Botley West Solar Farm

Environmental Statement

Volume 3
Appendix 7.3: Geophysical Survey Report

November 2024

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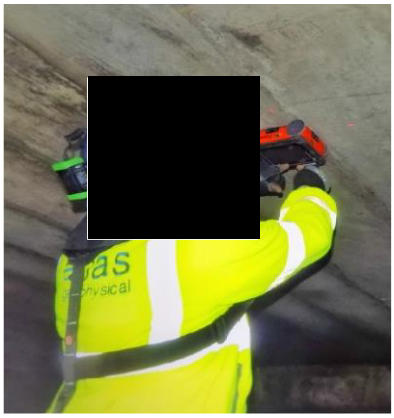

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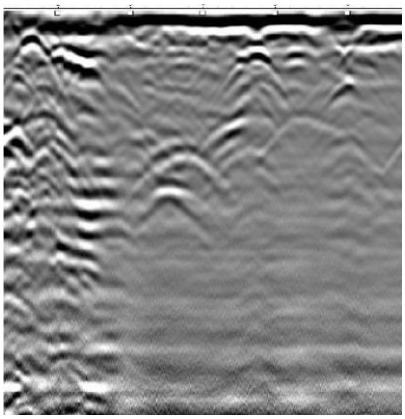

Botley West Solar Farm, Oxford
Geophysical Survey Report

Revision 1

This report documents a geophysical investigation of 1320 ha. of land using a fluxgate gradiometer array.

The principal aim of the investigation was to assess the subsurface archaeological potential of the survey area.

Client: PVDP Ltd

Project Number: AG1803

Date of issue: October 2024

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1. Distribution Sheet

Botley West Solar Farm, Oxford
Geophysical Survey Report
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DISTRIBUTION			
Date:	Issued to	Name	Issue No:
November 2024	Nicholas Philips	PVDP Ltd	1

2. Approval Sheet and Foreword

Botley West Solar Farm, Oxford
Geophysical Survey Report
PVDP

Report Status/Issue No: **Final/1**		Date of Issue November 2024
Issued to:		Project No: AG1803
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FOREWORD

1. This report has been prepared by Atlas Geophysical Limited with all reasonable skill, care, and diligence within the terms of the contract with the Client and the limitations of the resources devoted to it by agreement with the Client.
2. This report is confidential to the Client. Atlas Geophysical Limited accepts no responsibility whatsoever to third parties to whom this report or any part is made known. Any such party relies upon the report at their own risk.
3. This report shall not be used for engineering or contractual purposes unless signed above by the author and the approver unless the report status is 'Final'.

3. Executive Summary

3.1. A geophysical investigation using fluxgate gradiometers was completed across approximately 1185 ha of fields in the vicinity of Botley West Solar Farm, Oxford. This represents a reduction on the total survey area for a 1320 ha as some areas were removed from the investigation.

3.2. The principal aim of the investigation was to assess the subsurface archaeological potential of the survey area.

3.3. Responses identified that suggest the presence of probable archaeological features exist within the surveyed area.

3.4. Responses have also been identified as being possible or potential archaeological features.

3.5. The data responses are generally low, with some evidence of reasonable enhancement despite the soil conditions. This suggests that any substantial archaeological remains would have been detected by the survey, though it is impossible to rule out the presence of material with a low magnetic contrast, particularly in the areas with the strong anomalies.

3.6. Responses have been identified that related to buried utilities in several fields.

3.7. Strong and weak variations that correspond to previous agricultural activity have been identified in almost all areas. These may relate to variations in ploughing orientations, former field boundaries or land drainage features.

3.8. It is the responsibility of the user of this information to follow Health & Safety guidelines (HSG47).

4. Introduction

4.1. A geophysical investigation using fluxgate gradiometers was completed across approximately 1185 ha of fields in the vicinity of Botley West Solar Farm, Oxford. This represents a reduction on the total survey area for a 1320 ha as some areas were removed from the investigation.

4.2. Data acquisition took place over several weeks between 13th March 2023 and 23rd August 2024. The weather was a mix of sunshine and showers for the duration of data collection. The Project site suffered from flooding during this period.

4.3. The survey was undertaken across three distinct areas:

- Northern Site area at approximately 51:52:15.000N 1:20:30.000W (OSGB SP4542319345).
- Central Site area at approximately 51:48:36.000N 1:21:19.000W (OSGB SP4444312620).
- Southern Site area at approximately 51:44:39.000N 1:20:12.000W (OSGB SP4579305310).

4.4. The principal aim of the investigation was to assess the subsurface archaeological potential of the survey area.

4.5. The Project site is divided into three regions Northern Site, Central Site and Southern Site.

4.6. The Northern Site is located east of Wootton, north of Oxford airport and comprises several enclosed agricultural fields. The River Dom lies to the west of the site. The site is very flat and lies between 100 and 110 m above Ordnance Datum (AOD).

4.7. The Central Site is located to the between the villages of Bladon and Cassington, south of Oxford airport. The River Evenlode runs through the area. The site lies between 100 and 110 m above Ordnance Datum (AOD).

4.8. The Southern Site is located to the north of Cumnor, southeast of the Farmoor reservoir. The site lies between 70 and 90 m above Ordnance Datum (AOD).

5. Background Geology

5.1. Underlying the Northern Site survey area, the solid geology is predominantly White Limestone Formation – Limestone with Forest Marble Formation - Limestone and mudstone interbedded. Cornbrash Formation Limestone is also present. These Sedimentary bedrocks formed between 168.3 and 163.5 million years ago during the Jurassic period.

5.2. No superficial deposits are listed. [British Geological Survey, 2023].

5.3. The soil is listed as shallow lime-rich soils surrounded by freely draining lime-rich loamy soils [Soilscapes, 2023], though the survey area may have been altered.

5.4. Underlying the Central Site survey area, the solid geology is predominantly Oxford Clay Formation and West Walton Formation - Mudstone. Sedimentary bedrock formed between 166.1 and 157.3 million years ago during the Jurassic period.

5.5. In the northern part of the Central Site, to the east of Bladon is Cornbrash Formation - Limestone. Sedimentary bedrock formed between 168.3 and 163.5 million years ago during the Jurassic period. This geology also extends to the west of the River Evenlode, where there are also areas of Forest Marble Formation – Limestone and Mudstone.

5.6. Continuing west of the River Evenlode are areas of Kellaways Clay Member - Mudstone. Sedimentary bedrock formed between 166.1 and 163.5 million years ago during the Jurassic period.

5.7. Superficial deposits around the River Evenlode are listed as alluvium - Clay, silt, sand and gravel. Sedimentary superficial deposit formed between 11.8 thousand years ago and the present during the Quaternary period. Pockets of sand and gravel are also present in the area that form part of the Northern Drift Formation, the Hanborough Gravel Member and the Summertown-Radley Sand and Gravel Member [British Geological Survey, 2023].

5.8. The soils to the east of the River Evenlode are listed as slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils, and to the west are shallow lime-rich soils over chalk or limestone. The area immediately around the River Evenlode is listed as slightly acid loamy and clayey soils with impeded drainage [Soilscapes, 2023], though the survey area may have been altered.

5.9. Underlying the Southern Site survey area, the solid geology is Oxford Clay Formation and West Walton Formation - Mudstone. Sedimentary bedrock formed between 166.1 and 157.3 million years ago during the Jurassic period.

5.10. No superficial deposits are listed. [British Geological Survey, 2023].

5.11. The soil is listed as slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils, [Soilscapes, 2023], though the survey area may have been altered.

6. Background Archaeology

6.1. This section is a summary of information supplied in the form of an email produced by RPS [Rawlings, 2023].

6.2. The World Heritage Site of Blenheim Palace is located just to the west of the proposed development site. The boundary of the World Heritage Site is almost contiguous with the boundary of the Blenheim Palace Grade I Registered Park and Garden whilst this defined historic landscape also contains numerous listed buildings including the palace, the water terrace gardens and Bernini fountain, the Grand Bridge and the New Bridge (all listed at Grade I), also two statues in the east formal garden, the Temple of Diana, the Temple of Health, and High Lodge (all listed at Grade II*).

6.3. There are concentrations of listed buildings within the villages close to the perimeter of the proposed development site such as Bladon, Begbroke, Wootton, Church Hanborough, Cassington and Cumnor. Most examples are listed at Grade II; those with a higher level of listing include the Church of SS Peter and Paul (Church Hanborough), the Church of St Peter (Cassington) and the Church of St Michael (Cumnor), all of which are listed at Grade I, also the Church of St Michael (Begbroke), the Church of St Mary (Wootton) and the Bear and Ragged Staff Inn (Cumnor) which are all listed at Grade II*.

6.4. Outside of the villages, listed buildings close to the perimeter of the proposed development site include the Grade II* listed Hordley House and nearby Grade II listed gazebo, also a number of Grade II listed buildings at Lower Dornford Farm, Old Man Leys Farm, Spring Hill, Burleigh Farmhouse, Rectory Farmhouse and The Old Rectory (both in Worton), City Farm, Eynsham Mill and Upper Whitley Farm.

6.5. In addition to the Registered Park and Garden at Blenheim Palace, there is also a Grade II Registered Park and Garden at Yarnton Manor along with the Grade II* listed manor house and associated Grade II listed buildings. The Grade I listed Church of St Bartholomew at Yarnton is just to the east of the manor and the churchyard there contains a Grade II* listed churchyard cross as well as several Grade II listed tombs and tombstones.

6.6. Conservation Areas have been designated at Bladon, Begbroke, Wootton, Church Hanborough, Cassington and Cumnor. Those at Wootton and Church Hanborough include quite extensive areas of land around the historic cores of the village and the perimeter of the proposed development site has been adjusted in these locations so that no part of the development would be within the designated area.

6.7. The Roman Road known as Akeman Street passes through the northern block of the proposed development site on a north-east/south-west alignment. Land directly adjacent to the perimeter of the proposed development site in this area has been designated as a Scheduled Monument due to the presence of a Roman villa here, although evidence indicates that the area of Roman activity extends beyond the Scheduled land. Not far to the south, and again just beyond the perimeter of the proposed development site, is a second Scheduled Monument comprising a rectangular earthwork. The date of this remains unknown but it may well be later prehistoric or Roman and could be associated with the known villa and Roman road to the north.

6.8. A second Scheduled Roman villa is located just to the east of the World Heritage Site at Blenheim Palace whilst further south a hillfort on Bladon Heath (and known as Bladon camp) is also Scheduled.

6.9. Its location within the well-drained landscape of the Thames Valley means that there is reasonable potential for buried archaeological remains to be present within all parts of the proposed development site. Investigations undertaken in connection with gravel extraction around Purwell Farm in the Central block of the proposed development site identified activity from the Bronze Age and the Iron Age as well as extensive evidence of settlement, industry, and burial during the Anglo-Saxon period.

6.10. Elsewhere within the proposed development site, features recorded as cropmarks on aerial photographs include enclosures as well as ring ditches that may represent the remains of burial monuments of probable Bronze Age. Artefacts recovered from various locations within the proposed development site include material dating from the Mesolithic period through to the Post-medieval and Modern eras.

7. Fluxgate Gradiometer Survey Methodology

7.1. For this geophysical investigation, the fluxgate gradiometer manufactured by Sensys (Germany) was used. Magnetometry is considered the most cost-effective and suitable technique for detecting previous anthropogenic activity in the UK.

7.2. A fluxgate gradiometer is a specific type of magnetometer that consists of one or more cores of magnetic alloy, around which are wound wire coils. Through the coils, an alternating current is passed. The variations in the electrical properties of the circuits and the magnetisation of the cores are converted into voltages proportional to the external magnetic field along the vertical core axis.

7.3. The measurements acquired by the sensors are digitised and fed into a ruggedised field computer and saved for post-processing and interpretation.

7.4. The sensors are mounted on a wheeled frame approximately 0.25 - 1 m apart. The frame can be hand pushed, see Figure 1 Sensys MXPDA, or towed behind an all-terrain vehicle (ATV), see Figure 2 Sensys MXV3.

7.5. The Sensys systems do not require a linear grid to be marked out before the survey. They acquire spatial information directly from an RTK-GNSS receiver mounted on the frame, with a positional accuracy of ±15 mm. This also provides navigational information for the operator to ensure optimal data coverage is achieved.

7.6. This data acquisition method complies with requirements set out by current EAC Guidelines for the use of Geophysics in Archaeology (2016).

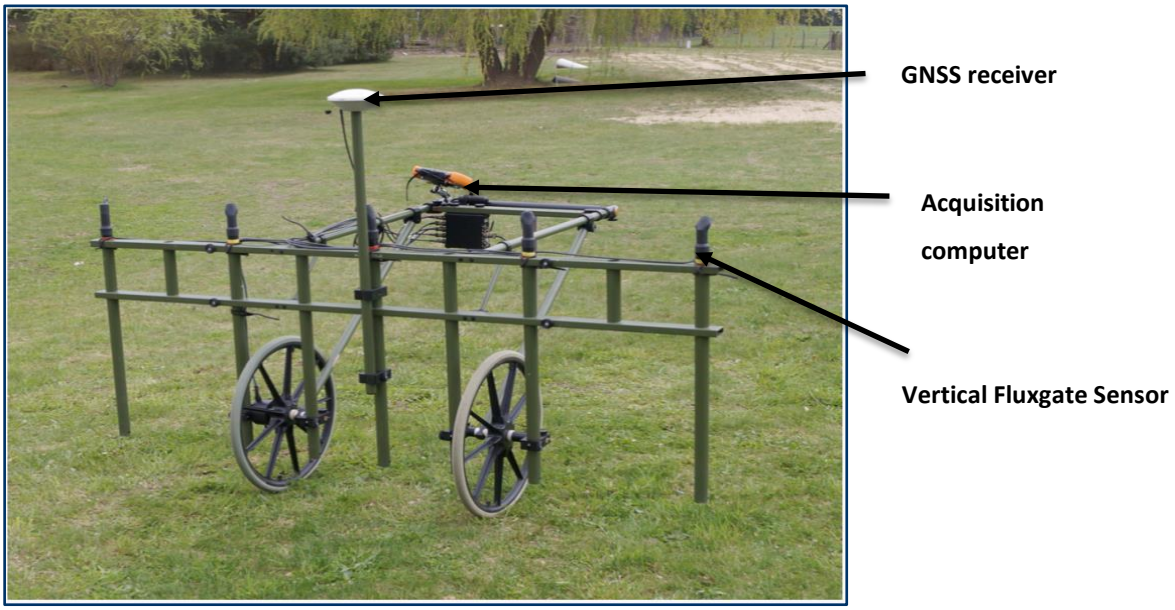

Figure 1 Sensys MXPDA

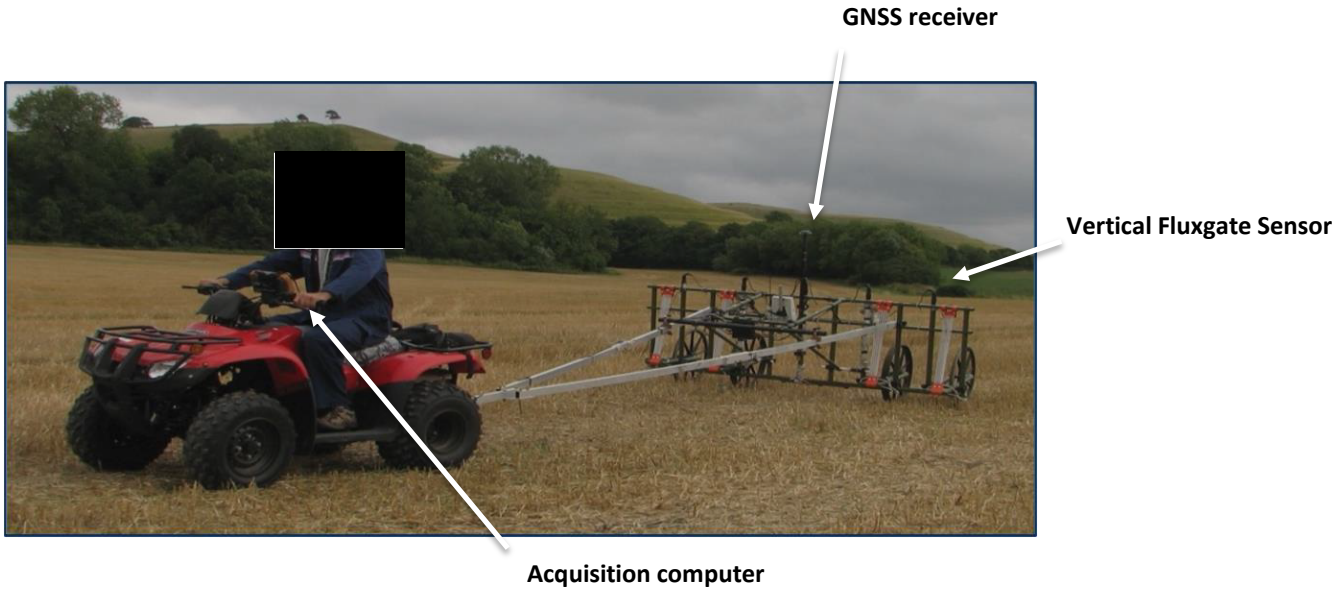

Figure 2 Sensys MXV3

8. Data Analysis

8.1. A small amount of post-acquisition processing is required to extract and visualise useful information from the acquired data.

8.2. Post-processing requires the deconvolution of the multi-element data and the georeferencing of each channel in relation to the direction of travel. Once this is achieved successfully, the data are gridded and presented in a graphic format, referred to as greyscales.

8.3. The georeferenced greyscales are exported into visualisation software for interpretation using a combination of maps and satellite imagery.

8.4. It should be noted that geophysical techniques are a measurement of material properties, and detecting and mapping the desired targets requires a measurable contrast between the target and the surrounding ground material.

8.5. Interpretation of geophysical data should be carried out by qualified and experienced personnel but remains inherently subjective.

9. Results

9.1. Results from the investigation are summarised in the attached scaled drawings AG1803, appended to the rear of this report.

9.2. Responses identified that suggest the presence of probable archaeological features exist within the surveyed area.

9.3. Responses have also been identified as being possible or potential archaeological features.

9.4. The data responses are generally low, with some evidence of reasonable enhancement despite the soil conditions. This suggests that any substantial archaeological remains would have been detected by the survey, though it is impossible to rule out the presence of material with a low magnetic contrast, particularly in the areas with the strong anomalies.

9.5. Responses have been identified that related to buried utilities in several fields.

9.6. Strong and weak variations that correspond to previous agricultural activity have been identified in almost all areas. These may relate to variations in ploughing orientations, former field boundaries or land drainage features.

10. Northern Site area

10.1. **Field 1-1**

10.2. In the north of this field is a weak positive penannular shaped response. These types of response are often associated with Bronze age ring ditches. Located centrally within the field a weak positive linear anomaly with a general east- west alignment has been identified as a former field boundary shown on historical maps.

10.3. **Field 1.2**

10.4. In this field the strongest responses are in the eastern part of the field. These possibly relate to the route of a natural drainage system. However, there are several positive linear responses that may reflect anthropogenic attempts to alter the natural course of the drainage. There is a collection of strong discrete positive responses approximately 40 m from the eastern boundary towards the southeastern corner of the field and several weaker positive linear/ curvilinear responses that suggest there has been anthropogenic activity in this area.

10.5. **Field 1.3**

10.6. The overall field response is characterised by several discrete positive responses. These often interpreted as areas of excavated or extracted material such as pits but can also relate to the underlying geomorphology. Given the frequency and extensive area they cover, for this area, they have been interpretated as having a natural origin. This response is also identified in field 1.4, 1.6, 1.7 and 1.11.

10.7. A north-south trending positive response has been identified that is split into two responses. The weaker response is in the north with a stronger response to the south. This response is likely to be a previous field boundary although a field boundary hasn't been identified on historical mapping available online.

10.8. The split in the previous response is marked by a weaker but broader east-west trending response.

10.9. **Field 1.4**

10.10. In this field a positive curvilinear response with a general north – south trend with a curve west towards its southern end has been identified. This may be related to the field boundary identified in field 1.3 and as such has also been identified a field boundary. Similarly, a field boundary hasn't been identified on historical mapping available online.

10.11. A stronger east – west trending positive response has been identified in the northeastern corner which extends towards the centre of the current northern field boundary. This is also likely to be a previous field boundary not identified on historical mapping.

10.12. **Field 1.5**

10.13. The HER records a banjo enclosure in this field, but the specialist review of aerial photographs only found the parallel antennae ditches in the north-eastern part of the field and not the actual enclosure. There are some responses in the north-eastern part of the field which may be archaeological, and then the other northwest - southeast aligned linear feature further south which crosses the small stream before turning off to the north. At the point in the southeast where this feature forks there appears to be some pits or large post-holes next to and parallel with the linear feature – perhaps representing a palisade along a large ditch – this would be more typical of the Bronze Age 'ranch' boundaries found further south in areas such as Salisbury Plain. The small rectangular enclosure and clusters of pits to the southwest of the feature and on the east side of the stream are located on a spur of higher ground, these could represent a late prehistoric settlement but also could be a cemetery.

10.14. **Field 1.6**

10.15. The strongest response in this field has been identified in the southwestern corner, and probably relates to a buried utility. At the eastern end of this response there is a tree, and the first edition OS map shows a well located close to this area. It is likely that this utility is a buried water pipe related to the well.

10.16. Surrounding this response, but more extensively towards the south and west is a response that is suggestive of extraction or excavation of material.

10.17. There are two linear responses that probably relate to previous field boundaries that would have split the current field into four. The north – south trending response appears as a negative response, suggesting that a material with a lower magnetic enhancement is in place. This may relate to an earthwork bank or material used in building a wall.

10.18. The east-west trending response is a more typical positive response seen from previous ditch type field boundaries; a previous field boundary not identified on historical mapping.

10.19. A circular positive response has been identified along the eastern boundary just north of the previous response, this has a diameter of approximately 11 m and probably relates to a Bronze age ring ditch.

10.20. There are several linear responses along in the southwestern corner that have a rectangular/ sub-rectangular appearance and may relate to buried foundations, but these are located outside of the Project Site and data were collected from ease of acquisition.

10.21. **Field 1.7**

10.22. A curvilinear positive response has been identified along the western boundary that may be associated with the Bronze age ring ditch identified in field 1.6.

10.23. There are several positive linear responses, both weak and strong that have been identified in this field that are probably previous field boundaries, not identified on historical mapping available online.

10.24. **Field 1.8**

10.25. Located immediately south of field 1.5 similar linear/ curvilinear and discrete positive responses are also present in this field. The strongest responses probably reflect agricultural activities and may relate to former field boundaries, while the weaker ones probably relate to ploughing trends.

10.26. **Field 1.9**

10.27. As with fields 1.5 and 1.8 there are several positive linear trends that related to agricultural activity and former field boundaries, the strongest of which can be identified on historical OS maps.

10.28. **Field 1.10**

10.29. A weak positive response with a general north - south alignment has been identified in the eastern part of this field that probably relates to a former field boundary.

10.30. **Field 1.11**

10.31. In the northeast corner generally, rectilinear response has been identified that has a curved section along the northeast margin, and probable relates to an enclosure. The break in the response along its eastern margin probably relates to an entrance.

10.32. Internally, several discrete positive responses have been identified, most notably along the western margin and in the northeastern corner. The origin of these is unknown but those closest to the boundary response have a similar trend and have been identified as probable archaeology. Several, weaker, positive responses have been identified as possible archaeology due the lack of corresponding geometry or trend.

10.33. There are several areas of possible extraction/ excavation identified in this field. One has been identified to the east of the enclosure response and one in the northwest corner of the field. In the southern area of the field there are three areas that have been identified as possible extraction/ excavation.

10.34. The strongest response come from buried utilities, one with an east-west trend and one with a north-south trend. The east-west trending response appears to be a continuation of the response from the previous survey of field 1.11.1 and 1.11.2 which was completed by a different survey company. These utilities appear to have a perpendicular join suggesting they are most likely to be pipes.

10.35. Positive linear responses have been identified close the southern boundary of this field. They have a rectangular/ sub-rectangular geometry and given the proximity of these responses to the scheduled monument to the south it is likely that they represent an extension of that Roman aged settlement.

10.36. **Field 1-12**

10.37. This field is to the west of field 1.11 and across the path of the current B4027 road. There are several linear responses that suggest the Roman settlement extended into this area also. In the southeastern corner there are three closely spaced discreate very strong dipolar positive anomalies that may be of archaeological potential, along with three more widely spaced dipolar responses that have the same general north – south alignment as a positive linear response.

10.38. **Field 1-13**

10.39. The area of missing data is due to stand crop in that area during data acquisition.

10.40. This field is to the south of 1.11, 1.12, and the scheduled Roman settlement. Despite the strong linear response from the buried utility numerous other linear responses can be identified. These indicate that the scheduled Roman settlement is likely to have extended into this area also.

10.41. As seen in both field 1.11 and 1.12 responses have been identified in this field that suggest there has been some extraction/ excavation of material in this field also.

10.42. On the southern boundary there is a curvilinear response that may be related to a Bronze age enclosure ditch.

10.43. **Field 1-14**

10.44. Field 1.14 is located to the east of field 1.13 and similarly to the south of the scheduled Roman settlement.

10.45. In the northwest corner of this field, despite the strong responses from possible extraction, there are several rectilinear responses that would suggest that the scheduled Roman settlement extended into this area. However, there are no responses elsewhere in this field to suggest that the settlement extended further to the south or east.

10.46. There are responses from former field boundaries that can be identified on historical maps.

10.47. **Field 1-15**

10.48. In field 1.15 strong responses from buried utilities are present with both a north – south and east – west orientation. There are strong agricultural trends, particularly perpendicular to the northern boundary of this field.

10.49. There is an almost square positive response just to the south of the agricultural trends that has been identified as possible archaeology.

10.50. **Field 1-16**

10.51. The responses in this field are dominated by the buried utilities. Both responses have a general north-south trend and appear to be continuations of the assets located in field 1.15.

10.52. **Field 1-17**

10.53. Data from the north-eastern corner of this field has several linear and curvilinear responses that would suggest there was once a settlement located in this area.

10.54. There is a response from a buried utility that runs north – south through the western most collection of the possible archaeological responses, and a similar buried utility response approximately 150 m to the west. Both appear to be a continuation of the utilities identified in field 1.16.

10.55. There are a few responses that suggest that extraction/ excavation of material in the eastern part of this field has taken place.

10.56. The southern half of this field has fewer responses, but there are weak linear responses with a general north - south trend that are related to agricultural activity.

10.57. **Field 1.18**

10.58. In the west of this field are strong positive responses that are probably related to the settlement identified in field 1.17, but these do not extend much further east. The remaining responses in this field could be categorized as agricultural trends and related to ploughing trends and previous field boundaries.

10.59. The series of small positive responses forming almost parallel dotted lines with a general east - west trend are related to data acquisition rather than anything below the ground.

11. Central Site Area

11.1. **Field 2-1**

11.2. The strongest responses are from the buried utilities. The general north-south trending responses are from Thames Water pipes, identified by the marker posts at the field boundaries. There is also a general east-west trending response that is also from a buried utility, but this did not have the same markers associated with it.

11.3. Located in the southwest corner of this field is a penannular positive response interpreted as being from a ring ditch. Enclosed by the ditch response are two weak positive response that also represent possible archaeology.

11.4. Towards the southwest there are several small clustered positive responses that are possibly from small excavations.

11.5. The survey of field 2.3, to the south, identified a ring ditch close to the shared boundary with this field, and related responses can be identified in this field.

11.6. There are also several linear positive responses that are related to former field boundaries and other agricultural activity.

11.7. **Field 2.2**

11.8. There are several, relatively weak, positive linear responses with a north - south trend that probably relate to previous field boundaries.

11.9. There are many small dipolar responses that represent ‘noise’ and the eastern boundary of the field is marked by a very strong response from a buried utility. There is a Thames Water inspection cover at the edge of one the neighbouring fields so it’s probably a water pipe.

11.10. **Field 2.3**

11.11. In this field there are two positive linear response – one looks to be a continuation of the north - south trend from field 2.2, which intersect with a northeast-southwest trending response at the northern field boundary.

11.12. To the west of that intersection, on the northern boundary, is a curvilinear response that looks to have been truncated by the current field boundary. These types of response are often associated with Bronze age ring ditches and can be seen on aerial imagery available online.

11.13. There is also an oval-shaped enclosure to the south, between the two linear responses, which can also be seen on aerial imagery available online.

11.14. The strong response that divides the field in the centre relates to a Thames Water asset, probably two pipes roughly parallel.

11.15. In contrast to the western part of the field the area to the east of the pipes has fewer responses of note, although there is a collection of discrete positive responses that may represent extraction or excavation.

11.16. **Field 2.4**

11.17. Generally, the data collected from this field are relatively low quality due to the increased noise to signal ratio created by many dipolar responses.

11.18. The strong response on the western field boundary is one of the Thames Water pipes.

11.19. In the southeast corner there are a collection of discrete positive responses that have a general east-west alignment, with a short deviation towards the south then back to the east-west trend at its western extremity. These types of response can be associated with the extraction or excavation of material.

11.20. **Field 2.5**

11.21. The southern area of this field is too overgrown to survey.

11.22. Along the eastern boundary a strong response from one of the Thams Water pipes has been detected.

11.23. There is an east-west trending response in the southwest corner of the surveyed areas that is also likely a buried utility.

11.24. There are several weak positive linear responses in the northeast and northwest corners that probably related to agricultural activity.

11.25. **Field 2.6**

11.26. Along the western boundary of this field is a response that is related to one of the already mentioned Thames Water pipes.

11.27. A series of north - south trending responses have been identified that are related to agricultural activity.

11.28. **Field 2.7**

11.29. The strongest response is from the Thames Water pipe along the western boundary, which deviates to the east before it reaches the southern boundary of this field.

11.30. There are many isolated dipolar responses that represent ‘noise’

11.31. **Field 2.8**

11.32. Two Thames Water pipes are in this field, seen as the strong responses on the western field boundary.

11.33. This field also has many dipolar responses that represent noise.

11.34. **Field 2.9**

11.35. A strong rectilinear response has been identified in this field that has a break along the eastern section suggesting this was the entrance to an enclosure. The positive response with a general north - south trend extends only a few meters to the north but to south, it extends into neighbouring field 2.10.

11.36. Located on the eastern boundary opposite to the entrance to the enclosure response are two curvilinear positive responses that have been interpretated as probable archaeology.

11.37. **Field 2.10**

11.38. Many responses have been identified in this field that are related to ring ditches, and several responses that are rectilinear are located within close proximity. This is suggesting the site may have been used for several years. Several positive linear responses have been identified that are probably related to previous field boundaries, as well as the two strongest responses that are related to buried utilities.

11.39. **Field 2.11**

11.40. A strong response associated with a buried utility has been identified in this field. There appears to be a covered reservoir to the southwest so a is likely to be a Thames Water asset.

11.41. There are also many dipolar ferrous responses scattered through the field, though a little less prominent than previous fields.

11.42. **Field 2.12**

11.43. The positive north - south trending response that has been identified in fields 2.9 and field 2.10 also extends into this field, where several subcircular, penannular, and rectilinear response have been identified.

11.44. Along the eastern boundary are several positive linear and rectilinear responses that also extend east into field 2.13.

11.45. Along the western and southern boundaries is a very strong positive and negative response that probably relates to variations in the natural ground material, a similar response can also be identified in field 2.15.

11.46. A buried utility and associated interference have had an impact on the clarify of any probable archaeology in this field.

11.47. **Field 2.13**

11.48. In the northwestern corner of this field are several linear and rectilinear responses that have been interpretated as probable archaeology that also extend to the west into field 2.12.

11.49. **Field 2.14**

11.50. This field was particularly wet during data acquisition, and areas that contain no data were flooded.

11.51. In the northwest corner is a response that suggests extraction/ excavation has taken place in this area.

11.52. The rectilinear response located just south of the centre of the field has a curved corner to the northwest and has been identified as possible archaeology.

11.53. **Field 2.15**

11.54. This field is dominated by the strong positive and negative response that has been attributed to variations in the natural ground material. It is possible that this relates to path of a natural drainage channel.

11.55. **Field 2.16**

11.56. There are several strong positive rectilinear responses in this field that may be related to the enclosure response identified in field 2.9 and have been interpreted as probable archaeology.

11.57. These rectilinear responses appear to enclose a weaker positive rectilinear response as well as two strong dipolar responses that have been identified as possible archaeology.

11.58. In the northeastern corner a positive linear response with a general northeast-southwest trend has been identified as a strong agricultural response as this is slightly weaker than that identified as probable archaeology, though an archaeological origin may also be possible.

11.59. In the northwest corner is a strong alternating positive/ negative linear response that is typical of a buried pipe.

11.60. **Field 2.17**

11.61. The strongest responses are on three sides of this field. Along the southern boundary the response is from a buried utility, but the other responses are from boundary fences.

11.62. In the northern half of the field are two linear responses that appear to be related to extraction/ excavation, they are particularly straight and narrow.

11.63. At the southernmost point of this field are two responses that have been interpreted as possible archaeology. There is a rectilinear response close to the eastern boundary and an angular linear response to the west. Within the eastern response is a strong positive response that may represent possible archaeology.

11.64. **Field 2.18**

11.65. There are no responses in this field of much note, other than some weak positive responses that are related to variations in the natural ground.

11.66. **Field 2.19**

11.67. Most of the responses in this field are related to natural variations and agricultural trends. There are several positive linear responses that are related to agricultural activity, probably ploughing as well as former field boundaries.

11.68. **Field 2.20**

11.69. Several positive rectilinear responses have been identified that relate to probable archaeology. These occur in the western half of the field, with the strongest response located in the northwestern corner.

11.70. In the southwestern corner is a probable archaeological response is located within what has been identified as a 'natural' response. It is possible that this reflects previous anthropogenic activity to control a natural drainage system.

11.71. Located more centrally in this field is a weak positive penannular response and in the northeastern corner is a weak positive rectilinear response that have both been identified as possible archaeology.

11.72. **Field 2.21**

11.73. No significant responses related to archaeology have been identified in this field.

11.74. In the southeastern corner weak positive responses with a general east- west orientation have been identified as weak agricultural trends.

11.75. Along the western boundary a strong alternating positive/ negative response have been identified as a buried utility and is likely to be the water pipe that has been identified in several other locations to the south.

11.76. A similar response has been identified along the eastern boundary but this does not have corresponding responses in adjacent fields.

11.77. **Field 2.22 – this number has not been assigned to a field.**

11.78. **Field 2.23**

11.79. Two curvilinear responses have been identified towards the southeastern corner of this field as possible archaeology. These strong positive responses are located a few metres to the south of a collection of dipolar responses.

11.80. In the eastern corner of this field is a strong positive/ negative response that is associated with a buried utility, probably a water pipe that have been identified in several other fields.

11.81. Three weak positive responses have been identified centrally with a general east – west orientation and interpreted as agricultural trends.

11.82. **Field 2.24**

11.83. Along the western boundary a strong alternative positive/ negative response has been identified as a buried utility and is related to the water pipe that has been identified in adjacent fields.

11.84. Two parallel positive responses along the southern boundary have also been interpreted as buried utilities. These have also been identified in adjacent fields as water pipes.

11.85. A weak positive response located a few metres to the south of the centre of this field, has been interpreted as ‘unknown’. The geometry of this response is unusual. It has a general north – south orientation but towards the northern end of the response it turns towards the northeast, before almost immediately turning to the northwest. It is therefore difficult to assign an archaeological or agricultural origin to this shape.

11.86. **Field 2.25**

11.87. This field shows very low levels of enhancement and is dominated by responses from the pair of buried utilities located in the adjacent fields.

11.88. There is a collection of very weak positive linear and curvilinear responses located centrally and towards the east. The geometry of this responses is unusual, apart from the eastern most response that has a more defined rectilinear shape.

11.89. There are eight individual weak positive responses that appear to have a penannular relationship. These may be related to archaeological features such as pits or post holes.

11.90. **Field 2.25.1**

11.91. This field is divided into two separate areas but a small stream with an east west direction. Both areas are dominated by the strong response from the pair of parallel buried water pipes.

11.92. Adjacent to the stream in the southeastern corner of the north part of this field are many strong dipolar responses. These have been identified as ferrous spread, and it is possible that this area has been subject to land remediation. These responses may be related to material that have been used as part of that process.

11.93. **Field 2.26**

11.94. This relatively small field located to the north of Burleigh Lodge is dominated by the north – south trending strong positive/ negative response to the buried utility that has also been identified in several adjacent fields.

11.95. Along the western boundary there is a similar response to a buried utility.

11.96. Two strong positive parallel response have been identified in the eastern corner of this field that represent the buried water pipes that have also been identified continuing in several fields to the northeast.

11.97. The southern corner of this field has been fenced and constructed with loose stone to form a parking area.

11.98. **Field 2.27**

11.99. The strong alternating positive/ negative response in this field is related to a buried water pipe that has also been identified in adjacent fields.

11.100. A penannular response has been identified that relates to a ring ditch, with the entrance facing south.

11.101. A few metres to the south of the ring ditch response is a small rectilinear ‘L’ shaped response that has been identified as probable archaeology.

11.102. **Field 2.28**

11.103. The most notable responses in this field are the positive linear responses along the northern boundary. These may be previous field boundaries or attempts at improving the field drainage.

11.104. **Field 2.29**

11.105. The strongest response in this field is along the northern boundary and is probably a buried utility. The western area near to the boundary of this field was too wet to survey.

11.106. **Field 2-30**

11.107. The responses in this field are most likely to be related to natural land drainage. The stronger positives responses in the south of this field may be related to agricultural attempts to improve the natural drainage.

11.108. **Field 2.31 this field was removed from the investigation.**

11.109. **Field 2.32 this field was removed from the investigation.**

11.110. **Field 2.33 this field was removed from the investigation.**

11.111. **Field 2.34 this field was removed from the investigation.**

11.112. **Field 2.35 this field was removed from the investigation.**

11.113. **Field 2.36 this field was removed from the investigation.**

11.114. **Field 2.37**

11.115. Three strong ferrous responses have been identified in the northwest corner of this field, that have no relating or identifying above ground feature. They appear to have a northeast – southwest alignment and are approximately 35 – 40 m apart. The origin of these response in unclear. Along the eastern boundary there are several sub/ circular and linear positive responses that are probably related to archaeology.

11.116. **Field 2.38**

11.117. The southern corner is currently used as a dog agility course so hasn't been surveyed.

11.118. In terms of responses there are few to mention, mainly the general north-south trending responses that are likely to be field drainage. There is a relatively strong response to the electric fence around much of the perimeter.

11.119. **Field 2.38.1**

11.120. As with the previous field there is a strong response around the perimeter that is related to the boundary fencing. There are some relatively strong linear responses that relate to agricultural trends with some strong ferrous responses in the southern corner.

11.121. **Field 2.39**

11.122. A strong response from the boundary fencing, particularly along the eastern boundary, has been identified. Linear responses in the field are likely to relate to agricultural activity.

11.123. **Field 2.40**

11.124. As with field 2-39 there is little of note here other than weak positive responses to agricultural trends and a probable land drain with a north – south orientation along the eastern boundary.

11.125. **Field 2.41**

11.126. Along the western boundary two responses have been identified that are strong alternating positive/ negative responses that are related to buried water pipes. These assets have been identified in several adjacent fields.

11.127. In proximity to the southern boundary are two weak positive responses that are almost parallel and may represent possible archaeology.

11.128. **Field 2.41.1**

11.129. There are few notable responses in this field. There are several weak and two strong, positive responses have been identified that probably relate to agricultural activity.

11.130. **Field 2.42**

11.131. This field is dominated by the parallel responses along the western boundary that have been identified as the buried water pipes in several adjacent fields.

11.132. In the northeastern corner three linear responses have been identified that are likely to be related to field drainage.

11.133. **Field 2.42.1**

11.134. The most notable responses in this field are the numerous linear positive responses that form rectilinear geometry. It is likely that these relate to probable archaeology. Three of the four linear responses have right angles suggesting that they are related to an anthropogenic construction.

11.135. Two weaker responses have been identified as possible archaeology. The longest has a general east- west orientation and may be a continuation of the rectilinear construction from where it appears to adjoin.

11.136. The other weak positive response has a right-angled geometry but is not connected to the responses that have been identified as probable archaeology. While this response does not adjoin the probable archaeological responses its proximity and relationship to the response immediately to the south suggest this may also have an archaeological origin.

11.137. **Field 2.43**

11.138. As with other fields to the north, this field has two strong responses along its western boundary that are related to the buried water pipes.

11.139. Along the northern and southern boundaries there are responses to the fields boundaries that are particularly strong. The response to the south may be related to the railway that is adjacent to the southern boundary of this field.

11.140. **Field 2.43.1**

11.141. This relatively small field is particularly narrow and have no notable responses.

11.142. **Field 2.43.2**

11.143. As with adjacent fields the dominant response in this field is from the parallel water pipes that are identified along the western boundary.

11.144. **Field 2.43.3**

11.145. There are no responses of note in this field, despite there being probable archaeological features identified in the fields on either side.

11.146. **Field 2.43.4**

11.147. Responses have been identified in the northeastern corner of this field that relate to probable archaeology. These strong positive linear, curvilinear and right-angled responses are likely to have an anthropogenic origin related to building construction.

11.148. To the south of these responses is a less coherent linear response, that have been interpretated as probable archaeology.

11.149. The dominate responses in this field are from the water pipe(s) that have been identified along the western boundary, along with two other responses to buried utilities. The first is seen with an east-west orientation along the northern boundary, and the other appears to be an offshoot from one of the water pipes along the western boundary. This pipe heads south to the field boundary between this field and field 2.43.2. There was a water trough in the field boundary between these fields in that approximate location during data acquisition.

11.150. **Field 2.44**

11.151. There are no responses of note in this field. Several strong and weak linear responses have been identified that are related to agricultural activity.

11.152. **Field 2.44.1**

11.153. Data collected in this field are presented with a - 0.5 to + 0.5 nT scale, which highlights a low level of enhancement. Despite this, ferrous points and several relatively strong and weak linear responses have been identified. These are likely to be related to agricultural activity.

11.154. **Field 2.45**

11.155. Several positive linear, curvilinear and subcircular responses have been identified along the western boundary of this field that relate to probable archaeology.

11.156. There are also weaker linear and curvilinear responses that have been interpreted as possible archaeology.

11.157. **Field 2.46 – this number has not been assigned to a field.**

11.158. **Field 2.47 – this number has not been assigned to a field.**

11.159. **Field 2.48 – this number has not been assigned to a field.**

11.160. **Field 2.49 – this number has not been assigned to a field.**

11.161. **Field 2.50 – this number has not been assigned to a field.**

11.162. **Field 2.51 – this number has not been assigned to a field.**

11.163. **Field 2.52 – this number has not been assigned to a field.**

11.164. **Field 2-53**

11.165. In the western part of this field are several weak positive responses with linear and right-angled geometry. These have been interpreted as possible and probable archaeology and are likely to represent anthropogenic construction.

11.166. There are several positive linear responses in this field that are related to agricultural activity, most of which have a general northeast-southwest orientation.

11.167. **Field 2-54**

11.168. There are several curvilinear and linear responses in the southern part of this field that represent possible archaeology, including what appears to be a double ring ditch in the southwest corner.

11.169. **Field 2-55 and 2-56**

11.170. These two fields have now been combined into a single larger field. The three strong dipolar responses running northeast - southwest relate to the three pylons located in this field, with weaker positive linear responses relating to agricultural activity.

11.171. **Field 2-55-1**

11.172. This is a very small area, with the strong response along the northern boundary likely to be a response to a buried utility.

11.173. There are weaker positive linear responses identified, throughout the field which relate to agricultural activity.

11.174. **Field 2-57, 2-58 and 2-59**

11.175. These three fields are now combined into a single larger field.

11.176. The strong positive and negative amorphous response in the west is probably related to a palaeochannel, that also extends into field 2.60. A similar weaker response has been identified a few meters to the east.

11.177. In the eastern section of the field is a strong positive linear response that has been interpreted as possible archaeology. This linear response is not continuous with the break possibly representing an entrance.

11.178. To the east of this response is a 'C' shaped positive response that may represent the partial response to a ring ditch as it doesn't form the fuller penannular response seen in other fields.

11.179. To the west of these responses are strong positive responses that have been interpreted as possible archaeology. They have a less define geometry but may related to features with an anthropogenic origin.

11.180. **Field 2-60**

11.181. A strong negative/ positive response in this field has a northeast - southwest trend and is related to a buried utility.

11.182. The second strong positive/ negative response is less defined and is related to natural ground variations and is probably a palaeochannel.

11.183. Weaker linear responses have also been identified that are related to agricultural activity.

11.184. **Field 2.61**

11.185. There is a strong alternating positive/ negative linear response heading southeast from a drainage chamber located a few metres to the west of centre in the field. This response has been interpreted as drainage pipe.

11.186. In the northeastern corner is a linear response with a north - south alignment. It has a right angle turn towards the east at its northern extents, without any other context for what this could relate to it will be interpreted a possible archaeology.

11.187. **Field 2-62**

11.188. There are two responses located centrally in this field that correspond with crops marks already identified by the HER. An almost circular, penannular response with an entrance to the west encloses a trapezoidal response with an entrance a similar location. A positive macula response has been identified in the space between the two.

11.189. An ellipse shaped response can be identified a few meters to the southeast, that has an almost right-angled linear response emanating from its western extents.

11.190. In the southwest corner there is a sub rectangular positive response that may relate to possible archaeology.

11.191. Responses can also be identified that relate to probable extraction/ excavation along the eastern boundary that appear to be curtailed by the response to natural ground variations, as well as along the southern boundary.

11.192. **Field 2-63**

11.193. A strong linear response with an east -west trend has been identified that is likely to be a former field boundary.

11.194. Towards the eastern boundary of this field are responses that are related to variations in the ground related to natural drainage.

11.195. **Field 2-64**

11.196. The most notable responses in this field are located close to it current southern boundary and represent a response to natural ground variations.

11.197. A number of small maculae in the southwest corner that may be a extraction/ excavation related.

11.198. **Field 2-65**

11.199. There are two almost linear responses close to the current western field boundary that have been identified as possible archaeology. These, almost parallel responses, appear to confine the response from natural ground variations. Ground variations are often associated with natural drainage, and it is possible that the linear responses an indication of anthropogenic activity to manage the natural drainage. Previously when this type of response has been identified in data from elsewhere there has been a suggestion that there had been some 'canalisation' of the natural river course. It creates a distinct separation between the areas to the east and west and this may reflect anthropogenic activity.

11.200. To the east of the field, the natural ground variations are more sinuous and lack the strong linear responses seen in the west.

11.201. **Field 2-66**

11.202. This field is divided into two areas. In the eastern part of the field there are no notable responses.

11.203. In the western part of this field a strong positive rectangular response towards the northwestern corner that may be related to possibly archaeology.

11.204. In the northeastern corner several weak positive linear responses, some of which have right-angles changes of orientation have been identified as possible archaeology.

11.205. Several curvilinear responses which possibly relate to natural ground variations and previous agricultural activity has been identified.

11.206. **Field 2.67 – this number has not been assigned to a field.**

11.207. **Field 2.68 – this number has not been assigned to a field.**

11.208. **Field 2-69**

11.209. This field lie located immediately south of field 2.66. The responses in this field are dominated by the northeast - southwest trending strong linear response from a buried utility.

11.210. There is also a weaker, north-south linear response located centrally in this field that is likely to be a former field boundary.

11.211. **Field 2-70**

11.212. A penannular positive response towards the western boundary of this field is likely to be the response from a ring ditch, it has a macula positive response at its centre. The break in the ring ditch response associated with the entrance faces northeast.

11.213. A few meters to the west and south area are responses that are likely to be from extraction/ excavation.

11.214. In the east, weak positive linear responses with a north-south orientation are associated with agricultural activity.

11.215. **Field 2-71**

11.216. In this field the most notable response is close to the western boundary. A series of strong positive responses form the footprint of a building, although historical maps online doesn't show there to have been a building here.

11.217. A collection of discrete maculae responses identified to the east of the former building response are related to extraction/ excavation.

11.218. Close to the eastern boundary a weak positive penannular response from a ring ditch has been identified with the entrance facing southeast.

11.219. In this area a series of strong positive linear responses have been interpretated as possible archaeology.

11.220. **Field 2.72**

11.221. This field has several responses that are relate to ground variations associated with natural drainage.

11.222. A positive linear response with a general east - west trend through the western part of the field that is related to a previous field boundary.

11.223. **Field 2.73 – this field was removed from the investigation.**

11.224. **Field 2.74**

11.225. The responses with a general north - south trend relate to field drainage, as do those at 45° to the current field boundary.

11.226. **Field 2.75**

11.227. There are very few responses of note in this field.

11.228. **Field 2.76**

11.229. The responses in this field are weak are represented by the -1 to +1 nT scale. The main responses appear to be from the field drainage with little else to note.

11.230. **Field 2.77**

11.231. The main responses are from the field drainage. The ground appears to be marginally more enhanced that neighbouring fields as suggested by the -2 to +2 nT scale.

11.232. **Field 2.78**

11.233. The positive rectilinear responses identified in this field are suggestive of a building footprint that displays rectilinear geometry that has two concentric elements with an associated outer boundary approximately 15 m away. To the east a curvilinear positive response with a central strong positive response appears to have been truncated by a linear response.

11.234. **Field 2.79**

11.235. Along the eastern boundary of this field is a strong negative rectilinear response that have been interpreted as possible archaeology. The remaining responses are mostly related to noise and ferrous spread.

11.236. **Field 2.80**

11.237. This is rather noisy data but there is little of note.

11.238. **Field 2.81**

11.239. There are few responses of note in this field, other than a series of discrete positive responses approximately halfway along the northern boundary.

11.240. **Field 2.82**

11.241. There are very few responses of note in this field, mainly ferrous points and agricultural trends. The response in the northwest corner is possibly related to natural variations in the ground creating a drainage route.

11.242. **Field 2.83**

11.243. This field contains mainly responses from the natural drainage.

11.244. **Field 2.84**

11.245. In the northeast corner of this field there is a penannular response that is related to a ring ditch, with its entrance facing east. It has two small maculae positive responses at its centre that have also been identified as probable archaeology.

11.246. A second similar response approximately 200 m to the southwest, and third but weaker response a further 200 m southwest have also been identified. These too have weak positive maculae responses at their centre that have interpreted as probable archaeology.

11.247. Through the centre of this field an expansive response has been identified as a variation in the natural ground conditions. This is likely to represent the route of a former drainage pathway. There is a weak linear response along its eastern margin and to the west of its southern extent as similar response have been identified. There linear response may represent anthropogenic activity related to managing the path of the water, as suggested in field 2.65 to the north.

11.248. Responses have been identified that are related to previous field boundaries and other agricultural activities.

11.249. Areas of possible extraction/ excavation have also been identified in the northeastern corner of the field.

11.250. **Field 2.85 this field was removed from the investigation.**

11.251. **Field 2.86**

11.252. The main responses in this field are likely to be related to natural ground variations.

11.253. **Field 2.87 and 2.88**

11.254. The boundary separating fields 2.87 and 2.88 has been removed and the two fields combined into one.

11.255. The response in the western half of the field is particularly variable with a marked elevation change to the ground. It is likely that this area has been quarried and material removed.

11.256. **Field 2.89**

11.257. The main response in this field is central and unusual. It may be related to ground extraction/ excavations or remediation. The orientation of its longest axis is aligned with the slope of the land, where the topography associated with the response varies by around 10 m along the 100 m response length.

11.258. **Field 2.90 this field was removed from the investigation.**

11.259. **Field 2.91 this field was removed from the investigation.**

11.260. **Field 2.92**

11.261. There are several responses in this field are identified as probable archaeology. There are several sub/ circular responses that probably relate to ring ditches with the most eye catching in the southwest corner of the field; many of these responses can also be seen in aerial imagery available online.

11.262. **Field 2.92.1 this field was removed from the investigation.**

11.263. **Field 2.92.2 this field was removed from the investigation.**

11.264. **Field 2.92.3**

11.265. In the northeastern corner of this field a response has been identified that would suggest there has been material extraction or excavation in this area. There are no superficial deposits listed on the BGS website for this corner of the field.

11.266. Several responses along the southern boundary appear to be an extension of the natural responses identified in field 2.92 to the south.

11.267. **Field 2.93 this field was removed from the investigation.**

11.268. **Field 2.94**

11.269. There are few responses of note here other than a scalloped, northwest-southeast trending response that is probably due to natural soil variations related to the steep slope in this field.

11.270. **Field 2.95**

11.271. In the northwest of the field a penannular positive response, typical of a ring ditch, has been identified. Its entrance is towards the northeast.

11.272. A few metres to the southwest an almost square strong positive response has been identified as probable archaeology. This response also contains two positive macula responses that have also been interpreted as probable archaeology.

11.273. In the northeastern corner of this field a strong ferrous response has been identified close to the current field boundary

11.274. In the southeastern corner as response has been identified as possible extraction/ excavation.

11.275. **Field 2.96**

11.276. A strong alternating positive/ negative response with a northeast- southwest orientation has been identified in this field. This response is related to the presence of a buried water pipe and associated apparatus.

11.277. Strong and weak positive linear responses with a general northeast- southwest orientation have been identified as agricultural activity.

11.278. **Field 2.97**

11.279. Weak positive linear responses with a general northeast- southwest orientation have been identified as agricultural activity.

11.280. **Field 2.98**

11.281. The strongest response in this field has been identified close to the southern boundary. These two parallel strong positive responses represent the buried water pipes that are present in several adjacent fields and can be seen above ground in adjacent to the River Evenlode, to the south.

11.282. **Field 2.99**

11.283. As with the previous field the dominant response is the strong positive from the two buried water pipes.

11.284. Along the southern and eastern boundaries there are also strong responses from other buried utilities.

11.285. In the southeastern corner a strong positive response has been identified that probably relates to a palaeochannel, also seen in field 2.100 to the south.

11.286. **Field 2.100**

11.287. In the southeastern corner of this field is a strong positive, circular response that has been interpreted as probable archaeology. Unlike the penannular responses that have a break in the response that represents the possible entrance, this response appears to form a complete circle.

11.288. To the south is a curvilinear response that has been interpreted as probable archaeology and may represent the partial response to a ring ditch.

11.289. Along the northern boundary a strong, amorphous response has been identified as natural variation and may represent a palaeolchannel. This possible drainage route continues north into the adjacent field, field 2.99.

11.290. **Field 2.101**

11.291. The strongest response in this field has been identified as the two parallel strong positive responses to the buried water pipes that are present in several adjacent fields.

11.292. The strong amorphous response to the south of the buried water pipes has been interpreted as natural variation and although it doesn't appear to be continuous into the field 2.100 to the north its likely to also represent a natural drainage channel.

11.293. Weak positive linear responses with a general northwest – southeast alignment have been interpreted as agricultural trends.

11.294. **Field 2.102**

11.295. The strongest response in this field has been identified as the two parallel strong positive responses to the buried water pipes that are present in several adjacent fields.

11.296. To the south of these pipes there is a smaller but still strong alternating positive/ negative response that is also related to a buried utility.

11.297. The strong amorphous positive response to the variations in the natural ground material has also been identified in this field and may represent a continuation of the palaeolchannel identified in several adjacent fields to the northeast.

11.298. **Field 2.103**

11.299. The strongest response in this field has been identified as the two parallel strong positive responses to the buried water pipes that are present in several adjacent fields.

11.300. To the north of these pipes there is a smaller but still strong alternating positive/ negative response that is also related to a buried utility that appears to connect to the one of the two pipes previously identified.

11.301. An amorphous response to natural ground variations had also been identified, and this is likely to represent a continuation of the palaeochannel identified in adjacent fields to the northeast.

11.302. Strong positive linear responses with a general northeast – southwest trend have been identified as agricultural trends.

11.303. **Field 2.104**

11.304. Several responses have been identified as probable archaeology in this field, some of which are visible as crop marks on aerial imagery and are listed in the HER.

11.305. Central in the field is positive response with a sub-circular shape to the southeast and the elongated linear responses forming an entrance to the west. This geometry is well defined as that which represents a banjo enclosure. To the west positive linear responses with a north -south alignment have also been identified as probable archaeology.

11.306. Along the western boundary of this field are several circular, sub-ciruclar and penannular responses that have been interpreted as probable archaeology. The circular response encircles a strong positive macula that have also been interpreted as probable archaeology.

11.307. Immediately adjacent to the penannular response is a rectilinear response that does not intersect with the penannular response.

11.308. In the northwestern corner are several strong positive rectilinear responses that have been interpreted as probable archaeology. These are likely to be responses to building remains.

11.309. Two of these rectilinear responses are in proximity to a circular, weaker positive response, with the eastern most rectilinear response intersecting it.

11.310. To the west of the circular response, adjacent to current field boundary is a weak positive rectilinear response with several macula responses along its eastern boundary. This response appears to stretch beyond the current field boundary and into the adjacent field 2.105.1.

11.311. **Field 2.105**

11.312. This field has been surveyed in two parts. This northern section has several dipoles responses but little else.

11.313. In the northeastern corner an alternating positive/ negative response has been interpreted as a possible buried utility.

11.314. **Field 2.105.1**

11.315. The central area of this field has several large trees, which is why there are gaps in the data.

11.316. Weak linear responses have been identified as possible archaeology and appear to be continuous to the east into field 2.104.

11.317. **Field 2.106**

11.318. The positive response in this field are likely to be related to natural ground variations.

11.319. **Field 2.107 this field was removed from the investigation.**

11.320. **Field 2.108**

11.321. The strongest responses along the eastern boundary are two water pipes running northeast southwest. These can be seen above ground adjacent to the River Evenlode to the southwest on aerial imagery.

11.322. Positive linear responses with a general north- south alignment are to be related to agricultural activity.

11.323. **Field 2.109 this field was removed from the investigation.**

11.324. **Field 2.110**

11.325. This field has many circular, sub-circular and penannular shaped responses that are collocated and interpreted as ring ditches that form a larger settlement.

11.326. Several curvilinear positive responses have also been identified that represent partial ring ditch responses.

11.327. Many of these responses have central maculae positive responses that represent probable archaeology.

11.328. Weak positive linear responses are also located in the same part of the field and may be associated with this settlement.

11.329. Along the southeastern boundary is an isolated circular response which bounds an curvilinear response and four maculae positive responses. This also have been interpreted as a ring ditch response.

11.330. A weaker penannular response has been identified in the northeastern part of this field as a possible ring ditch with the entrance facing west.

11.331. A few metres to the northeast are a series of positive maculae that appear to form an arc and have been interpreted as possible archaeology.

11.332. Data from this field also contains several strong and weak linear responses that are related to agricultural activity.

11.333. **Field 2.111**

11.334. There are several electrical poles on a northeast-southwest alignment in this field – hence the missing data in the centre of the field.

11.335. The most notable responses are the penannular, and curvilinear positives responses identified along the northern boundary The strongest of which is seen about halfway along the northern boundary, with the others co-located about 80 m southwest. The two northern most responses identified, both of which are penannular is shape, have their entrances facing in opposite directions. The one to the west has it entrance facing east and the one to the east has its entrance facing west. Both responses are particularly weak.

11.336. Strong and weak positive linear responses identified across most of the field are related to agricultural activity in the form of field drainage and ploughing trends.

11.337. **Field 2.112**

11.338. The strongest responses in this field probably relate to natural ground variations and are probably related to natural drainage routes.

11.339. A strong positive linear response with a north-south trend relates to a former field boundary.

11.340. **Field 2.113**

11.341. There are few responses in this field worth noting. The variable response along the western boundary is possibly related to the current material in the field boundary.

11.342. **Field 2.114**

11.343. There are several strong responses in this field, with a penannular response towards the northwestern corner relating a ring ditch. This response also encircles two maculae positive responses that also represent probable archaeology.

11.344. There are several strong positive responses that relate to former field boundaries and other agricultural activity.

11.345. Several areas where the natural ground variations can be identified have also been interpreted and these form possible routes of palaeochannels.

11.346. **Field 2.115**

11.347. The responses in this field that are dominated by the buried utility identified running northwest - southeast.

11.348. Weaker natural responses and a few weak linear responses that correspond to agricultural activity have also been identified.

11.349. In the northwest corner is a strong positive curvilinear response to a partial ring ditch has been identified.

11.350. Halfway along the northern boundary a much weaker curvilinear response has been identified as possible archaeology and this may represent a partial ring ditch response.

11.351. **Field 2.116 this field was removed from the investigation.**

11.352. **Field 2.117 this field was removed from the investigation.**

11.353. **Field 2.118**

11.354. There are very few responses of note. Weak linear responses that relate to agricultural activity have been identified, along with stronger responses in the northwestern corner that relate to field drainage.

11.355. **Field 2.119 this field was removed from the investigation.**

11.356. **Field 2.120**

11.357. The strong positive response along the northern boundary is related to magnetic interference from the buildings located in this area.

11.358. A weak linear response with a right-angle at its western extent has been identified as possible archaeology.

12. Southern Site Area

12.1. **Field 3.1**

12.2. There is a strong ferrous response in much of the northern part of this field, but there is no evidence either above ground or via online historical maps to give a confident interpretation. It is possible that this relates to ground remediation and the response is to the imported material.

12.3. To the south few weak positive linear and rectilinear responses have been identified as probable and possible archaeology.

12.4. The possible archaeology has been identified as strong positive right-angled linear responses. The probable archaeological responses are weaker linear right-angled response and appear to bound the possible archaeological responses.

12.5. Weak linear responses have been identified with a northeast- southwest alignment that may represent possible buried utilities.

12.6. **Field 3.2**

12.7. This field was deemed unsuitable for survey.

12.8. **Field 3.3**

12.9. The strongest response in this field is related to the north-south trending response that is probably related to a buried utility.

12.10. In northeastern corner of this field is a strong negative response with a central strong positive response. These relate to a concrete slab surrounding a manhole cover. Due to the location of this response, it is probable that the northeast-southwest trending response identified in this field and field 3.1 may also be a buried utility.

12.11. Located at the centre of this field there is a strong penannular positive response with an elongated, funnelled entrance to the northwest, the characteristic shape of a banjo enclosure. Within the enclosure are weaker positive responses that are identified as probable archaeology.

12.12. Weaker positive responses have also been identified around the banjo enclosure. To the north two generally parallel positive responses appear to represent an extension of the responses to the elongated entrance. To the northwest and southeast weak positive responses may represent outer boundaries to the enclosure.

12.13. **Field 3.4**

12.14. This small field has few responses other than the ferrous points, identified as disperse dipolars.

12.15. **Field 3.5 and 3.7**

12.16. These two fields are no longer separated and have been combined into one larger field. The former boundary is marked by a several dipolar responses with a north-south alignment.

12.17. The largest response is related to the electricity pylon located in this field.

12.18. Along the western boundary a strong positive and negative response typical of a buried utility has been identified, which has also be identified in field 3.6.

12.19. **Field 3.6**

12.20. A strong positive/ negative response along the western boundary has been interpreted as a buried water pipe that was also identified in field 3.5 to the north.

12.21. The negative linear response located in the southwest indicates a possible backfilled ditch, probably related to agricultural.

12.22. **Field 3.7 – see field 3.5**

12.23. **Field 3.8**

12.24. There is little evidence of archaeology within these data. The linear negative anomaly is possibly a backfilled ditch. This is possibly the remnants of an old field boundary.

12.25. **Field 3.9**

12.26. There is little evidence of archaeology within these data.

12.27. The strong response in the centre of the field is related to the location of a pylon.

12.28. An alternating positive/ negative linear response has been identified entering the field from the west towards the pylon and then turning southeast just north of the pylon before exiting the field on the western boundary. This corresponds to the response from a buried utility.

12.29. **Field 3.10**

12.30. There is no evidence of archaeology within these data, with weak linear responses identified as agricultural trends.

12.31. **Field 3.11**

12.32. This data has been presented at a very narrow range which suggest that there has been limited magnetic enhancement. This may also be related to the ground being waterlogged in many places.

12.33. The strongest response to the east is due to poles and metallic ‘stay’ related to the overhead cables.

12.34. Around the perimeter there is a relatively strong response that is related to the boundary fence.

12.35. The parallel linear, east – west trending responses, seen in the eastern half of the field are probably related to agricultural activity. There is also a northwest – southeast trending response that may be related to field drainage.

12.36. **Field 3.12 and 3.17**

12.37. It is important to note that parts of this field also waterlogged during the time of the survey.

12.38. The perimeter fence can again be seen as a relatively strong response, especially the northern boundary, where there are also metal gates along the fence line.

12.39. A north- south trending response can be seen which is probably related to agricultural activity.

12.40. **Field 3.13 and 3.14**

12.41. This data is presented at a narrow range, with parts of this field also waterlogged. There is also a notable change in the gradient in this field.

12.42. In the northeastern corner of the field a linear response with a right-angle has been identified in an area of strong response. It is possible that this angular linear response is related to the location of a former building.

12.43. There appear to be several east – west trending responses, that are probably related to agricultural activity – in this case these may be related to land drainage.

12.44. There are several areas of widespread areas of noise.

12.45. **Field 3.15**

12.46. Several strong positive linear responses have been identified in this field that relate to agricultural activity.

12.47. There are alternating positive and negative responses that identify the location of buried utilities. In the northeastern corner these have been interpreted as land drains, but more centrally the stronger response may be from a buried pipe.

12.48. **Field 3.16**

12.49. Due to the small size of this field and the proximity to the south of a barn several strong responses have been detected that represent noise. Strong responses to the west have also been detected and these too represent significant noise.

13. Interpretation

13.1. The interpretation of the acquired data has been carried out in reference to online imagery and historical maps.

13.2. Only the most distinct or notable responses are discussed individually.

13.3. The most northern response that has been interpreted as probable archaeology has been identified in field 1.1 and labelled as [1.1a]. This penannular positive response with its break facing north has been interpreted as a ring ditch. These types of response are often related to enclosure ring ditches from the Bronze Age.

13.4. Field 1.5 has two notable responses. In the northwestern corner of the field a strong positive response has been interpreted as a possible banjo -enclosure, [1.5a]. Further south a small rectangular enclosure is surrounded by a cluster of pits, [1.5b]. It is possible that [1.5b] represents a late prehistoric settlement or cemetery.

13.5. In the Northern Site area, the most notable responses are in field 1.11, 1.12. and 1.13. The responses labelled [1.11a] in the northeastern corner of field 1.11 has been identified as rectilinear response with a curved section along the northeast margin. It has a break along its eastern margin probably related to an entrance to an enclosure. There are several responses within the enclosure that may also relate to archaeological features.

13.6. Anomalies [1.11b] and [1.11c] are located along the southern boundary of field 1.11 and are near a scheduled monument that lies in the adjacent field to the south. In field 1.12 there are several linear responses with a similar alignment to those seen in field 1.11 and suggest that the settlement extended west into this field. Similarly, in field 1.13 and 1.14 linear and rectilinear responses have been identified that suggest that the settlement extended south into these areas. The monument is listed as “Roman buildings discovered during excavation, probably a villa” and given the geometry of all these responses it is probable that these responses are related to that complex.

13.7. Field 1.17 contains several responses that have been interpreted as probable archaeology. The geometrical relationship between these responses suggests that there was a settlement here that may be related to the Roman settlement identified to the northwest.

13.8. In the Central Area, the largest area covered as part of this investigation, many responses that have been identified as probable archaeology.

13.9. Towards the east of the Central area, and southwest of the current airfield, fields 2.9, 2.10, 2.12, 2.13 and 2.16 contain several responses that appear to be related. A linear response extends south from a large rectangular enclosure in field 2.9 for around 500 m into field 2.12. To the west of this boundary several enclosures have been identified in field 2.10 both ring ditch and rectilinear in shape. In field 2.12 the settlement appears on the east of the boundary and extends across the current field boundary into field 2.13. It is possible that this settlement extends even further to the east into field 2.14 where a right-angled rectilinear response had been identified as possible archaeology.

13.10. Within field 2.37 several penannular, subcircular and circular and linear responses have been identified that relate to probable archaeology, [2.37a], [2.37b] and [2.37c]. These types of response are often related to enclosure ring ditches.

13.11. Anomalies [2.42.1a], [2.42.1b], [2.42.1.c] and [2.42.1d] have been identified as probable archaeology due to the geometry of their positive linear response. Anomaly [2.42.1a] has a geometry that is approximately 50 m by 30 m with a varied strength of the response along those distances. It is possible these represent plot boundaries that have not been identified via online mapping.

13.12. Anomalies [2.45a], [2.45b] and [2.45.c] are several positive linear and subcircular responses along the western boundary of this field. As with other responses that display this geometry these are likely to be related to enclosure ring ditches.

13.13. Anomalies [2.53a], [2.53b], [2.53c], [2.53d] are a collection of linear and right-angled responses identified in the western part of field 2.53. To the east anomalies [2.53a- d] also have been identified as linear and right-angled response suggesting that there may have been a settlement here that spanned both areas. In field 2.54 there are sub-circular and penannular responses that have also been identified. It is therefore possible that this site has had more than one phase of occupation.

13.14. In field 2.62 a circular ditch enclosure has been identified with a trapezoidal enclosure inside it, [2.62a]. This feature has been identified as crops marks and is listed in the HER. It has been suggested that this may relate to a funerary site.

13.15. To the east of this enclosure is an elliptical response that has also been identified as probable archaeology, [2.62b]. This response, unlike the previous, appears to be partially within the response from a possible palaeochannel.

13.16. Anomaly [2.65a] is a pair of positive linear responses that is collocated with a response typical of natural drainage. This ‘natural’ response is probably associated with the meandering of the river Evenlode from its current course, but the distinct linear response may be related to previous anthropological attempts to manage the rivers course into a different direction. This sort of hydrological management may also have taken place in field 2.84, [2.84c] and [2.84g].

13.17. Anomalies [2.78a] and [2.78b] are strong and weak linear positive responses that probably represent a building footprint, [2.78a]; and associated outer boundary, [2.78b]. [2.78a] displays rectilinear geometry with two concentric elements. The inner rectangular response, which measures approximately 6 m by 12 m, is divided into two unequal parts by a linear response suggestive of an internal division such as a wall. The outer rectangular response, measuring approximately 12 m by 20 m is extended to the east to form what may have once been a portico style entrance. It has been suggested that this response, which hasn’t been identified on any online historical mapping or aerial imagery. is reflective of Romano-Celtic architecture, possibly a temple. [2.78b] lies approximately 15 m away from the building response and probably relates to an outer boundary. Anomaly [2.78c], which is a curvilinear response with a central strong positive response, is located to the east of [2.78a] and appears to have been truncated by curvilinear response.

13.18. Anomaly [2.89a] is a relative strong response located centrally within this field. It is possible that this response is associated with excavation or material extraction but there is no evidence of extraction via an online imagery search or in historical records within this field. However, during the mid-20th century there was an excavation to the east that extracted sand, that is identified on Ordnance Survey maps between 1937 – 1961.

13.19. The anomalies located in field 2.92 are a series of sub/ circular responses probably associated with enclosure ring ditches. Anomaly [2.92a] has been identified as an outer oval response, with its longest axis oriented north south. This response surrounds an inner circular response that is approximately 10 m in diameter. To the north of [2.92a] anomaly [2.92b] has been identified as a much smaller diameter circular response, with as possible entrance to the southeast. Anomalies [2.92c], [2.92d] and [2.92e] are less complete in their response but still probably represent enclosure ring ditches. Of these three responses anomaly [2.92c] has the largest diameter of approximately 25 m.

13.20. In the centre of field 2.104 the anomaly labelled [2.104a] represents a banjo enclosure. The central enclosed element is 0.15 ha in size, which makes this enclosure comparatively small in area to the banjo enclosure identified in field 3.3. The characteristic sub-circular outline with the elongated entrance passageway is clear, with the passageway facing west where two ring ditch enclosures, [2.104b], [2.104c] and a more rectangular enclosure, [2.104d] have been identified.

13.21. Further north along the western boundary of field 2.104 a further four rectangular responses have been identified, [2.104e] and [2.104f]. A linear response which does not respect the current field boundary and may extend west into field 2.105, identified as [2.104i] and [2.105.1a] respectively.

13.22. Identified in the southwestern corner of field 2.110 are many curvilinear, sub-circular, circular and penannular responses that indicate there was once a settlement here with several ring ditch enclosures, [2.110a]. Most of these responses do not intersect with each other suggesting that this may represent a single phase of occupation.

13.23. Anomaly [2.110b] has a more rectangular geometry and may represent a later construction as this appears to cut through a ring ditch response to the west. Its rectangular geometry encircles several positive maculae which have also been identified as probable archaeology.

13.24. Anomaly [2.110c] is a circular response with internal maculae with a second curvilinear response inside it. It has been identified isolated along the eastern boundary, several metres to the northeast of the larger settlement.

13.25. Anomaly [2.111a] is a collection of four circular/ sub circular positive responses that have been identified in the northern area of this field. As with other responses that display this geometry these are probably related to enclosure ring ditches. One thing of note is that the northern most response appears to be the most complete in terms of its characteristic shape, with the entrance to the west.

13.26. Anomaly [3.3a] is a banjo enclosure which is also well defined its shape. The passageway faces north, and the central areas measures approximately 0.21 ha. Within the central area are curvilinear and sub-circular responses that also have been identified as probable archaeology. The response to the passageway may have been truncated by the installation of buried utilities.

14. Conclusions

14.1. A geophysical investigation using a fluxgate gradiometer array was successfully completed across approximately 1180 ha. This represents the pre-harvest interim results for a larger 1320 ha survey area.

14.2. The equipment has responded well to the various ground conditions and has detected a range of magnetic anomalies.

14.3. Responses have been identified that represent both probable and possible archaeology in all three areas. Some of these responses are coincident with crop marks seen in aerial imagery available online.

14.4. Several strong linear responses have been identified that relate to buried utilities, some of these have been identified as water pipes due to onsite identifiers.

15. Archiving

15.1. Atlas Geophysical maintains an in-house, offline, secure digital archive.

15.2. This archive stores the project documentation, geophysical data from the raw and minimally processed data stages, project notes, georeferenced images, XY traces and a copy of the final report.

15.3. When appropriately guided by the Client a data deposit may be made with an Archiving Body.

16. Copyright

16.1. Atlas Geophysical retains all copyright and intellectual property for all data, reports, and figures. The Client is given full licence to use such material but any third party requiring use of any material requires prior express permission of Atlas Geophysical.

17. References

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18. Glossary

18.1. **Probable Archaeology**

- This classification is applied when the form, nature or pattern of the response is considered archaeological, or where corroborative evidence is available.

18.2. **Possible Archaeology**

- These responses may be weaker, have poor definition, or form incomplete patterns often associated with archaeological activity. These factors reduce the level of confidence in the interpretation. Although the archaeological interpretation is favoured, they may be the result of other processes.

18.3. **Natural**

- These patterned responses are often the result of geological or pedological (soil) processes/ variations, where these variations produce magnetic variation in the ground material.

18.4. **Agricultural**

- Responses that are linear/ curvilinear are often associated with farming activity such as ploughing, land drainage, boundary adjustments etc...

18.5. **Uncertain**

- Responses are classified as uncertain when the origin, lack of geometry or form is ambiguous; and where there is no information or evidence to warrant a more certain classification. These responses may be the result of geological, pedological or agricultural processes, although an archaeological origin cannot be ruled out.

18.6. **Ferrous Point**

- Ferrous points are discrete dipolars seen as circular/ subcircular responses with very strong positive and negative values. They are likely to be the result of isolated, strongly magnetic ferrous debris on or near the ground surface. These may be modern items, but some may be of archaeological interest.

18.7. **Ferrous Spread**

- Ferrous spread refers to a concentrated area of ferrous points seen as many dipolar responses within a similar area.

18.8. **Magnetic Interference**

- Strong magnetic haloes are produced by existing metallic structures have been classified as magnetic interference. Often associated with fences, gates, pylons, water troughs or other agricultural equipment present at the time of data collection, these responses will obscure any weaker underlying features, should they be present.

18.9. **Possible Buried Utility**

- Identified as magnetically strong responses they often have linear/ curvilinear form and are indicative of ferrous pipes/cables. They often have a halo of magnetic interference.

18.10. **Extraction**

- This is an area where ground material has previously been removed. The magnetic response is characterised by a clearly defined strong positive response that may have a weaker negative response surrounding it.

18.11. **Unable to Survey**

- This is an area where ground conditions such that it was not possible to carry out the survey.

18.12. **Data Error**

- This is an area where data have been corrupted.

18.13. **Former Field Boundary**

- Linear or curvilinear responses that correspond to former boundaries indicated on historical mapping. Where map evidence isn't available these will be classified as 'Agricultural'.

18.14. **Possible Land Drain**

- Linear magnetic response that that may form parallel, or herringbone patterns are often indicative of land drainage. These can often display a dipolar response suggesting they may be clay pipes.

19. Figures