Geophysical Survey Report

Tye Lane Solar Farm

Suffolk

For

Orion Heritage

Magnitude Surveys Ref: MSTM817

January 2022

Unit 17, Commerce Court

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Abstract

Magnitude Surveys Ltd was commissioned to locate and assess the potential for sub-surface archaeological remains within a c. 78.5ha area northwest of Brampton, Ipswich. A fluxgate gradiometer survey was successfully completed in two separate deployments; c. 73.4ha was completed in December 2020, and an additional c. 5.1ha was completed in January 2022. Archaeological activity has been identified as linear, rectilinear, curvilinear and discrete anomalies, forming probable ditched enclosures and trackways. Anomalies that align with mapped historical features such as former field boundaries have also been detected. Agricultural activity has been identified in the form of modern ploughing trends and field drains. Magnetic disturbance relating to modern activity has impacted the data throughout the survey area. This includes magnetic interference from pylons and services which could possibly obscure archaeological anomalies within their vicinity.

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1. Introduction

1.1. Magnitude Surveys Ltd (MS) was commissioned by Orion Heritage to undertake a geophysical survey over a c. 78.48ha area of agricultural land at Tye Lane Solar Farm, Suffolk (TM 1139 4747).

1.2. The geophysical survey comprised hand-carried GNSS-positioned fluxgate gradiometer survey. Magnetic survey is the standard primary geophysical method for archaeological applications in the UK due to its ability to detect a range of different features. The technique is particularly suited for detecting fired or magnetically enhanced features, such as ditches, pits, kilns, sunken featured buildings (SFBs) and industrial activity (David *et al*., 2008).

1.3. The survey was conducted in line with the current best practice guidelines produced by Historic England (David *et al*., 2008), the Chartered Institute for Archaeologists (CIfA, 2014) and the European Archaeological Council (Schmidt *et al.,* 2015).

1.4. It was conducted in line with a WSI produced by MS (Adams, 2020)

1.5. The first deployment commenced on 07/12/2020 and took two weeks to complete. The second deployment commenced on 11/01/22 and took 2 days to complete.

2. Quality Assurance

2.1. Magnitude Surveys is a Registered Organisation of the Chartered Institute for Archaeologists (CIfA), the chartered UK body for archaeologists, and a corporate member of ISAP (International Society of Archaeological Prospection).

2.2. The directors of MS are involved in cutting edge research and the development of guidance/policy. Specifically, Dr Chrys Harris has a PhD in archaeological geophysics from the University of Bradford, is a Member of CIfA and is the Vice-Chair of the International Society for Archaeological Prospection (ISAP); Finnegan Pope-Carter has an MSc in archaeological geophysics and is a Fellow of the London Geological Society, as well as a member of GeoSIG (CIfA Geophysics Special Interest Group); Dr Paul Johnson has a PhD in archaeology from the University of Southampton, has been a member of the ISAP Management Committee since 2015, and is currently the nominated representative for the EAA Archaeological Prospection Community to the board of the European Archaeological Association.

2.3. All MS managers have degree qualifications relevant to archaeology or geophysics. All MS field and office staff have relevant archaeology or geophysics degrees and/or field experience.

3. Objectives

3.1. The objective of this geophysical survey was to assess the subsurface archaeological potential of the survey area.

4. Geographic Background

4.1. The survey area was located c.1.7km northwest of Bramford, Ipswich, Suffolk (Figure 1). Gradiometer survey was undertaken across four arable fields. The survey area was bounded by further arable fields to the north and west, by Somersham Road and Rutters Farm to the east and by Tye Lane to the south (Figure 2). A c. 5.1ha area to the south was too wet and soft to walk on safely during the first deployment. This area was subsequently surveyed during the second deployment.

4.2. Survey considerations:

Survey Area	Ground Conditions	Further Notes
1	The area consisted of an undulating arable field that generally sloped upwards to the northwest from the southeast.	The area was bounded by hedges and a ditch on all sides. Overhead power cables ran in the west of the field on a southwest to northeast orientation.
2	The area consisted of a ploughed field with undulating slopes mainly running on a north to south orientation.	The area was bounded by hedges to the east, by a ditch to the south and by a track to the west. The field continued to the north. Overhead power cables ran on an east to west orientation immediately north of the survey area
3	The area consisted of an arable field which sloped down towards the northeast.	The area was bounded by hedges and trees to the north, west and east and by a wire fence to the south.
4	The area consisted of an arable field which sloped down towards the northeast.	The area was bounded by hedges, trees and a ditch on all sides. Overhead cables ran on a northeast-southwest alignment across the southeast of the survey area.

4.3. The underlying geology comprises chalk from the Newhaven Chalk Formation. Superficial deposits in Areas 1, 3, 4 and in the west of Area 2 comprise diamicton from the Lowestoft Formation. Sand and gravel from the Lowestoft Formation are recorded in the east of Area 2 (British Geological Survey, 2022).

4.4. The centre-north and west of Area 1, as well as Areas 3 and 4, comprise lime-rich loamy and clayey soils with impeded drainage; the centre-south of Area 1 and Area 2 are instead characterised by freely draining slightly acid loamy soils (Soilscapes, 2022).

5. Archaeological Background

5.1. The following is a summary of a Desk-Based Assessment produced and provided by Orion Heritage (Redclift & Bourn, 2020).

5.2. Prehistoric evidence in the form of a Bronze Age pit and isolated Iron Age buildings have been excavated in the centre of Area 1. A findspot of Iron Age coins and pottery was found in the northeast of Area 1. Further unstratified prehistoric artefacts were recovered in the south of Area 3.

5.3. Findspots of Romano-British artefacts have been identified in the south of Area 3 and further Roman pottery has been found in unstratified contexts in the southeast of Area 1 and in the southwest of Area 4.

5.4. Further findspots and cropmarks have been identified within the survey area but are uncertain in date. These include an artefact scatter identified in the northeast of Area 1; a cropmark of an irregular D-shaped enclosure visible in the west of Area 1, tentatively interpreted as Bronze Age in date; and a trackway running across the western end of Area 1.

5.5. Further archaeological activity is recorded in the surrounding area. A double ring ditch monument of possible Late Neolithic/Early Bronze Age date, an Iron Age enclosure and an undated trackway have been recorded c.550m north of the survey area. A Bronze Age to Iron Age field system, with fields aligned north to south, has also been identified c.700m southeast of the survey area. These were associated with a roadside settlement. A curvilinear feature possibly of Iron Age date and an associated inhumation have been excavated approximately 360m south of the survey area, hinting at an Iron Age farmstead to the immediate south west of this complex.

5.6. A former Roman road follows the alignment of the present A1100 Loraine Way, approximately 100m east of the survey area. Roman field systems and a pottery scatter and metalwork were found respectively c.550m north and c.400m north of the survey area.

5.7. An Anglo-Saxon bronze pin with a decorated facetted head was found in the northeast of Area 1. C.500m south of the survey area, Anglo-Saxon farming activity was noted along with two tofts originating in the 11th to 12th centuries. Further Anglo-Saxon activity consists of an artefact scatter found c.300m northeast of the survey area; an Anglo-Saxon cemetery was also inferred from the finds of a shield boss, copper alloy vessels and a long brooch and wrist clasp in this same area.

5.8. Medieval and post-medieval activity comprises a 12th to 14th century farmstead excavated c.120m south of the survey area, with associated post-medieval pits and field boundary ditches.

5.9. Numerous undated cropmarks have also been identified in the wider environs. These comprise: field boundaries and a possible extraction pit c.450m south of the survey area; a partial enclosure c.280m southwest of the survey area; a ring ditch and a possible rectilinear enclosure located c. 630m north of the survey area.

6. Methodology

6.1. Magnetometer surveys are generally the most cost effective and suitable geophysical technique for the detection of archaeology in England. Therefore, a magnetometer survey should be the preferred geophysical technique unless its use is precluded by any specific survey objectives or the site environment. For this site, no factors precluded the recommendation of a standard magnetometer survey. Geophysical survey therefore comprised the magnetic method as described in the following section.

6.2. Data Collection

6.2.1. Geophysical prospection comprised the magnetic method as described in the following table.

6.2.2. Table of survey strategies:

Method	Instrument	Traverse Interval	Sample Interval
Magnetic	Bartington Instruments Grad-13 Digital Three-Axis Gradiometer	1m	200Hz reprojected to 0.125m

6.2.3. The magnetic data were collected using MS' bespoke hand-carried GNSS-positioned system.

6.2.3.1. MS' hand-carried system was comprised of Bartington Instruments Grad 13 Digital Three-Axis Gradiometers. Positional referencing was through a multi-channel, multi-constellation GNSS Smart Antenna RTK GPS outputting in NMEA mode to ensure high positional accuracy of collected measurements. The RTK GPS is accurate to 0.008m + 1ppm in the horizontal and 0.015m + 1ppm in the vertical.

6.2.3.2. Magnetic and GPS data were stored on an SD card within MS' bespoke datalogger. The datalogger was continuously synced, via an in-field Wi-Fi unit, to servers within MS' offices. This allowed for data collection, processing and visualisation to be monitored in real-time as fieldwork was ongoing.

6.2.3.3. A navigation system was integrated with the RTK GPS, which was used to guide the surveyor. Data were collected by traversing the survey area along the longest possible lines, ensuring efficient collection and processing.

6.3. Data Processing

6.3.1. Magnetic data were processed in bespoke in-house software produced by MS. Processing steps conform to Historic England's standards for "raw or minimally processed data" (see Section 4.2 in David *et al.,* 2008: 11).

Sensor Calibration – The sensors were calibrated using a bespoke in-house algorithm, which conforms to Olsen *et al.* (2003).

Zero Median Traverse – The median of each sensor traverse is calculated within a specified range and subtracted from the collected data. This removes striping effects caused by small variations in sensor electronics.

Projection to a Regular Grid – Data collected using RTK GPS positioning requires a uniform grid projection to visualise data. Data are rotated to best fit an orthogonal grid projection and are resampled onto the grid using an inverse distance-weighting algorithm.

Interpolation to Square Pixels – Data are interpolated using a bicubic algorithm to increase the pixel density between sensor traverses. This produces images with square pixels for ease of visualisation.

6.4. Data Visualisation and Interpretation

6.4.1. This report presents the gradient of the sensors' total field data as greyscale images, as well as the total field data from the lower sensors. The gradient of the sensors minimises external interferences and reduces the blown-out responses from ferrous and other high contrast material. However, the contrast of weak or ephemeral anomalies can be reduced through the process of calculating the gradient. Consequently, some features can be clearer in the respective gradient or total field datasets. Multiple greyscale images of the gradient and total field at different plotting ranges have been used for data interpretation. Greyscale images should be viewed alongside the XY trace plot (Figure 9, 12, 15, 18, 21, 24 & 28). XY trace plots visualise the magnitude and form of the geophysical response, aiding anomaly interpretation.

6.4.2. Geophysical results have been interpreted using greyscale images and XY traces in a layered environment, overlaid against open street maps, satellite imagery, historical maps, LiDAR data, and soil and geology maps. Google Earth (2022) was also consulted, to compare the results with recent land use.

6.4.3. Geodetic position of results – All vector and raster data have been projected into OSGB36 (ESPG27700) and can be provided upon request in ESRI Shapefile (.SHP) and Geotiff (.TIF) respectively.

7. Results

7.1. Qualification

7.1.1. Geophysical results are not a map of the ground and are instead a direct measurement of subsurface properties. Detecting and mapping features requires that said features have properties that can be measured by the chosen technique(s) and that these properties have sufficient contrast with the background to be identifiable. The interpretation of any identified anomalies is inherently subjective. While the scrutiny of the results is undertaken by qualified, experienced individuals and rigorously checked for quality and consistency, it is often not possible to classify all anomaly sources. Where possible, an anomaly source will be identified along with the certainty of the interpretation. The only way to improve the interpretation of results is through a process of comparing excavated results with the geophysical reports. MS actively seek feedback on their reports, as well as reports from further work, in order to constantly improve our knowledge and service.

7.2. Discussion

7.2.1. The geophysical results are presented in combination with historical maps and Satellite Imagery (Figure 4 & 6).

7.2.2. The geophysical survey was successfully completed across the majority of the survey area. The fluxgate gradiometer survey has responded well to the geology of the survey area. However, interference from extant field boundaries, electrical pylons, overhead cables and buried services is present throughout the survey area and may mask weaker, more ephemeral anomalies of possible archaeological origin. The survey has revealed an otherwise relatively quiet magnetic background, against which a number of anomalies of archaeological, agricultural, natural and undetermined origin have been identified.

7.2.3. Archaeological anomalies have been recorded in the northern part of survey area as three separate complexes that have been interpreted as enclosures and sub-enclosures accompanied by probable trackways. The chronology of these features is unclear. Former archaeological data collected from the survey area (see Section 5) suggest these features date to the Bronze Age and Iron Age, with emphasis on the latter due to excavation of Iron Age buildings in the centre of Area 1. Within the survey area many other possible and probable archaeological anomalies were detected away from the main foci of settlement activity. This suggests long-lasting usage of this area, which formed a complex landscape visible in gathered data, where remains of human activity from different periods of time overlapped on each other.

7.2.4. Agricultural activity has been detected across the survey area in the form of former field boundaries, field drains and modern ploughing trends.

7.2.5. Across the whole survey area natural responses most clearly seen in the total field data (Figure 3 & 5) were detected. These anomalies likely are caused by deposits related to a former watercourse and fluvial sediments.

7.2.6. Undetermined anomalies have been detected across the survey area. These anomalies have variable magnetic signals and may be related to natural, modern or agricultural origin, although an archaeological origin cannot be ruled out.

7.3. Interpretation

7.3.1. General Statements

7.3.1.1. Geophysical anomalies will be discussed broadly as classification types across the survey area. Only anomalies that are distinctive or unusual will be discussed individually.

7.3.1.2. **Ferrous (Spike)** – Discrete dipolar anomalies are likely to be the result of isolated pieces of modern ferrous debris on or near the ground surface.

7.3.1.3. **Ferrous/Debris (Spread)** – A ferrous/debris spread refers to a concentration of multiple discrete, dipolar anomalies usually resulting from highly magnetic material such as rubble containing ceramic building materials and ferrous rubbish.

7.3.1.4. **Magnetic Disturbance** – The strong anomalies produced by extant metallic structures, typically including fencing, pylons, vehicles and service pipes, have been classified as 'Magnetic Disturbance'. These magnetic 'haloes' will obscure weaker anomalies relating to nearby features, should they be present, often over a greater footprint than the structure causing them.

7.3.1.5. **Undetermined** – Anomalies are classified as Undetermined when the origin of the geophysical anomaly is ambiguous and there is no supporting contextual evidence to justify a more certain classification. These anomalies are likely to be the result of geological, pedological or agricultural processes, although an archaeological origin cannot be entirely ruled out. Undetermined anomalies are generally distinct from those caused by ferrous sources.

7.3.2. Magnetic Results - Specific Anomalies

7.3.2.1. **Probable Archaeology (Strong & Weak) –** Discontinuous positive linear and curvilinear anomalies [**4a**] extend over much of the north-eastern corner of Area 4 (Figures 7 & 8). The anomalies exhibit positive magnetic signals of varying strengths and are indicative of ditches infilled with an enhanced backfill, caused by settlement activity (Figure 7). These anomalies have been categorised as probable archaeology on the basis of their strength, shape and definition. Because of their discontinuity and differing orientations, it is difficult to ascertain how they relate to one another, but they may form parts of several enclosures and sub-enclosures. The foci of activity is located on a rising slope, contained to the east and southwest by a paleochannel and to the southeast a

possible double ditched trackway [**4b**] appears to delimit the settlement. These anomalies relate to enclosures, or possible settlement activity however from magnetic data alone and due to the fragmentary nature of the anomalies, establishing a precise chronology is difficult. Several strong positive discrete anomalies which can be indicative of possible pits have also been detected within this complex.

7.3.2.2. In the east of Area 1, a series of enclosures [**1a**] have been identified (Figures 19 & 20). Linear anomalies intersect to create sub-rectangular enclosures with activity inside forming sub-enclosures. The anomalies exhibit a signal very similar to [**4a**] and could possibly relate to an extension of this settlement activity. This set of enclosures is partially visible as a cropmark on maps available via Google Earth Pro. Further linear formations have been identified in the western part of Area 1 [**1b**], with similar magnetic enhancement forming further possible enclosures smaller in size (Figure 16 & 17). It should be noted that the service which runs through this field and the strong magnetic signal from this may obscure nearby archaeological features belonging to this complex.

7.3.2.3. **Possible Archaeology (Strong and Weak) –** Within Areas 1, 2 and 4 several linear and discrete anomalies have been identified isolated from the main foci of archaeological activity or are much weaker. These anomalies lack any context or morphology which would allow for a definitive interpretation and could be caused by agricultural or other modern activity. However, due to the proximity of probable archaeological anomalies within the survey area, in addition to known archaeological activity (see section 5) an archaeological origin is considered more likely.

7.3.2.4. **Agricultural (Weak and Strong)** – Across all the survey areas positive linear anomalies have been detected that co-locate with field boundaries recorded on 2nd Edition OS maps (Figure 3 & 6). In the central part of Area 3 is a linear anomaly [**3a**] which exhibits a similar magnetic signal to the field boundaries identified on historic maps. The anomaly does not collocate with mapped boundaries but respects the orientation of current and mapped field boundaries in 2nd Edition OS maps (Figure 3 & 6) and is likely caused by an unmapped former field delimitation.

7.3.2.5. **Agricultural (Trends)** – Recent ploughing activity has been detected across the majority of the survey area. These are identified as tightly spaced linear anomalies, parallel to each other and following the lines of cultivation as recorded on the satellite mapping (Figure 4 & 6). The survey has identified a negative linear anomaly running in a northwest-southeast direction across Area 2 (Figure 27). This anomaly, which is most visible on the Total Field plots (Figure 5), have been interpreted to be of agricultural origin due to its straight shape and low magnetic signal. It is considered likely that this anomaly relates to a plastic drain or other modern feature.

7.3.2.6. **Drainage Features** – In Areas 1 and 4, the survey has identified several linear anomalies of variable magnetic signal. These anomalies that terminate at present or former field boundaries have been interpreted as field drains (Figure 11 & 14).

7.3.2.7. **Overhead Cables** – In Area 1 and 4, the survey has detected several high magnitude linear bands running a southeast-northwest direction (Figure 11, 14 & 17). These anomalies, which co-locate with overhead electrical cables, have been interpreted as magnetic interference caused by these extant features.

7.3.2.8. **Services** – Four high magnitude, dipolar linear anomalies have been detected crossing all of the survey areas (Figure 11, 14, 17, 20, 23 & 26). These anomalies exhibit the magnetic characteristics of buried services and could potentially mask, weaker anomalies of possible archaeological origin which are in close proximity to them.

7.3.2.9. **Natural (Weak)** – In the north of Area 3 and 4 and south of Area 2 a series of weak positive amorphous anomalies have been identified (Figure 8 & 27). These anomalies have been interpreted as a geological variation between the chalk bedrock and the sands and gravel superficial deposits (see Sec 4.2).

7.3.2.10. **Undetermined (Strong and Weak)** – Numerous isolated linear and discrete anomalies have been identified, which are not readily associated with the archaeological activity across the site (Figure 8, 11, 14, 17, 20, 23, 26). These anomalies have a variable magnetic signal and no clear form or pattern to suggest archaeological origin. These anomalies may also relate to natural, modern or potentially very weakly enhanced anthropogenic activity of uncertain date. Nevertheless, due to the presence of probable archaeological anomalies in the survey area, an archaeological origin cannot be dismissed.

8. Conclusions

8.1. A fluxgate gradiometer survey has successfully been undertaken across the entirety of the survey area in two separate deployments. The geophysical survey has detected a range of types of anomalies of archaeological, agricultural, natural and modern origin. A large area of natural anomalies, most clearly seen in the total field data, is present across the whole site and is likely caused by deposits related to a former watercourse and the deposition of fluvial sediments. Broad ferrous anomalies related to extant boundary fencing, overhead cables and buried services have also been detected, the haloes from which could potentially mask possible archaeological anomalies.

8.2. Archaeological activity has been detected within the survey area, with three major foci located adjacent to the northern boundary. These anomaly complexes have been interpreted as possible trackways, enclosures and sub-enclosures, indicative of settlement activity, which could be dated to the Bronze Age and the Iron Age, on the basis of excavated data derived from the close vicinity (see Section 5). However, the abundance of other archaeological finds located within and around the survey area mostly without context, suggests a long duration in the use of the area which forms a complex agricultural

landscape with a multiple phases of activity. The area of potential settlement activity may have been constrained by a paleochannel to the west. Several anomalies which have a more uncertain origin have been categorised as possible archaeology due to their position away from the main foci of archaeological activity and their weaker magnetic signal or discontinuous morphology.

8.3. Agricultural activity has been detected across the entire survey area, comprising mapped and unmapped former field boundaries, drainage features and modern ploughing.

8.4. Anomalies classified as 'undetermined' have also been identified across the survey area. These anomalies in majority lack any pattern or shape which would suggest an archaeological origin and are considered more likely to be caused by natural or agricultural processes. However, an archaeological origin of these anomalies cannot be completely discounted, especially where they are in close proximity to other anomalies of probable archaeological origin.

9. Archiving

9.1. MS maintains an in-house digital archive, which is based on Schmidt and Ernenwein (2013). This stores the collected measurements, minimally processed data, georeferenced and un-georeferenced images, XY traces and a copy of the final report.

9.2. MS contributes reports to the ADS Grey Literature Library upon permission from the client, subject to any dictated time embargoes.

10. Copyright

10.1. Copyright and intellectual property pertaining to all reports, figures and datasets produced by Magnitude Services Ltd is retained by MS. The client is given full licence to use such material for their own purposes. Permission must be sought by any third party wishing to use or reproduce any IP owned by MS.

11. References

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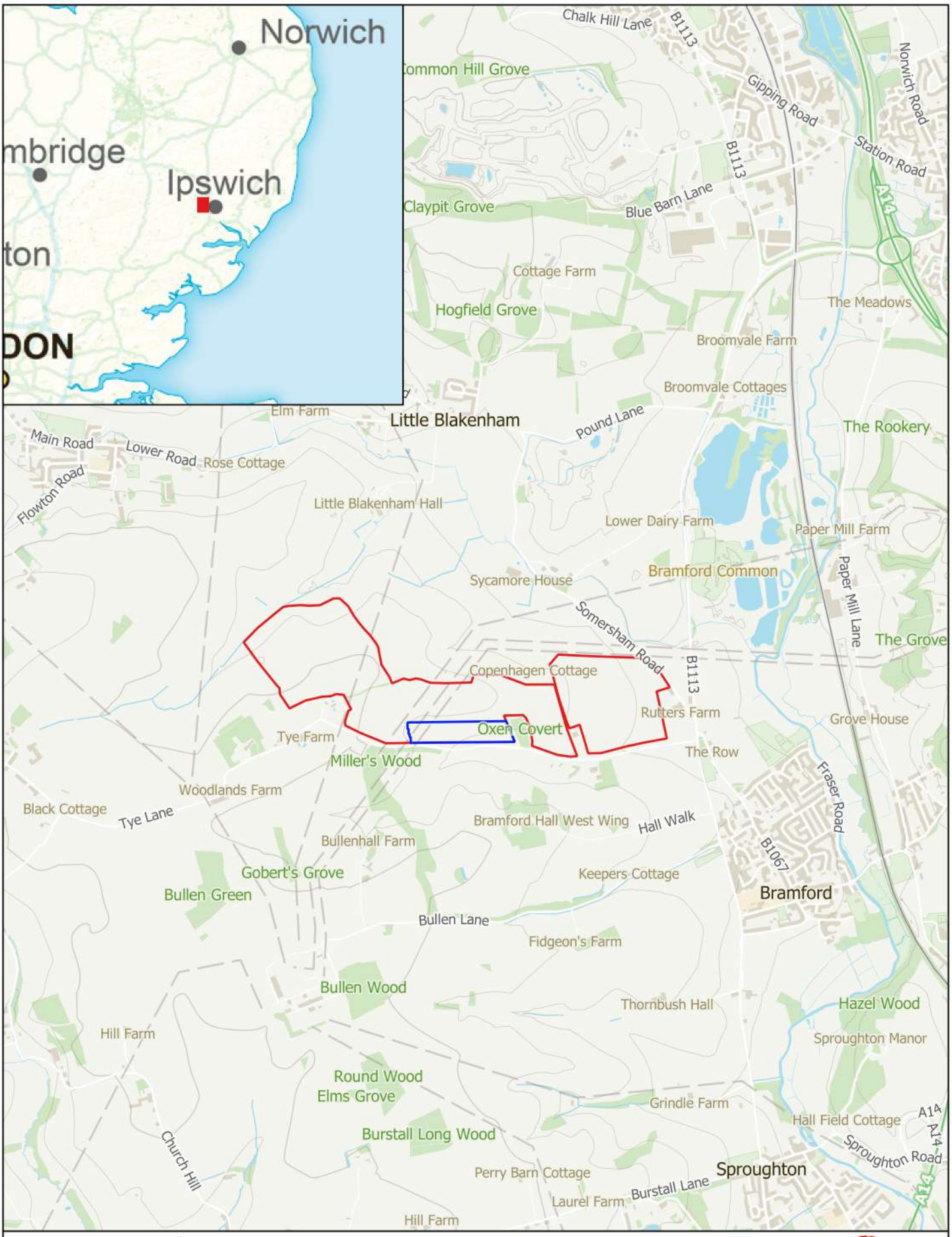
12. Project Metadata

MS Job Code	MSTM817
Project Name	Tye Lane Solar Farm
Client	Orion Heritage
Grid Reference	TM 11398 47477
Survey Techniques	Magnetometry
Survey Size (ha)	78.48ha (Magnetometry)
Survey Dates	2020-12-07 to 2020-12-18 and 22-01-11 to 22-01-12
Project Lead	Frederick Salmon BSc FGS ACIfA
Project Officer	Christian Adams BA MSc
HER Event No	N/A
OASIS No	N/A
S42 Licence No	N/A
Report Version	0.4

13. Document History

Version	Comments	Author	Checked By	Date
0.1	Initial draft for Project Lead to Review	AC, KD, SP	CA	24 December 2020
0.2	Comments from Project Officer	AC	CA	24 December 2020
0.3	Draft for Director Approval	CA	KA	04 January 2021
0.4	Report updated following second deployment	JD	FPC	18 January 2022
1.0	Report Issued as Final	CA	CA	20 January 2022



MSTM817 - Tye Lane Solar Farm
Figure 1 - Site Location
1:25,000 @ A4

Survey Area
Second Deployment

N

0 0.5 1 km

magnitude surveys

610000
611000
612000
248000
247000
Little Blakenham Hall
Lower Dairy Farm
Golf Course
Bramford Common
Sycamore House
Somersham Road
B1113
Area3
Area4
Area2
Area1
Copenhagen Cottage
Rutters Farm
Oxen Covert
Tye Farm
Tye Lane
Miller's Wood
The Row
Bramford Lawn Cemetery
B1067
Acton Road
Woodlands Farm
Bramford Hall West Wing
Hall Walk
Bullen Close

MSTM817 - Tye Lane Solar Farm
Figure 2 - Location of Survey Areas
1:10,000 @ A3

N

0 250 500 750 m

magnitude surveys

610000

610500

247500

247500

Area4

Area3

Tye Lane

Tye Farm

MSTM817 - Tye Lane Solar Farm
Figure 3 - Magnetic Total Field (Lower Sensor) (Overview) (West Overview)
1:1,3000 @ A3

48,998 nT 49,003

B1113

Miller's Wood

Tye Lane

N

0 50 100 150 m

magnitude surveys

610000

610500

247500

247500

B.M. 158·3

178

F.P.

B.M. 180·8

Bramford Tye

F.P.

F.P.

179

Oakwood

Tye Farm

B R A

B a

100

MSTM817 - Tye Lane Solar Farm
Figure 4 - Magnetic Interpretation Over Historical Maps (Overview) (West Overview)
1:1,3000 @ A3

Contains historical maps: Ordnance Survey, 6" 2nd edition c. 1882-1913 © National Library of Scotland

- Agricultural (Strong)
- Agricultural (Weak)
- Archaeology Possible (Strong)
- Archaeology Possible (Weak)
- Archaeology Probable (Strong)
- Archaeology Probable (Weak)
- Magnetic Disturbance
- Ferrous/Debris (Spread)
- Natural (Weak)
- Undetermined (Strong)
- Undetermined (Weak)
- Overhead Cables
- Agricultural (Trend)
- Service
- Drainage Feature
- Ferrous (Spike)

N

0 50 100 150 m

magnitude surveys

611000

611500

247500

247500

Area2

Somersham Road

Copenhagen Cottage

Area1

Rutters Farm

Oxen Covert

Tye Lane

247000

247000

MSTM817 - Tye Lane Solar Farm
Figure 5 - Magnetic Total Field (Lower Sensor) (Overview) (East Overview)
1:1,3000 @ A3

48,998 nT 49,003

B1113

Miller's Wood

Tye Lane

N

0 50 100 150 m

magnitude surveys

611000

611500

247500

247500

F.P.

F.P.

Back Lane W

Copenhagen Cottages

B.M. 113.1

50

Ruthouse Barn

AMF OR

Acres 31.40.194

Oxen Covert

Tye Lane

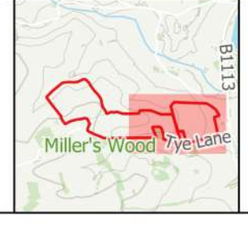
247000

247000

MSTM817 - Tye Lane Solar Farm
Figure 6 - Magnetic Interpretation Over Historical Maps (Overview) (East Overview)
1:1,3000 @ A3

Contains historical maps: Ordnance Survey, 6" 2nd edition c. 1882-1913 © National Library of Scotland

- Agricultural (Strong)
- Agricultural (Weak)
- Archaeology Possible (Strong)
- Archaeology Possible (Weak)
- Archaeology Probable (Strong)
- Archaeology Probable (Weak)
- Magnetic Disturbance
- Ferrous/Debris (Spread)
- Natural (Spread)
- Natural (Weak)
- Undetermined (Weak)
- Overhead Cables
- Agricultural (Trend)
- Service
- Drainage Feature
- Ferrous (Spike)



N

0 50 100 150 m

magnitude surveys

Area 3

Area 4

MSTM817 - Tye Lane Solar Farm
Figure 7 - Magnetic Gradient (North West)
1:1,500 @ A3

-1 nT 2

0 40 80 120 m

magnitude surveys

609800
247800
610000
Area 3
247600
Area 4
3a
610200
247800
4a
4b
247400

MSTM817 - Tye Lane Solar Farm
Figure 8 - Magnetic Interpretation (North West)
1:1,500 @ A3

Agricultural (Strong)
Agricultural (Weak)
Archaeology Possible (Weak)
Archaeology Probable (Strong)
Archaeology Probable (Weak)
Magnetic Disturbance
Ferrous/Debris (Spread)
Natural (Weak)
Undetermined (Strong)
Undetermined (Weak)
Overhead Cables
Agricultural (Trend)
Drainage Feature
Ferrous (Spike)

0 40 80 120 m

magnitude surveys

609800
247800
610000
Area 3
247600
Area 4
610200
247800
247400
MSTM817 - Tye Lane Solar Farm
Figure 9 - XY Trace Plot (North West)
30nT/cm at 1:1,500 @ A3

B1113
Miller's Wood
Tye Lane
N
0
40
80
120 m
magnitude surveys

Area 4

Area 3

Tye Lane

MSTM817 - Tye Lane Solar Farm
Figure 10 - Magnetic Gradient (West)
1:1,500 @ A3

-1 nT 2

N

0 40 80 120 m

magnitude surveys

609800
610200
247400
609800
247600
247200
610400
4b
Area 3
Area 4
Tye Lane

MSTM817 - Tye Lane Solar Farm
Figure 11 - Magnetic Interpretation (West)
1:1,500 @ A3

Agricultural (Strong)
Agricultural (Weak)
Archaeology Possible (Weak)
Archaeology Probable (Strong)
Archaeology Probable (Weak)
Magnetic Disturbance
Ferrous/Debris (Spread)
Natural (Weak)
Undetermined (Strong)
Undetermined (Weak)
Overhead Cables
Agricultural (Trend)
Service
Drainage Feature
Ferrous (Spike)

N
0
40
80
120 m

magnitude surveys

609800

610200

247400

609800

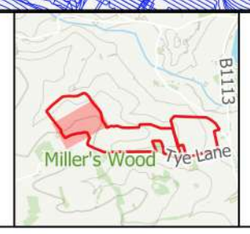
247600

247200

610400

Tye Lane

MSTM817 - Tye Lane Solar Farm
Figure 12 - XY Trace Plot (West)
30nT/cm at 1:1,500 @ A3



N

0 40 80 120 m

magnitude surveys

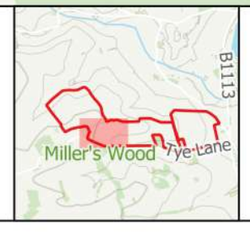
Area 3

Area 1

Tye Lane

MSTM817 - Tye Lane Solar Farm
Figure 13 - Magnetic Gradient (South West)
1:1,500 @ A3

-1 nT 2



N

0 40 80 120 m

magnitude surveys

610200
610400
610600
247400
247400
247200
247200
1b
Area 3
Area 1
Tye Lane

MSTM817 - Tye Lane Solar Farm
Figure 14 - Magnetic Interpretation (South West)
1:1,500 @ A3

- Agricultural (Strong)
- Agricultural (Weak)
- Archaeology Possible (Strong)
- Archaeology Possible (Weak)
- Archaeology Probable (Strong)
- Archaeology Probable (Weak)
- Magnetic Disturbance
- Natural (Weak)
- Undetermined (Strong)
- Undetermined (Weak)
- Overhead Cables
- Agricultural (Trend)
- Service
- Drainage Feature
- Ferrous (Spike)

N
0
40
80
120 m

magnitude surveys

610200
610400
610600
247400
247400
247200
247200
Area 1
Tye Lane
MSTM817 - Tye Lane Solar Farm
Figure 15 - XY Trace Plot (South West)
30nT/cm at 1:1,500 @ A3

B1113
Miller's Wood
Tye Lane
N
0
40
80
120 m
magnitude surveys

Oxen Covert

Area 1

Area 1

MSTM817 - Tye Lane Solar Farm
Figure 16 - Magnetic Gradient (Centre)
1:1,500 @ A3

-1 nT 2

B1113
Miller's Wood
Tye Lane

N

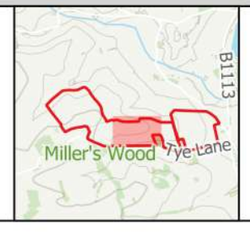
0 40 80 120 m

magnitude surveys

610600
610800
611000
247400
247400
1b
247200
247200
Area 1
Oxen Covert
Area 1

MSTM817 - Tye Lane Solar Farm
Figure 17 - Magnetic Interpretation (Centre)
1:1,500 @ A3

- Agricultural (Strong)
- Agricultural (Weak)
- Archaeology Possible (Strong)
- Archaeology Possible (Weak)
- Archaeology Probable (Strong)
- Archaeology Probable (Weak)
- Magnetic Disturbance
- Natural (Weak)
- Undetermined (Weak)
- Overhead Cables
- Agricultural (Trend)
- Service
- Ferrous (Spike)



N
0
40
80
120 m

magnitude surveys

610600

610800

611000

247400

247400

247200

247200

Oxen Covert

Area 1

Area 1

MSTM817 - Tye Lane Solar Farm
Figure 18 - XY Trace Plot (Centre)
30nT/cm at 1:1,500 @ A3

N

0 40 80 120 m

magnitude surveys

Oxen Covert

Area 1

Area 2

Tye Lane

MSTM817 - Tye Lane Solar Farm
Figure 19 - Magnetic Gradient (East)
1:1,500 @ A3

-1 nT 2

N

0 40 80 120 m

magnitude surveys

611000
611200
611400
247200
247200
1a
Oxen Covert
Area 1
Area 2
Tye Lane

MSTM817 - Tye Lane Solar Farm
Figure 20 - Magnetic Interpretation (East)
1:1,500 @ A3

- Agricultural (Strong)
- Agricultural (Weak)
- Archaeology Possible (Strong)
- Archaeology Possible (Weak)
- Archaeology Probable (Strong)
- Archaeology Probable (Weak)
- Magnetic Disturbance
- Ferrous/Debris (Spread)
- Natural (Spread)
- Natural (Weak)
- Undetermined (Weak)
- Agricultural (Trend)
- Service
- Ferrous (Spike)

N
0
40
80
120 m

magnitude surveys

611000
611200
611400
247200
247200
Oxen Covert
Area 1
Area 2
Tye Lane

MSTM817 - Tye Lane Solar Farm
Figure 21 - XY Trace Plot (East)
30nT/cm at 1:1,500 @ A3

N

0 40 80 120 m

magnitude surveys

Area 2

Somersham Road

MSTM817 - Tye Lane Solar Farm
Figure 22 - Magnetic Gradient (North East)
1:1,500 @ A3

-1 nT 2

B1113
Miller's Wood
Tye Lane

N

0 40 80 120 m

magnitude surveys

247600 611200 611400 611600 247600

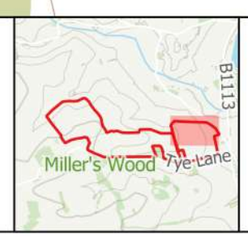
Area 2

Somersham Road

247400 247400

MSTM817 - Tye Lane Solar Farm
Figure 23 - Magnetic Interpretation (North East)
1:1,500 @ A3

- Agricultural (Strong)
- Agricultural (Weak)
- Archaeology Possible (Weak)
- Archaeology Probable (Strong)
- Archaeology Probable (Weak)
- Magnetic Disturbance
- Ferrous/Debris (Spread)
- Natural (Weak)
- Undetermined (Weak)
- Overhead Cables
- Agricultural (Trend)
- Service
- Drainage Feature
- Ferrous (Spike)



N

0 40 80 120 m

magnitude surveys

611200
611400
611600
247600
247400
Somersham Road
MSTM817 - Tye Lane Solar Farm
Figure 24 - XY Trace Plot (North East)
30nT/cm at 1:1,500 @ A3

B1113
Miller's Wood
Tye Lane
N
0
40
80
120 m
magnitude surveys

Somersham Road

Area 2

Tye Lane

MSTM817 - Tye Lane Solar Farm
Figure 25 - Magnetic Gradient (South East)
1:1,500 @ A3

-1 nT 2

N

0 40 80 120 m

magnitude surveys

611400

611600

611800

Somersham Road

247200

247200

Area 2

Tye Lane

MSTM817 - Tye Lane Solar Farm
Figure 26 - Magnetic Interpretation (South East)
1:1,500 @ A3

- Agricultural (Strong)
- Agricultural (Weak)
- Archaeology Possible (Weak)
- Magnetic Disturbance
- Ferrous/Debris (Spread)
- Natural (Weak)
- Undetermined (Weak)
- Agricultural (Trend)
- Service
- Ferrous (Spike)

N

0 40 80 120 m

magnitude surveys

611400

611600

611800

Somersham Road

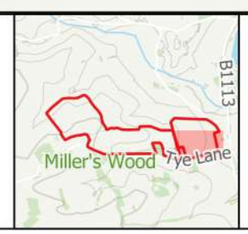
247200

247200

Area 2

Tye Lane

MSTM817 - Tye Lane Solar Farm
Figure 27 - XY Trace Plot (South East)
30nT/cm at 1:1,500 @ A3



N

0 40 80 120 m

magnitude surveys