



**RWE Renewables UK Dogger Bank
South (West) Limited**

**RWE Renewables UK Dogger Bank
South (East) Limited**

Dogger Bank South Offshore Wind Farms

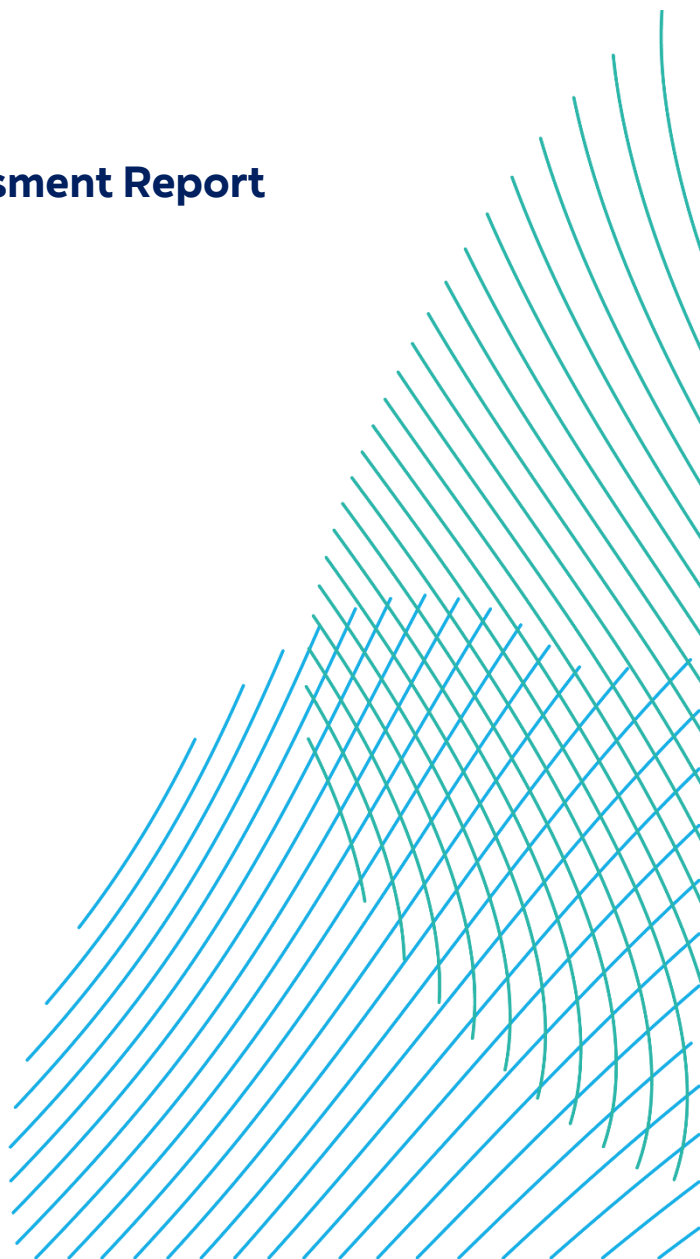
Appendix 22.6 Geophysical Assessment Report

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Glossary

Term	Definition
Barrow	Artificial mound of earth, turf and/or stone, normally constructed to contain or conceal burials.
Bronze Age	This period follows on from the Neolithic and is characterized by the increasing use of bronze work. It is subdivided in the Early, Middle and Late Bronze Age. Archaeological period lasting from 2,600-700 BC
Cropmark	Patterns or variations in the colour or growth rates of crops which are usually caused by the differential effects on plant ecology of below-ground disturbances or soil enrichment, including the presence of archaeological features. These patterns can be observed from the air.
Early Medieval	This dates from the breakdown of Roman rule in Britain to the Norman invasion in 1066 and is to be used for monuments of post Roman, Saxon and Viking date. Archaeological period lasting from 1066 to 410
Early Prehistoric	For monuments which are characteristic of the Palaeolithic to Mesolithic but cannot be specifically assigned. Archaeological period lasting from 50,000 to 4,000 BC
EIA Regulations	Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.
Enclosure	An area of land enclosed by a boundary ditch, bank, wall, palisade or other similar barrier.
Iron Age	This period follows on from the Bronze Age and is characterized by the use of iron for making tools and monuments such as hillforts and oppida. The Iron Age is taken to end with the Roman invasion. Archaeological period lasting from 800 BC to 43 AD.

Term	Definition
Landfall	The point on the coastline at which the offshore export cables are brought onshore, connecting to the onshore export cables at the Transition Joint Bay.
Medieval	The Medieval period or Middle Ages begins with the Norman invasion and ends with the dissolution of the monasteries. Archaeological period lasting from 1066-1540 AD.
Mesolithic	The Middle Stone Age, falling between the Palaeolithic and the Neolithic; marks the beginning of a move from a hunter gatherer society towards food producing society. Archaeological period lasting from 10,000-4,000 BC.
NMP	Historic England's National Mapping Programme - aerial imagery survey project mapping archaeology visible from aerial photography as cropmarks and soilmarks.
Onshore Export Cables	Onshore export cables take the electricity from the Transition Joint Bay to the onshore substations.
Onshore substations	A compound containing electrical equipment required to transform and stabilise electricity generated by the Projects so that it can be connected to the electricity transmission network. There will be one onshore substation for each Project.
Palaeochannel	The course or channel of a river or stream preserved as a geological feature.
Palaeolithic	The period is defined by the practice of hunting and gathering and the use of chipped flint tools. This period is usually divided up into the Lower, Middle and Upper Palaeolithic. Archaeological period lasting from 50,000-10,000 BC
Post medieval	Begins with the dissolution of the monasteries and ends with the death of Queen Victoria. Use more specific period where known. Archaeological period lasting from 1540-1901 AD.

Term	Definition
Priority Areas	Areas within the Onshore Development Area defined as priority for Archaeological Geophysical Survey as agreed with the ETG in the Written Scheme of Investigation for Archaeological Geophysical Survey. The criteria for Priority Areas are set out in the Written Scheme of Investigation.
Roman	Traditionally begins with the Roman invasion in 43AD and ends with the emperor Honorius directing Britain to see to its own defence in 410AD. Archaeological period lasting from 43-410 AD.
The Applicant	RWE Renewables UK Dogger Bank South (West) Limited and RWE Renewables UK Dogger Bank South (East) Limited as the owners of DBS West and DBS East respectively are the named undertakers that will have the benefit of the Development Consent Order. References in this document to obligations on, or commitments by, the Applicant are given on behalf of RWE Renewables UK Dogger Bank South (West) Limited and RWE Renewables UK Dogger Bank South (East) Limited.
The Projects	DBS East and DBS West (collectively referred to as the Dogger Bank South Offshore Wind Farms)

Acronyms

Term	Definition
ADS	Archaeological Data Service
APS	Air Photo Services Ltd
aOD	above Ordnance Datum
BEIS	Department for Business, Energy and Industrial Strategy
CIfA	Chartered Institute for Archaeologists
DBS	Dogger Bank South
DCO	Development Consent Order
DMV	Deserted Medieval Village
EAC	European Archaeology Council
EIA	Environmental Impact Assessment
ES	Environmental Statement
GIS	Geographical Information Systems
HAP	Humber Archaeology Partnership
HER	Historic Environment Record
HSE	Health, Safety and Environment
LiDAR	Light Detection and Ranging
NHLE	National Heritage List of England
NLS	National Library of Scotland
NMP	National Mapping Programme
NSIPs	Nationally Significant Infrastructure Projects

Term	Definition
OASIS	Online Access to the Index of Archaeological Investigations
OS	Ordnance Survey
PA	Priority Area
PEIR	Preliminary Environmental Information Report
PPE	Personal Protective Equipment
RAMS	Risk Assessment Method Statement
RTK	Real Time Kinetic
WSI	Written Scheme of Investigation
WWII	World War Two

22.6 Archaeological Geophysical Survey

22.6.1 Introduction

22.6.1.1 Project Overview

1. AOC Archaeology have been commissioned by RWE Renewables (the Applicant) to undertake a geophysical survey for the Dogger Bank South (DBS) East and DBS West offshore wind farms (the Projects). This document reports on the first phase of Archaeological Geophysical Survey undertaken up to December 2022 and has been used to inform **Chapter 22 Onshore Archaeology and Cultural Heritage** of the Preliminary Environmental Information Report (PEIR).
2. The first phase of the Archaeological Geophysical Survey focused on 25 Priority Areas that have been selected on the basis of:
 - Key areas of project infrastructure; substation locations, possible landfall locations, engineering pinch points and selected areas within the onshore export cable corridor;
 - Areas of high or uncertain archaeological potential based on Humber Historic Environment Record (HER) and National Mapping Programme (NMP) data;
 - Areas confirmed of high or uncertain archaeological potential based on the assessment of aerial imagery and LiDAR by Air Photo Services (APS);
 - Areas within the vicinity of Scheduled Monuments or suspected non-designated assets of schedulable quality/potential national significance; and
 - Several “Blank areas” where there may be limited or no HER records and the NMP or APS’s assessment did not confirm the likely potential for the presence of buried assets.

22.6.1.2 Survey Undertaken During Phase 1

3. This document reports on the first phase of Archaeological Geophysical Survey targeting Priority Areas undertaken up to December 2022 to inform the assessment in **Chapter 22 Onshore Archaeology and Cultural Heritage** and identify the necessity of further stages of (non-intrusive and intrusive) archaeological evaluation, where necessary.
4. The initial scope was to undertake 300ha of gradiometer survey across the 25 Priority Areas. However, access and ground conditions meant that this was not feasible within the tranche of survey.

5. Furthermore, as a result of detailed site selection and route refinement work the Onshore Development Area was refined and subsequently a six of Priority Areas (PA14 and PA19-23) were removed from the scope (as given in **Table 22-1**).
6. Due to access issues it was not possible to access all Priority Areas within this tranche of survey, as such focus was moved to the wider Onshore Development Area as part of the wider aim of full (or as close to as possible) coverage survey across the onshore cable export route.
7. A total of approximately 200ha across eight of the 25 Priority Areas has been investigated to date by magnetic gradiometry.

22.6.1.3 Report Structure

8. A detailed discussion of the survey results by survey area is provided in section 22.6.5. An overview of the results of the Archaeological Geophysical Survey is provided in section 22.6.6 where the results are discussed by anomaly type. The discussions are supported by the following figures:
 - **Figure 22-6-1** Location of Onshore Development Area
 - **Figures 22-6-2 to 226-8** Location of Priority Areas and Surveyed Areas
 - **Figures 22-6-9 to 22-6--23** Summary greyscale images at 1:2,500;
 - **Figures 22-6-24 to 22-6-38** Summary interpretations at 1:2,500;
 - **Figures 22-6-39 to 22-6-90** Archive XY traces at 1:1,000;
 - **Figures 22-6-91 to 22-6-142** Archive greyscale images at 1:1,000; and
 - **Figures 22-6-143 to 22-6-194** Archive interpretations at 1:1,000.
9. The interpretation figures include HER data, and NMP and APS transcriptions to aid discussion. The archive interpretation figures display anomaly identification numbers which are included in the detailed discussion of the results in section 22.6.5.
10. This report has been prepared as detailed in the Written Scheme of Investigation (WSI) (RWE, 2022) and in accordance with the Chartered Institute for Archaeologists' (CIfA) Standard and guidance for Archaeological Geophysical Survey (CIfA, 2014a), and Historic England's recommended guidance European Archaeological Council (EAC) Guidelines for the Use of Geophysics in Archaeology (Schmidt et al. 2016).

22.6.2 Objectives

11. The key objectives for the Archaeological Geophysical Survey are to:
- To undertake a programme of detailed geophysical survey across targeted sections along the Onshore Development Area (Phase 1), followed by full coverage (or as close to as possible) (Phase 2);
 - Identify and characterise sub-surface anomalies that may have an archaeological origin (including defining the spatial limits of already known or suspected heritage assets);
 - Discount areas within the survey area that are found to have been subject to previous ‘modern’ disturbance, for example where geophysical survey data indicate the presence of ‘made’ or previously heavily disturbed ground (e.g., deep modern quarrying);
 - Provide an interpretation (in written form with accompanying Geographical Information Systems (GIS) data) of all recorded geophysical anomalies to inform the assessment in **Chapter 22 Onshore Archaeology and Cultural Heritage**;
 - Prepare a fully illustrated report on the results of the Phase 1 Archaeological Geophysical Surveys that is compliant with all relevant standards, guidance and good practice; and
 - Produce a site archive for deposition with the East Riding of Yorkshire and Hull and East Riding Museum Service and to provide information for accession to the HER.

22.6.3 Baseline Information

22.6.3.1 Site Location and Description

12. The Onshore Development Area comprises a relatively rural area of fields punctuated with smaller rural settlements, with the culmination of the larger settlement of Beverley towards the south-west of the Onshore Development Area. The extant modern field pattern is a patchwork of earlier relict boundaries where modern agricultural techniques have shaped the present landscape. Also acknowledging that several solar schemes and other onshore elements of offshore wind farms are in the consenting and development processes, particularly around the onshore Substation Zones.
13. The Onshore Development Areas includes possible landfall locations near Skipsea, with the onshore export cable corridor extending inland easterly towards Dunnington before moving south towards Sigglesthorne. The onshore cable corridor options then move in a south-western direction towards Beverley, before moving north and west of Beverley to the Onshore Substation Zones. The Onshore Substation Zones are located in the area between Skidby and Beverley, to the south of Beverley (**Figure 22-6-1**).

22.6.3.2 Geology, Soils and Land Use

14. AOC Archaeology have undertaken a Geoarchaeological Desk-Based Assessment which forms **Appendix 22.5** and provides a detailed study of the Onshore Development Area. A high level summary of geology, soils and land use is provided in this section. The possible landfall locations, around Skipsea ranges from 6m to 14m above Ordnance Datum (aOD) before gradually increasing to 20m aOD as the onshore export cable corridor moves inland, toward Brandesburton, and then gradually decreasing to as low as 2m aOD to the north of Beverley, before reaching highs of c.65m aOD near Walkington.
15. The geology of the Onshore Development Area comprises Rowe Chalk Formation along the coast, from just north of Fraisthorpe down to just south of Waxholme, which is a sedimentary chalk bedrock that formed between 83.6 and 66 million years ago during the Cretaceous period. The rest of the Onshore Development Area comprises Flamborough Chalk formation which is a sedimentary chalk bedrock formed between 86.3 and 72.1 million years ago during the Cretaceous period (NERC 2022).

16. The superficial geology for the western half of the Onshore Development Area is primarily Till, Devensian, formed of diamicton, which is a sedimentary superficial deposit formed between 11.6 and 11.8 thousand years ago during the Quaternary period. Near Skipsea there are areas of alluvium: a sedimentary superficial deposit of clay, silt and gravel formed 11.8 thousand years ago and present during the Quaternary period, alongside Glaciofluvial deposits, Devensian: a sedimentary superficial deposit of sand and gravel formed between 11.6 and 11.8 thousand years ago during the Quaternary period. In addition, near Skipsea, there are also small areas interspersed of Lacustrine deposits: a sedimentary superficial deposit of sand, silt and clay formed 2.588 million years ago and present during the Quaternary period (abid).
17. Moving east, towards Leven, the area is dominated by Glaciofluvial superficial deposits, before moving to alluvium deposits, then again to Till, Devensian deposits. Throughout these areas, there are interspersed veins and smaller areas of the previous superficial deposits, with the exception of a small vein of Head to the south of Cherry Burton. Head is a sedimentary superficial deposit of clay, silt sand and gravel formed 2.588 million years ago during the Quaternary period (NERC 2022).

22.6.3.3 Archaeological and Historical Background

18. Detailed Archaeological and Historical Background can be found in **Chapter 22 Onshore Archaeology and Cultural Heritage**, which is informed by the baseline data and information gathering exercise and assessment undertaken as part of the Archaeological Desk-Based Assessment (ADBA) (**Appendix 22.1**) and the Aerial Photographic, LiDAR and Map Regression Analysis undertaken by Air Photo Services Ltd (**Appendix 22.2**)
19. The potential heritage assets of archaeological interest and the rationale for selection of each Priority Area are presented in **Table 22-1**. The locations of the Priority Areas are presented in this report on **Figures 22-6-2 to 22-6-8**, while the potential heritage assets are displayed on the summary and archive interpretation **Figures 22-6-24 to 22-6-38 and 22-6-143 to 22-6-194** within this report.

Table 22-1 Priority Archaeological Geophysical Survey Potential Heritage Assets

Priority Area	HER ID	NHLE Name and Type	NHLE ID	Description	Hectares (Ha)	Within Onshore Development Area Y/N
PA1	20667, 16379, 21207, 9991, 9992, 9990, 21208, 18429	N/A	N/A	Landfall. Prehistoric axe. Bronze Age auroch horn. Medieval to Post Medieval ridge and furrow. WWII Pillboxes, possible weapon pits and bomb craters.	32.68	Y
PA2	3862, 9001, 21212-7, 8834, 8838, 21236	N/A	N/A	Landfall. Withow Mere prehistoric lake. Mesolithic elk antlers. Neolithic dwelling. Flint tools, prehistoric pottery, medieval pottery finds. Medieval settlement of Withow. WWII defences including minefield and weapon pits. Undated double ditch.	26.81	Y
PA3	N/A	Hall garth Hall and WWII Post (Scheduled Monument)	1013705, 1021192	Cable corridor option between two Scheduled Monuments of Hallgarth Hall and WWII site	25.54	Y

Priority Area	HER ID	NHLE Name and Type	NHLE ID	Description	Hectares (Ha)	Within Onshore Development Area Y/N
PA4	3862, 3407, 3409, 3413, 8849, 8977, 17599	N/A	N/A	Withow Mere prehistoric lake. Bronze Age beaker, amber and bone spear finds. Possible Bronze Age ring ditch nearby. Possible crannog. Bank and ditches.	16.12	Y
PA5	N/A	N/A	N/A	Blank area near landfall, included to support site selection.	14.22	Y
PA6	19339, 17601, MHU19340	N/A	N/A	Rectangular enclosure in Ladies Field. Findspots of prehistoric flint and medieval pot. Nearby undated linear cropmarks.	31.29	Y
PA7	22163, 18424, 19377, 18520	N/A	N/A	Near an Iron Age/Romano-British square enclosure. Other undated enclosures nearby. Near the medieval Dunnington Grange. WWII decoy.	20.82	Y

Priority Area	HER ID	NHLE Name and Type	NHLE ID	Description	Hectares (Ha)	Within Onshore Development Area Y/N
PA8	19371, MHU16531, 19372	Moated grange at Moor Grange (Scheduled Monument)	1007971	Blank area of unknown potential. Nearby undated enclosure and other undated cropmarks in the wider area. Near Scheduled medieval grange.	19.55	Y
PA9	MHU982, MHU987, 989	N/A	N/A	Nunkeeling deserted medieval village evident as cropmarks. Near a possible medieval moated site and Nunkeeling Priory.	17.57	Y
PA10	3617, 19468	N/A	N/A	Catfoss deserted medieval settlement. Undated linear cropmark	25.80	Y
PA11	3623, 2574	N/A	N/A	Medieval kiln and Romano-British pottery and possible enclosures to west. Catfoss deserted medieval settlement to north-west. Possible medieval moated site to south.	6.75	Y
PA12	2574, 3621	N/A	N/A	Possible medieval moated site and trackway. Near the site of Catfoss Hall.	1.86	Y

Priority Area	HER ID	NHLE Name and Type	NHLE ID	Description	Hectares (Ha)	Within Onshore Development Area Y/N
PA13	8840, 3591, 3628, 3597, 19093, 10203, 3590, 17944, 7169	N/A	N/A	Series of cropmarks indicating field systems and ditch systems. Possible mound and ditch. Various possible enclosures. Possibly of Iron Age or Romano-British date.	113.66	Y
PA14	6579	Site of Meaux Cistercian Abbey (Scheduled Monument)	1007843	Near the Scheduled Site of Meaux Abbey. Otherwise, a blank area with some undated enclosures recorded at the north of the area.	58.16	N - Priority Area now outside the Onshore Development Area.
PA15	22251, 13271, 18425, 19044	N/A	N/A	Iron Age and or Romano-British enclosures and field boundaries. Former course of Holderness Drain. WWII decoy.	37.11	Y

Priority Area	HER ID	NHLE Name and Type	NHLE ID	Description	Hectares (Ha)	Within Onshore Development Area Y/N
PA16	9005, 9004, 13104	Eske medieval settlement and field system, west and south of Eske Manor (Scheduled Monument)	1005216	Near Scheduled Eske medieval settlement. Two prehistoric axes, one dated to Bronze Age. Post medieval saltings.	20.28	Y
PA17	8376	Moated site and two fishponds 80m south-west of Parkhouse Farm (Scheduled Monument)	1007842, 1008292	Possible triple dyke feature. Within proximity of two Scheduled medieval features.	43.07	Y

Priority Area	HER ID	NHLE Name and Type	NHLE ID	Description	Hectares (Ha)	Within Onshore Development Area Y/N
PA18	13179, 12175, MHU596, 8683	Romano-British Enclosures (Scheduled Monument)	1013999, 1013995, 1013996, 1013992, 1013991, 1013998, 1013997, 1013994, 1013999, 1014001	Near Scheduled Bronze Age cemetery and settlement sites. Enclosure bank. Possible medieval holloway. Deer leap. Other banks and ditch recorded in this area.	40.57	Y
PA19	21853	N/A	N/A	Bronze Age metal working site	21.91	N- Priority Area now outside the Onshore Development Area.

Priority Area	HER ID	NHLE Name and Type	NHLE ID	Description	Hectares (Ha)	Within Onshore Development Area Y/N
PA20	6605, 3632, 3643, 20855, 19622, 3647, 3663, 3648	N/A	N/A	In an area of extremely high archaeological potential for assets of high importance. Various double-ditched trackways, possible Bronze Age ring ditches. Various Iron Age coin findspots. Likely settlement site.	87.82	N- Priority Area now outside the Onshore Development Area.
PA21	21700, MHU13308, 8940, 12378	Risby medieval hall, settlement and gardens; and Cellar Heads moated site and ridge and furrow earthworks (Scheduled Monument)	1015312, 1018600, 1015312	Iron Age/Romano-British enclosures and possible Roman Road located directly between two medieval Scheduled Monuments, Substation. Near Cellar Head medieval Scheduled Monument. Possible former barn at north-east.	39.07	N- Priority Area now outside the Onshore Development Area.

Priority Area	HER ID	NHLE Name and Type	NHLE ID	Description	Hectares (Ha)	Within Onshore Development Area Y/N
PA22	19512, 7518, 2545, 14716, 3532	Risby medieval hall, settlement and gardens; and Cellar Heads moated site (Scheduled Monument)	1018600 1015312	Mortuary enclosure, various ring ditches (hut circles) inside an ovoid enclosure, with associated trackway and field ditches. Romano-British pottery found nearby. Vague uncertain reference to a ruin in the HER.	39.44	N- Priority Area now outside the Onshore Development Area.
PA23	3532, 12530, 12805, 9237	Risby Jacobean gardens, hall and medieval settlement remains (Scheduled Monument, Registered Park and Garden)	1018600 1001419	Substation. Possible Bronze Age ring ditch to west. Post-medieval turnpike road and Dunflat toll gate	61.57	N- Priority Area now outside the Onshore Development Area.
PA24	15124, EHU1975	Heavy Anti-aircraft gunsite, 350m west of Butt Farm (Scheduled Monument)	1019186	Substation. Undated moated site. Watching brief in the area suggests moderate to high archaeological potential.	48.10	Y

Priority Area	HER ID	NHLE Name and Type	NHLE ID	Description	Hectares (Ha)	Within Onshore Development Area Y/N
PA25	6625, 1509	N/A	N/A	Substation. Possible henge, not visible on any aerial photographs. Ring ditch. Iron Age, Romano-British and medieval enclosures.	90.05	Y

22.6.4 Methodology

22.6.4.1 Method Selection and Justification

20. Gradiometer surveys measure small changes in the earth's magnetic field. Archaeological materials and activity can be detected by identifying changes to the magnetic values caused by the presence of weakly magnetised iron oxides in the soil (Aspinall et al., 2008; Sharma, 1997). Human inhabitation often causes alterations to the magnetic properties of the ground (Aspinall et al., 2008). There are two physical transformations that produce a significant contrast between the magnetic properties of archaeological features and the surrounding soil: the enhancement of magnetic susceptibility and thermoremanent magnetization (Aspinall et al., 2008; Heron and Gaffney 1987).
21. Ditches and pits can be easily detected through gradiometer survey as the topsoil is generally suggested to have a greater magnetisation than the subsoil caused by human habitation. Areas of burning or materials which have been subjected to heat commonly also have high magnetic signatures, such as hearths, kilns, fired clay and mudbricks (Clark 1996,; Lowe and Fogel 2010).
22. It should be noted that negative anomalies can also be useful for characterising archaeological features. If the buried remains are composed of a material with a lower magnetisation compared to the surrounding soil, the surrounding soil will consequently have a greater magnetization, resulting in the feature in question displaying a negative signature. For example, stone materials of a structural nature that are composed of sedimentary rocks are considered non-magnetic and so will appear as negative features within the dataset.
23. Ferrous objects (i.e., iron and its alloys) are strongly magnetic and are typically detected as high-value peaks in gradiometer survey data, though it is not usually possible to determine whether these relate to archaeological or modern objects.
24. Although gradiometer surveys have been successfully carried out in all areas of the United Kingdom, the effectiveness of the technique is lessened in areas with complex geology, particularly where igneous and metamorphic bedrock is present or thick layers of alluvium or till. All magnetic geophysical surveys must therefore take the effects of background geological and geomorphological conditions into account.

22.6.4.2 Survey and Data Processing

25. Parameters and survey methods were selected that were suitable for the prospective aims of the survey and in accordance with recommended professional good practice (Schmidt et al., 2016).
26. Digital photographs of every survey area were taken before, during and after geophysical survey to show any changes to field conditions following the programme of works. The photos were downloaded and stored off site.
27. Survey was undertaken using pushcart-based gradiometer systems. The cart system utilises six Grad-01 fluxgate gradiometer sensors mounted upon a carbon fibre frame 1m apart, along with data logging equipment and batteries. Before each session of use, the cart system was balanced around a single set up point within the local survey area specifically chosen for being magnetically quiet. Balancing the machine around this point produces a more uniform dataset throughout and allows all data to be plotted with ease.
28. Data was collected using zig-zag traverses alongside a constant stream of GPS data collected through a Trimble R10 GPS, enabling the collected data to be spatially georeferenced without the need for a pre-determined grid system. The data was collected through a laptop mounted to the cart using Geomar MLGrad601 software. Additional Details area provided in **Annex 1**.
29. A total of 200ha were surveyed using the Bartington cart.
30. Care was taken to attempt to avoid metal obstacles present within the survey area, such as metal fencing around hedge boundaries as gradiometer survey is affected by 'above-ground noise' and avoiding these improves the overall data quality and results obtained.
31. The data was downloaded from MLGrad601 and converted into a .xyz file in Geomar MultiGrad601 before being processed along with the GPS data in TerraSurveyor v3.0.34.10. The details of these processes can be found in **Annex 2**.

22.6.4.3 Results and Interpretation of Gradiometer Data

32. The results of the Archaeological Geophysical Survey have been assessed and interpreted to gain a clear understanding of potential buried below ground remains within the survey extent in advance of development works.

33. The survey results are plotted at a variety of ranges and assembled in a layered GIS environment for interpretation alongside aerial images, current and historic maps and layers detailing the geology and soils present within the survey area. XY trace plots were also available for the characterisation of magnetic signals.
34. By necessity, only the most effective plotting ranges have been produced as figures within the report:
 - **Figures 22-6-9 to 22-6-23:** Processed Summary Greyscale Images plotted at -1nT to 2nT (1:2,500);
 - **Figures 22-6-24 to 22-6-38:** Summary Interpretations (1:2,500);
 - **Figures 22-6-39 to 22-6-90:** Minimally Processed Archive XY Traces plotted at 50nT per cm (1:1,000);
 - **Figures 22-6-91 to 22-6-142:** Processed Archive Greyscale Images plotted at -1nT to 2nT (1:1,000); and
 - **Figures 22-6-143 to 22-6-194:** Archive Interpretations (1:1,000).
35. Interpretations of the data were created as layers in ArcGIS Pro and the technical terminology used to describe the identified anomalies can be found in **Annex 3**. Anomalies have been divided into the following overarching categories:
 - **Definite/Probable Archaeology:** Interpretation is supported by the presence of known archaeological remains or by other forms of evidence such as HER records, LiDAR data or cropmarks identified through aerial photography, or anomalies with no other possible explanation due to their diagnostic;
 - **Possible Archaeology:** Anomalies are likely to have an archaeological origin, however without supporting evidence from known archaeological remains, HER records, LiDAR or aerial photography, they can only be classed as having a possible archaeological origin;
 - **Unclear Origin:** Responses are magnetically weak, fractured, or isolated and their context is difficult to ascertain. Whilst an archaeological origin is possible, an agricultural, geological, or modern origin is also likely;
 - **Agricultural:** Trends associated with agricultural activity, either historical or modern; and
 - **Non - Archaeology:** Responses which are likely to have derived from non-archaeological processes or activities, or natural variations.

36. The classes have three sub-types (generally); anomalies (typically indicated by a solid colour polygon), spreads (a stippled polygon) and trends (a line with a colour matching the polygon colour). Anomalies refer to distinct changes in the survey data which suggest an abrupt boundary between materials below ground, such as a cut feature with a magnetically contrasting fill. Spreads of enhanced material refer to diffuse areas of altered magnetic contrast which suggest a localised spread of material with a magnetic contrast within the topsoil or ploughzone. Linear trends are less distinct and are typically visible as linear patterning in the overall texture of the data. A common example of these is the striping effect caused by recent ploughing.
37. For the most part, only anomalies of a definite, probable, or possible archaeological origin and historical responses have been assigned an anomaly number on the interpretation figures. Anomalies and trends of an uncertain origin that are integral to the discussion have also been assigned anomaly numbers. The anomaly ID is prefixed by the field number. These are only provided on the archive interpretations.
38. The following sources of information were consulted to aid interpretation of the Archaeological Geophysical Survey results:
- HER;
 - National Heritage List for England (NHLE);
 - NMP;
 - LiDAR and map regression prepared by APS;
 - British Geological Survey, Geology of Britain Viewer; and
 - National Library of Scotland (NLS).

22.6.5 Detailed Results of Gradiometer Survey

Table 22-2 Non Priority Area – Landfall

Field No	Notes	Definite/Probable Archaeology	Possible Archaeology	Unclear	Agricultural	Non-Archaeological
24 (Figures 22-6-43, 22-6-95, 22-6-147)	Survey area lies outside updated Onshore Development Area.	A series of strongly enhanced linear trends were detected in the north of the survey area. The nature and form of these responses suggests a probable archaeological origin such as a trackway [24A] and associated enclosures [24B], potentially prehistoric in date. The anomalies do not correspond with any known archaeological features, although the site of WWII Diver AA Battery (MHU21210) overlies many of the responses. Only a limited area of enhanced magnetism [24C] corresponds with these former features. Weaker rectilinear trends [24D] were recorded to the north of [24A] indicating an enclosure adjoining the postulated trackway.	Amorphous spreads [24E] of magnetically enhanced material have been recorded in the north of the area, immediate to the east of enclosure [24C]. This is noted as having a possible archaeological origin, although it is not possible to say if it is associated with the presumed prehistoric responses, or the later WWII Battery or its removal. Along the southern limits of the survey area a rectilinear anomaly [24F] has been detected. The form and nature of the response suggests a small enclosure. However, there is no clear spatial relationship with trends [24B] and the anomaly may have a more recent origin, potentially associated with the WWII Battery.	A sinuous zone of negatively enhanced magnetism [24G] has been detected in the south of the survey area. The origin of this is unclear; it may have a natural origin or possibly be associated with the former battery. Additional discrete zones of enhanced magnetism [24H] of an unclear origin have been noted in the south of the survey area. These may indicate archaeological deposits but could equally have a natural origin.	Parallel linear trends on a north-south alignment are indicative of past ridge and furrow cultivation.	Strong magnetic disturbance around the edges of the survey area is due to adjacent fences and infrastructure. The moderate levels of isolated ferrous/fired responses are due to modern debris in the topsoil.
28 (Figures 22-6-41 to 22-6-44, 22-6-93 to 22-6-96, 22-6-145 to 22-6-148)	Survey area lies outside updated Onshore Development Area.	An extensive network of linear trends was detected in this survey area and are likely to be a continuation of those detected in Field 24 to the north-west. Linear	A series of weaker linear and curvilinear trends [28D] have also been detected. These are most likely to indicate a continuation of the anomalies categorised as probable	Several discrete areas of enhanced magnetism [28E] and linear trends [28F] have been noted within this field which have an unclear origin. While some of these may indicate archaeological	The linear anomaly [28G] crossing the south of the survey area corresponds with a former field boundary depicted on OS 1:25,000 map of 1937 – 61 (NLS, 2023)	Amorphous areas of enhanced magnetism have been detected in the north of the survey area and are believed to be due to natural geological variations.

Field No	Notes	Definite/Probable Archaeology	Possible Archaeology	Unclear	Agricultural	Non-Archaeological
		and curvilinear trends [28A] in the north of the survey area suggest prehistoric field systems or enclosures. In the south of the field clearly defined rectilinear trends have been identified suggesting an inner enclosure [28B], measuring approximately 30m by 35m, surrounded by associated linear trends [28C] forming a series of additional enclosures. The responses are consistent with Romano-British remains and may indicate a villa complex.	archaeology but are not as well defined.	deposits and features, some may be due to natural variations or agricultural activity. Interpretation is confused by the elevated level of background response.	Parallel trends have been noted throughout the survey area and are due to past ridge and furrow cultivation. These are aligned approximately north-south in the north of the area, and east-west in the south of the area.	A modern service, on a NW-SE alignment, crosses the south-west of the field. Strong magnetic disturbance along the edges, and running through the centre, of the survey area is due to adjacent metal fences. The moderate levels of isolated ferrous/fired responses are due to modern debris in the topsoil.
31 (Figures 22-6-43 to 22-6-44, 22-6-95 to 22-6-96, 22-6-147 to 22-6-148)	Survey area lies outside updated Onshore Development Area.	None Detected.	None Detected.	Several poorly defined areas of enhanced magnetism and weak trends [31A] have been noted in the north-west of the survey area. While an archaeological origin for these anomalies cannot be excluded, they are likely to be due to natural variations and modern agricultural activity.	A group of parallel linear trends has been detected in the north-east of the survey area and are consistent with ridge and furrow cultivation. Linear trends in the south-east of the survey area are typical of field drains and form a distinctive herringbone pattern.	Strong magnetic disturbance along the edges of the survey area are due to adjacent metal fences. The high levels of isolated ferrous/fired responses are due to modern debris in the topsoil.
33 (Figures 22-6-43 to 22-6-44, 22-6-95 to 22-6-96, 22-6-145 to 22-6-147)	Survey area lies outside updated Onshore Development Area.	None Detected.	None Detected.	The whole area is dominated by strong responses. This has been noted as having an unclear origin. While the landowner has discussed agricultural activity which	None Detected.	None Detected.

Field No	Notes	Definite/Probable Archaeology	Possible Archaeology	Unclear	Agricultural	Non-Archaeological
				would account for the elevated level of response, some of the disturbance may be due to the former Brickworks indicated on the 1 st Ed OS map (NLS, 2023).		

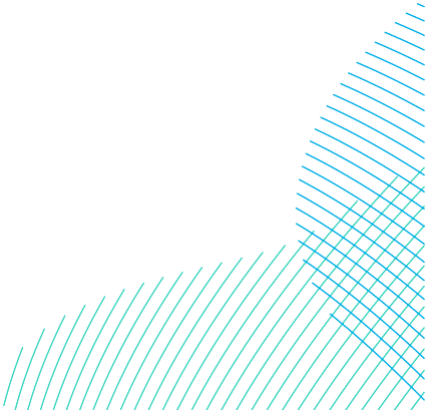


Table 22-3 Priority Area 2

Field No	Notes	Definite/Probable Archaeology	Possible Archaeology	Unclear	Agricultural	Non-Archaeological
29 (Figures 22-6-39 to 22-6-42, 22-6-91 to 22-6-94, 22-6-143 to 22-6-146)	Northern half of survey area lies outside updated Onshore Development Area.	Three discrete areas of strongly enhanced magnetic response have been recorded in the centre of the survey area. Response [29A] corresponds with an HHER entry recording a WW2 pillbox, trackway, and gun emplacement. (MHU9941) although nothing is present on the surface. Anomaly [29B] is associated with an extant pillbox while response [29C] coincides with a known gun emplacement.	Short linear trends [29D] were detected along the western limits of the survey area. These are likely to be a continuation of the series of enclosures detected in Field 28 immediately to the west. In the south of the survey area a fragmentary circular response [29E] and apparently associated curvilinear trend [29F] has been detected. The form of the responses suggests a possible archaeological origin, but they could be due to natural variations, or be associated with WWII activity.	Several areas of enhanced magnetism have been detected which have unclear origins. It is possible that the concentrations of discrete responses [29G] are associated with WWII activity, but a natural origin cannot be excluded. The origin of the more amorphous area of enhanced magnetism [29H] along the western limits of the survey area is unclear. While its proximity to presumed archaeological features suggests a possible archaeological origin, its location along the modern field boundary may indicate a more recent origin.	The linear trends [29I] aligned approximately north-south correspond with former field boundaries indicated on the OS map of 1888 (NLS, 2023). Wide spaced parallel trends in the west of the survey area are due to ridge and furrow cultivation which extends into Field 28 to the west. In the eastern half of the survey area clear narrowly spaced parallel trends dominate the data. These respect the former field boundary and are believed to be associated with past ridge and furrow cultivation. Ephemeral trends on a SW-NE orientation in the east of the area are due to field drains.	The coherent 'L'-shaped zone of enhanced magnetism [29J] mapped in the east of the survey area follows the base of large slope and is due to natural variations. Addition natural variations have been mapped along the north-eastern limits of the survey area. Magnetic disturbance around the edges of the survey area is due to adjacent fences. The moderate levels of isolated ferrous/fired responses are due to modern debris in the topsoil.
37 (Figures 22-6-39 to 22-6-40, 22-6-91 to 22-6-92, 22-6-143 to 22-6-144)	Survey area lies within updated Onshore Development Area.	None Detected.	None Detected.	The origin of the linear trend [37A] and area of enhanced magnetism [37B] is unclear, but it is likely that they are associated with the former field boundaries.	The fragmentary trends [37C], which have ferrous elements in places, coincide with former filed divisions depicted on the 1 st Ed OS map of 1888 (NLS, 2023). Two sets of parallel trends have been noted within this small survey area. These are aligned east-west in the north of the area, and north-south in the south of the area and are typical of past ridge and furrow cultivation with the change in orientation	Small zones magnetic disturbance along the edges of the survey area is due to adjacent metal fences. A low level of isolated ferrous/fired responses have been noted.

Field No	Notes	Definite/Probable Archaeology	Possible Archaeology	Unclear	Agricultural	Non-Archaeological
					coinciding with the former field boundaries.	
38 (extends in to PA4). (Figures 22-6-39 to 22-6-41, 22-6-91 to 22-6-93, 22-6-143 to 22-6-145)	Survey area lies within updated Onshore Development Area.	The area of strong magnetic response [38A] coincides with an extant WWII Pillbox (MHU18422). The linear trend [38B] in the west of the area is believed to be a southward extension of the complex of enclosures detected in Field 28 to the north.	The more ephemeral linear trends [38C] in the west of the survey area are also believed to be part of the enclosure complex recorded in Field 28, but they are less well-defined hence their classification as possible archaeology.	The sinuous zones of elevated response [38D] may indicate further deposits associated with the enclosure complex to the north but interpretation is cautious; they could have a natural or agricultural origin. Similarly, the discrete pit type anomalies [38E] have an unclear origin. While an archaeological origin cannot be excluded, a natural or modern origin is more plausible. The linear trends [38F] in the south-west of the area are likely to have an agricultural cause such as ridge and furrow cultivation, but a natural origin cannot be excluded. Several weak linear trends have been noted in the east of the survey area. It is likely that most of these are associated with drainage features or modern ploughing. Trends [38G] in the south-east of the area may be associated with former field boundaries and tracks, although a more recent agricultural origin is also possible.	The clear linear trends [38H] correspond to former field boundaries depicted on the 1 st Ed OS map of 1888 (NLS, 2023). Two groups of parallel trends indicative of past ridge and furrow cultivation have been mapped across this survey area. These are all aligned approximately east- west and respect the former field divisions. The more narrowly spaced parallel trends in the south-east of the area are believed to be associated with more recent agricultural activity.	Amorphous zones of strongly enhanced magnetism have been detected towards the centre of the survey area. These are typical of natural subsurface variations such as palaeochannels. Small zones magnetic disturbance along the edges of the survey area is due to adjacent metal fences. A low level of isolated ferrous/fired responses have been noted.
42, 44, 48, 51, 53 – Not available for survey	Survey area lies within updated Onshore Development Area.					

Table 22-4 Priority Area 4

Field No	Notes	Definite/Probable Archaeology	Possible Archaeology	Unclear	Agricultural	Non-Archaeological
39 (Figures 22-6-44, 22-6-96, 22-6-148)	Survey area lies within updated Onshore Development Area.	In the south of the survey area a fragmentary circular anomaly [39A] have been detected which measures 14m in diameter. This appears to be enclosed by a rectangular enclosure [39B] measuring approximately 35m by 45m. However, geophysical survey cannot date features and they may not be contemporary. While their form and nature suggest these features may be prehistoric in age, the possibility that they could be associated with WWII structures cannot be dismissed. No entries are recorded on the HER in this area.	Several less well-defined linear trends [39C] have been detected. They are noted as possibly archaeological in origin as their form is less coherent, but they are associated with anomalies [39A] and [39B].	The origin of the linear trends [39D] is unclear. They may be associated with the spread of magnetically enhanced material [39E] which is likely to have a modern or agricultural origin. A discrete pit type anomaly [39F] has been detected along the western limits of the survey area. While the response could be due to more deeply buried ferrous material, it may indicate an area of burning. Linear trends [39G] on east-west and north-south alignments are discernible in the north-east of the survey area. The origin of these is unclear with interpretation complicated by the elevated level of background response. They could have an archaeological origin indicating a continuation of the linear trends detected in Field 38. However, a more recent agricultural origin is possible. Potentially associated with these trends are amorphous responses [39H]. While it is possible that these are plough damaged archaeological deposit, they could have a natural origin.	Weak parallel trends on a north-south alignment are typical of past ridge and furrow cultivation. Weaker trends aligned east-west are due to modern ploughing.	Responses due to natural geological variations are apparent in the east of the survey area. Zones magnetic disturbance along the edges of the survey area is due to adjacent metal fences. A high level of isolated ferrous/fired responses have been noted.

Field No	Notes	Definite/Probable Archaeology	Possible Archaeology	Unclear	Agricultural	Non-Archaeological
50, 121 – Not available for survey	Survey area lies within updated Onshore Development Area.					

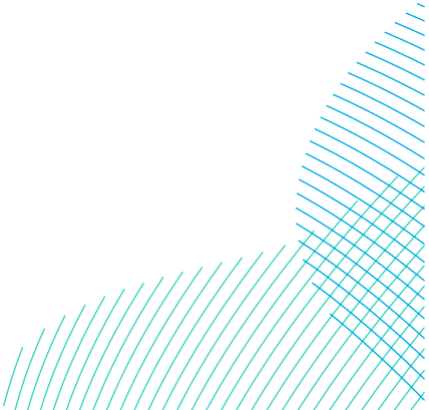


Table 22-5 Priority Area 9

Field No	Notes	Definite/Probable Archaeology	Possible Archaeology	Unclear	Agricultural	Non-Archaeological
123 (Figures 22-6-45, 22-6-97, 22-6-149)	Survey area lies within updated Onshore Development Area.	Nunkeeling Deserted Medieval Village (MHU982) is recorded within this area as cropmarks. The linear trends [123A] correlate with extant earthworks associated with the DMV.	A linear zone of negative magnetic enhancement [123B] crosses the centre of the survey area. This may have an archaeological origin associated with the DMV. However, it may be due to an undocumented former field boundary.	Several linear zones of enhanced magnetism [123C] have been detected which have an unclear origin. They may be associated with the DMV but could equally be due to modern agricultural activity.	Parallel linear trends on an east-west orientation have been detected in the north of the survey area and are typical of past ridge and furrow cultivation. The broad area of magnetic noise [123D] in the south of the survey area is believed to be due to modern activity such as the application of green waste and material to improve drainage.	A curving band of fragmentary enhanced magnetism [123E] detected in the north-east of the survey area is thought to be associated with natural geological variations associated with topographic changes. Magnetic disturbance along the northern and eastern limits of the survey area is due to adjacent fences. The high levels of isolated ferrous/fired responses are due to modern debris in the topsoil.
129 (Figures 22-6-45 to 22-6-646, 22-6-97 to 22-6-98, 22-6-149 to 22-6-150)	Survey area lies within updated Onshore Development Area.	None detected.	Several well-defined linear trends [129A] and more amorphous linear zones of increased magnetic enhancement [129B] have been detected within this survey area. It is likely that these are associated with the DMV to the north and the site of Nunkeeling Priory (MHU989) to the west. However, the responses are poorly defined against an elevated level of background response. Several broad areas of magnetic disturbance [129C] are evident in the west of the survey area. These are very well defined and have a general orientation consistent with [129A] and [129B]. They	A linear trend [129D] has been detected in the southern half of the survey area. The origin of this is unclear. It may be due to modern agricultural activity, but an archaeological origin cannot be excluded.	Weak trends on a SSW-NNE orientation are due to agricultural activity. It is not clear if this is due to modern ploughing, as the field rotates between arable and pasture, or due to older ridge and furrow cultivation.	Magnetic disturbance along the northern and eastern limits of the survey area is due to adjacent fences. The high levels of isolated ferrous/fired responses are due to modern debris in the topsoil.

Field No	Notes	Definite/Probable Archaeology	Possible Archaeology	Unclear	Agricultural	Non-Archaeological
			may indicate demolition spreads associated with former structures, or potentially infilled features such as fishponds. However, they may simply be due to spreads of modern material associated with agricultural activity.			
134 (Figures 22-6-46 to 22-6-47, 22-6-98 to 22-6-99, 22-6-150 to 22-6-151)	Survey area lies within updated Onshore Development Area.	None detected.	Three negative parallel linear trends [134A] run through the centre of the survey area on SW-NE alignment and continue into Field 135 to the south-west. These have been categorised as possible archaeology. The negative response would normally suggest a bank type feature and they could potentially indicate a triple dyke feature. However, a more recent agricultural or natural origin cannot be excluded.	Several additional weak linear trends [134B] on a generally east west alignment have been detected across the survey area. The origin of these is unclear. They may have an agricultural origin, but they could be due to natural variations. Several strong pit type anomalies [134C] have been detected. These may simply be due to more deeply buried ferrous material, but an archaeological origin cannot be excluded.	The fragmentary linear trend [134D] running east west through the centre of the survey area corresponds with a former field boundary shown on the 1 st Ed OS map of 1888 (NLS, 2023) Narrowly spaced parallel trends have been detected in the southern half of the survey area. These respect former field boundary and are likely to be associated with past ridge and furrow cultivation, although it is possible that they reflect more modern drainage features.	The magnetic disturbance along the eastern and northern limits of the survey area is due to a modern utility. Magnetic disturbance on the western limits of the survey area is associated with a field entrance. The isolated ferrous/fired responses are due to modern debris in the topsoil.
135 (Figures 22-6-46 to 22-6-47, 22-6-98 to 22-6-99, 22-6-150 to 22-6-151)	Survey area lies within updated Onshore Development Area.	A short, strong, linear anomaly [135A] has been detected in the south of the survey, along the western limits of the area. Although the limited extent of the response makes interpretation cautious, it is likely to be associated with a possible moated site	Some positively enhanced linear trends [135B] have been noted in the north-west of the survey area. The form of the responses suggests a possible archaeological origin, although there is no correlation with the undulations in the field. Three ephemeral parallel trends [135C] have been noted in the north of the survey area. These appear to	Two discrete areas of enhanced magnetism [135D] have been recorded in the centre of the survey area. The origin of these is unclear, but they are most likely modern.	None detected.	Magnetic disturbance on the eastern limits of the survey area is associated with a field entrance. The isolated ferrous/fired responses are due to modern debris in the topsoil.

Field No	Notes	Definite/Probable Archaeology	Possible Archaeology	Unclear	Agricultural	Non-Archaeological
		(MHU987) recorded at this location.	be a continuation of trends [134A] detected to the east.			

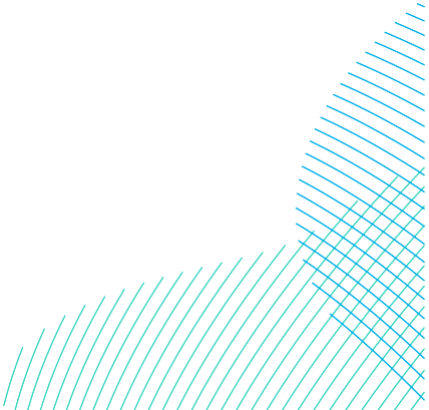


Table 22-6 Priority Area 15

Field No	Notes	Definite/Probable Archaeology	Possible Archaeology	Unclear	Agricultural	Non-Archaeological
281 (Figures 22-6-50, 22-6-102, 154)	Survey area lies within updated Onshore Development Area.	None detected.	None detected.	None detected.	None detected.	Magnetic disturbance at the limits of the survey area is associated with metal fencing and the continuation of the modern utility detected in 296 and 315. The isolated ferrous/fired responses are due to modern debris in the topsoil.
285 – Not available for survey	Survey area lies within updated Onshore Development Area.					
291 (Figures 22-6-52 to 22-6-57, 22-6-104 to 22-6-109, 22-6-156 to 22-6-161)	Survey area lies within updated Onshore Development Area.	None detected.	Short linear anomalies and discrete areas of enhanced magnetism [291A] have been noted along the northern limits of the survey area and have been categorised as having a possible archaeological origin. Interpretation is cautious due to the responses being on the limits of the survey area, but they have an archaeological form. However, an agricultural or natural origin cannot be excluded.	A subcircular zone of enhance magnetism [291B] has been detected in the south-east of the survey area. The origin of this is unclear. It may have an archaeological origin, but a natural origin is more likely. Several weak linear trends and additional discrete areas of enhanced magnetism have been noted throughout this survey area. While an archaeological origin for these cannot be excluded, natural and agricultural origins are more likely.	Weak trends on NW-SE alignment reflect modern ploughing.	A modern utility runs along the western limit of the survey area. Additional zones of magnetic disturbance are due to adjacent metal fencing. The isolated ferrous/fired responses are due to modern debris in the topsoil.
296 (Figures 22-6-50 to 22-6-53, 22-6-102 to 22-6-105, 22-	Survey area lies within updated Onshore Development Area.	None detected.	A curving negative trend [296A] has been detected in the west of the survey area. This has been noted as possible archaeology due to	Several weak linear trends and discrete areas of enhanced magnetism have been noted throughout this survey area. While an archaeological origin for these cannot be exclude,	None detected.	A subtle mottling is evident throughout the dataset which is due to natural variations.

Field No	Notes	Definite/Probable Archaeology	Possible Archaeology	Unclear	Agricultural	Non-Archaeological
6-154 to 22-6-157)			its form, but it may have a natural origin.	natural and agricultural origins are more likely.		A modern utility runs through the survey area on a NW-SE orientation. Small zones magnetic disturbance along the edges of the survey area are due to adjacent metal fences. A low level of isolated ferrous/fired responses have been noted.
299 (Figures 22-6-57, 22-6-109, 22-6-161)	Survey area lies within updated Onshore Development Area.	None detected.	None detected.	Linear trends have been noted on a NE-SW alignment within this survey area. While noted as having an unclear origin, an agricultural origin is most likely	Linear trends on a north-south alignment are due to field drains. Weak trends on NW-SE alignment reflect modern ploughing.	This area has a low level of background noise relative to Field 291 immediately to the north with only a small area of disturbance in centre of dataset. The modern utility detected in Field 291 continues into this area
307 (Figures 22-6-48, 22-6-100, 22-6-152)	Survey area lies within updated Onshore Development Area.	None detected.	None detected.	None detected.	None detected.	Curving linear trends of a natural origin have been detected within the survey area. A low level of isolated ferrous/fired responses have been noted.
315 (Figures 22-6-48 to 22-6-50, 22-6-100 to 22-6-102, 22-6-152 to 22-6-154)	Survey area lies within updated Onshore Development Area.	None detected.	A linear trend [315A] runs through the centre of the survey area. This has been noted as having a possible archaeological origin due to its nature and form, but it may have an agricultural origin.	Additional trends have been noted within this survey area. It is likely that these have natural or agricultural origins. However, given that linear trend [315A] has been noted as having a possible archaeological origin, it is possible that trend [315B] may be associated with [315A] given their spatial relationship. However, a	Weak trends on NW-SE alignment reflect modern ploughing.	Curving linear trends of a natural origin are present throughout the dataset. Two modern utilities cross the survey area. Small zones magnetic disturbance along the eastern and western edges of the survey area are due to adjacent metal fences.

Field No	Notes	Definite/Probable Archaeology	Possible Archaeology	Unclear	Agricultural	Non-Archaeological
				natural or agricultural origin is more likely.		A high level of isolated ferrous/fired responses have been noted throughout the survey area.
330 (Figures 22-6-49 to 22-6-50, 22-6-101 to 22-6-102, 22-6-153 to 22-6-154)	Survey area lies within updated Onshore Development Area.	None detected.	None detected.	None detected.	None detected.	The modern utility detected in Field 315 continues into this area. Zones of elevated response are due to natural variations. Magnetic disturbance along the edges of the survey area is due to adjacent metal fences.

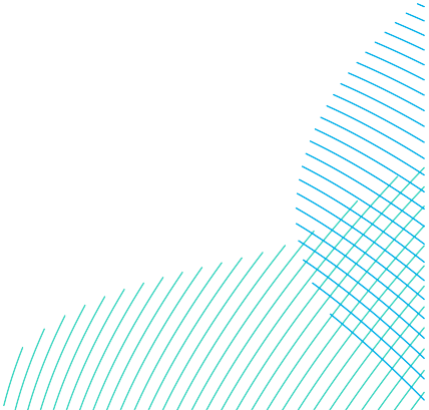


Table 22-7 Priority Area 16

Field No	Notes	Definite/Probable Archaeology	Possible Archaeology	Unclear	Agricultural	Non-Archaeological
297 (Figures 22-6-58 to 22-6-59, 22-6-110 to 22-6-111, 22-6-162 to 22-6-163)	Survey area lies within updated Onshore Development Area.	None detected.	None detected.	An ephemeral linear anomaly [297A] crosses the northern half of the survey area. The origin of this is unclear. It may indicate a field drain but could potentially indicate an undocumented former field division.	Possible drains are visible running east to west throughout the dataset. Weak parallel trends on a generally north-south alignment reflect modern ploughing.	Well-defined areas of enhanced magnetism have been detected across the field. These are typical of natural geological variations. Small zones magnetic disturbance along the eastern and western edges of the survey area are due to adjacent metal fences. A high level of isolated ferrous/fired responses have been noted throughout the survey area.
298 (Figures 22-6-59 to 22-6-61, 22-6-111 to 22-6-113, 22-6-163 to 22-6-165)	Survey area lies within updated Onshore Development Area.	None detected.	None detected.	An ephemeral linear anomaly [298A] runs through the centre of the survey area on a north south alignment. The origin of this is unclear. It could potentially indicate an undocumented former field division, but is more likely to be a field drain. Fragmentary linear trends [298B] cross the north-west of the survey area. The origin of this is unclear. It may indicate a field drain but could potentially indicate an undocumented former field division and may be a continuation of [297A] to the east.	Short linear trends suggestive of field drains run east to west throughout the dataset. Weak parallel trends on a generally north-south alignment indicate modern ploughing.	Areas of enhanced magnetism have been detected across the field. These are typical of natural geological variations. Discrete areas of magnetic disturbance along the eastern and western edges of the survey area are due to adjacent metal fences. A high level of isolated ferrous/fired responses have been noted throughout the survey area.
300 (Figures 22-6-59, 22-6-111 to 22-6-113, 22-6-163 to 22-6-165)	Survey area lies within updated Onshore Development Area.	None detected.	Several linear trends [300A] have been detected and have been categorised as possible archaeology. However, they may simply	A linear anomaly [300B] runs through the centre of the survey area on a north-south alignment. The origin of this is unclear. It may indicate a	Clearly defined linear trends indicative of field drains run east to west throughout the dataset.	Ephemeral areas of enhanced magnetism have been detected across the survey area. These are

Field No	Notes	Definite/Probable Archaeology	Possible Archaeology	Unclear	Agricultural	Non-Archaeological
111, 22-6-163)			indicate different phases of drainage, although their character and form differ from the drainage features detected elsewhere in this survey area.	field drain but could potentially indicate an undocumented former field division.	Weak parallel trends on a generally north-south alignment are due to modern ploughing.	typical of natural geological variations. Small zones magnetic disturbance along the eastern and western edges of the survey area are due to adjacent met-al fences. A high level of isolated ferrous/fired responses have been noted throughout the survey area.
304 – Not available for survey	Survey area lies within updated Onshore Development Area.					
306 (Figures 22-6-60 to 22-6-61, 22-6-112 to 22-6-113, 22-6-164 to 22-6-165)	Survey area lies within updated Onshore Development Area.	None detected.	None detected.	An ephemeral linear anomaly [306A] runs through the centre of the survey area on a north-south alignment. The origin of this is unclear. It may indicate a field drain but could potentially indicate an undocumented former field division.	Short linear trends suggestive of field drains run east to west throughout the dataset. Weak parallel trends on a generally north-south alignment reflect modern ploughing.	The area is dominated by well-defined areas of enhanced magnetism indicating natural geological variations. Small zones magnetic disturbance along the eastern and western edges of the survey area are due to adjacent metal fences. A high level of isolated ferrous/fired responses have been noted throughout the survey area.

Table 22-8 Priority Area 17

Field No	Notes	Definite/Probable Archaeology	Possible Archaeology	Unclear	Agricultural	Non-Archaeological
417 (Figures 22-6-62 to 22-6-64, 22-6-114 to 22-6-116, 22-6-166 to 22-6-168)	Survey area lies within updated Onshore Development Area.	None detected.	A few weak trends of a possible archaeological origin have been noted within this survey area. However, interpretation is cautious given the elevated level of background enhancement and strong responses from past ridge and furrow cultivation. The fragmentary trend [417A] in the south-west of the survey area may indicate a former field boundary but could have a natural origin. A suggestion of a rectilinear trend [417B] has been detected in the north-west of the area and lies within a general area of increased magnetic enhancement. This may indicate that earlier archaeological deposits are being disturbed by later ridge and furrow cultivation. However, no sites are known at this location and no cropmarks have been recorded	Several weak trends and discrete areas of magnetic enhancement of an unclear origin have been noted. The weak trends [417C] may be associated with possible archaeological features [417A], potentially indicting a relic field system. However, they may have an agricultural origin. While an archaeological origin for the discrete pit type responses can not be excluded, a natural origin is most likely.	The linear trend [417D] running through the centre of the survey area corresponds with a former field boundary record on the 1st Ed OS map of 1888 (NLS, 2023) Strong, slightly curving, parallel trends on a generally north-south alignment dominate the data and are due to past ridge and furrow cultivation, likely to be Medieval in date. Weaker parallel trends on a north-south alignment are due to modern ploughing.	Zones of magnetic disturbance along the limits of the survey area are due to adjacent metal fences. The low levels of isolated ferrous/fired responses are due to modern debris in the topsoil.
433 (Figures 22-6-64 to 22-6-69, 22-6-116 to 22-6-121, 22-6-168 to 22-6-173)	Survey area lies within updated Onshore Development Area.	None detected.	Along the southern limits of the survey area a rectilinear trend [433A] has been detected. The nature and form of the anomaly suggests a possible archaeological origin. However, its location at the edge of the survey area	Weak linear trends [433C] in the south of the area have been categorised as having an unclear origin. They may indicate remnants of a wider field system but could be due to more recent agricultural activity.	Strong, slightly curving, parallel trends on a generally north-south alignment indicating past ridge and furrow cultivation have been detected across the survey area	A swathe of strong response has been detected in the western half of the survey area. This is likely to have a natural origin and coincides with topographic changes. The low levels of isolated ferrous/fired responses are

Field No	Notes	Definite/Probable Archaeology	Possible Archaeology	Unclear	Agricultural	Non-Archaeological
			complicates interpretation and it may have a natural origin. A linear trend aligned east-west [443B] has been detected in the west of the survey area. This appears to be a continuation of anomalies detected in Field 443 immediately to the east.	Several discrete zones of enhanced magnetism have been noted throughout the survey area. These have been noted as unclear in origin because while an archaeological origin cannot be excluded, a natural origin is more plausible.	Weaker parallel trends on a north-south alignment are due to modern ploughing.	due to modern debris in the topsoil.
443 (Figures 22-6-65 to 22-6-69, 22-6-117 to 22-6-121, 22-6-169 to 22-6-173)	Survey area lies within updated Onshore Development Area.	In the north-west of the survey area linear trends [443A] have been detected which appear to form part of a possible prehistoric field system. They are categorised as having a probable archaeological origin due to their character and form. However, no known sites or cropmarks have been recorded within this area.	In the western half of the area several weak linear trends [443B] have been detected. These appear to be a continuation of a possible series of enclosures or field systems detected in Field 446 to the west. Two strong parallel trends [443C] have been mapped in the north-east of the survey area. The data suggests a possible trackway, but they may be ploughing headlands associated with the ridge and furrow cultivation.	Additional weak trends have been noted which have an unclear origin. It is possible that trends [443D] are associated with linear trends [443A] rather than the ridge and furrow cultivation, but such an interpretation is cautious. Several discrete areas of enhanced magnetism have been noted throughout the survey area. These are most likely to be due to natural variations in the subsoil.	The strong, sinuous trend [443E] in the north of the survey area corresponds with a former field division indicated on historic mapping (NLS, 1888). Parallel trends on a generally east-west alignment dominate the data and are due to past ridge and furrow cultivation. Weaker parallel trends on a NE-SW orientation are due to modern ploughing. There is also a general NW-SE grain to the data which may reflect additional ploughing trends, or natural variations.	Zones magnetic disturbance along the eastern limits of the survey area are due to adjacent metal fences and infrastructure. A moderate level of isolated ferrous/fired responses have been noted throughout the survey area.
444 (partial) (Figures 22-6-63, 22-6-115, 22-6-167)	Survey area lies within updated Onshore Development Area.	None detected.	None detected.	None detected.	North-south aligned parallel trends are a continuation of the ridge and furrow cultivation detected in Field 417 to the north.	The magnetic disturbance along the northern limits of the survey area is due to adjacent metal fences
446 (partial) (Figures 22-6-66 to 22-6-69, 22-6-118 to 22-6-121)	Survey area lies within updated Onshore Development Area.	None detected.	Several weak linear trends [446A] have been detected. The data suggests a possible series of enclosures or field systems They have been	Several discrete areas of enhanced magnetism have been noted throughout the survey area. These are most likely to be due to natural	The linear trend [446B] in the north of the survey area is a continuation of the former field boundary detected in Field 443 to the east	A low level of isolated ferrous/fired responses have been noted throughout the survey area.

Field No	Notes	Definite/Probable Archaeology	Possible Archaeology	Unclear	Agricultural	Non-Archaeological
6-121, 22-6-170 to 22-6-173)			categorised as possible, rather than probable, archaeology due to their ephemeral nature and because an agricultural origin cannot be wholly excluded.	variations in the sub-soil, although an archaeological origin cannot be wholly excluded.	Parallel trends on a generally east-west alignment dominate the data and are due to past ridge and furrow cultivation, likely to be Medieval in date. Weaker parallel trends on a NE-SW orientation are due to modern ploughing. There is also a general NW-SE grain to the data which may reflect additional ploughing trends, or natural variations.	
474 (Figures 22-6-69 to 22-6-72, 22-6-121 to 22-6-141, 22-6-173 to 22-6-176)	Survey area lies within updated Onshore Development Area.	A relatively well defined linear trend [474A] has been detected in the north-west of the survey area and is probably archaeological in origin. Its form is slightly different to the possible archaeological trends detected in Field 466 to the north increasing confidence in interpretation. Roman / Iron Age cropmarks have been recorded 250m to the south-west.	More poorly defined trends have been detected in the north [474B] and south [474C] of the survey area. These have been noted as having a possible archaeological origin but could be due to natural variations.	Several discrete areas of enhanced magnetism have been noted throughout the survey area. These are most likely to be due to natural variations in the sub-soil, although an archaeological origin cannot be wholly excluded.	Strong, slightly curving, parallel trends on a generally north-south alignment dominate the data and are due to past ridge and furrow cultivation, likely to be Medieval in date. The weak trend [474D] on the same alignment as the ridge and furrow cultivation trends coincides with a former field boundary indicated on the 1 st Ed OS map of 1888.	Zone of elevated response have been detected in the north-west and south of the survey area and are typical of natural variations associated with palaeochannels. Discrete areas of magnetic disturbance along northern limits of the survey area are due to adjacent metal fences and adjacent infrastructure. A moderate level of isolated ferrous/fired responses have been noted throughout the survey area.

Table 22-9 Priority Area 24

Field No	Notes	Definite/Probable Archaeology	Possible Archaeology	Unclear	Agricultural	Non-Archaeological
648 (partial) (Figures 22-6-73, 22-6-125, 22-6-177)	Survey area lies within updated Onshore Development Area.	None detected.	None detected.	A cluster of discrete areas of enhanced magnetism [648A] has been noted as having an unclear origin. It is most likely that these responses have a natural origin.	The area of elevated response along the western limits of the survey area [648B] corresponds with an infilled chalk pit (NLS, 2023). Weak trends on north-south and NE-SE alignments are due to modern ploughing.	Magnetic disturbance along the edges of the survey area is due to adjacent metal fences. A low level of isolated ferrous/fired responses have been noted.
704 (partial) (Figures 22-6-73 to 22-6-74, 22-6-125 to 22-6-126, 22-6-177 to 22-6-178)	Survey area lies within updated Onshore Development Area.	None detected.	None detected.	A weak trend and linear zones of enhanced magnetism [704A] have been noted as having an unclear origin. It is most likely that these responses have agricultural or natural origins. However, an archaeological origin cannot be excluded as later prehistoric/Roman ditches and an enclosure are visible as cropmarks 150m to the north-west of this survey area.	The strong magnetic response [704B] in the north-east of the survey area lies on the line of a former field boundary indicated on the OS map of 1888 (NLS, 1888) and is likely to be associated with in.	A band of increased response along the southern limits of the survey area is believed to be due to natural variations and follows the topography of the area. Disturbance and the gap in the data running through the centre of the survey area on a NW-SE orientation is due to overhead powerlines. Magnetic disturbance along the edges of the survey area is due to adjacent metal fences. A low level of isolated ferrous/fired responses have been noted.
729 (partial) (Figures 22-6-74 to 22-6-75, 22-6-126 to 22-6-127, 22-6-178 to 22-6-179)	Survey area lies within updated Onshore Development Area.	None detected.	None detected.	None detected.	Weak trends running through the data set on an east-west alignment are associated with modern agricultural activity.	The band of increased response along the northern limits of the survey area is believed to be due to natural variations and follows the topography of the area. The band of negative readings running NW to SE in the

Field No	Notes	Definite/Probable Archaeology	Possible Archaeology	Unclear	Agricultural	Non-Archaeological
						south of the survey area is due to interference caused by overhead low voltage power lines. Magnetic disturbance along the edges of the survey area is due to metal fences and adjacent infrastructure. A high level of isolated ferrous/fired responses have been noted.
762 (partial) (Figures 22-6-75, 22-6-127, 22-6-179)	Survey area lies within updated Onshore Development Area.	None detected.	None detected.	A slight negatively enhanced linear trend [762A] runs from south-west to north-east through the survey area. The origin of this is unclear and it could have a natural or modern origin. Two zones of enhanced response [762B] have been detected in the south of the survey area. The origin of these is unclear, although a modern origin is most plausible. Ephemeral trends [762C] have been noted as having an unclear Origin but are likely to be due to agricultural activity.	Weak trends running through the data set on an east-west alignment are associated with modern agricultural activity.	A large amount of magnetic disturbance is apparent on eastern and northern limits of the survey area and is due to adjacent fences and structures. A moderate level of isolated ferrous/fired responses have been noted.
772 - Not available for survey	Survey area lies within updated Onshore Development Area.					
773 (Figures 22-6-78 to 22-6-80, 22-6-130 to 22-	Survey area lies within updated Onshore Development Area.	None detected.	None detected.	Several weak trends have been noted. These are poorly defined against an elevated level of background response	Moderately high background disturbance, dense in places which suggests possible modern agricultural practices.	Zones of magnetic disturbance along the limits of the survey area is due to adjacent metal fences.

Field No	Notes	Definite/Probable Archaeology	Possible Archaeology	Unclear	Agricultural	Non-Archaeological
6-132, 22-6-182 to 22-184)				and are noted as having an unclear origin.		A moderate level of isolated ferrous/fired responses have been noted.
789 (Figures 22-6-78, 22-6-130, 22-6-184)	Survey area lies within updated Onshore Development Area.	None detected.	None detected.	A linear trend [789A] and a group of strong responses [789B] have been detected. These have unclear origins and may be associated with agricultural activity and modern debris, respectively.	Moderately high background disturbance, dense in places which suggests possible modern agricultural practices. The zone of increased response [789C] coincides with a structure depicted on the 1 st Ed OS map of 1888 (NLS, 2023).	Zones of magnetic disturbance along the limits of the survey area is due to adjacent metal fences. A moderate level of isolated ferrous/fired responses have been noted.
791 (Figures 22-6-77 to 22-6-80, 22-6-129 to 22-6-132, 22-6-181 to 22-6-184)	Survey area lies within updated Onshore Development Area.	None detected.	None detected.	Bands of increased response have been noted running east-west through the survey area. The origin of these is unclear. However, they are believed to be associated with modern disturbance from a combination of former tracks which existed in the area when it was wooded (NLS, 2023) and possible deposits of other modern material. A weak curving trend [791A] has been detected in the south-west of the survey area. While an archaeological origin for this cannot be excluded a natural or modern origin is more likely.	Moderately high background disturbance, dense in places which suggests possible modern agricultural practices. Short trends aligned NW-SE are believed to be due to field drains.	Zones of magnetic disturbance along the limits of the survey area is due to adjacent metal fences. A moderate level of isolated ferrous/fired responses have been noted.
801 - Not available for survey	Survey area lies within updated Onshore Development Area.					

Field No	Notes	Definite/Probable Archaeology	Possible Archaeology	Unclear	Agricultural	Non-Archaeological
818 (Figures 22-6-79 to 22-6-80, 22-6-131 to 22-6-132, 22-6-183 to 22-6-184)	Survey area lies within updated Onshore Development Area.	None detected.	A very well-defined circular anomaly [818A] has been detected in the north-west of this survey area, measuring approximately 30m in diameter. It is noted as possible, rather than probable, archaeology as the form of the responds is not entirely consistent with a ring ditch type feature. It appears to be associated with an extant feature and an area of likely modern distance which might suggest a more recent origin.	An area of strong enhancement [818B] has been detected immediately to the south of [818A]. While an archaeological origin for this cannot be excluded, the nature of the response suggests a modern origin.	The moderately high background disturbance, dense in places suggests possible modern agricultural practices. The linear trend [818C] coincides with a former field boundary. Parallel trends running north-west to south-east through the survey area are suggestive of past ridge and furrow cultivation.	Zones of magnetic disturbance along the limits of the survey area is due to adjacent metal fences. A moderate level of isolated ferrous/fired responses have been noted.
832 (partial) (Figures 22-6-77, 22-6-129, 22-6-181)	Survey area lies within updated Onshore Development Area.	None detected.	None detected.	There is a weak suggestion of a possible circular anomaly [832A] in the south of the survey area. This is noted as having an unclear origin due to the elevated level of background response. A negatively enhanced curving linear trend [832B] is present in the western half of the survey area. Additional trends have also been noted. These are noted as having an unclear origin at this time; completion of the field will aid interpretation.	Short linear trends visible in the data are believed to be associated with field drains.	Sinuous zones of enhanced magnetism are due to natural variations. Magnetic disturbance along the edges of the survey area is due to adjacent metal fences. A high level of isolated ferrous/fired responses have been noted.
858, 865, - Not available for survey	Survey area lies within updated Onshore Development Area.					

Table 22-10 Priority Area 25

Field No	Notes	Definite/Probable Archaeology	Possible Archaeology	Unclear	Agricultural	Non-Archaeological
643, 645, 646, 650, 651, 687, 710 – Not available for survey	Survey area lies within updated Onshore Development Area.					
714 (partial) (Figures 22-6-81 to 22-6-82, 22-6-133 to 22-6-134, 22-6-185 to 22-6-186)	Survey area lies within updated Onshore Development Area.	None detected.	None detected.	The strong linear anomalies [714A] along the north-western limits of the survey area appear natural in origin and lie at the bottom of a slope suggesting they are due to a paleochannel. However, they have been noted as having an unclear origin due to the limited survey extent. Two discrete anomalies [714B] have been detected towards the centre of the survey area. The origin of these is unclear. They may be due to more deeply buried ferrous material or pockets of magnetic gravels. However, they may be infilled extraction pits, as comparable features are indicated on the 1888 OS map in the immediate area.	Overall, the dataset appears magnetically noisy, probably a result of modern agricultural practices such as the application of green waste.	The two discrete areas of magnetic disturbance in the centre and along the western limits of the survey area are due to telegraph poles. Magnetic disturbance along the southern edge of the survey area is due to adjacent metal fences. A high level of isolated ferrous/fired responses have been noted.
736, 741 – Not available for survey	Survey area lies within updated Onshore Development Area.					
766 (partial) (Figures 22-6-81 to 22-	Survey area lies within updated Onshore Development Area.	A positively enhanced circular anomaly [766A] measuring approximately	Two poorly defined circular trends [766D] have been noted in the west of the	Ephemeral positive trends have been noted as having an unclear origin it. Trends	The line of strongly dipolar responses and associated linear trend [766H] which	The southern half of the survey area is dominated by a mottled appearance

Field No	Notes	Definite/Probable Archaeology	Possible Archaeology	Unclear	Agricultural	Non-Archaeological
6-84, 22-6-133 to 22-6-136, 22-6-185 to 22-6-188)		17m in diameter, was detected in the south of the survey area. The response is not complete, but it is not clear if the breaks reflect the true geometry of the feature or are due to plough damage. The anomaly shows excellent correlation with an Iron Age / Roman round house recorded as a cropmark as part of the National Mapping Project (NMP). Short linear trends [766B] have been detected which appear to be associated with the circular anomaly [766A] and are also visible as cropmarks. However, the features recorded as part of the NMP are far more extensive. Linear and rectilinear trends [766C], suggesting enclosures, have been detected along the western limits of the survey area, 100m to the west of [766A]. These show excellent correlation with an Iron Age / Roman rectilinear enclosure recorded by NMP. However, as with the responses, to the east, the gradiometer anomalies are not as extensive as the recorded cropmark features.	survey area. These appear to lie within rectilinear enclosure [766C]. A weak, positive, rectilinear trend [766E] has been noted in the west of the survey area. Its location and orientation suggest it may be associated with [766B], but it is noted as having a possible archaeological origin as it does not correspond with the recorded cropmarks and may be due recent agricultural activity. Weak trends [766F] show some correlation with AP transcriptions but they are very poorly defined against the elevated level of background response.	[766G] may have an archaeological origin but such an interpretation is tentative give their ephemeral nature and the elevated level of background response, together with the lack of clear correlation with the recorded cropmarks. Several negatively enhanced linear trends are visible in the south of the survey area. These are noted as having an unclear origin. While most are likely to have a natural origin, some may be due to agricultural activity or potentially former field divisions.	runs through northern half of the survey area corresponds with a former field boundary depicted on the 1st Ed OS map of 1888. The discrete area of enhanced magnetism [766H] corresponds with a feature on the 1st Ed OS map which suggests an infilled extraction pit. Ephemeral parallel trends running north-south through the survey are associated with modern ploughing.	generated by natural geological variations. Magnetic disturbance around the edges of the survey area is due to adjacent fences. The moderate levels of isolated ferrous/fired responses are due to modern debris in the topsoil.

Field No	Notes	Definite/Probable Archaeology	Possible Archaeology	Unclear	Agricultural	Non-Archaeological
776, 782 – Not available for survey	Survey area lies within updated Onshore Development Area.					
825 (Figures 22-6-84 to 22-6-90, 22-6-136 to 22-6-142, 22-6-188 to 22-6-194)	Survey area lies within updated Onshore Development Area.	None detected.	Several positively enhanced linear trends [825A] have been detected in the west of the survey area. The form of the responses suggests a possible trackway and associated field divisions. These have been categorised as having a possible archaeological origin, but they could be more recent undocumented features.	Numerous linear trends of an unclear origin have been recorded throughout this survey area. The positively enhanced linear trends [825B] along the northern limits of the survey area do not correlate with natural features and appear more likely archaeological to have an archaeological origin. However, their location on the edge of the survey area limits confidence in their interpretation hence them being classified as having an unclear origin. They may be due to agricultural activity. Several diffuse linear zones of magnetic enhancement [825C] have been noted along the southern limits of the survey area. These may be due to former drainage ditches. A strong discrete anomaly [825D] has been recorded in the north-west of the survey area. The origin of this is unclear. It may be due to modern ferrous material but could potentially indicate an area of burning or a capped bell pit.	The strong sinuous anomaly [825E] along the south-western limits of the survey area corresponds with an historic boundary which is no longer present. The boundary between Fields 825 and 861 is currently a slight ditch. Parallel trends in the south of the survey area are indicative of past ridge and furrow cultivation	Magnetic disturbance along the southern edge of the survey area is due to adjacent metal fences. A high level of isolated ferrous/fired responses have been noted.

Field No	Notes	Definite/Probable Archaeology	Possible Archaeology	Unclear	Agricultural	Non-Archaeological
				Several negatively enhanced linear trends are visible within the survey area. These are noted as having an unclear origin. While most are likely to have a natural origin, some may be due to agricultural activity or potentially former field divisions.		
861 (Figures 22-6-88, 22-6-140, 22-6-192)	Survey area lies within updated Onshore Development Area.	None detected.	None detected.	The large dipolar anomaly in centre of the survey area is likely to have a modern or natural origin. A linear trend in the west of the area is noted as unclear in origin but is likely to have a modern or agricultural origin.	None detected.	Magnetic disturbance along the southern edge of the survey area is due to adjacent metal fences. A high level of isolated ferrous/fired responses have been noted.
869 (Figures 22-6-85 to 22-6-88, 22-6-137 to 22-6-140, 22-6-189 to 22-6-192)	Survey area lies within updated Onshore Development Area.	None detected. A possible henge (MHU6625) is recorded in the south of this survey area. The feature is not visible in any aerial photograph and has not been detected by the gradiometer survey.	None detected.	The strong dipolar anomaly [869A] corresponds with a slight bowled depression in the field. Its origin is unclear, but it is most likely to have a more recent origin. Weak linear trends have been noted throughout the survey area. While noted as having an unclear origin, they are most likely to be associated with agricultural activity.	Linear trend [869B] coincides with a former field division indicated on the OS map of 1888 (NLS, 2023). Parallel trends suggestive of ridge and furrow cultivation have been recorded in the south of the survey area.	Magnetic disturbance along the southern edge of the survey area is due to adjacent metal fences and infrastructure. A moderate level of isolated ferrous/fired responses have been noted.

22.6.6 Summary of Results

39. This section provides a summary of the results of the survey. This is an overview only and the detailed results of survey are provided in section 22.6.5.

22.6.6.1 Definite/Probable Archaeology

22.6.6.1.1 Possible Landfall Locations

40. **Field 24 (Figures 22-6-10 and 22-6-25):** A series of strongly enhanced linear trends were detected in the north of the survey area. The nature and form of these responses suggests a probable archaeological origin such as a trackway and associated enclosures, potentially prehistoric in date.
41. **Field 28 (Figures 22-6-10 and 22-6-25):** An extensive network of linear trends was detected in this survey area and are likely to be a continuation of those detected in Field 24 to the north-west. Linear and curvilinear trends in the north of the survey area suggest prehistoric field systems or enclosures. In the south of the field clearly defined rectilinear trends have been identified suggesting an inner enclosure, measuring approximately 30m by 35m, surrounded by associated linear forming a series of additional enclosures. The responses are consistent with Romano-British remains and may indicate a villa complex.

22.6.6.1.2 Priority Area 2

42. **Field 29 (Figures 22-6-9 and 22-6-24):** Three discrete areas of strongly enhanced magnetic response have been recorded in the centre of the survey area and corresponds with an HER entry recording a WW2 pillbox, trackway, and gun emplacement (MHU9941).
43. **Field 38 (Figures 22-6-9 and 22-6-24):** The area of strong magnetic response coincides with an extant WWII Pillbox (MHU18422). Linear trends in the west of the area are believed to be a southward extension of the complex of enclosures detected in Field 28 to the north.

22.6.6.1.3 Priority Area 4

44. **Field 39 (Figures 22-6-10 and 22-6-25):** In the south of the survey area a fragmentary circular anomaly has been detected which measures 14m in diameter. This appears to be enclosed by a rectangular enclosure measuring approximately 35m by 45m. No entries are recorded on the HER in this area.

22.6.6.1.4 Priority Area 9

45. **Field 123 (Figures 22-6-11 and 22-6-26):** Linear trends have been detected which correspond with extant earthworks associated with the Nunkeeling Deserted Medieval Village (MHU982).
46. **Field 135 (Figures 22-6-11 and 22-6-26):** A short, strong, linear anomaly has been detected in the south of the survey, along the western limits of the area. Although the limited extent of the response makes interpretation cautious, it is likely to be associated with a possible moated site (MHU987) recorded at this location.

22.6.6.1.5 Priority Area 17

47. **Field 443 (Figures 22-6-17 and 22-6-32):** In the north-west of the survey area linear trends have been detected which appear to form part of a possible prehistoric field system. They are categorised as having a probable archaeological origin due to their character and form. However, no known sites or cropmarks have been recorded within this area.
48. **Field 474 (Figures 22-6-18 and 22-6-33):** A relatively well defined linear trend has been detected in the north-west of the survey area and is probably archaeological in origin. Its form is slightly different to the possible archaeological trends detected in Field 466 to the north increasing confidence in interpretation. Roman / Iron Age cropmarks have been recorded 250m to the south-west.

22.6.6.1.6 Priority Area 25

49. **Field 766 (Figures 22-6-23 and 22-6-38):** A positively enhanced circular anomaly measuring approximately 17m in diameter, was detected in the south of the survey area. The anomaly shows excellent correlation with an Iron Age / Roman round house recorded as a cropmark as part of the NMP. Short linear trends have been detected which appear to be associated with the circular anomaly and are also visible as cropmarks. Linear and rectilinear trends, suggesting enclosures, have been detected 100m to the west of. These also show excellent correlation with an Iron Age / Roman rectilinear enclosure recorded by NMP. However, the gradiometer anomalies are not as extensive as the recorded cropmark features.

22.6.6.2 Possible Archaeology

22.6.6.2.1 Landfall

50. **Field 24 (Figures 22-6-10 and 22-6-25):** Along the southern limits of the survey area a rectilinear anomaly has been detected. The form and nature of the response suggests a small enclosure. However, there is no clear spatial relationship with the probable archaeological trends detected and the anomaly may have a more recent origin, potentially associated with the WWII Battery.

22.6.6.2.2 Priority Area 2

51. **Field 29 (Figures 22-6-9 and 22-6-24):** In the south of the survey area a fragmentary circular response and apparently associated curvilinear trend has been detected. The form of the responses suggests a possible archaeological origin, but they could be due to natural variations, or be associated with WWII activity.

22.6.6.2.3 Priority Area 9

52. **Field 129 (Figures 22-6-11 and 22-6-26):** Several linear trends and linear zones of increased magnetic enhancement have been detected within this survey area. It is likely that these are associated with the DMV to the north and the site of Nunkeeling Priory (MHU989) to the west. However, the responses are poorly defined against an elevated level of background response. Broad areas of magnetic disturbance are evident in the west of the survey area. These are very well defined and have a general orientation consistent with the known archaeology. They may indicate demolition spreads associated with former structures, or potentially infilled features such as fishponds. However, they may simply be due to spreads of modern material associated with agricultural activity.
53. **Field 134 (Figures 22-6-11 and 22-6-26):** Three negative parallel linear trends run through the centre of the survey area on SW-NE alignment and continue into Field 135 to the south-west. These have been categorised as possible archaeology and they could potentially indicate a triple dyke feature. However, a more recent agricultural or natural origin cannot be excluded.
54. **Field 135 (Figures 22-6-11 and 22-6-26):** Some positively enhanced linear trends have been noted in the north-west of the survey area. The form of the responses suggests a possible archaeological origin, although there is no correlation with the undulations in the field.

22.6.6.2.4 Priority Area 15

55. **Field 291 (Figures 22-6-13 and 22-6-28):** Short linear anomalies and discrete areas of enhanced magnetism have been noted along the northern limits of the survey area and have been categorised as having a possible archaeological origin. Interpretation is cautious due to the responses being on the limits of the survey area, but they have an archaeological form. However, an agricultural or natural origin cannot be excluded.
56. **Field 296 (Figures 22-6-12 and 22-6-27):** A curving negative trend has been detected in the west of the survey area. This has been noted as possible archaeology due to its form, but it may have a natural origin.
57. **Field 315 (Figures 22-6-12 and 22-6-27):** A positive linear trend runs through the centre of the survey area. This has been noted as having a possible archaeological origin due to its nature and form, but it may have an agricultural origin.

22.6.6.2.5 Priority Area 16

58. **Field 300 (Figures 22-6-14 and 22-6-29):** Several linear trends have been detected and have been categorised as possible archaeology. However, they may simply indicate different phases of drainage, although their character and form differ from the drainage features detected elsewhere in this survey area.

22.6.6.2.6 Priority Area 17

59. **Field 417 (Figures 22-6-16 and 22-6-31):** A few weak trends of a possible archaeological origin have been noted within this survey area. However, interpretation is cautious given the elevated level of background enhancement and strong responses from past ridge and furrow cultivation. The fragmentary trend in the south-west of the survey area may indicate a former field boundary but could have a natural origin. A suggestion of a further rectilinear trend has been detected in the north-west of the area and lies within a general area of increased magnetic enhancement. This may indicate that earlier archaeological deposits are being disturbed by later ridge and furrow cultivation.
60. **Field 433 (Figures 22-6-16 to 22-6-17 and 22-6-31 to 22-6-32):** Along the southern limits of the survey area a rectilinear trend has been detected. The nature and form of the anomaly suggests a possible archaeological origin. However, its location at the edge of the survey area complicates interpretation and it may have a natural origin.

61. **Field 443 (Figures 22-6-17 and 22-6-32):** In the western half of the area several weak linear trends have been detected. These appear to be a continuation of a possible series of enclosures or field systems detected in Field 446 to the west. Two strong parallel trends have been mapped in the north-east of the survey area. The data suggests a possible trackway, but they may be ploughing headlands associated with the ridge and furrow cultivation.
62. **Field 446 (Figures 22-6-17 and 22-6-32):** Several weak linear trends have been detected. The data suggests a possible series of enclosures or field systems. They have been categorised as possible, rather than probable, archaeology due to their ephemeral nature and because an agricultural origin cannot be wholly excluded.
63. **Field 474 (Figures 22-6-18 and 22-6-33):** Poorly defined trends have been detected in the north and south of the survey area. These have been noted as having a possible archaeological origin but could be due to natural variations.

22.6.6.2.7 Priority Area 24

64. **Field 818 (Figures 22-6-21 and 22-6-36):** A very well-defined circular anomaly has been detected in the north-west of this survey area, measuring approximately 30m in diameter. It is noted as possible, rather than probable, archaeology as the form of the response is not entirely consistent with a ring ditch type feature. It appears to be associated with an extant feature and an area of likely modern disturbance which might suggest a more recent origin, potentially associated with WWII infrastructure.

22.6.6.2.8 Priority Area 25

65. **Field 766 (Figures 22-6-23 and 22-6-38):** Two poorly defined circular trends have been noted in the west of the survey area. These appear to lie within the recorded rectilinear enclosure. A weak, positive, rectilinear trend has been noted in the west of the survey area. Its location and orientation suggest it may be archaeological in origin but it is noted as having a possible archaeological origin as it does not correspond with the recorded cropmarks and may be due to recent agricultural activity. Additional weak trends show some correlation with APS transcriptions but they are very poorly defined against the elevated level of background response.
66. **Field 825 (Figures 22-6-22 and 22-6-37):** Several positively enhanced linear trends have been detected in the west of the survey area. The form of the responses suggests a possible trackway and associated field divisions. These have been categorised as having a possible archaeological origin, but they could be more recent undocumented features.

22.6.6.3 Unclear Origins

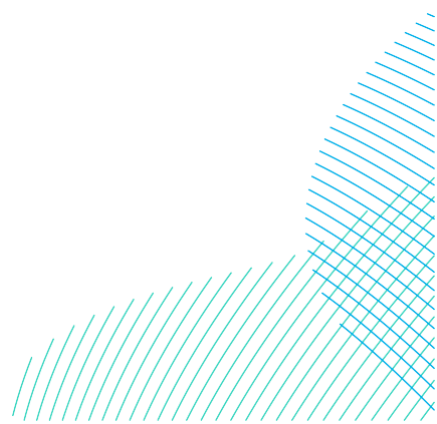
- 67. Within most of the survey areas ephemeral linear trends have been noted. While an archaeological origin cannot be excluded for all of these responses, they are most likely to be associated with agricultural activity.
- 68. Small, discrete areas of enhanced magnetism have been noted across most of the survey areas. While the possibility of these responses indicating archaeological deposits cannot be wholly dismissed, they are more likely to be due to natural variation in the subsoil or more deeply buried ferrous or fired material.

22.6.6.4 Agricultural

- 69. Within many of the fields, linear trends have been detected which correspond with former field boundaries depicted on historic mapping.
- 70. Weak linear trends suggestive of modern field drains have been detected within several of the survey areas.
- 71. Within several of the fields clearly defined parallel trends have been detected which are characteristic of past ridge and furrow cultivation. Weaker parallel trends reflect modern agricultural activity.

22.6.6.5 Non - Archaeology

- 72. Amorphous areas of enhanced magnetism caused by variations in the underlying soils and geology were recorded within many of the survey areas. These are strongest adjacent to streams where palaeochannels have been detected.
- 73. Modern utilities have been recorded in some areas.
- 74. Magnetic disturbance around the edges of the survey areas is due to adjacent fences and infrastructure.
- 75. Isolated ferrous/fired responses due to modern debris in the topsoil have been recorded in all survey areas.



22.6.7 Discussion and Conclusions of Survey to Date

22.6.7.1 Discussion

22.6.7.1.1 Landfall, PA2 & PA4

76. The gradiometer survey has recorded a complex range of anomalies across the areas surveyed within these Priority Areas. The results are dominated by an extensive network of linear and curvilinear anomalies of a probable archaeological origin. Linear and curvilinear responses in Fields 24 and 28 suggests a possible trackway and associated enclosures, potentially prehistoric in date. Immediately to the south, within Field 28, clearly defined rectilinear trends have been identified which are consistent with Romano-British remains and may indicate a villa complex. Within Field 39 to the south-west, a fragmentary circular anomaly enclosed by a rectangular enclosure has also been detected. These anomalies do not correspond with any features recorded in the HER or on NMP and APS transcriptions. The WWII battery that overlay the north-western of these responses have not been mapped, aside from limited areas of magnetic disturbance.
77. Several Discrete areas of strongly enhanced magnetic response have been recorded which corresponds with HER entries for WW2 pillboxes, trackway, and gun emplacement.
78. Parallel trends indicative of extensive ridge and furrow cultivation have been detected across most of the survey areas.
79. Amorphous areas of enhanced magnetism have been recorded in many of the areas and reflect natural geological variations.
80. The results of the survey indicate that the technique is responding very well to the geological conditions and the expected archaeology.

22.6.7.1.2 Priority Area 9

81. The gradiometer survey has recorded mixed results across the areas surveyed within this Priority Area.
82. Linear trends have been detected in Field 123 which correspond with extant earthworks associated with the Nunkeeling Deserted Medieval Village (MHU982) in the north of the area. Several additional linear trends and areas of increased magnetic enhancement have been detected within Field 129 and 135. It is likely that these are associated with the DMV to the north and the site of Nunkeeling Priory (MHU989) to the west. However, the responses are poorly defined against an elevated level of background response.

- 83. Three negative parallel linear trends run through the centre of Field 134 on SW-NE alignment and continue into Field 135 to the south-west. These have been categorised as possible archaeology and could potentially indicate a triple dyke feature. However, a more recent agricultural or natural origin cannot be excluded.
- 84. A short, strong, linear anomaly was detected in the south of the Priority Area, Field 135, along the western limits of the area. Although the limited extent it is likely to be associated with a possible moated site (MHU987) recorded at this location.
- 85. Weak trends associated with ridge and furrow cultivation have been noted, together with natural variations.
- 86. The results of the survey indicate that the technique is responding well to the geological conditions and the expected archaeology. However, the slightly elevated levels of background response may be masking weaker responses from archaeological features if present.

22.6.7.1.3 Priority Area 15

- 87. The data from the areas surveyed within this Priority Area shows an elevated level of background response due to natural geological and pedological variations which has reduced confidence in the interpretation of the results.
- 88. Possible archaeology has been noted in the north-west of the Priority Area, Field 291. and is categorised as having a possible archaeological origin. Interpretation is cautious due to the responses being on the limits of the survey area, but they have an archaeological form. However, an agricultural or natural origin cannot be excluded, and they do not correspond with any known or recorded features.
- 89. A curving negative trend has been detected in the west of the survey area, Field 296. This has been noted as possible archaeology due to its form, but it may have a natural origin. A positive linear trend has been detected in the east of the Priority Area, Field 315. This has been noted as having a possible archaeological origin due to its nature and form, and the proximity of Iron Age or Romano-British enclosures and field boundaries recorded as cropmarks to the south-west.

22.6.7.1.4 Priority Area 16

- 90. The data collected within this Priority Areas has an elevated level of background response due to natural variations which results in a mottled affect across the data. This has reduced confidence in the interpretation of the results.

91. Several linear trends have been detected that have been categorised as possible archaeology in Field 300. However, they may simply indicate different phases of drainage, although their character and form differ from the drainage features detected elsewhere in this Priority Area.

22.6.7.1.5 Priority Area 17

92. The data collected within this Priority Area is dominated by strong parallel trends indicating extensive past ridge and furrow cultivation. While the strength of the ridge and furrow responses suggest the technique is responding well, the variation in the strength of the anomalies from the ridge and furrow cultivation may indicate that it is disturbing underlying magnetically enhanced archaeology deposits. However, sinuous zones of elevated response have also been recorded which are due to natural variations and it could be these natural variations in the subsoil which are responsible for the variation in the response from the past cultivation.
93. In the north-west and south-west of the Priority Area, Field 443, and 474, linear trends have been detected which appear to form part of a possible prehistoric field system. They are categorised as having a probable archaeological origin due to their character and form. Although, no known sites or cropmarks have been recorded within this area, Roman / Iron Age cropmarks have been recorded 250m to the south-west.
94. In the west of the area weak linear trends have been detected in Field 446. The data suggests a possible series of enclosures or field systems. They have been categorised as possible, rather than probable, archaeology due to their ephemeral nature and because an agricultural origin cannot be wholly excluded.
95. A few weak trends of a possible archaeological origin have been noted in the east of this Priority Area, Field 417 and 422. However, interpretation is cautious given the elevated level of background enhancement and strong responses from past ridge and furrow cultivation.

22.6.7.1.6 Priority Area 24

96. The data from this Priority Area is relatively magnetically noisy due to natural variations, modern disturbance, and a former wooded area with associated tracks. This has reduced confidence in the interpretation of the results. The elevated levels of background response may be masking weaker responses from archaeological features if present.

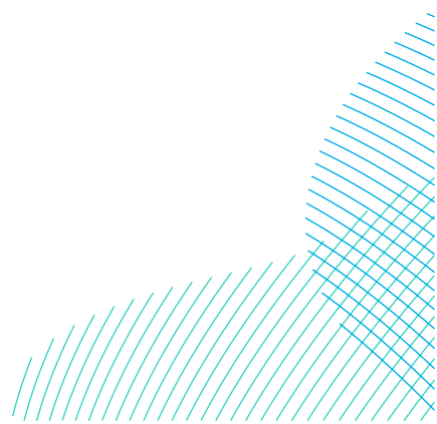
97. In the south-east of the Priority Area, Field 818, a very well-defined circular anomaly has been detected in the, measuring approximately 30m in diameter. It is noted as possible, rather than probable, archaeology as the form of the response is not entirely consistent with a ring ditch type feature. It appears to be associated with an extant feature and an area of likely modern disturbance which might suggest a more recent origin, potentially associated with WWII infrastructure.
98. Parallel trends indicative of extensive ridge and furrow cultivation have been detected in some of the survey areas.
99. Amorphous areas of enhanced magnetism have been recorded in many of the areas and reflect natural geological variations.
100. Extensive areas of magnetic disturbance are evident due to metal fencing, overhead power lines and adjacent infrastructure.

22.6.7.1.7 Priority Area 25

101. The data from this Priority Area is dominated by negative linear and curvilinear trends and a generally elevated level of background response which is thought to reflect natural variations in the subsurface. The elevated levels of background response may be masking weaker responses from archaeological features if present.
102. A positively enhanced circular anomaly was detected in the south of the Priority Area, Field 766. Short linear trends have been detected which appear to be associated with the circular anomaly. The anomalies show excellent correlation with an Iron Age / Roman round house recorded as a cropmark by NMP. Additional linear and rectilinear trends, suggesting enclosures, have been detected 100m to the west. These also show excellent correlation with an Iron Age / Roman rectilinear enclosure recorded by NMP. However, the gradiometer anomalies are not as extensive as the recorded cropmark features. It is possible that the elevated level of background response may be masking weaker anomalies from archaeological deposits. However, given the interrupted nature of the response from the roundhouse it is possible that the archaeology in these areas has been truncated by ploughing.

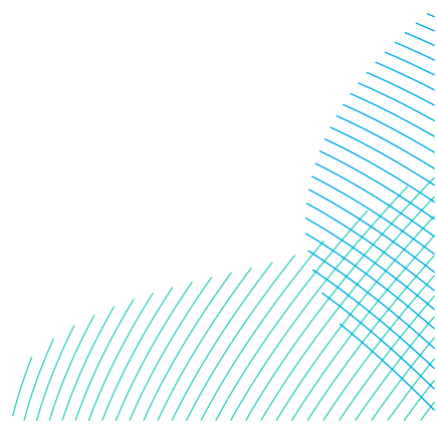
22.6.7.2 Conclusion

103. The initial tranche of survey has been successful in locating several areas of potential below ground archaeological remains. These contain both previously known and unknown deposits.
104. Survey is currently ongoing with the intention of completing the full Onshore Development Area in 2023.. The next stage of survey will build upon this first phase of work and will provide further information about potential archaeological remains in the wider Onshore Development Area.
105. It must be caveated that these initial interpretation and results may in future have to be amended depending on future data outputs. This might be because future information gives more determinable data for that specific location.
106. The surveys to date have provided good correlation and congruence across the data sets collected and offers potential for intrusive works if required.



22.6.8 Statement of Indemnity

107. Although the results and interpretation detailed in this report have been produced as accurately as possible, it should be noted that the conclusions offered are a subjective assessment of collected data sets.
108. The success of a geophysical survey in identifying archaeological remains can be heavily influenced by several factors, including geology, seasonality, field conditions and the properties of the features being detected. Therefore, the geophysical interpretation may only reveal certain archaeological features and not produce a complete plan of all the archaeological remains within a survey area.



Annex 1: Archaeological Prospection Techniques, Instrumentation and Software Utilised

Gradiometer surveys measure small changes in the earth's magnetic field. Archaeological materials and activity can be detected by identifying changes to the magnetic values caused by the presence of weakly magnetised iron oxides in the soil (Aspinall et al., 2008, 23; Sharma, 1997, 105). Human habitation often causes alterations to the magnetic properties of the soils and sediments present in the area (Aspinall et al, 2008, 21). There are two physical transformations that produce a significant contrast between the magnetic properties of archaeological features and the surrounding soil: the enhancement of magnetic susceptibility and thermoremanent magnetization (Aspinall et al., 2008, 21; Heron and Gaffney 1987, 72).

Ditches and pits can be easily detected through gradiometer survey as the topsoil within and around settlements generally has a greater magnetisation than the subsoil; caused by human activity. This enhanced material accumulates in cut features such as ditches and pits. Areas of burning or materials which have been subjected to heat commonly also have high magnetic signatures, such as hearths, kilns, fired clay and mudbricks (Clark 1996, 65; Lowe and Fogel 2010, 24).

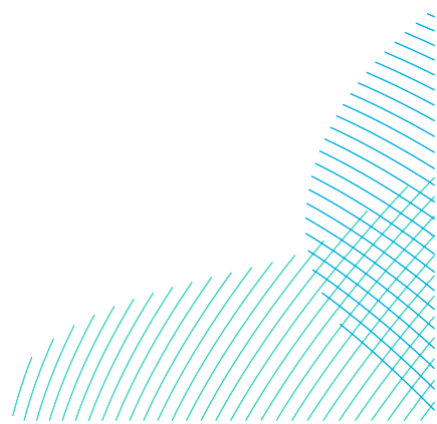
It should be noted that negative anomalies can also be useful for characterising archaeological features. If the buried remains are composed of a material with a lower magnetisation compared to the surrounding soil, the feature in question displaying a negative signature. For example, stone- built structures that are composed of sedimentary rocks are frequently non-magnetic and so will appear as negative features within the dataset if the local soils and sediments are at all magnetised.

Ferrous objects – i.e. iron and its alloys – are strongly magnetic and are typically detected as high-value peaks in gradiometer survey data; small (in spatial terms) spikes are generally assumed to derive from ferrous material of recent origin (e.g. stray bits of farm equipment) in the topsoil, though archaeological sources cannot be ruled out. Broader dipolar anomalies and those with diagnostic characteristics of form will be assigned to other classifications based on their character, which might include archaeology, burning, modern ferrous or uncertain.

Although gradiometer surveys have been successfully carried out in all areas of the United Kingdom, the effectiveness of the technique is lessened in areas with complex geology, particularly where igneous and metamorphic bedrock is present or there are layers of alluvium or till between the surface and the layers of interest. All magnetic geophysical surveys must therefore take the effects of background geological and geomorphological conditions into account.

AOC Archaeology's cart-based surveys are carried out using a Bartington Non-Magnetic Cart. The cart enables multiple traverses of data to be collected at the same time, increasing the speed at which surveys may be carried out and offers the benefits of reduced random measurement noise and rapid area coverage (Schmidt et al 2015, 60-62, David et al. 2008, 21).

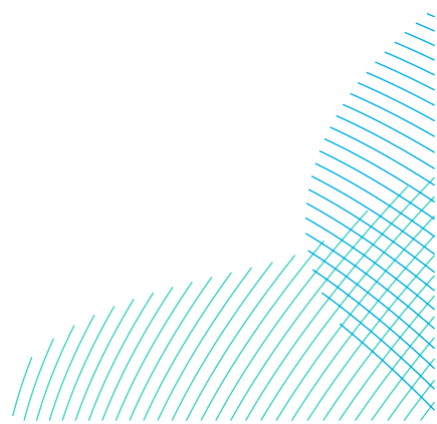
The cart uses a configuration of four Grad-01-1000L sensors mounted upon a carbon fibre frame along with two DL601 dataloggers and one BC601 battery cassette. The sensors are normally positioned at 1m intervals on a horizontal bar, with the datalogger taking readings every 12.5cm along each traverse, though this can be altered to increase / reduce resolution if required. The data is georeferenced via a Trimble R10 Real Time Kinematic (RTK) VRS Now GNSS GPS which streams data throughout survey and allows the data to be recorded relative to a WGS1984 UTM coordinate system.



Annex 2: Summary of Data Processing

Process	Effect
Clip	Limits data values to within a specified range
De-spike	Removes small spatial scale exceptionally high readings in the data. In resistivity survey, these can be caused by poor contact of the mobile probes with the ground. In gradiometer survey, these can be caused by highly magnetic items such as buried modern ferrous objects.
De-stagger	Corrects a misalignment of data when the survey is conducted in a zig-zag traverse pattern.
Discard Overlap (TerraSurveyor)	Removes datapoints which occur too closely together and can cause digital artefacts in the data which are caused by the overlapping of parallel traverses.
High pass filter	Removes low-frequency, large spatial scale variance in order to remove background trends in the data, such as variations in geology.
Interpolate	Increases the resolution of a survey by interpolating new values between surveyed data points, creating a smoother overall effect.
Low Pass filter	Uses a Gaussian filter to remove high-frequency, small spatial scale variance, typically for smoothing the data.
Remove Turns (TerraSurveyor)	Uses analysis of the direction of travel derived from the GNSS data to break continuous streams of data into individual traverses.
Zero Mean Traverse	Resets the mean value of each traverse to zero, in order to address the effect of striping in the data and counteract edge effects.

Bartington Cart survey	
Process	Extent
Base Settings	Interval 0.13m, Track Radius 1.06m
Remove Turns	Threshold Angle 90°, Cut Length 5m
Discard Overlap	Threshold Distance 0.4m, Minimum Track 5, Newest
Despike	Mean Diameter 3 Threshold 12
Destripe	Mean Traverse SD 1.5
High Pass Filter	Uniform (Median) 601
Clip	-30/30



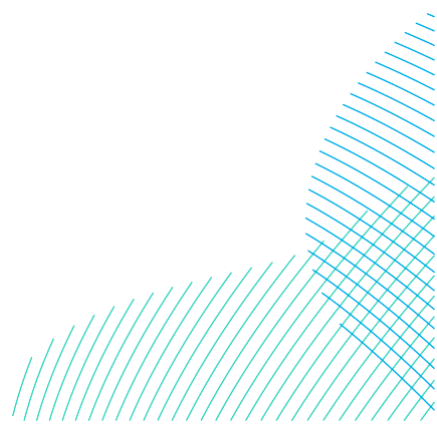
Annex 3: Technical Terminology for Geophysical Survey Anomalies

Type of Anomaly	Description of Type/Class and rationale for interpretation
Anomaly	Usually linear / curvilinear / rectilinear / discrete anomalies characterised by a sharp-edged increase or decrease in values compared to the magnetic background. Some interpretation classes may have more gradual transitions in magnetic character- this is used as part of the classification process.
Spread	Spreads of enhanced material refer to diffuse areas of altered magnetic character, which suggest a localised spread of material with a magnetic contrast within the topsoil or ploughzone or a generalised enhancement of the magnetic properties over a specific area. These anomalies do not have the high dipolar response characteristic of ferrous material anomaly unless specifically classified as a spread of ferrous debris.
Linear Trend	Linear trends are less distinct and are typically visible as linear patterning in the overall texture of the data. A common example of these is the striping effect caused by recent ploughing.
Class of Anomaly	Description
<i>Probable Archaeology</i>	Interpretation is supported by the presence of known archaeological remains or by other forms of evidence such as HER records, LiDAR data or cropmarks identified through aerial photography. OR the data contains diagnostic anomalies in terms of character or morphology which allow a secure interpretation. Anomalies typically have well defined edges with abrupt transitions indicative of cut features with magnetically enhanced fills, such as ditches. Discrete anomalies will be checked on XY traces for their magnetic character; discrete anomalies in this class likely to be cut features such as pits; anomalies indicating high temperature processes will alternatively classified as 'burned area' - see below. Ferrous material creates distinct 'spikes' and is classified as such.
<i>Possible Archaeology</i>	Anomalies are interpreted as likely to have an archaeological origin, though other explanations are also possible, but less likely. Anomalies typically have well defined edges with abrupt transitions indicative of cut features with magnetically enhanced fills, such as ditches. Discrete anomalies checked on XY traces; discrete anomalies in this class likely to be cut features such as pits; anomalies indicating high temperature processes classified as 'burned area' - see below.

Type of Anomaly	Description of Type/Class and rationale for interpretation
<i>Burned Area</i>	An anomaly with a form on the XY trace plot that is characteristic of high temperature activity such as a kiln or hearth. Should be considered as possible archaeology and should be assigned an anomaly number if a more specific interpretation is possible based on the anomaly characteristics (for example, a clear kiln) so that this can be discussed in text.
Historical Features	Features observed on historical mapping that correspond with anomalies in the data. Linear anomalies caused by removed field boundaries often exhibit distinct characteristics related to the removal process. Areas of enhanced magnetism in this class could relate to former buildings, trackways, quarries or ponds and their nature should be clarified with the use of anomaly numbers and discussion in the results section.
Unclear Origin	These anomalies are (often) magnetically weak and discontinuous or isolated making their context difficult to ascertain. OR they are indistinct for other reasons such as magnetic disturbance in their vicinity. Anomalies in this category have no more likely explanation than another, so whilst an archaeological origin is possible, an agricultural, geological, or modern origin is also equally likely.
Agricultural	Anomalies associated with agricultural activity, either historical (unless shown on a map, then classed as a historical feature) or modern. Usually, this interpretation is arrived at due to on the ground observations of (for example) ploughing, access tracks and the like, or from observation of recent aerial images of the survey area. Recent ploughing is shown as a dashed line and Ridge and Furrow ploughing is shown as a solid line.
Ridge and Furrow / Rig and Furrow	A series of regular linear or slightly curvilinear anomalies which are broad and usually have diffuse edges, either composed of an increased or decreased magnetic response compared to background values. Wide regular spacing between the anomalies is consistent with that of a ridge and furrow / rig and furrow ploughing regime, and the regime may also have a degree of sinuosity characteristic of certain types of ridge and furrow cultivation. Often, multiple directions will be present, with distinct headlands in between. The pattern might follow the general landscape organisation, or it may radically differ from it, depending on the local sequence of inclosure. The anomalies often present as a positive 'ridge' anomaly adjacent to a negative 'furrow' anomaly.

Type of Anomaly	Description of Type/Class and rationale for interpretation
Ploughing Trends	A series of regular linear anomalies or changes in the texture of the survey data, either composed of an increased or decreased magnetic response compared to background values. Anomalies seen parallel to field edges are representative of headlands caused by ploughing.
Drains	A series of magnetic linear anomalies (often with a characteristic alternating positive-negative pattern, which indicates a ceramic drain) of an indeterminate date, usually with a regular dendritic or herringbone patterning which reflects the topography of the survey area.
Geology / Natural	An area of enhanced magnetism that is composed of irregular (usually) weak increases or decreases in magnetic values, frequently with gradual transitions in character, compared with background readings. These are likely to indicate natural variations in soil composition or reflect variations in the bedrock or superficial geology. In areas where former water courses were present, paleochannels may present as distinct curving and banded or braided linear anomalies.
Service	Strong linear anomalies often composed of contrasting high positive and negative dipolar values, with a halo of magnetic disturbance extending from the causative body. Such anomalies are characteristic of below-ground services.
Magnetic Disturbance	A zone of strong magnetic response (usually alternating between positive and negative with abrupt transitions) that has been caused by modern infrastructure or ferrous material within or adjacent to the survey area, such as metallic boundary fencing, gateways. The magnetic haloes around services and changes in the background texture of the data resulting from overhead power lines also fall into this class. These haloes are strong enough to obscure other anomalies (including those of possible archaeological interest) in the area they affect.
Ferrous Anomalies / Ferrous (iron spikes) and ferrous or debris spreads	A response caused by ferrous materials on the ground surface or within the subsoil, which causes a strong but localised dipolar response in the data. These generally represent modern material often re-deposited during manuring, rubbish at field edges and spreads of debris or building material used to surface tracks or left behind following demolition. Distinct from magnetic disturbance, these anomalies relate to material at their spatial location, rather than an effect occurring at a distance from the material responsible.

Type of Anomaly	Description of Type/Class and rationale for interpretation
Free Category for custom use	A category which may be employed to denote specifically identified anomalies related to known past activity within the area, for example those definitely associated with a former airfield, or mapped former mineral extraction.



22.6.9 References

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