are provided. Three types of geomagnetic anomaly have been distinguished in the data:

<i>positive magnetic</i>	regions of anomalously high or positive magnetic field gradient, which may be associated with high magnetic susceptibility soil-filled structures such as pits and ditches
<i>negative magnetic</i>	regions of anomalously low or negative magnetic field gradient, which may correspond to features of low magnetic susceptibility such as wall footings and other concentrations of sedimentary rock or voids
<i>dipolar magnetic</i>	paired positive-negative magnetic anomalies, which typically reflect ferrous or fired materials (including fences and service pipes) and/or fired structures such as kilns or hearths

#### **Interpretation: features**

##### **General comments**

5.11 Colour-coded archaeological interpretations are provided.

5.12 Except where stated otherwise in the text below, positive magnetic anomalies are taken to reflect relatively high magnetic susceptibility materials, often sediments in cut archaeological features (such as ditches or pits) whose magnetic susceptibility has been enhanced by decomposed organic matter or by burning.



- 5.13 Series of weak, narrow, parallel anomalies detected in most of the areas almost certainly reflect recent or current ploughing rather than archaeological features.
- 5.14 Small, discrete dipolar magnetic anomalies have been detected in all of the survey areas. These almost certainly reflect items of near-surface ferrous and/or fired debris, such as horseshoes and brick fragments, and in most cases have little or no archaeological significance. A sample of these is shown on the geophysical interpretation plans, however, they have been omitted from the archaeological interpretation plans and the following discussion. Dipolar anomalies at the edges of survey areas typically reflect the presence of ferrous fences.

**Area 1**

- 5.15 No features of likely archaeological significance have been identified in this area. A weak and diffuse positive anomaly detected parallel to the east edge of the survey area almost certainly reflects a change in ground condition from ploughed to unploughed.

**Area 2**

- 5.16 A number of diffuse, linear positive and negative magnetic anomalies have been detected in this area. The majority of these are parallel with the modern ploughing regime. These anomalies broadly correspond to the location of a former field boundary as shown by OS editions until 1956, and may reflect the ploughed-out or in-filled remains of such a feature.
- 5.17 A narrow, linear, negative magnetic anomaly has been detected aligned broadly north-west/south-east at the north of the area. This may reflect a field drain.
- 5.18 Two linear, very strong dipolar magnetic anomalies have been detected at the centre of this area. These almost certainly reflect ferrous services.

**Area 3**

- 5.19 A weak linear negative magnetic anomaly has been detected in the north corner of this area. This may reflect a field drain.

**Area 4**

- 5.20 A north-east/south-west aligned negative magnetic anomaly has been detected at the north end of this area. This almost certainly reflects a field drain.

**Area 5**

- 5.21 A narrow linear chain of dipolar magnetic anomalies, aligned broadly north/south, has been detected. This may reflect a former field boundary as shown by OS editions until 1956.
- 5.22 Broadly north/south aligned striations detected in the data at the west of the area are likely to reflect a previous ploughing regime. The end of these striations broadly corresponds to the location of a former field boundary as shown by OS editions until 1956. But this feature has not been identified in the geophysical survey.
- 5.23 Linear chains of dipolar magnetic anomalies have been detected in this area, these almost certainly reflect services.

- 5.24 Very smooth data (+/- 0.1nT) detected in the north east of the area is the result of overhead power cables.

**Area 6**

- 5.25 A broadly east/west aligned negative magnetic anomaly, with associated parallel positive magnetic anomalies, has been detected across the centre of this area. These anomalies almost certainly reflect a geological rather than an anthropogenic feature, such as a palaeochannel.

**Area 7**

- 5.26 A broadly north-east/south-west aligned diffuse positive magnetic anomaly has been detected at the south of the area. This may reflect a soil filled ditch feature.
- 5.27 A concentration of strong dipolar magnetic anomalies has been detected at the north end of this area. This almost certainly reflects an area of disturbed or made ground, probably associated with the road to the north.
- 5.28 Two parallel dipolar magnetic anomalies have been detected, these almost certainly reflect services.
- 5.29 As in Area 5 very smooth data, aligned north-east/south-west, is the result of overhead power cables.
- 5.30 Large dipolar magnetic anomalies detected at the west edge of the area reflect large items of ferrous waste.

**Area 8**

- 5.31 A linear, strong dipolar magnetic anomaly has been detected at the north of this area; this reflects a newly laid electricity service.

**Area 9**

- 5.32 A north-west/south-east aligned negative magnetic anomaly has been detected at the north-east corner of this area; this almost certainly reflects a field drain.

**Area 10**

- 5.33 No features of archaeological significance have been detected in this area.

**Area 11**

- 5.34 A strong dipolar magnetic anomaly detected at the north edge of this area reflects a cattle feeder.

**Area 12**

- 5.35 Strong dipolar magnetic anomalies detected at the east of this area reflect the proximity of the train line. The large and strong dipolar magnetic anomaly at the west of the area corresponds to the location of a pylon.

**Area 13**

- 5.36 No features of archaeological significance have been detected in this area.

## 6. Conclusions

- 6.1 Twenty hectares of geomagnetic survey was undertaken along a proposed cable route from Creyke Beck electricity substation, to the north of Cottingham in the East Riding of Yorkshire.
- 6.2 Possible soil-filled features have been identified in Areas 2 and 7.
- 6.3 Magnetic anomalies corresponding to the locations of former field boundaries as shown by the OS have been identified in Areas 2 and 5.
- 6.4 Features of probable geological origin have been identified.
- 6.5 Features relating to land drainage have been identified in Areas 2, 3, 4 and 9.
- 6.6 Modern services have been detected in Areas 5, 7 and 8.
- 6.7 An area of made ground has been identified in Area 7.

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## **Appendix: Project WSI**



Dogger Bank Creyke  
Beck Onshore  
Infrastructure

Written Scheme of  
Investigation for  
Geophysical Survey

March 2012

Prepared for:  
Forewind Limited

UNITED  
KINGDOM &  
IRELAND



## REVISION SCHEDULE

Rev	Date	Details	Prepared by	Reviewed by	Approved by
1	February 2012	Draft	Annie Calder Principal Archaeological Consultant	Neil MacNab Associate	Annette Roe Technical Director
2	March 2012	Final	Annie Calder Principal Archaeological Consultant	Neil MacNab Associate	Annette Roe Technical Director
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## 1 INTRODUCTION

### 1.1 Project Background

This Written Scheme of Investigation (WSI) has been prepared by URS Infrastructure & Environment UK Limited (URS) the 'Consultant' in consultation with Ruth Atkinson on behalf of Dave Evans, Archaeology Manager for Humber Archaeology Partnership. This WSI describes the objectives and methodology for this stage of geophysical survey and all subsequent stages of geophysical survey associated with Dogger Bank Creyke Beck.

Dogger Bank Creyke Beck is the first stage of development of the Dogger Bank wind farm. It comprises up to two projects of up to 2.4GW of generating capacity. The key onshore infrastructure comprises a transition bay near the coast where the offshore export cables come ashore, an onshore buried cable route, and up to two converter stations close to the existing National Grid Creyke Beck substation.

This WSI covers the buried cable route from the landfall (at the transition bay) down to the converter station study area. The footprint of the converter stations and short cable connection into Creyke Beck will be subject to geophysics once siting of these has been completed.

This WSI and accompanying drawings (refer to Appendix 2) detail the requirements for geophysical survey to inform the requirement for further work, if necessary.

The archaeological fieldwork, post-survey assessment, archiving, analysis and preparation of the fieldwork report text will be undertaken by the 'Contractor', unless specified otherwise in this specification.

### 1.2 Site location and geology

The planned cable route is located in the East Riding of Yorkshire. It runs for approximately 30km from a coastal transition bay located near the village of Ulrome, to an existing electricity substation at Creyke Beck just north of Cottingham.

The geology of the Holderness region as a whole predominantly comprises Quaternary glacial and post-glacial deposits overlying Cretaceous chalk bedrock. These Quaternary deposits comprise glacial tills and glacio-fluvial deposits lain down towards the end of the last major glaciation in the area – the Devensian. The soils of the glacial tills of the Holderness region are generally clay rich. They are generally fairly fertile, especially where drainage has been improved. Characteristic features of the Holderness landscape are the meres or inland lakes. These formed in depressions in the poorly drained glacial tills that formed in the upper geology of Holderness early in the post-glacial period (Wessex Archaeology 2005).

The underlying solid geology within the study area is Chalk; Flamborough Chalk toward the west and Burnham Chalk toward the coast to the east. The Burnham Chalk at Ulrome is overlain mainly by Tidal Flat Deposits although in a band running parallel to the coast the superficial geology is Beach and Tidal Flat Deposits (Undifferentiated).

Historic British Geological Society (BGS) borehole data was examined (<http://www.bgs.ac.uk/data/boreholescans/>) and the general stratigraphic composition of the geology along the cable corridor comprises superficial clays (peats, blue clays and boulder clays occasionally interspersed with layers of silts, sands and gravels) to depths of c.30m near the coast and becoming shallower (to c.10m) toward Creyke Beck, which overlay a chalk bedrock. The sedimentary deposits would be an ideal environment for preserved remains.

### 1.3 Archaeological and historical background

There are a number of designated assets recorded within 500m of the proposed cable route (the study area corridor), however none are present within the working area of the cable route and it is unlikely that remains associated with the monuments extend into the area for geophysical survey.

#### **Palaeolithic (500,000-10,000 BC)**

Evidence for Palaeolithic activity in the study area has been largely removed by the last extent of the glaciation. Despite limited evidence from this period there is a potential for palaeoarchaeological and palaeoenvironmental remains in the low lying land close to the coast at Ulrome. A Rapid Coastal Zone Assessment funded by English Heritage (ARS 2008) at Ulrome caravan park found organic deposits (**18037**) in the form of animal bones from the Cliffsides. These have not been specifically dated other than that they were from the prehistoric period. The same survey uncovered a prehistoric battle axe (**15531**). A little further inland to the west of Ulrome a series of finds comprising a pestle, pot and weight and described in the HER records as marginal finds (**18381**) were recovered from a spot directly on top of the planned cable route. These finds have not been dated and are listed as being from anywhere between the Palaeolithic (extremely unlikely) to the medieval.

The changes in sea level and the build up of alluvium, both naturally over a long period of time but more recently as the result of human activity, could serve to mask but also to protect any remains of this period.

#### **Mesolithic (c. 8,500–4,000 BC)**

Although there is a potential for Mesolithic remains within the Holderness region, no known evidence exists within the study area corridor. Mesolithic societies were nomadic hunter gatherers which means that what evidence there is will frequently be widespread and often ephemeral. The nomadic nature of their lifestyle means that few, if any, semi-permanent camps would have been established which in turn reduces the possibility of finding any substantial structural remains. This then means that any Mesolithic (or even Palaeolithic) remains that are encountered are automatically regarded as being of at least regional significance.

The Humber Wetlands project has added greatly to our general understanding of activities in the wider wetland region during the Mesolithic and Neolithic periods, especially with regards to the hunter-gatherer communities and how they might have utilised the landscape. The Mesolithic period was characterised by environmental change including changing sea levels, rising temperatures, and subsequent variations in associated vegetation. There was a rise in sea level after the Devensian glaciation, slowly infilling the previously mainly dry English Channel. However, the sea level rise was neither continuous nor consistent, but was punctuated with many small recessions.

The Mesolithic period in the Humber Wetlands is mainly represented by flint scatters representing transient hunting camps, which have mostly been found near to the larger meres and alongside rivers within Holderness, with occasional tools of Mesolithic date having also been found. As stated above, Mesolithic settlement sites are extremely rare, but the low lying land of Holderness, with its fresh water meres, offered numerous possibilities for the hunter gatherers. Finds from the region include a bone harpoon found at nearby Withow in 1902. Numerous finds of microliths have been made, along with blades and scrapers from a number of sites overlooking Skipsea Mere (Harrison 2000), whilst recent work on a possible timber structure on the margins of the mere at Round Hill suggests that it may have been in use during the Mesolithic period. Some of the associated flintwork also probably dates to the Mesolithic periods (Van de Noort and Ellis, 1995).

## **Neolithic (c. 4,000–2,400 BC)**

Evidence for the later prehistoric periods (Neolithic and Bronze/Iron Age) once societies have started to become more sedentary and agrarian based is more common. This is often in the form of crop-marks indicating the remains of buried features such as enclosures for farmsteads and/or corrals and the ditches associated with the surrounding field systems along with various types of funerary monuments – principally barrows.

The Humber Wetlands project has highlighted the slow pace at which new farming practices were taken up during the Neolithic and how older, more traditional hunting strategies persisted well into the Bronze Age. There appears to be small-scale woodland clearance occurring in Holderness during the early part of the Neolithic, and certainly by the early Bronze Age large areas of woodland in Holderness had been cleared in order to facilitate pastoral agriculture. One theory is that the Wetlands were a highly important and vital resource during the Mesolithic and early part of the Neolithic, but that this dependence decreased during later prehistory as settlement became focused on the higher and drier lands of the region.

Neolithic archaeology in the region is represented mainly by flint production sites and transit camps of Neolithic or possibly early Bronze Age, date. In contrast to the lack of Palaeolithic and Mesolithic evidence, Neolithic material can be found in parts of the study area corridor. This would seem to indicate that there is possibly either more land available for exploitation and/or that the population had increased. If there is more land available for exploitation then this in turn would seem to suggest that the water levels of the lakes and meres is dropping and that possibly the vegetational cover of the land is more penetrable.

Evidence from Pollen Analysis carried out as part of the Humber Wetland Surveys suggests that farming in the area was focused mainly on stockbreeding, as opposed to arable production (Van de Noort 2004). During the Neolithic period there was a move away from the wetlands that was necessitated by the change from a hunter gather lifestyle towards farming; however, the area may have continued to be utilised for hunting and fishing as well as an area to graze livestock

A potential Neolithic/Bronze Age circular ditched enclosure (**351**), visible as a cropmark on aerial photographs, is recorded close to the coastline just north of Barmston drain. The feature consists of two concentric ditched enclosures with a central circular ditch. The outer ditch measures 26m in diameter. It was not visible when the area was surveyed in 2009, but infilled ditches may survive below ground.

A site comprising two possible barrows of either Neolithic or Bronze Age date are located immediately east of Creyke Beck substation. Additionally a hoard of Neolithic axe heads (**861**) and a stone mace head (**862**) were discovered to the south east of the substation in a residential area adjacent to Dunswell Road. Another findspot of a stone axehead is located just to the west of the hamlet of Burshill, south west of Brandesburton. A further site possibly of two round barrows (**18737**) dated to the Neolithic Bronze Age is recorded at Hall Ings.

To the west of Ulrome, the remains of a pot were discovered (**3757**) and tentatively dated to between the late Neolithic to late Iron Age. A possible barrow site and settlement evidence (see below) recorded at the same location would suggest the remains were of a later period than the Neolithic however.

## **Bronze Age (c. 2,600–700 BC)**

The Humber Wetlands project has prompted a rethink by providing further evidence and understanding of perhaps most significantly the utilisation of the salt-marsh environment, and the apparent non exploitation of the eutrophic (nutrient rich) wetlands during the Bronze Age. The project has also provided further insight into the interaction between the Bronze Age

people and their environment, and new thoughts on the ideas behind votive offerings in wetland environments.

Ritual activity in and around the Wetlands took place on a large scale through the Bronze Age, hence a large quantity of tools, weapons and ornaments have been found in the wetland mires. It seems that the religious belief behind these votive offerings was the idea that the uncultivable lands were inhabited by gods, spirits and the ancestors (Van de Noort 2004).

The number, geographical range and diversity of site types and finds from the Bronze Age clearly show an increase in both the availability of land for exploitation and in the size, organisation and permanence of the societies at the time. Bronze Age culture is widely recognised as becoming almost fully settled and adopting an agricultural way of life. This is reflected in the greater permanence of the monuments that remain in the modern landscape. This is particularly noticeable in the study area in the number of round barrows used for burials. Barrows/possible barrows have been recorded across the study corridor though they are more common on the higher ground.

On the coastal cliffs to the north of Ulrome, a Late Middle Bronze Age lake dwelling site (**350**) was discovered near the Barmston drain. It is dated to the later Bronze Age/early Iron Age and was excavated in 1960-1 although some discoveries had been made during the 19th century. A socketed axe was found in peat in 1866, a 'lake dwelling' in 1883, and artefacts including a stone axe, a grooved and perforated stone and a bone 'axehead' were also discovered. Excavations in 1960-1 suggested that the occupation was not a lake dwelling, but occupied a marshy hollow within a former lake surface. Structures included hearths, ovens, pits, post holes, and cobbled areas. Structural timbers occasionally survived and uncalibrated radiocarbon dates of around 1000BC were obtained from some. A bronze socketed spearhead with a wooden peg through the socket and attached to one of the timbers was also found. Concentric ditches are reportedly visible on an NMR AP. A re-evaluation of the site in revealed other features, including wood in the upper peat dating to a much earlier period, and suggesting a Middle Bronze Age settlement located partly on the gravels at the mere edge, partly on the existing peat, with later peat formation in the late Bronze Age/Iron Age, when there was some further activity.

A series of Bronze Age barrow sites, one of which is a scheduled monument (**21233/832**), are sited to the east of Creyke Beck substation (**832**, **833**, **6618**, **14122** and **14123**). A further two barrow sites (**6614** and **6618**) are located a little further to the north on the other side of the A1079 and have accompanying earthwork features comprising enclosures and field systems suggesting a potentially extensive settlement of this period within the western end of the proposed cable route corridor- potentially sited on a settlement site which has existed since the Neolithic based on similar, but less substantial evidence from this period (see above). No further Bronze Age evidence is known of between Creyke Beck and the Leven drain, where a possible Bronze or Iron Age square barrow (**19102**) was sited just to the south of the canal. Above Brandesburton are another two possible round barrow sites, one on Warleycross Hill (**3003**) and the other just to the north (**1689**). A final possible round barrow site was identified to the west of Ulrome (**3757**). A possible Bronze Age/early Iron Age barrow or hut is recorded at West Furze (**3757**).

Directly on the proposed route of the cable directly north of Weatherhill Farm is the findspot of a Bronze Age axe-head of the Arreton Down type. The remaining Bronze Age evidence is situated right on the coastal cliffs and beachfront. A bronze spearhead (**4409**) was found on the beach adjacent to Seaside Caravan Park to the east of Ulrome. Further north at the confluence of Barmston main drain a collection of flints (**19706**) dated to the Bronze Age were discovered on Barmston cliffs.

### **Iron Age (c. 800 BC–AD 43)**

With the gradual transition from the Bronze Age into the Iron Age and then the cultural influence of the Roman invasion the pattern of activity within the study area also undergoes a

number of changes. In several places the existing occupation and activity has been seen to continue, probably without interruption, through a period of several hundreds of years, for example the settlement and activity on the coast east of Ulrome

The Roman invasion corresponds with the historic documentation of Britain. It was noted by the Roman historian Tacitus that the powerful Ancient Brittanic nation of the *Brigantes* appear to have inhabited Durham, Cumberland, Westmoreland, Lancashire, and almost all of Yorkshire at the time of the invasion. Ptolemy (and later the Medieval historian Richard of Cirencester) record a people called the *Parisi*, as living in the region now known as the East-Riding of Yorkshire (Poulson 1840).

Poulson (1840) highlights the theories of 19th century historians Baxter and Whittaker that the *Parisi* did not constitute a separate tribe, but were merely the Cangi (or Herdsmen) of the *Brigantes*. Horsley conjectures they were separated from the proper *Brigantes*, by a line drawn from the Ouse, or Humber, to one of the bays on the sea coast north of those rivers. The district inhabited by the *Parisi*, is considered to be that portion of the East-Riding known at the present day by the name of Holderness (Poulson 1840).

As well as these known settlement sites, the Iron Age in the East Riding is notable for the development of the Arras culture, typified by the presence of square burial mounds. One of these have been positively identified within the study area (**1497**) north west of Creyke Beck substation.

There are records of other crop mark sites within the higher areas of the study area which have morphologically been dated to the Iron Age/Romano-British period; these include a ditch system and enclosure system (**6578**) south east of Tickton; a mortuary enclosure and driveway (**8117**) south east of Burshill; two ditches containing Iron Age pottery sherds north of Ulrome on the coast (**18396** and **18630**); and a box drain ditch and animal bone find (**15807**) and a double ditch or two-pit feature (**15809**) at Ulrome caravan park. These coastal settlements are likely connected to the find of a *Corieltavian* coin (**13459**) on Ulrome sands and a *Corieltavian* stater (**8022**) on Barmston beach further to the north.

#### **Romano British (AD43-410)**

By the Roman period it appears that the woodlands of the region had been largely cleared, and vegetation was determined by both farming and pastoralism. Post Roman there was a certain amount of regeneration of the woodland within the Humber Wetlands, but this was to decline rapidly once again with the onset of the Norman period.

The way the wetlands within the Humber basin were utilised in Roman times appears to be very different to that of Prehistory. There is evidence for a growing inter-relationship of the wetlands and the surrounding higher and drier ground, following on from systems set out in the later Iron Age. The wetlands were probably utilised from base settlements situated on higher grounds, and goods were produced for use outside of the wet Humber lowlands. The nature of goods and the extent to which they were traded still remains decidedly unclear (Van de Noort 2004).

Many of the settlement evidence dating to the Romano British period have their foundations in the Iron Age as described above. The distribution of the Iron Age/Romano-British sites appears to be concentrated in a band broadly running north-east to south-west to the east and south-east of Brandesburton and Leven (Humber Field Archaeology 2008). This generally coincides with the slightly higher ground which suggests that the low-lying area to the west may again have become wetter thus restricting activity and exploitation (Van de Noort, 2004). The one Romano British settlement is recorded north of Ulrome, though this is thought to be a temporary encampment (**3758**) and comprised a filled in trench containing pottery and animal bones. Two further ditches containing Romano British pottery have been found around Ulrome- one due east of the encampment site on the coast (**6668**), and the other within the caravan park (**15808**).

The other Romano British evidence within the study area comprise findspots. Three of these are located in close proximity around Ivy Farm and County Farm to the north of Creyke Beck. A coin (1552), a steelyard balance arm (18541) and a collection of both Romano British and Medieval finds including a brooch and coins (18515). A rimsherd (355) was also found on the coast by Barmston main drain.

### **Medieval (AD410-1540)**

Before the Norman conquest, the lands in Holderness were held by various tenants of the crown. Anglo-Saxon lands were subject to the "Trinoda necessitas," or three great services which comprised military service, the assisting in building and defending royal castles, and keeping the highways and bridges in proper repair (Poulson 1840). Domesday is the first correct record of information on landholders in the Holderness region.

The distribution of medieval activity within the study area appears to fall in to a distinct pattern of a series of settlements of various sizes all located at or above the 5m contour along with a series of smaller settlements such as granges, moated sites and farms lying in the areas between these larger sites.

The larger settlements are mostly first recorded in the Domesday Book of 1086 though, as mentioned above, the language of the origin of their names could indicate earlier origins – e.g. Leven and North Frodingham.

All of these settlements and others just outside the study area have given their names to the parishes. The place-name evidence for these main settlements in the study area is as follows:

- Beeford is first recorded in Domesday Book, in the reign of Edward the Confessor it belonged to Ulf, an Englishman of some note, whose castle is supposed to have been at Aldborough.
- Brandesburton is first recorded in 1086 as Brantisburtone the name deriving from the Old English burh and tun and the Old Scandinavian personal name meaning 'fortified farmstead of a man called Brandr' (Mills, 1991).
- Burshill first recorded as Bristehil in the 12th century the name means 'hill with a landslip or rough ground' from the Old English byrst and hyll (ibid, 1998, 64).
- Leven also first recorded in Domesday as Levuene though it appears to have originated as a Celtic name for the stream. Its name variously being interpreted as 'smooth one' (ibid, 1998, 220) or Leuan the name of a Celtic water nymph.
- North Frodingham is first recorded as Frothingam in 1086 and as North Frothyngam in 1297. The name derives from an Old English personal name and inga and ham meaning 'homestead of the family or followers of a man called Frod(a)' (Mills, 1998, 145).
- Routh is first recorded in 1086 as Rutha the name deriving from the Old Scandinavian hruthr possibly meaning 'rough shaly ground' (Mills, 1998, 292), however, Holderness (1881, 28) gives an alternative of 'a forestclearing'.
- Ulrome or Ulram is first recorded in 1086 as Ulfreham, that is the ham or abode of Ulf, who was probably its earliest Saxon owner ([www.genuki.org.uk](http://www.genuki.org.uk)).
- Tickton is first recorded in 1086 and derives its name from the Anglian meaning either 'Tica's farm' or 'kid farm' (VCH 1989).
- Woodmansey or 'woodman's pool', was first recorded in the late 13th century and derives its name from Anglian (VCH 1989).

This place-name evidence suggests that the settlements seen in the modern landscape have derived from agricultural activity with four of the names referring to 'farmsteads' and a further

three to 'homesteads'. In turn this would seem to imply that the landscape was being widely exploited for farming and had been cleared or drained to that effect. There is evidence for a more dispersed population across the landscape in the form of shrunken villages (e.g. Brandesburton). In addition to this, all of the settlements within the modern landscape retain elements of their medieval origins. This can be seen in the form of the layout of the historic core. The best example of which is probably at Leven where the tithe and enclosure maps show a 'classic' medieval street plan of narrow plots arranged at right angles to the road through the then village. Elements of this layout can still be seen along the northern part of the modern settlement. The origins can also be seen in the discovery of numerous finds of medieval pottery and other artefacts within the settlements as part of their ongoing evolution.

Records of known medieval assets within the study area corridor and comprise manor estates of the period with associated features such as fish ponds, assets associated with current settlements, and occasional examples of isolated features associated with farming practices of the period.

A linear earthwork (**1565**) of possible medieval date is located just south of Field House Farm to the east of Tickton.

Ridge and furrow plough features (**6559**) have been recorded on the outskirts of Weel to the south of Carr Lane but were not visible during the site visit. Further examples of ridge and furrow have been recorded within the study area corridor associated with the site of a shrunken village that formed the medieval foundations of Ulrome (**15382**) which comprises ditch earthworks, ponds and a croft, and of Woodmansey (**9729**). Evidence Woodmansey's medieval heritage is also recorded on Kings Street which is the site of a medieval gateway (**9077**) and a lantern turret (**9260**). A windmill mound or beacon is recorded at Dringhoe Manor Farm (**9513**) south east of Ulrome

Further examples of shrunken settlements have been identified at Burshill (**11032**) where aerial photographs reveal earthworks and one cropmark to east of the present settlement. The OS 1855 6" map shows Ancient Enclosure and an Old Bank at this site.

During the medieval period fish was popular because of the observance of fast days, which forbade eating red meat. Fishponds were more usually associated with monasteries but became popular with manor houses and estates. Several examples of these are sited within the study area at Manor House Farm north of Brandesburton (**2996**) and at Hall Garth to the west of Leven (**19598**). Also at Hall Garth is the former site of the medieval parish church of St Faith (**3713**) which was demolished in the 19th century. A church is recorded at Leven in Domesday. Adjacent to this is the site of a medieval well (**3714**).

Three moated sites are recorded in the study area and would have been associated with an important building or estate and would have reflected its important status. They are located at Hampston Hill south of Woodmansey (**6615**), the monastic site of Croo Grange north east of Beeford (**6666**) and one just south of Manor House farm (**15201**) to the north of Brandesburton.

The remaining records of medieval activity within the study area detail findspots. A clay smoking pipe and pot (**15811**) and pottery (**15812**) all of either medieval or Post-medieval date, were discovered to the east of Woodmansey either side of the Beverley to Barnston drain. Further north a potsherd was found at Leven (**19727**) and a 14th century gold heart-shaped brooch (**19770**) was found within the clay eroded from the cliffs at Skipsea Beach in 2001.

### **Post Medieval (AD 1541-1901)**

The post medieval period saw the increasing industrialisation of the Humber area, the influence of which spread into the agricultural areas of the East Riding and Holderness. Such influences could be seen in a requirement for better transport links and the development of

settlements as well as more modern techniques in farming and land management. Much of the landscape underwent a series of changes- open fields were enclosed in the 18th Century and drainage systems were introduced to correspond to newly established hedgerows. Both natural and medieval drainage channels were also incorporated into the new network. Lanes and roadways were built replacing trackways and farms established. Sites of historic minerals extraction are also evident.

The majority of Post-medieval records comprise buildings- namely private houses, schools and commercial buildings such as public houses within current settlements (**3763, 6980, 8686, 9957, 12273, 12314, 12315, 12317, 12371, 12682, 12685, 12688, 13002, 13205, 13207, 13208, 13252, 15031, 15037, 15038, 15039, 15040, 15141, 15205, 15206, 15207, 15208, 15238 and 20136**). New isolated farm settlements are also represented (**12693, 12695, 12699, 13006, 13204, 13276, 15030 and 20838**). Two Post-Medieval churches are documented- the Church Of St Peter (**5016**) built in 1896-97 to the south east of Woodmansey and the Church of St Andrew (**6356**) in Ulrome which technically has medieval origins to its tower and one reused 15th century window, but otherwise was mainly constructed in 1876-7. A Wesleyan Methodist Chapel (**15029**), shown on 6" first edition map of 1854 is also located in Ulrome.

Developing transport links during this period are represented within the HER records. Running north-south across the southernmost section of the study area is the line of Hull to Scarborough railway (**8811**) which was constructed in the 19<sup>th</sup> century and is still currently in operation. The Bridlington Branch Railway was authorised to the Hull and Selby Railway on June 29th 1845, the day before the H&SR was taken over by the York and North Midland Railway. Opening in 1846, the line left the Hull and Selby Railway at Dairycoates, but in 1848 the section at Dairycoates closed to passengers.

Two milestone are located to the sides of what are now 'A' roads- one next to the A1035 (**11409**) and the other lying beside the A165 (**15204**). The development of new road routes necessitated the building of new road bridges. Five bridges are listed in the HER. Tickton bridge (**12268**); Ox Pasture bridge (**12308**), Sneerholmes road bridge (**12309**) and the site of Figham bridge (**12310**) all situated over the Beverley to Barmston drain at Woodmansey; and New Road bridge (**13113**) just west of Burshill. The development and upkeep of new roads was helped to be paid for by the introduction of toll gates. One such gate is recorded on the road through Routh village (**13278**).

Minerals have been extracted in the East Riding for centuries, chiefly for building purposes, including chalk, limestone, gravel and clay. Aggregates extraction is still practised today for chalk (industrial quality, e.g. for whiting, for crushing as aggregate and as agricultural lime), glacial or fluvioglacial sands and gravel (for aggregate), clay (formerly for brick and tile production, but now mainly quarried from borrow pits as a lining for sea and river defence works), and peat (for horticultural use), are all still extracted in the county (Humber Field Archaeology 2008).

Sites of post-medieval sand pit and gravel extraction sites are recorded around Leven. Old sand pits are recorded south west of Heigholme Hall (**13058**), north of Carr Lane (**13184**) and northwest of High Farm near Routh (**13203**). An old gravel pit extraction site is recorded at Barff Hill (**13124**) north of Burshill.

A linear earthwork (**13236**) dated to the post-medieval period is recorded on Butts Hill just south of Burshill and represents an old embankment though it is not known the exact nature of the feature that once stood there. The site of an osier bed lies just to the north of the Leven drain (**13251**).

The final entry for the post medieval period is the former site of a set of stocks at Woodmansey (**19552**). They were designed for the feet only and stood near the Altisadora Inn but had disappeared by the 1830s.



### **Modern (AD 1901 to the present day)**

There are four records from the modern period all relating to the Second World War. Two bombing decoy sites are located within the study area, the first (**18423**) was sited to the south of Beeford to the west of Pinder hill Farm, and the second (**18425**) to the west of Routh. A former guard post at the entrance to a Second World War Prisoner of War camp (**19947**) survives in front of Park View House, off Long Lane, Woodmansey. The present owner of Park View believes that the POW camp was in the field behind her house. A pillbox (**9988**) is located at the coast by Barmston drain.

### **Undated**

A total of 26 assets are recorded as 'undated'. These comprise a series of low-value earthwork features such as ditches and enclosures of unknown provenance (**1495, 1498, 1499, 1500, 1501, 2941, 3010, 3062, 3406, 6555, 6600, 6663, 11031, 12864, 19045, 19046, 19047, 19408, 19378, 19436, 19439** and **19458**), findspots (**4279, 6165** and **20523**) and an undated sand pit (**13004**).

## **2 PROJECT OBJECTIVES**

The project specific and generic objectives of the geophysical survey are:

- to establish the presence of early prehistoric settlement and activity;
- to identify areas of late prehistoric and Roman settlement and enclosure;
- to establish the presence or absence of any archaeological anomalies within the area of proposed development;
- to define the extent of any such anomalies;
- to characterise, if possible, any features or anomalies recorded; and
- to inform the requirement for further archaeological works (if required).

## **3 SCOPE OF WORKS**

The construction working area for the cable route is being determined through detailed design and in consultation with multiple contractors. At this early stage in the consenting process a maximum worst case corridor of 50m width has been defined for the purposes of the geophysical survey. It is likely that the actual corridor required will be less than this.

The detailed magnetometer survey will cover the areas defined in Figures 2A to 2G (Appendix 2) and will include temporary working areas (site compounds). The area to be surveyed measures approximately 140ha.

If there are any areas that cannot be surveyed, the Contractor will inform URS immediately and details of these will be provided in the interim report.

## **4 WORKS SPECIFICATION**

### **4.1 General Works**

All archaeological works will be carried out in accordance with this WSI (and any further instructions from the Consultant). This design takes account of assessment guidance in Standard and Guidance for archaeological field evaluation prepared by the Institute for Archaeologists (IfA, 2008), the IfA Code of Conduct (IfA, 2010), English Heritage guidelines (English Heritage, 2008) and other current and relevant best practice and standards and guidance (refer to Appendix 1).

The survey will be undertaken by an experienced operator to provide consistent results with regard to pattern recognition and to provide initial screening of noise resulting from recent ferrous disturbance and local magnetic pollution.

During the survey a record should be made of surface conditions and sources of modern geophysical interference that might have a bearing on subsequent interpretation of field data.

The survey grid/ transects must be established by electronic means (using a survey-grade GPS (English Heritage 2003) or equivalent metric survey device) and accurately tied to the Ordnance Survey National Grid. This should be internally accurate to 100 mm, and located on the Ordnance Survey 1:2500 map.

## 4.2

### Specific Works

#### Detailed Magnetometer Survey

A detailed magnetometer survey will be carried out over the designated survey area using Bartington Grad601-2 Fluxgate Gradiometers. Measurements will be logged at 0.25 m intervals along parallel traverses spaced 1 m apart within a 30 m grid system.

**Comment [TR1]:** Just checking this should not be 50m?

The data will be downloaded at regular intervals on-site into a laptop computer for initial processing and storage. These will be transferred to a desktop computer for further processing, interpretation and archiving. Geoplot v.3 software will be used to process and interpolate the data to form an array of regularly spaced values at 0.25 m x 0.25 m intervals. Continuous tone greyscale images of raw data (and trace plots if appropriate) will be produced. Palette bars relating the greyscale intensities to anomaly values in nanoTesla will be included with the images.

The raw and processed data should be presented in the report. The processed drawings should be accurately located and presented in relation to the Ordnance Survey base plan for the route and the survey markers should be accurately plotted to aid in the laying out of subsequent evaluation or excavation areas.

## 5

### REPORTING

A fieldwork report will be submitted in draft to the Consultant within 2 weeks of the completion of fieldwork. The preparation of the survey archive and fieldwork report will be undertaken in accordance with this WSI and relevant archaeological standards and national guidelines (refer to Appendix 1). The report will include the following

- a non technical summary;
- site location;
- archaeological and historical background;
- full detailed methodology;
- aims and objectives;
- results (to include full description, assessment of condition, quality and significance of the results);
- general and detailed plans showing the location of the results accurately positioned on an Ordnance Survey base map (to a known scale commensurate with the objectives of the survey);
- colour/grey scale plots to aid interpretation. The plots will be contoured (if appropriate) to allow trends to be shown superimposed over data without obscuring it;
- an interpretative plot(s);
- an assessment of potential with recommendations for further survey;
- publication proposals if warranted; and
- a cross-referenced index of the project archive.

An electronic pdf copy (complete with illustrations) of the completed report will be submitted to URS as a draft for comment.

Three bound copies, one unbound master-copy and a digital version of the final report will be submitted within one week of the receipt of comments on the draft report.

A project CD shall be submitted containing image files in JPEG or TIFF format, digital text files shall be submitted in MS Word format, illustrations in ArcView shapefile format. A fully collated version of the report shall be included in PDF format.

A copy of the survey database with national grid co-ordinates shall be provided in ArcView shapefile format.

## **6 ARCHIVE PREPARATION AND DEPOSITION**

The archive of records generated during the fieldwork will be kept secure at all stages of the project. All records will be quantified, ordered, indexed and will be internally consistent. The digital archive will be produced to the national standards (ADS, Geophysical Data in Archaeology: A Guide to Good Practice, 2002 and IfA, Archaeological Archives: A Guide to Best Practice in Creation, Compilation, Transfer and Curation, 2007).

If appropriate the 'Contractor' will, prior to the start of fieldwork, liaise with an appropriate recipient museum to obtain agreement in principle to accept the documentary, digital and photographic archive for long-term storage. The 'Contractor' will be responsible for identifying any specific requirements or policies of the museum in respect of the archive, and for adhering to those requirements.

The 'Contractor' will store the archive in a suitable secure location until it is deposited in the agreed museum.

The deposition of the archive forms the final stage of this project. The 'Contractor' shall provide URS with copies of communication with the recipient museum and written confirmation of the deposition of the archive. URS will deal with the transfer of ownership and copyright issues.

Within 3 months of the completion of the report the 'Contractor' will also prepare and submit the online OASIS form (<http://ads.ahds.ac.uk/project/oasis>). When completing the form the 'Contractor' must make reference to the Regional Research Framework.

## **7 PUBLICATION**

If significant results are obtained and it is likely that further stages of archaeological work will be required, publication shall be deferred until such time as the project works are substantially complete.

The format of any publication shall be commensurate with the importance of the results and be agreed in advance with URS.

## **8 CONFIDENTIALITY AND PUBLICITY**

Detailed information regarding the proposed development is not yet in the public domain and the archaeological works may attract interest.

All communication regarding this project is to be directed through URS. The 'Contractor' will refer all inquiries to URS without making any unauthorised statements or comments.

The 'Contractor' will not disseminate information or images associated with the project for publicity or information purposes without the prior written consent of URS.

## 9 COPYRIGHT

The 'Contractor' shall assign copyright in all reports and documentation/ images produced as part of this project to URS. The 'Contractor' shall retain the right to be identified as the author/ originator of the material. This applies to all aspects of the project. It is the responsibility of the 'Contractor' to obtain such rights from sub-contracted specialists.

The 'Contractor' may apply in writing to use/disseminate any of the project archive or documentation (including images). Such permission will not be unreasonably withheld.

The results of the archaeological works shall be submitted to the client, the Local Authority Archaeologist (or their equivalent) and if appropriate to English Heritage by URS and will ultimately be made available for public access.

## 10 RESOURCES AND TIMETABLE

All archaeological personnel involved in the project should be suitably qualified and experienced professionals. The 'Contractor' shall provide URS with staff CVs of the Project Manager, Site Supervisor and any proposed specialists. Site assistants' CVs will not be required, but all site assistants should have an appropriate understanding of geophysical survey procedures.

All staff will be fully briefed and aware of the work required under this specification and will understand the objectives of the investigation and methodologies to be employed.

The fieldwork is programmed to be implemented at the earliest available opportunity (subject to land access agreements). The survey will be completed within one week.

The timetable for completion of the reporting is 1 week after completion of fieldwork. The Interim plot of the results of the fieldwork will be provided within 48 hours of the completion of the survey.

The 'Contractor' shall give immediate warning to URS should any agreed programme date not be achievable.

## 11 ACCESS ARRANGEMENTS AND SITE INFORMATION

Access to the land for fieldwork will be arranged /organised by URS.

The survey schedule will be agreed in advance. There will be no separate negotiation concerning the availability of land for survey with landowners, their agents or representatives without the prior agreement of URS.

Should the 'Contractor' require an adjustment to the location of the survey areas due to unforeseen local conditions, these shall be agreed with URS prior to implementation.

The 'Contractor' will notify URS immediately of any areas that cannot be surveyed and will provide a clear explanation for the situation.

## 12 INSURANCES AND HEALTH AND SAFETY

The 'Contractor' will provide URS with details of their public and professional indemnity insurance cover.

The 'Contractor' will have their own Health and Safety policies compiled using national guidelines, which conform to all relevant Health and Safety legislation. A copy of the 'Contractors' Health and Safety policy will be submitted to URS with their proposal.

The 'Contractor' shall prepare a Risk Assessments and submit these to URS for approval prior to the commencement of the survey. If amendments are required to the Risk Assessment during the works URS and any other interested party must be provided with the revised document at the earliest opportunity.

All site personnel will familiarise themselves with the following:

- site emergency and evacuation procedures;
- the first aider; and
- the location of the nearest hospital and doctors surgery.

## 13 GENERAL PROVISIONS

The 'Contractor' will undertake the works according to this specification and any subsequent written variations. No variation from or changes to the specification will occur except by prior agreement with URS.

All communications on archaeological matters will be directed through URS.

The archive of data and records generated during the fieldwork will be kept secure in appropriate conditions using suitable materials at all stages of the project. The archive will be removed from site each evening and will be kept in secure premises by the 'Contractor'.

Processing of datasets will be concurrent with the fieldwork and immediately after completion of fieldwork the processing of the remaining data will be completed.

The 'Contractor' shall leave the survey area(s) in a tidy and workmanlike condition and remove all materials used during the fieldwork.

The 'Contractor' shall make the minimum of disturbance during the survey and will avoid any unnecessary damage.

The 'Contractor' will immediately notify URS of any evidence of or damage to the integrity of the survey caused by any third party including the activities of unauthorised metal-detectorists.

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## Appendix 1

### Standards and guidance



## **Archaeological Standards and Guidelines**

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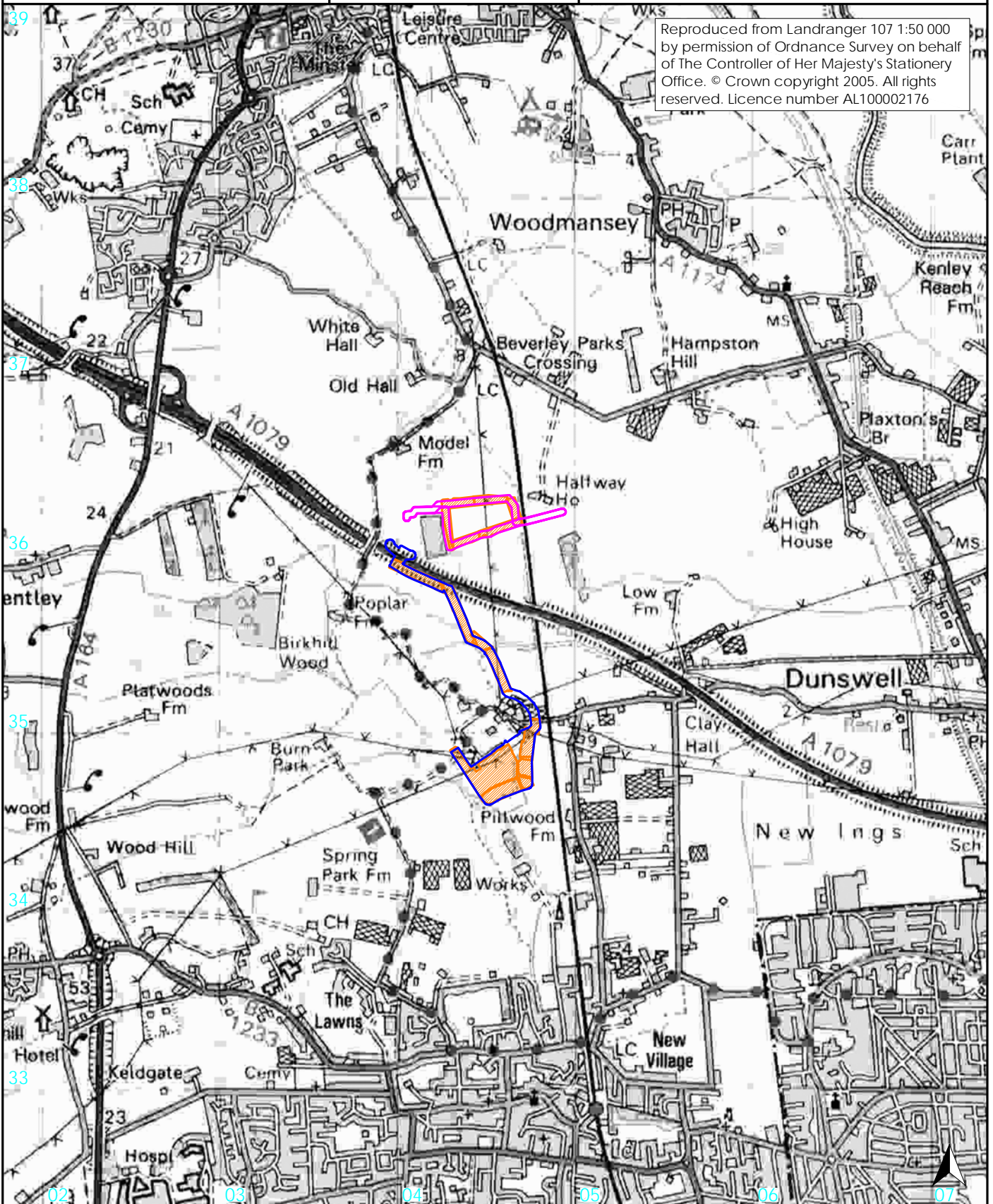
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
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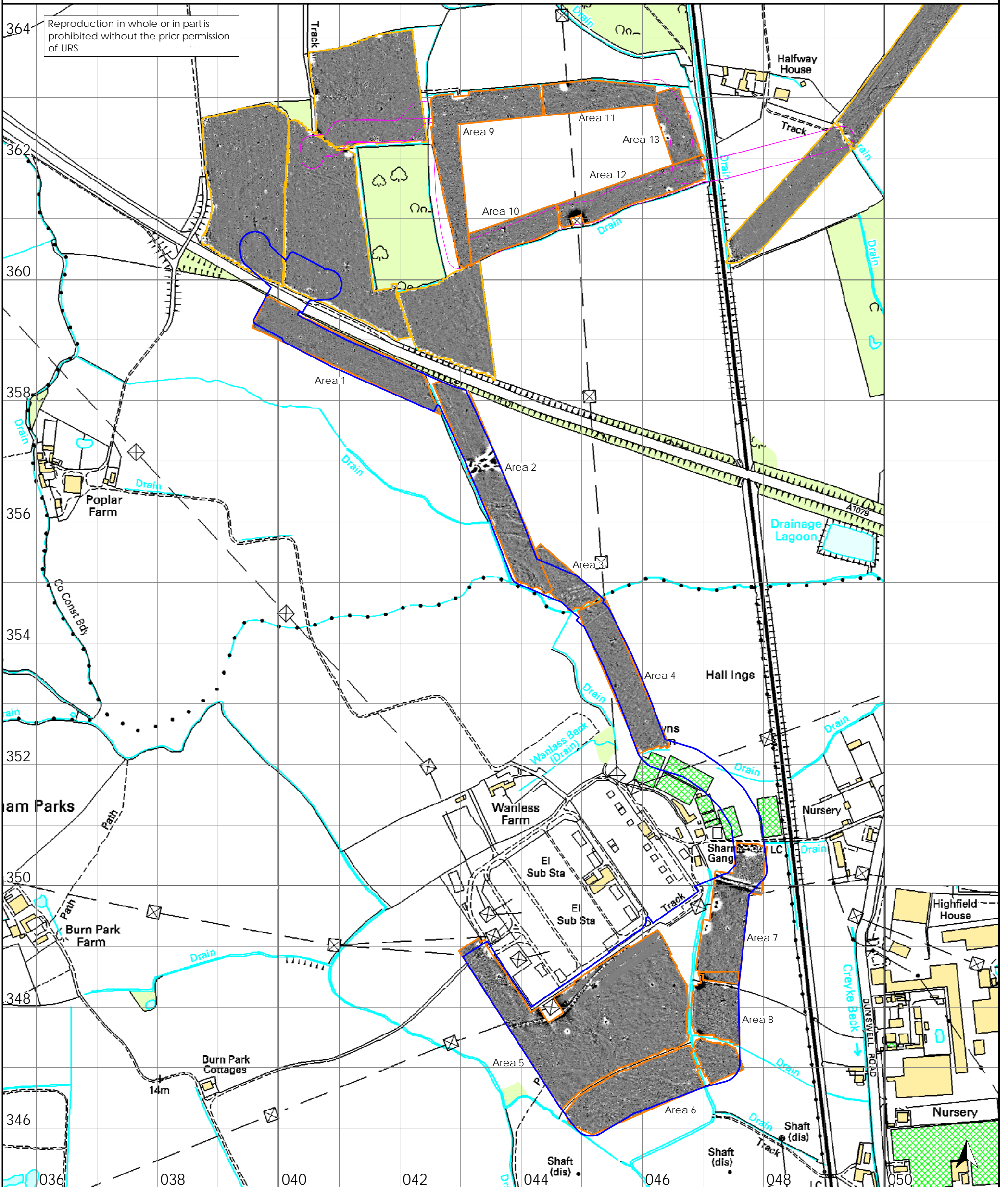


 geophysical survey area

 HVAC Route

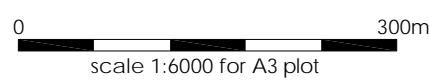
 Onshore Cable Route

0  1.5km  
scale 1:30 000 for A4 plot



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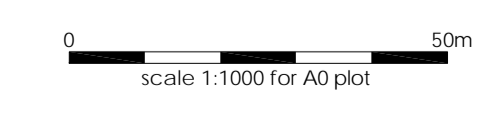
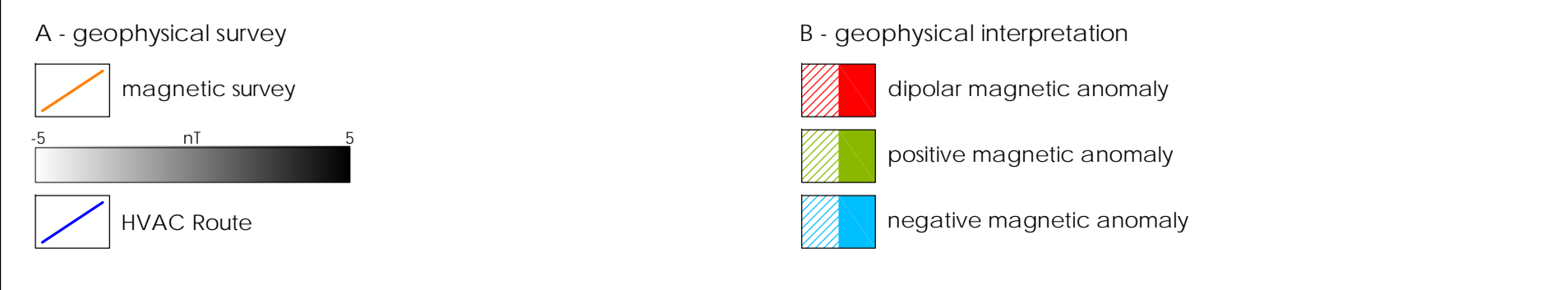
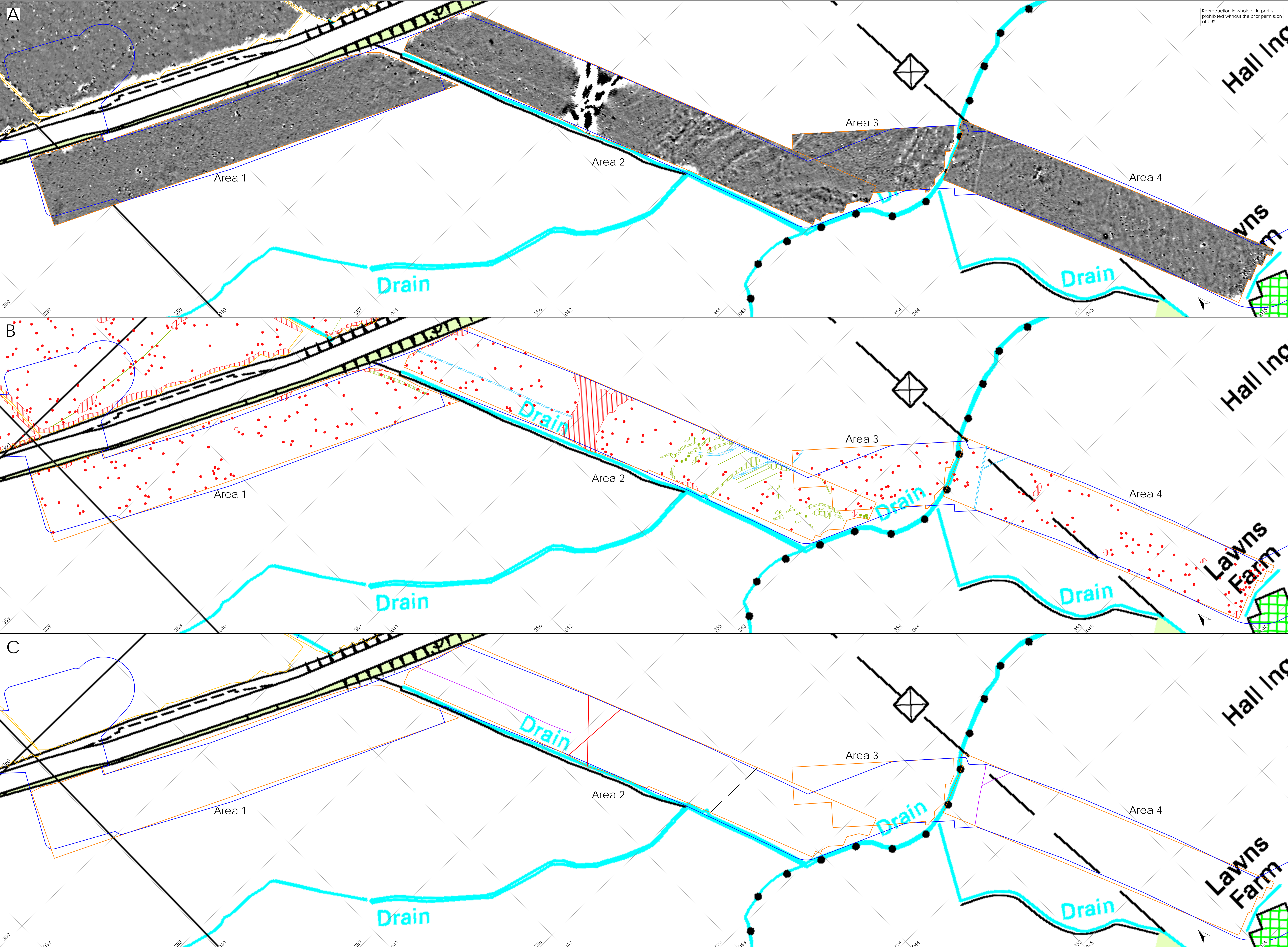
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East Riding of Yorkshire

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Figure 2: Geophysical survey overview

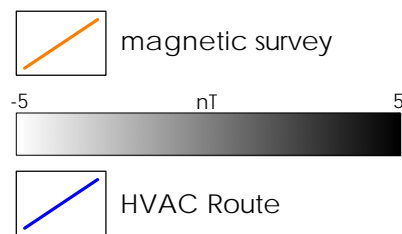


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Figure 3: Areas 1-4, geophysical  
survey and interpretation

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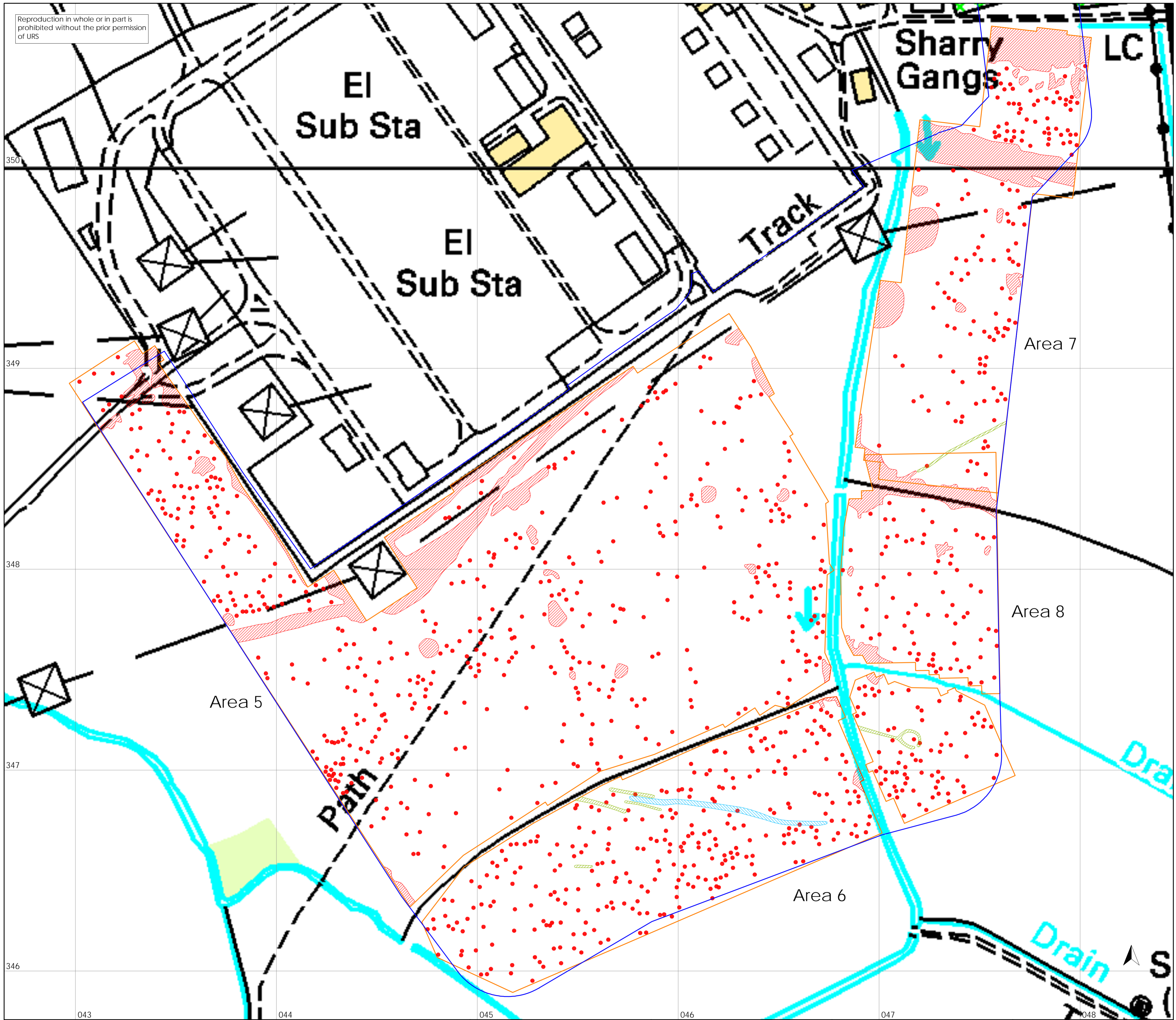
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Figure 4: Areas 5-8, geophysical  
survey

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- magnetic survey
- HVAC Route
- dipolar magnetic anomaly
- positive magnetic anomaly
- negative magnetic anomaly

0 50m  
scale 1:1000 for A1 plot

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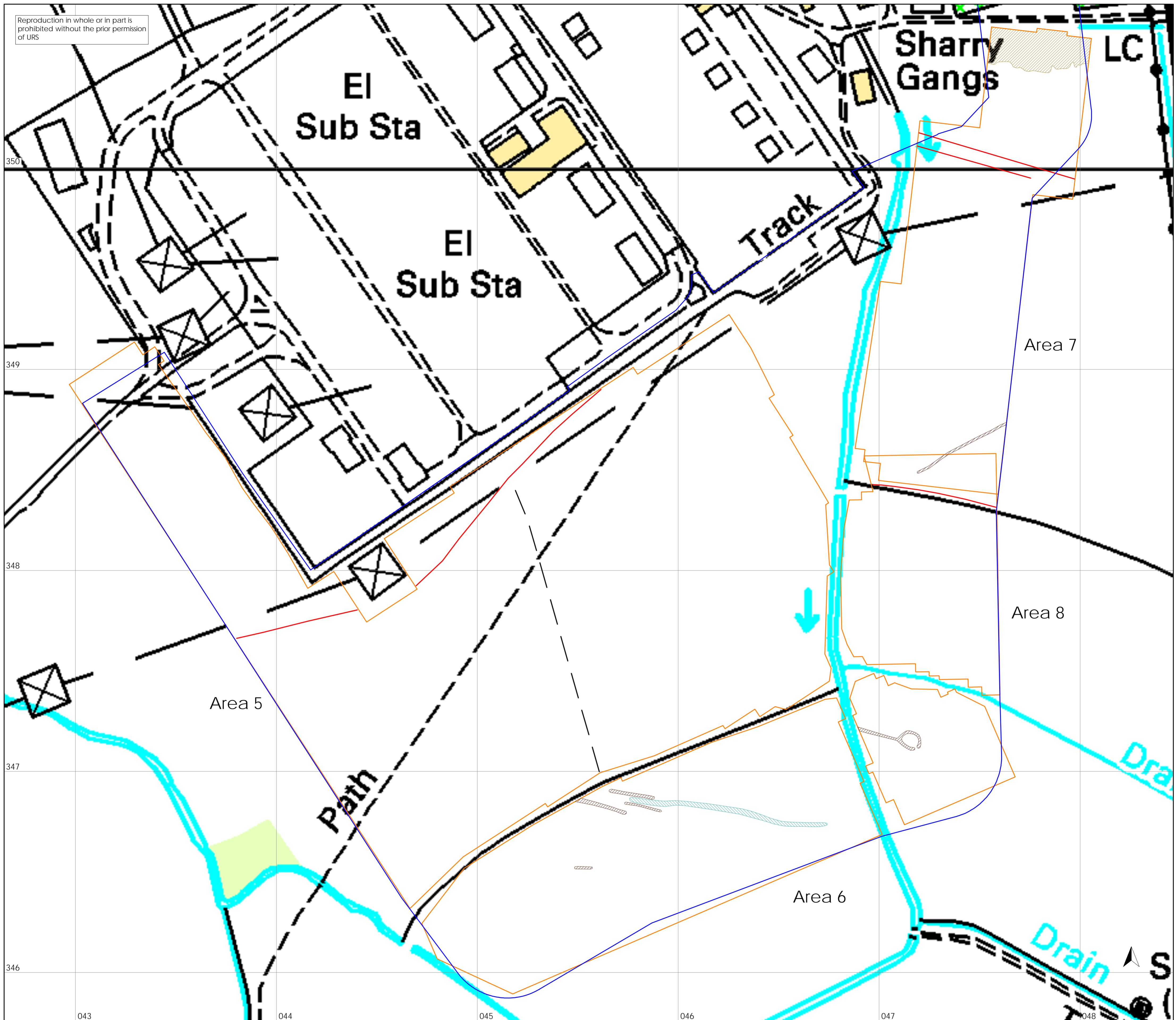
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Figure 5: Areas 5-8, geophysical  
interpretation

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- magnetic survey
- HVAC Route
- soil-filled feature
- disturbed area
- service
- former field boundary
- land drain
- geological feature

0 50m  
scale 1:1000 for A1 plot

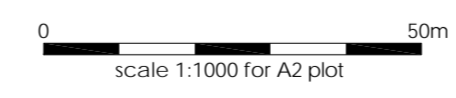
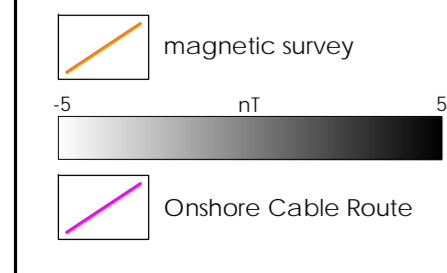
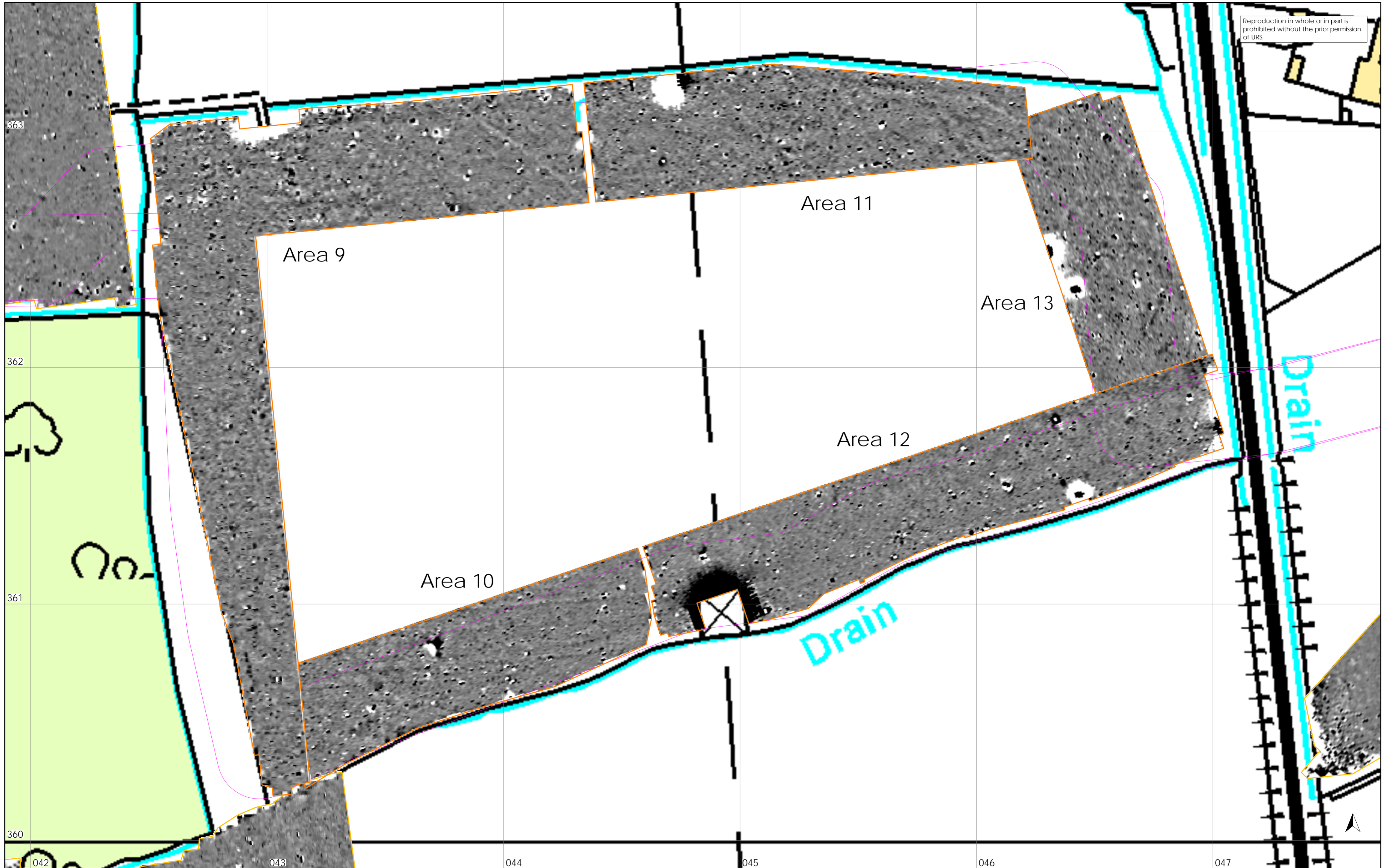
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Figure 6: Areas 5-8, archaeological  
interpretation



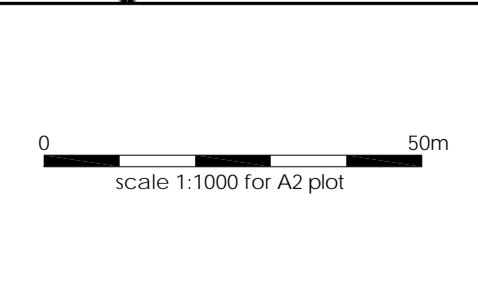
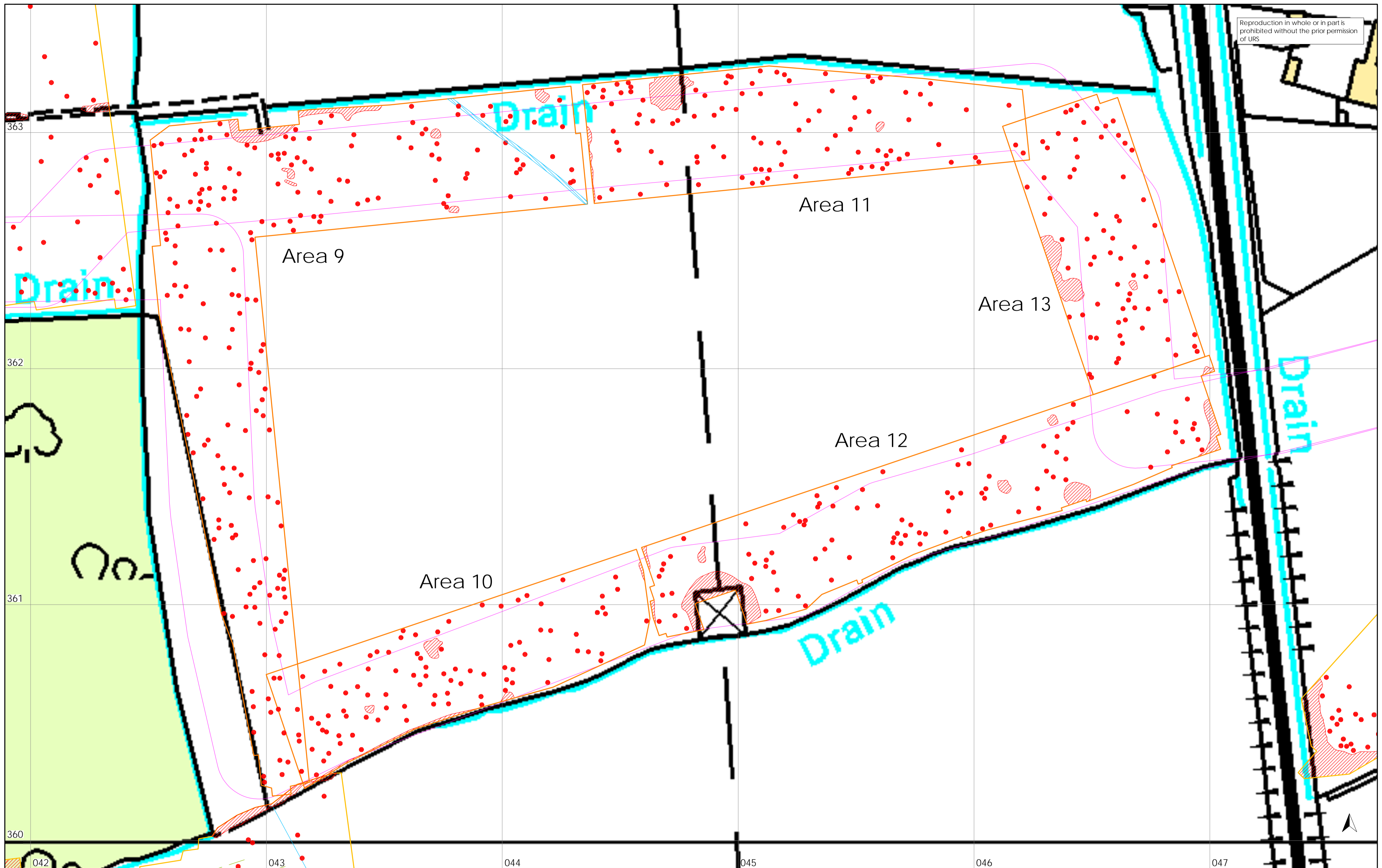
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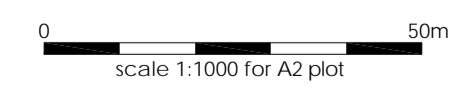
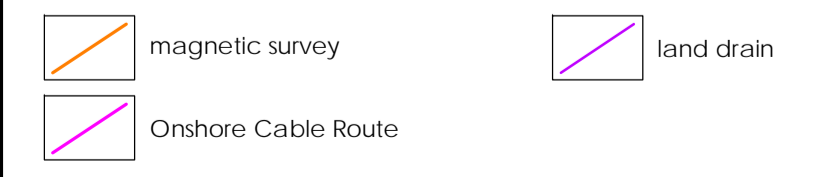
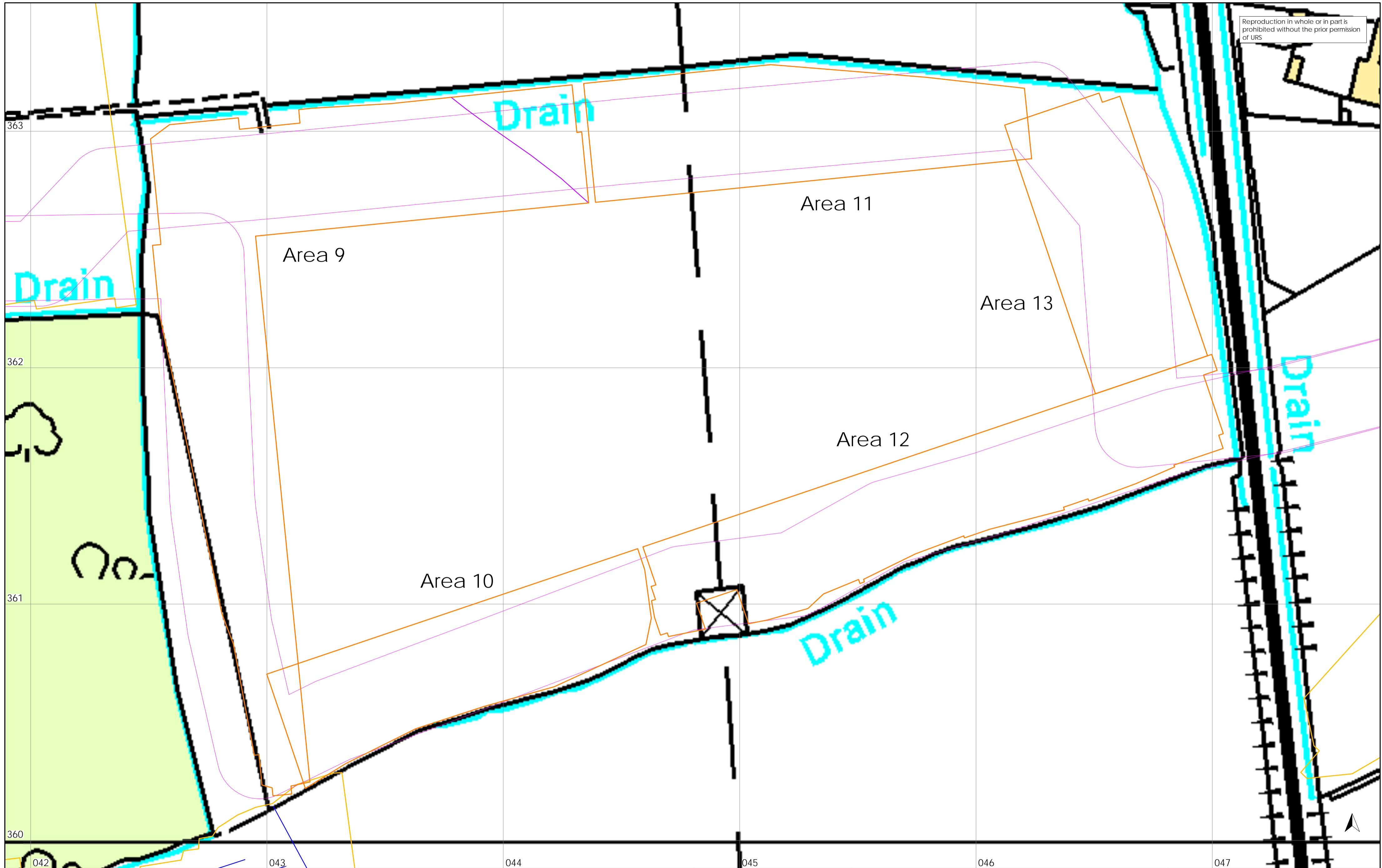
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Figure 7: Areas 9-13, geophysical survey



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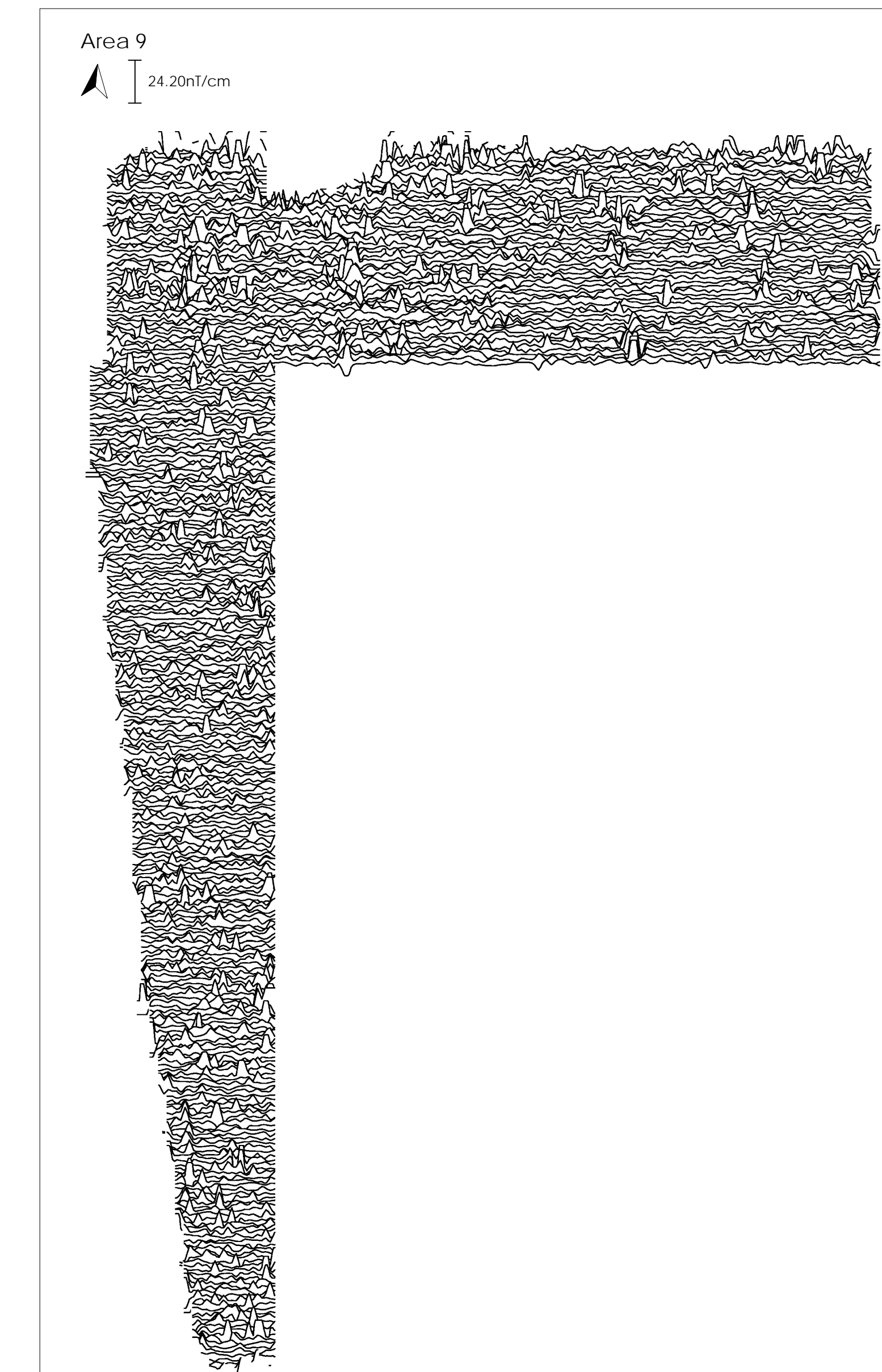
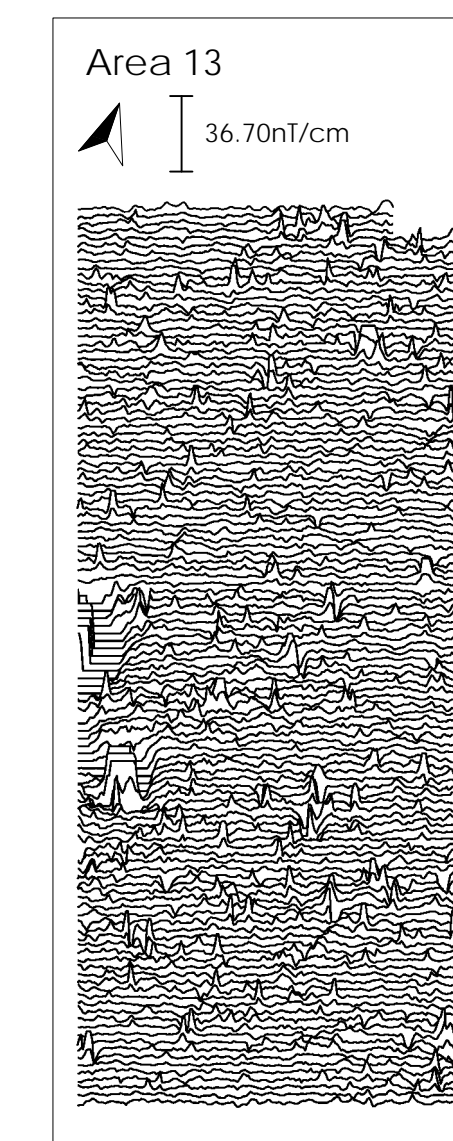
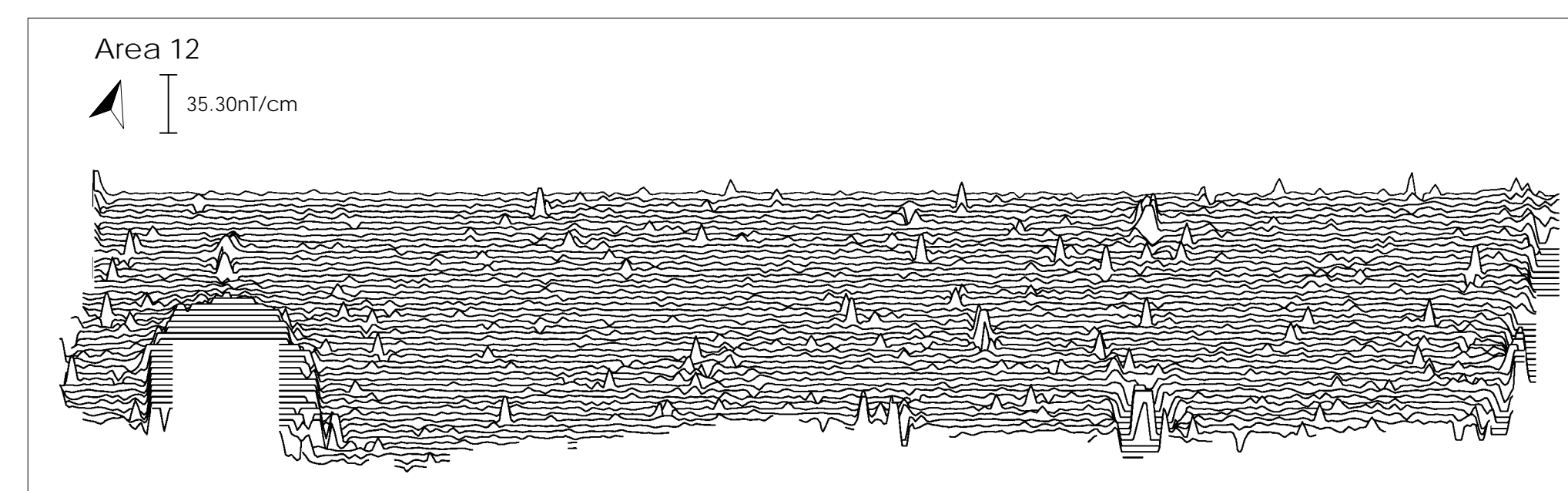
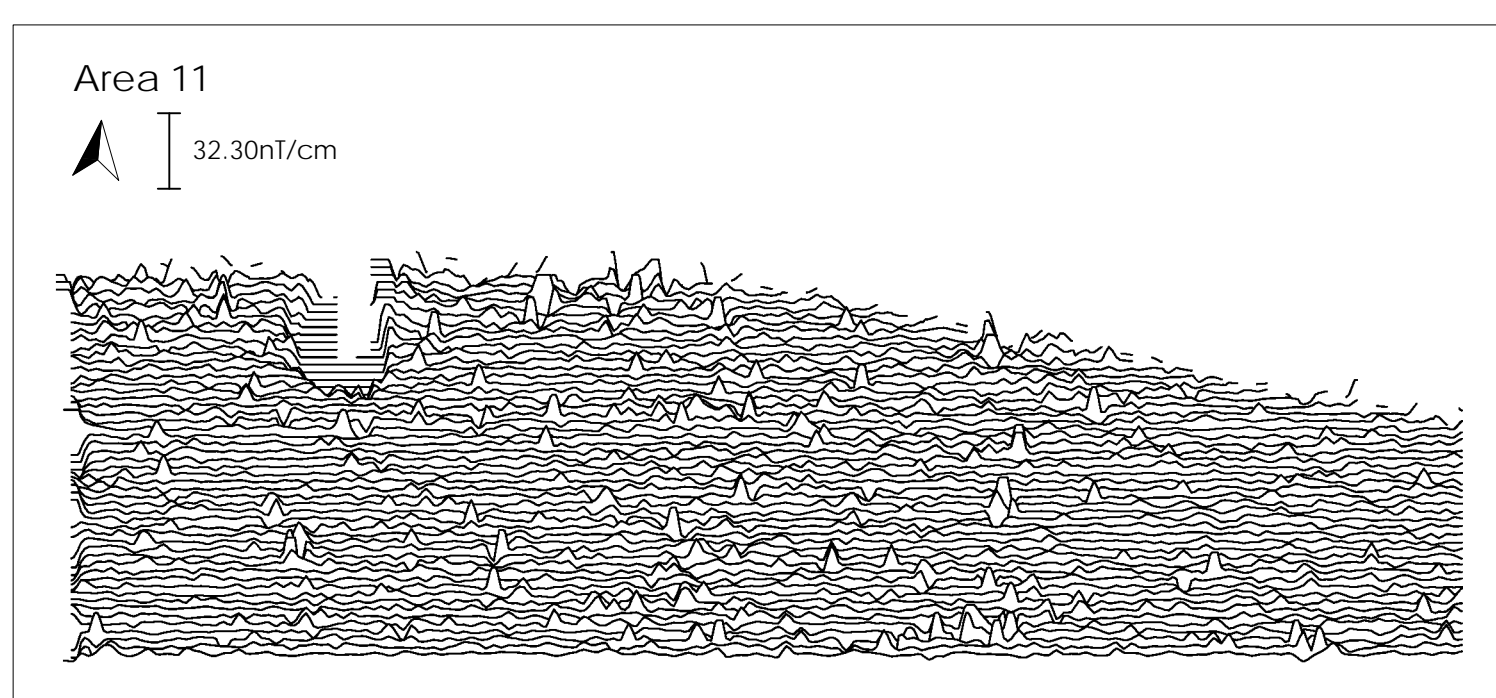
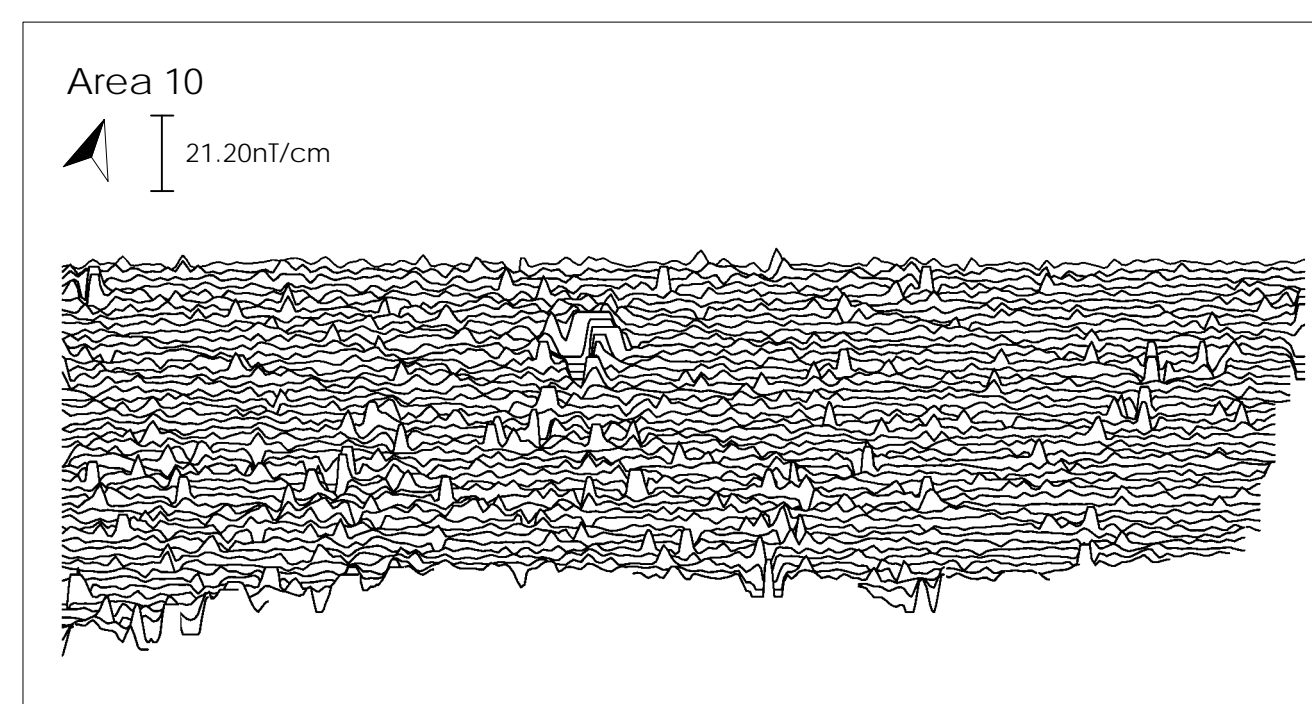
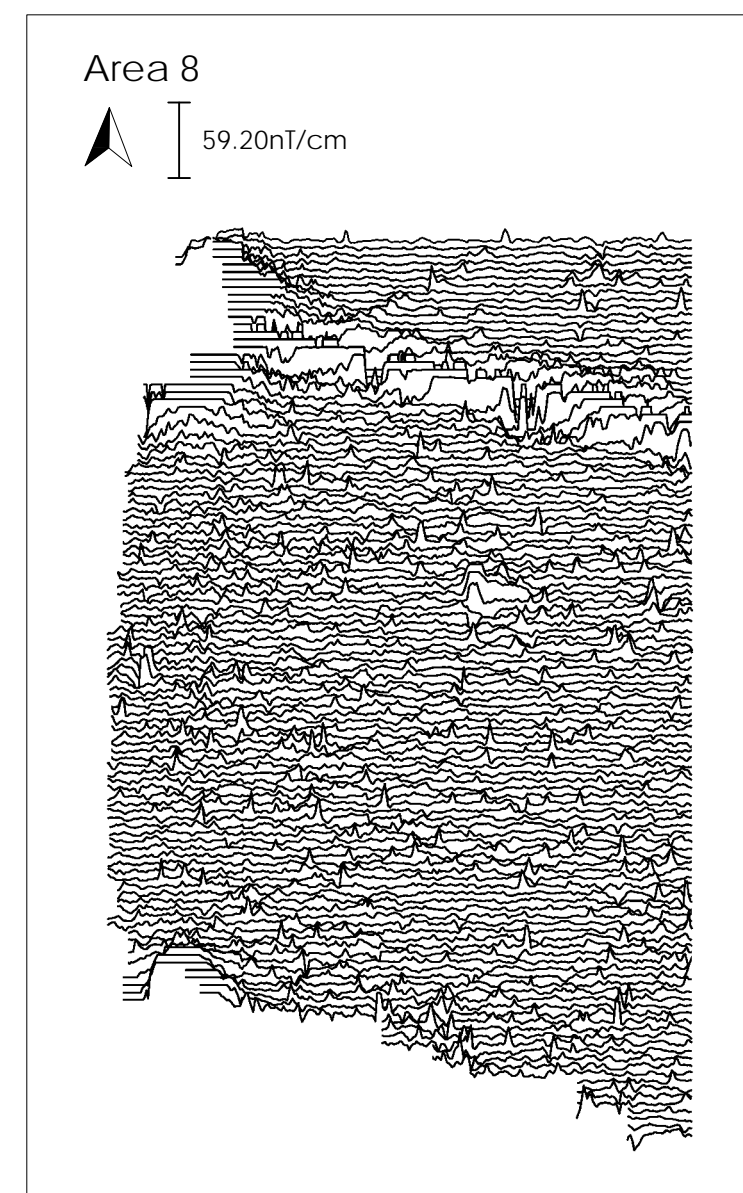
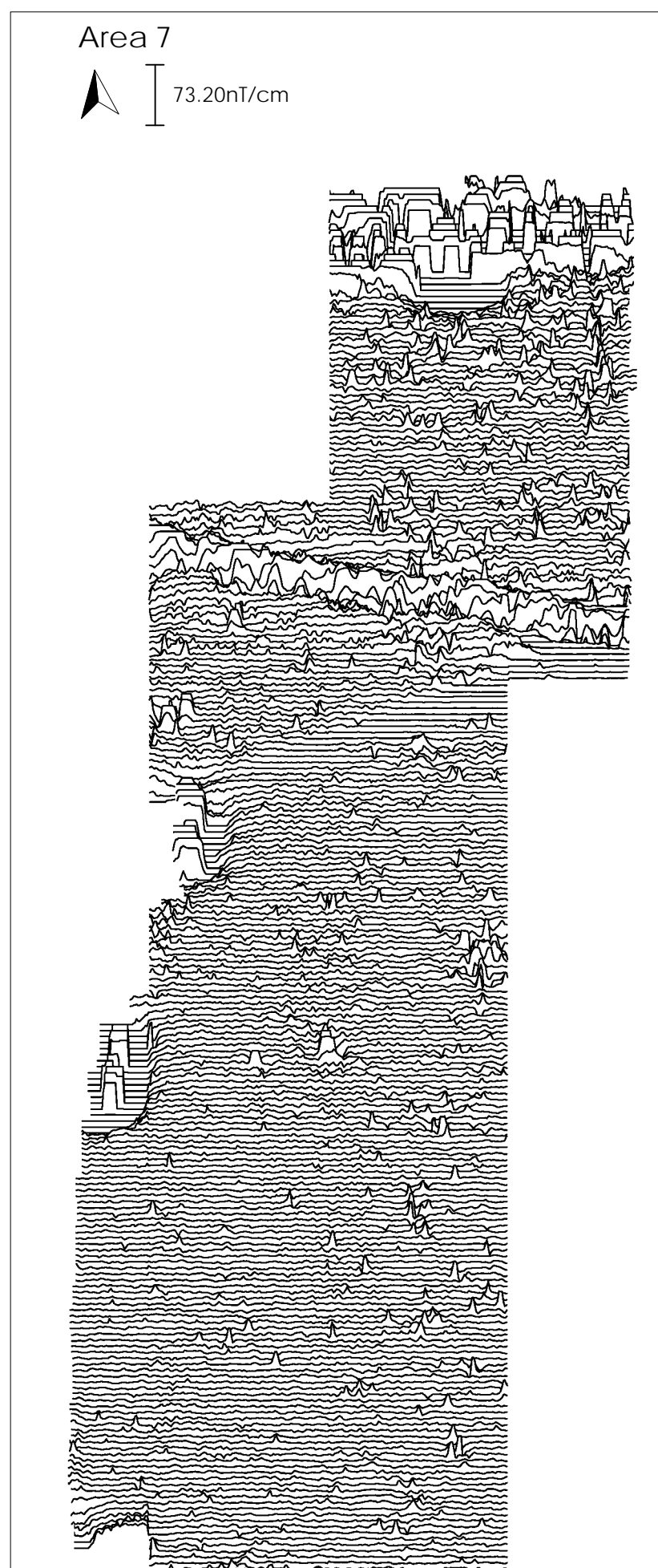
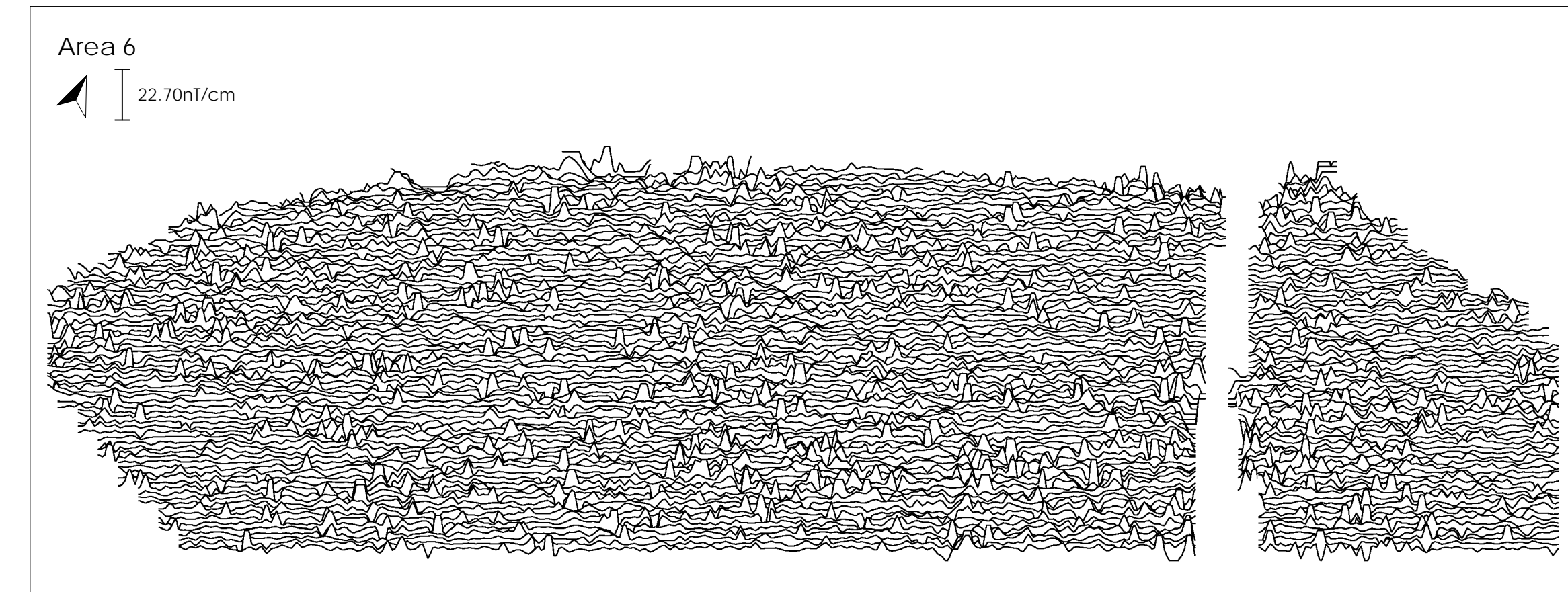
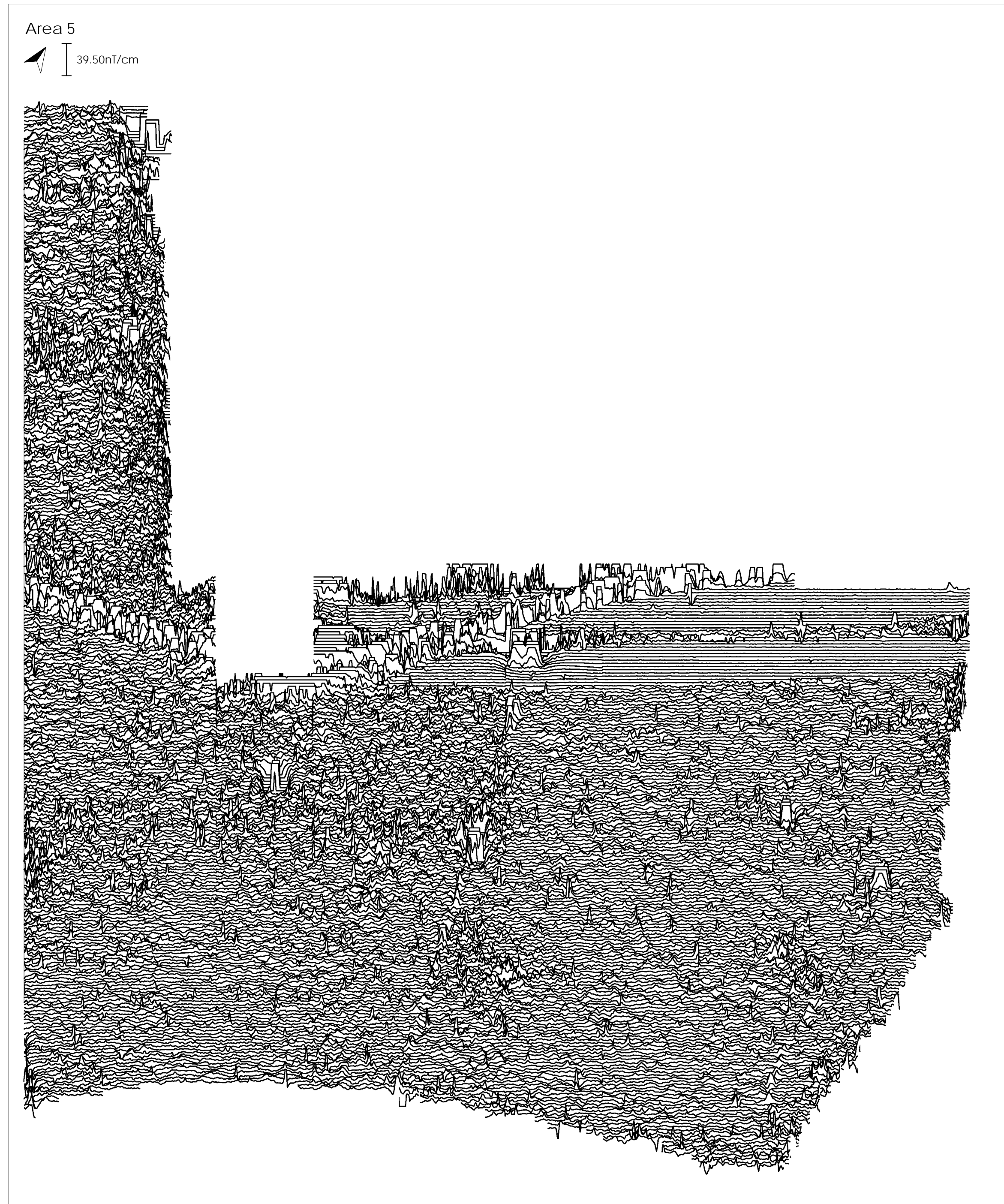
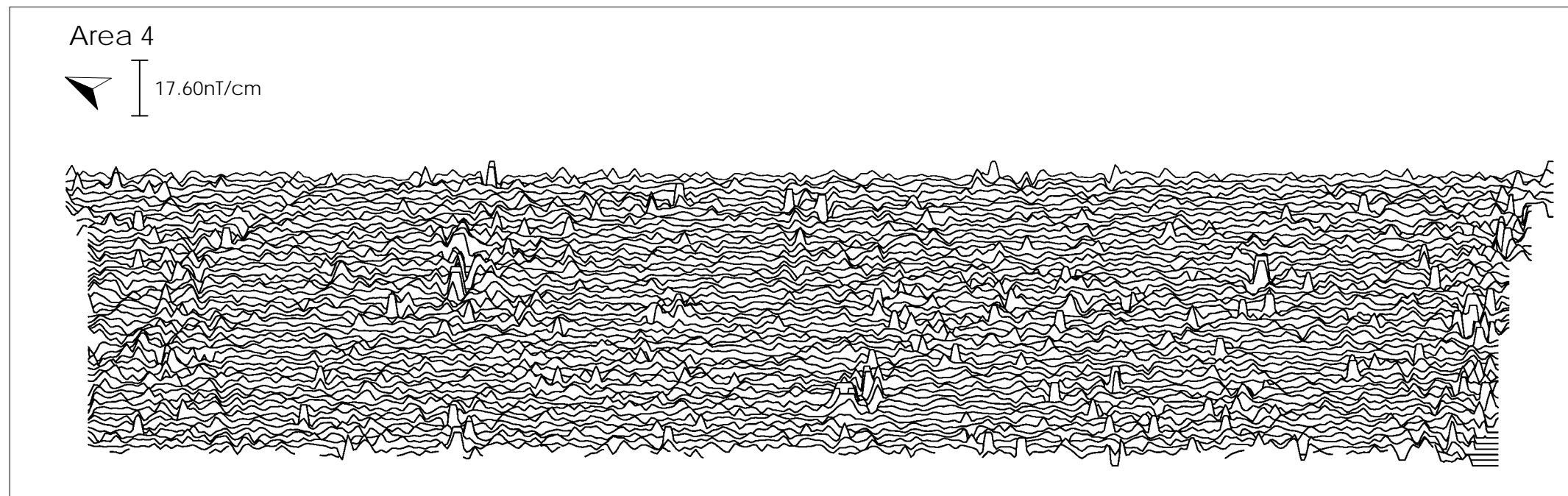
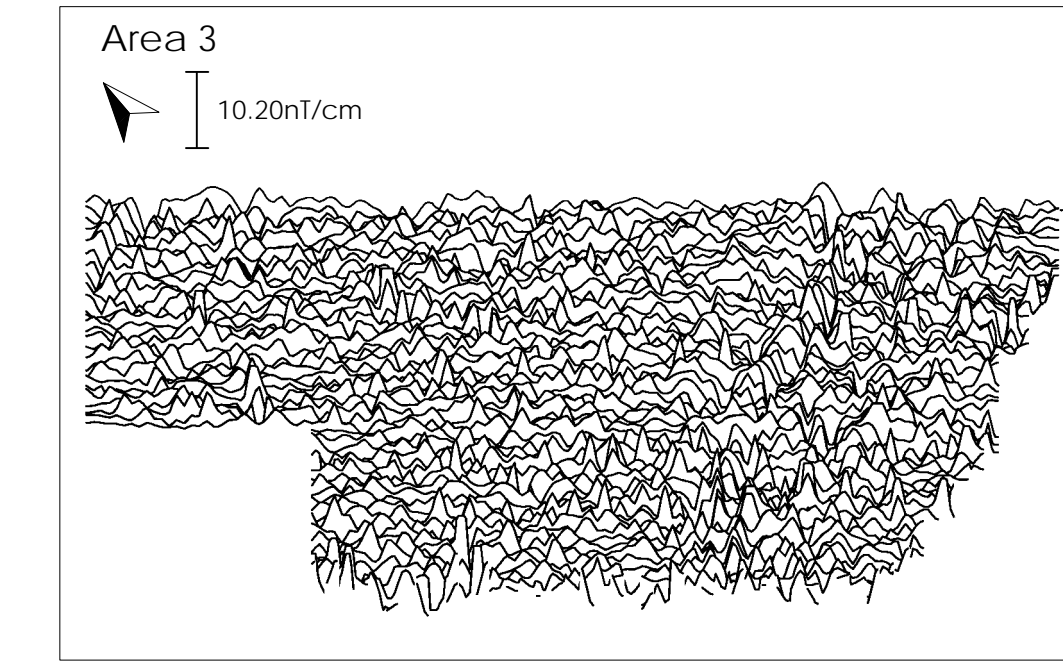
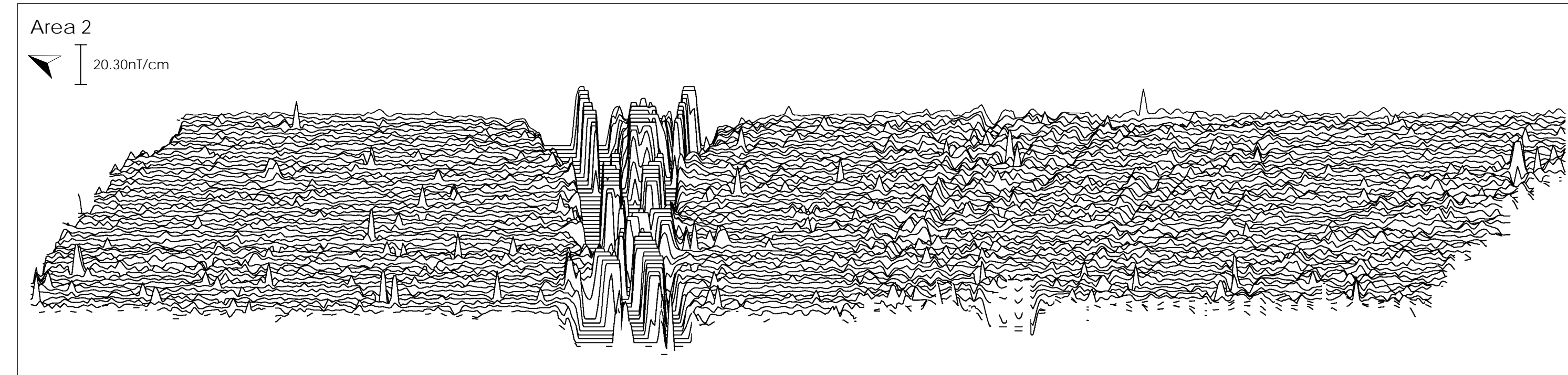
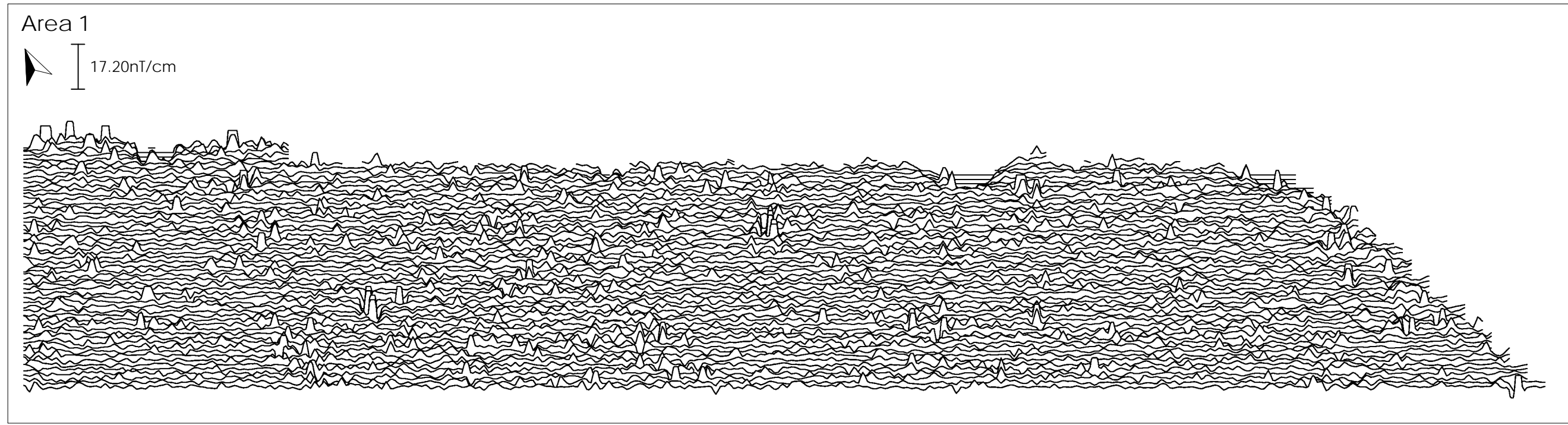
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Figure 8: Areas 9-13, geophysical interpretation



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Figure 9: Areas 9-13, archaeological interpretation



Scale 1:1000 for A4 plot

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Figure 10: Trace plots of geomagnetic data