THAMES VALLEY

ARCHAEOLOGICAL

SERVICES

Sonning Quarry, East Extension, Sonning Eye, Oxfordshire

Geophysical Survey (Magnetic)

by Kyle Beaverstock

Site Code: SEE21/272

(SU 7608 7720)

Sonning Quarry, East Extension, Sonning Eye, Oxfordshire

Geophysical Survey (Magnetic) Report

For Tarmac Limited

by Kyle Beaverstock

Thames Valley Archaeological Services Ltd

Site Code SEE 21/272

April 2023

Summary

Site name: Sonning Quarry, East Extension, Sonning Eye, Oxfordshire

Grid reference: SU 7608 7720

Site activity: Magnetometer survey

Date and duration of project: 6 December 2021 – 18 April 2023

Project coordinator: David Sanchez

Site supervisor: Kyle Beaverstock

Site code: SEE 21/272

Area of site: c. 62ha

Summary of results: A small number of potential prehistoric features were uncovered by the geophysical survey as well as a number of other linear and discrete features of indeterminate date.

Location of archive: The archive is presently held at Thames Valley Archaeological Services, Reading in accordance with TVAS digital archiving policies.

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Report edited/checked by:	Steve Ford✓ 02.05.23
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Sonning Quarry, East Extension, Sonning Eye, Oxfordshire
A Geophysical Survey (Magnetic)

by Kyle Beaverstock

Report 21/272

Introduction

This report documents the results of a geophysical survey (magnetic) carried out at Henley Road, Reading, Oxfordshire (SU 7608 7720) (Fig. 1). The work was commissioned by Andy Richmond of Phoenix Consulting Archaeology Ltd, Bedford Office, 13 Grove Place, Bedford, MK40 3JJ, on behalf of Tarmac Ltd. T3 Solihull Office. Trinity Park, Bickenhill Lane, Ground Floor, T3 Birmingham B37 7ES.

Planning permission is to be sought from Oxfordshire County Council for the eastern extension of Sonning Quarry, Sonning Eye, Oxfordshire (SU 7550 7683). As such, a geophysical survey has been requested in order to inform the application. The survey site covers an area of c.62ha across several arable fields to the south and east of the current quarry workings. This is in accordance with the *National Planning Policy Framework* (NPPF 2021), and the County's policies on archaeology. The field investigation was carried out to a specification approved by Steven Weaver, Planning Archaeologist for Oxfordshire County Council. The fieldwork was undertaken by Kyle Beaverstock and Luciano Cicu, between 6th of December 2021 and 18th of April 2023 and the site code is CQS 17/112.

The archive is presently held at Thames Valley Archaeological Services, Reading in accordance with TVAS digital archiving policies.

Location, topography and geology

The site is located on the north-eastern edge of Reading (Fig. 1), just to the north of Sonning with the River Thames running approximately 80m to the south-east. Bounded by mostly farmland to the south, east and north with an open quarry to the north-west. This relatively level parcel of land sitting at a height of c. 34m above Ordnance Datum across the survey area and being utilised for arable farming. The underlying geology is stated as Brickearth above Upper Chalk in the south-east and central areas and Alluvium in the east of the site (BGS 2000).

Site history and archaeological background

The site lies in the archaeologically rich Thames Valley, with many sites recorded during the process of gravel extraction (Manning and Moore 2011), via aerial photography (Gates 1975), field survey (Ford 1987) and latterly by planning-led archaeological interventions (Barnes et al. 1997). The archaeological potential of the site has been highlighted in an archaeological desktop study (Coates and Richmond 2009). Aerial photography (Palmer 2009), geophysical survey (Bartlett 2010 a and b), evaluation trenching (Ford 2004; Newboult and McNicoll-Norbury 2011), archaeological excavation (Porter and Weale 2014) and recording action (Attard and Taylor 2018) has provided a comprehensive study of the site.

Methodology

Sample interval

Data collection involved the traversing of the survey area along straight and parallel lines using two cart-mounted Bartington Grad601-2 fluxgate gradiometers. Even coverage was achieved with the use of regularly spaced markers at the ends of traverses and the real-time positional trace plot. Readings were taken at 0.13m intervals along traverses 1m apart, providing an appropriate methodology balancing cost and time with resolution. Traverses were walked at an alternating zig-zag pattern along a south-west to north-east and north-west to south-east orientation across fields A, B, D, E, F, G, H, I, J and north to south across field C. A number of obstructions were encountered including woodland fences and vegetation. Conditions were mostly dry and bright with some frost and rain.

The Grad 601-2 has a typical depth of penetration of 0.5m to 1.0m. This would be increased if strongly magnetic objects have been buried in the site. Under normal operating conditions it can be expected to identify buried features >0.5m in diameter. Features which can be detected include disturbed soil, such as the fill of a ditch, structures that have been heated to high temperatures (magnetic thermoremnance) and objects made from ferro-magnetic materials. The strength of the magnetic field is measured in nano Tesla (nT), equivalent to 10^{-9} Tesla, the SI unit of magnetic flux density.

Equipment

The purpose of the survey was to identify geophysical anomalies that may be archaeological in origin in order to inform a targeted archaeological investigation of the site prior to development. The survey and report generally

follow the recommendations and standards set out by both European Archaeological Council (EAC 2015) and the Chartered Institute *for* Archaeologists (2002, 2014).

Magnetometry was chosen as a survey method as it offers the most rapid ground coverage and responds to a wide range of anomalies caused by past human activity. These properties make it ideal for the fast yet detailed surveying of an area.

The detailed magnetometry survey was carried out using two dual sensor Bartington Instruments Grad 601-2 fluxgate gradiometers mounted upon a Bartington non-magnetic cart. A two-wheeled lightweight structure pushed by hand, the cart consisted a bank of four vertically-mounted Bartington Grad601-2 magnetic sensor tubes at 1m apart and a Trimble R2 Receiver, centimetre edition GPS. Readings were collected by two Bartington Grad601-2 loggers and collated using MLgrad601 software on a Linx 12x64 tablet running Windows 10 mounted at the rear of the cart. This enables readings to be taken of both the general background magnetic field and any localised anomalies with the difference being plotted as either positive or negative buried features. All sensors are calibrated to cancel out the local magnetic field and react only to anomalies above or below this base line. On this basis, strong magnetic anomalies such as burnt features (kilns and hearths) will give a high response as will buried ferrous objects. More subtle anomalies such as pits and ditches can be seen from their infilling soils containing higher proportions of humic material, rich in ferrous oxides, compared to the undisturbed subsoil. This will stand out in relation to the background magnetic readings and appear in plan following the course of a linear feature or within a discrete area.

The Trimble R2 Receiver, centimetre edition GPS system with centimetre real-time accuracy was used to tie the cart traverses into the Ordnance Survey national grid. This unit offers both real-time correction and post-survey processing; enabling a high level of accuracy to be obtained both in the field and in the final post-processed data.

Data gathered in the field was processed using the TerraSurveyor software package. This allows the survey data to be collated and manipulated to enhance the visibility of anomalies, particularly those likely to be of archaeological origin. The table below lists the processes applied to this survey, full survey and data information is recorded in Appendix 1.

Process	**Effect**
Clip from -2.20 to 2.21 nT	Enhance the contrast of the image to improve the appearance of possible archaeological anomalies.
De-stripe: median, all sensors	Removes the striping effect caused by differences in sensor calibration, enhancing the visibility of potential archaeological anomalies.
De-spike: threshold 1, window size 3×3	Compresses outlying magnetic points caused by

	interference of metal objects within the survey area.
De-stagger: all grids, both by -1 intervals	Cancels out effects of site's topography on irregularities in the traverse speed.

The raw data plot is presented as a greyscale plot shown in relation to the site (Fig. 2) with the processed data then presented as a second figure (Fig. 3), followed by a third plan to present the abstraction and interpretation of the magnetic anomalies (Fig. 4). Anomalies are shown as colour-coded lines, points and polygons.

The greyscale plot of the processed data is exported from TerraSurveyor in a georeferenced portable network graphics (.PNG) format, a raster image format chosen for its lossless data compression and support for transparent pixels, enabling it to easily be overlaid onto an existing site plan. The data plot is combined with grid and site plans in QGIS 2.18.15 and exported again in .PNG format in order to present them in figure templates in Adobe InDesign CS5.5, creating .INDD file formats. Once the figures are finalised they are exported in .PDF format for inclusion within the finished report.

Results

Across the survey area are a series of irregular positive anomalies with some associated negative anomalies **[1]**, these come in the forms of linears and globular shaped features and are mostly in the alluvial areas to the east and are likely caused by geological features. In the east of field A is a short weak positive linear **[2]** orientated south-east to north-west and measuring 42m long and is likely related to the field system.

In the south-west of field B are two positive curvilinear anomalies **[3]**, these measure c. 17m in diameter and c. 7m. These most likely represent barrow ditches as a number of barrows were identified by previous surveys in the adjacent field to the north. In the north of the field are two parallel positive linears **[4]**, these are orientated north-west to south-east and measure 36m and 22m and approximately 2.2m apart. These likely represent a possible trackway. To the north of this is another positive linear **[5]** running south-east to north-west across the south-west of field C and the north of field B for 87m before turning to the north-west for 18m with a small branch heading north. To the north of this is a weak positive linear **[6]** orientated north-west to south-east and measuring 17m, these linears most likely represent agricultural field systems.

In the centre of field C are a series of positive linears **[7]**, one is orientated south-west to north-east and measures 24m long, to the north-east are two parallel positive linears. The northern linear is orientated north-eas to south-west for 33m before turning to the north-west for 10m, the southern linear runs along the same orientation as the northern linear, 4m apart, for 30m before turning to the south-east for 6m.

In the south-west of field E is an irregular positive linear **[8]**, it runs roughly from the south-west to the north-east before turning to the south-east and measuring 192m long in total. Running across the centre of field G into the west of field F is a positive linear **[9]**, its orientated south-west to the north-east and measures 210m long and is likely part of a field system. To the south-east of this in field F are two weak positive linears **[10]**, one orientated south-west to the north-east and the other orientated north-west to the south-east and measuring 44m and 37m long respectively and intersecting to the north-east.

In the south of field J is a positive curvilinear measuring 23m long and likely represents a ring ditch **[11]** or potentially a barrow. In the east and west of the field are two irregular positive discrete features **[12]** measuring c. 9m in diameter which may represent pits.

Conclusion

The geophysical survey detected a number of anomalies, these include a few curvilinear features which likely represent prehistoric deposits. There are a number of potential trackways as well as agricultural field systems that may be related to the prehistoric and Roman systems uncovered by the quarry excavations to the south west, as well as a number of discrete features such as pits.

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Programme:
Name: TerraSurveyor
Version: 3.0.25.0

Raw data
Filename: Sonning Quarry A RAW.xcp
Instrument Type: MLgrad Import
Units:
UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 474939.426591188, 176504.16138988 m
Southeast corner: 475230.496591188, 176263.27138988 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Dimensions
Survey Size (meters): 291 m x 241 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 56287, Recorded: 56287

Stats
Max: 104.61
Min: -109.71
Std Dev: 4.17
Mean: 0.27
Median: 0.21
Composite Area: 7.0116 ha
Surveyed Area: 1.9726 ha

Filename: Sonning Quarry B RAW.xcp
Instrument Type: MLgrad Import
Units:
UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 475010.80679237, 176532.899740575 m
Southeast corner: 475289.26679237, 176247.939740575 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Dimensions
Survey Size (meters): 278 m x 285 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 23863, Recorded: 23863

Stats
Max: 102.04
Min: -80.92
Std Dev: 3.20
Mean: 1.19
Median: 1.24
Composite Area: 7.935 ha
Surveyed Area: 0.85587 ha

Filename: Sonning Quarry C RAW.xcp
Instrument Type: MLgrad Import
Units:
UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 475020.910350223, 176357.045999223 m
Southeast corner: 475244.770350223, 176125.645999223 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel

Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Dimensions
Survey Size (meters): 224 m x 231 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 83895, Recorded: 83895

Stats
Max: 105.17
Min: -109.72
Std Dev: 4.99
Mean: 1.68
Median: 1.59
Composite Area: 5.1801 ha
Surveyed Area: 2.6216 ha

Filename: Sonning Quarry D RAW.xcp
Instrument Type: MLgrad Import
Units:
UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 475365.05699408, 176655.587025247 m
Southeast corner: 475536.78699408, 176462.147025247 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Dimensions
Survey Size (meters): 172 m x 193 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 51759, Recorded: 51759

Stats
Max: 104.63
Min: -109.71
Std Dev: 3.38
Mean: 1.41
Median: 1.63
Composite Area: 3.3219 ha
Surveyed Area: 1.6554 ha

Filename: Sonning Quarry E RAW.xcp
Instrument Type: MLgrad Import
Units:
UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 475603.597205531, 176970.635999969 m
Southeast corner: 475813.287205531, 176472.605999969 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Dimensions
Survey Size (meters): 210 m x 498 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 123191, Recorded: 123191

Stats
Max: 106.71
Min: -109.72
Std Dev: 3.96
Mean: 0.18
Median: 0.28
Composite Area: 10.443 ha
Surveyed Area: 4.2458 ha

Filename: Sonning Quarry F RAW.xcp
Instrument Type: MLgrad Import
Units:
UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 475803.924022065, 177037.230369471 m
Southeast corner: 475998.144022065, 176858.480369471 m

Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Dimensions
Survey Size (meters): 194 m x 179 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 63623, Recorded: 63623

Stats
Max: 103.21
Min: -64.98
Std Dev: 2.17
Mean: 0.23
Median: 0.16
Composite Area: 3.4717 ha
Surveyed Area: 2.1754 ha

Filename: Sonning Quarry G RAW.xcp
Instrument Type: MLgrad Import
Units:
UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 476136.676603755, 177404.970422644 m
Southeast corner: 476468.176603755, 177051.630422644 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Dimensions
Survey Size (meters): 331 m x 353 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 187151, Recorded: 187151

Stats
Max: 106.81
Min: -105.95
Std Dev: 2.72
Mean: 0.28
Median: 0.11
Composite Area: 11.713 ha
Surveyed Area: 6.3371 ha

Filename: Sonning Quarry H RAW.xcp
Instrument Type: MLgrad Import
Units:
UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 476405.302781783, 177514.721177178 m
Southeast corner: 476644.502781783, 177322.841177178 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Dimensions
Survey Size (meters): 239 m x 192 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 49599, Recorded: 49599

Stats
Max: 100.21
Min: -109.65
Std Dev: 2.12
Mean: 0.74
Median: 0.67
Composite Area: 4.5898 ha
Surveyed Area: 1.6199 ha

Filename: Sonning Quarry J RAW.xcp
Instrument Type: MLgrad Import
Units:
UTM Zone: 30
Survey corner coordinates (X/Y):

Northwest corner: 476018.226740359, 177592.992576279 m
Southeast corner: 476192.426740359, 177345.472576279 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Dimensions
Survey Size (meters): 174 m x 248 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 64439, Recorded: 64439

Stats
Max: 101.04
Min: -105.77
Std Dev: 4.46
Mean: 0.35
Median: 0.32
Composite Area: 4.3118 ha
Surveyed Area: 2.176 ha

Filename: Sonning Quarry K RAW.xcp
Instrument Type: MLgrad Import
Units:
UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 476156.224288633, 177591.32894179 m
Southeast corner: 476262.174288633, 177333.53894179 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Dimensions
Survey Size (meters): 106 m x 258 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 50471, Recorded: 50471

Stats
Max: 106.92
Min: -108.88
Std Dev: 4.85
Mean: 0.63
Median: 0.59
Composite Area: 2.7313 ha
Surveyed Area: 1.6069 ha

Filename: Sonning Quarry L RAW.xcp
Instrument Type: MLgrad Import
Units:
UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 476221.966412434, 177723.12918664 m
Southeast corner: 476458.826412434, 177553.21918664 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Dimensions
Survey Size (meters): 237 m x 170 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 31559, Recorded: 31559

Stats
Max: 104.61
Min: -109.71
Std Dev: 4.04
Mean: 1.30
Median: 1.46
Composite Area: 4.0245 ha
Surveyed Area: 1.0357 ha

Filename: Sonning Quarry N RAW.xcp
Instrument Type: MLgrad Import
Units:

UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 476258.021260073, 177641.072546705 m
Southeast corner: 476627.871260073, 177389.392546705 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Dimensions
Survey Size (meters): 370 m x 252 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 122319, Recorded: 122319

Stats
Max: 106.50
Min: -95.23
Std Dev: 1.55
Mean: -0.68
Median: -0.77
Composite Area: 9.3084 ha
Surveyed Area: 4.2166 ha

Filename: Sonning Quarry 3-4-23 A RAW.xcp
Instrument Type: MLgrad Import
Units:
UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 475988.999644704, 177214.350052849 m
Southeast corner: 476218.579644704, 176929.650052849 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Dimensions
Survey Size (meters): 230 m x 285 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 101327, Recorded: 101327

Stats
Max: 106.81
Min: -109.72
Std Dev: 2.88
Mean: 0.39
Median: 0.77
Composite Area: 6.5361 ha
Surveyed Area: 3.4901 ha

Filename: Sonning Quarry 3-4-23 B RAW.xcp
Instrument Type: MLgrad Import
Units:
UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 475612.438313537, 177328.114851458 m
Southeast corner: 475880.628313537, 177129.214851458 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Dimensions
Survey Size (meters): 268 m x 199 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 93551, Recorded: 93551

Stats
Max: 102.40
Min: -106.51
Std Dev: 2.96
Mean: -0.09
Median: -0.24
Composite Area: 5.3343 ha
Surveyed Area: 3.1598 ha

Filename: Sonning Quarry 3-4-23 C RAW.xcp

Instrument Type: *MLgrad Import*
Units:
UTM Zone: *30*
Survey corner coordinates (X/Y):
Northwest corner: *475785.089197283, 177339.220148746 m*
Southeast corner: *475985.029197283, 177198.560148746 m*
Direction of 1st Traverse: *90 deg*
Collection Method: *Parallel*
Sensors: *2 @ 1 m spacing.*
Dummy Value: *32702*

Dimensions
Survey Size (meters): *200 m x 141 m*
X&Y Interval: *0.13 m*
Source GPS Points: *Active: 45031, Recorded: 45031*

Stats
Max: *104.82*
Min: *-107.15*
Std Dev: *3.12*
Mean: *0.20*
Median: *0.02*
Composite Area: *2.8124 ha*
Surveyed Area: *1.4575 ha*

Processed data
Filename: *Sonning Quarry A.xcp*
Stats
Max: *2.21*
Min: *-2.20*
Std Dev: *0.76*
Mean: *0.08*
Median: *0.04*
Composite Area: *7.0116 ha*
Surveyed Area: *1.9679 ha*

GPS based Proce5
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 Clip from -2.00 to 2.00
5 DeStagger by: 50.00cm, Shift Positions

Filename: *Sonning Quarry B.xcp*
Stats
Max: *2.21*
Min: *-2.20*
Std Dev: *0.83*
Mean: *0.07*
Median: *0.03*
Composite Area: *7.935 ha*
Surveyed Area: *0.85587 ha*

GPS based Proce4
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 Clip from -2.00 to 2.00

Filename: *Sonning Quarry C.xcp*
Stats
Max: *2.21*
Min: *-2.20*
Std Dev: *0.89*
Mean: *0.05*
Median: *0.02*
Composite Area: *5.1801 ha*
Surveyed Area: *2.6138 ha*

GPS based Proce5
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 Clip from -2.00 to 2.00

5 DeStagger by: 50.00cm, Shift Positions

Filename: Sonning Quarry D.xcp
Stats
Max: 2.21
Min: -2.20
Std Dev: 0.74
Mean: 0.04
Median: 0.02
Composite Area: 3.3219 ha
Surveyed Area: 1.6554 ha

GPS based Proce4
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 Clip from -2.00 to 2.00

Filename: Sonning Quarry E.xcp
Stats
Max: 2.21
Min: -2.20
Std Dev: 0.51
Mean: 0.02
Median: 0.01
Composite Area: 10.443 ha
Surveyed Area: 4.2387 ha

GPS based Proce6
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 Clip from -2.00 to 2.00
5 DeStagger by: 20.00cm, Shift Positions
6 DeStagger by: 20.00cm, Shift Positions

Filename: Sonning Quarry F.xcp
Stats
Max: 2.21
Min: -2.20
Std Dev: 0.55
Mean: 0.01
Median: 0.00
Composite Area: 3.4717 ha
Surveyed Area: 2.1642 ha

GPS based Proce6
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 Clip from -2.00 to 2.00
5 DeStagger by: 20.00cm, Shift Positions
6 DeStagger by: 20.00cm, Shift Positions

Filename: Sonning Quarry G.xcp
Stats
Max: 2.21
Min: -2.20
Std Dev: 0.58
Mean: 0.00
Median: 0.00
Composite Area: 11.713 ha
Surveyed Area: 6.3176 ha

GPS based Proce6
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 Clip from -2.00 to 2.00
5 DeStagger by: 20.00cm, Shift Positions
6 DeStagger by: 20.00cm, Shift Positions

Filename: Sonning Quarry H.xcp
Stats
Max: 2.21
Min: -2.20

Std Dev: *0.72*
Mean: *0.07*
Median: *0.01*
Composite Area: *4.5898 ha*
Surveyed Area: *1.579 ha*

GPS based Proce9
1 *Base Layer.*
2 *Unit Conversion Layer (Lat/Long to UTM).*
3 *DeStripe Median Traverse:*
4 *Clip from -2.00 to 2.00*
5 *DeStagger by: 40.00cm, Shift Positions*
6 *DeStagger by: 40.00cm, Shift Positions*
7 *DeStagger by: 40.00cm, Shift Positions*
8 *DeStagger by: 20.00cm, Shift Positions*
9 *DeStagger by: 10.00cm, Shift Positions*

Filename: *Sonning Quarry J.xcp*
Stats
Max: *2.21*
Min: *-2.20*
Std Dev: *0.65*
Mean: *0.00*
Median: *0.01*
Composite Area: *4.3118 ha*
Surveyed Area: *2.1429 ha*

GPS based Proce8
1 *Base Layer.*
2 *Unit Conversion Layer (Lat/Long to UTM).*
3 *DeStripe Median Traverse:*
4 *Clip from -2.00 to 2.00*
5 *DeStagger by: 40.00cm, Shift Positions*
6 *DeStagger by: 40.00cm, Shift Positions*
7 *DeStagger by: 40.00cm, Shift Positions*
8 *DeStagger by: 50.00cm, Shift Positions*

Filename: *Sonning Quarry K.xcp*
Stats
Max: *2.21*
Min: *-2.20*
Std Dev: *0.93*
Mean: *0.07*
Median: *0.02*
Composite Area: *2.7313 ha*
Surveyed Area: *1.6034 ha*

GPS based Proce5
1 *Base Layer.*
2 *Unit Conversion Layer (Lat/Long to UTM).*
3 *DeStripe Median Traverse:*
4 *Clip from -2.00 to 2.00*
5 *DeStagger by: 20.00cm, Shift Positions*

Filename: *Sonning Quarry L.xcp*
Stats
Max: *2.21*
Min: *-2.20*
Std Dev: *0.75*
Mean: *0.06*
Median: *0.00*
Composite Area: *4.0245 ha*
Surveyed Area: *1.0285 ha*

GPS based Proce6
1 *Base Layer.*
2 *Unit Conversion Layer (Lat/Long to UTM).*
3 *DeStripe Median Traverse:*
4 *Clip from -2.00 to 2.00*
5 *DeStagger by: 40.00cm, Shift Positions*
6 *DeStagger by: 20.00cm, Shift Positions*

Filename: *Sonning Quarry M.xcp*
Stats
Max: *2.21*
Min: *-2.20*

Std Dev: *0.57*
Mean: *0.04*
Median: *0.01*
Composite Area: *6.7195 ha*
Surveyed Area: *2.4454 ha*

GPS based Proce6
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 Clip from -2.00 to 2.00
5 DeStagger by: 40.00cm, Shift Positions
6 DeStagger by: 20.00cm, Shift Positions

Filename: *Sonning Quarry M RAW.xcp*
Instrument Type: *MLgrad Import*
Units:
UTM Zone: *30*
Survey corner coordinates (X/Y):
Northwest corner: *476238.024045346, 177679.204580037 m*
Southeast corner: *476503.094045346, 177425.704580037 m*
Direction of 1st Traverse: *90 deg*
Collection Method: *Parallel*
Sensors: *2 @ 1 m spacing.*
Dummy Value: *32702*

Dimensions
Survey Size (meters): *265 m x 253 m*
X&Y Interval: *0.13 m*
Source GPS Points: *Active: 70303, Recorded: 70303*

Stats
Max: *103.30*
Min: *-89.35*
Std Dev: *2.09*
Mean: *1.40*
Median: *1.48*
Composite Area: *6.7195 ha*
Surveyed Area: *2.4548 ha*

Filename: *Sonning Quarry N.xcp*
Stats
Max: *2.04*
Min: *-1.89*
Std Dev: *0.59*
Mean: *0.03*
Median: *0.01*
Composite Area: *9.3084 ha*
Surveyed Area: *4.2054 ha*

GPS based Proce5
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 Clip at 1.00 SD
5 DeStagger by: 50.00cm, Shift Positions

Filename: *Sonning Quarry 3-4-23 A.xcp*
Stats
Max: *3.27*
Min: *-3.12*
Std Dev: *0.55*
Mean: *0.03*
Median: *0.01*
Composite Area: *6.4326 ha*
Surveyed Area: *3.3547 ha*

GPS based Proce4
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 Clip at 1.00 SD

Filename: *Sonning Quarry 3-4-23 B.xcp*
Stats
Max: *3.03*

Min: -2.86
Std Dev: 0.70
Mean: 0.06
Median: 0.02
Composite Area: 5.2376 ha
Surveyed Area: 3.0461 ha

GPS based Proce4
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 Clip at 1.00 SD

Filename: Sonning Quarry 3-4-23 C.xcp
Stats
Max: 4.08
Min: -3.99
Std Dev: 0.74
Mean: 0.02
Median: 0.01
Composite Area: 2.7463 ha
Surveyed Area: 1.3836 ha

GPS based Proce4
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 Clip at 1.00 SD

Appendix 1. Survey and data information

Programme:
Name: TerraSurveyor
Version: 3.0.25.0

Raw data
Filename: Sonning Quarry A RAW.xcp
Instrument Type: MLgrad Import
Units:
UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 474939.426591188, 176504.16138988 m
Southeast corner: 475230.496591188, 176263.27138988 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Dimensions
Survey Size (meters): 291 m x 241 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 56287, Recorded: 56287

Stats
Max: 104.61
Min: -109.71
Std Dev: 4.17
Mean: 0.27
Median: 0.21
Composite Area: 7.0116 ha
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Dimensions
Survey Size (meters): 224 m x 231 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 83895, Recorded: 83895

Stats
Max: 105.17
Min: -109.72
Std Dev: 4.99
Mean: 1.68
Median: 1.59
Composite Area: 5.1801 ha
Surveyed Area: 2.6216 ha

Filename: Sonning Quarry D RAW.xcp
Instrument Type: MLgrad Import
Units:
UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 475365.05699408, 176655.587025247 m
Southeast corner: 475536.78699408, 176462.147025247 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Surveyed Area: 1.9726 ha

Filename: Sonning Quarry B RAW.xcp
Instrument Type: MLgrad Import
Units:
UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 475010.80679237, 176532.899740575 m
Southeast corner: 475289.26679237, 176247.939740575 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Dimensions
Survey Size (meters): 278 m x 285 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 23863, Recorded: 23863

Stats
Max: 102.04
Min: -80.92
Std Dev: 3.20
Mean: 1.19
Median: 1.24
Composite Area: 7.935 ha
Surveyed Area: 0.85587 ha

Filename: Sonning Quarry C RAW.xcp
Instrument Type: MLgrad Import
Units:
UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 475020.910350223, 176357.045999223 m
Southeast corner: 475244.770350223, 176125.645999223 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Composite Area: 10.443 ha
Surveyed Area: 4.2458 ha

Filename: Sonning Quarry F RAW.xcp
Instrument Type: MLgrad Import
Units:
UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 475803.924022065, 177037.230369471 m
Southeast corner: 475998.144022065, 176858.480369471 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Dimensions
Survey Size (meters): 194 m x 179 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 63623, Recorded: 63623

Stats
Max: 103.21
Min: -64.98
Std Dev: 2.17
Mean: 0.23
Median: 0.16
Composite Area: 3.4717 ha
Surveyed Area: 2.1754 ha

Filename: Sonning Quarry G RAW.xcp
Instrument Type: MLgrad Import
Units:
UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 476136.676603755, 177404.970422644 m
Southeast corner: 476468.176603755, 177051.630422644 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 2 @ 1 m spacing.

Dimensions
Survey Size (meters): 172 m x 193 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 51759, Recorded: 51759

Stats
Max: 104.63
Min: -109.71
Std Dev: 3.38
Mean: 1.41
Median: 1.63
Composite Area: 3.3219 ha
Surveyed Area: 1.6554 ha

Filename: Sonning Quarry E RAW.xcp
Instrument Type: MLgrad Import
Units:
UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 475603.597205531, 176970.635999969 m
Southeast corner: 475813.287205531, 176472.605999969 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Dimensions
Survey Size (meters): 210 m x 498 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 123191, Recorded: 123191

Stats
Max: 106.71
Min: -109.72
Std Dev: 3.96
Mean: 0.18
Median: 0.28
Mean: 0.74
Median: 0.67
Composite Area: 4.5898 ha
Surveyed Area: 1.6199 ha

Filename: Sonning Quarry J RAW.xcp
Instrument Type: MLgrad Import
Units:
UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 476018.226740359, 177592.992576279 m
Southeast corner: 476192.426740359, 177345.472576279 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Dimensions
Survey Size (meters): 174 m x 248 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 64439, Recorded: 64439

Stats
Max: 101.04
Min: -105.77
Std Dev: 4.46
Mean: 0.35
Median: 0.32
Composite Area: 4.3118 ha
Surveyed Area: 2.176 ha

Filename: Sonning Quarry K RAW.xcp
Instrument Type: MLgrad Import
Units:
UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 476156.224288633, 177591.32894179 m

Dummy Value: 32702

Dimensions
Survey Size (meters): 331 m x 353 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 187151, Recorded: 187151

Stats
Max: 106.81
Min: -105.95
Std Dev: 2.72
Mean: 0.28
Median: 0.11
Composite Area: 11.713 ha
Surveyed Area: 6.3371 ha

Filename: Sonning Quarry H RAW.xcp
Instrument Type: MLgrad Import
Units:
UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 476405.302781783, 177514.721177178 m
Southeast corner: 476644.502781783, 177322.841177178 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Dimensions
Survey Size (meters): 239 m x 192 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 49599, Recorded: 49599

Stats
Max: 100.21
Min: -109.65
Std Dev: 2.12
Stats
Max: 104.61
Min: -109.71
Std Dev: 4.04
Mean: 1.30
Median: 1.46
Composite Area: 4.0245 ha
Surveyed Area: 1.0357 ha

Filename: Sonning Quarry M RAW.xcp
Instrument Type: MLgrad Import
Units:
UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 476238.024045346, 177679.204580037 m
Southeast corner: 476503.094045346, 177425.704580037 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Dimensions
Survey Size (meters): 265 m x 253 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 70303, Recorded: 70303

Stats
Max: 103.30
Min: -89.35
Std Dev: 2.09
Mean: 1.40
Median: 1.48
Composite Area: 6.7195 ha
Surveyed Area: 2.4548 ha

Filename: Sonning Quarry N RAW.xcp
Instrument Type: MLgrad Import
Units:
Southeast corner: 476262.174288633, 177333.53894179 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Dimensions
Survey Size (meters): 106 m x 258 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 50471, Recorded: 50471

Stats
Max: 106.92
Min: -108.88
Std Dev: 4.85
Mean: 0.63
Median: 0.59
Composite Area: 2.7313 ha
Surveyed Area: 1.6069 ha

Filename: Sonning Quarry L RAW.xcp
Instrument Type: MLgrad Import
Units:
UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 476221.966412434, 177723.12918664 m
Southeast corner: 476458.826412434, 177553.21918664 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Dimensions
Survey Size (meters): 237 m x 170 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 31559, Recorded: 31559

X&Y Interval: 0.13 m
Source GPS Points: Active: 101327, Recorded: 101327

Stats
Max: 106.81
Min: -109.72
Std Dev: 2.88
Mean: 0.39
Median: 0.77
Composite Area: 6.5361 ha
Surveyed Area: 3.4901 ha

Filename: Sonning Quarry 3-4-23 B RAW.xcp
Instrument Type: MLgrad Import
Units:
UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 475612.438313537, 177328.114851458 m
Southeast corner: 475880.628313537, 177129.214851458 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Dimensions
Survey Size (meters): 268 m x 199 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 93551, Recorded: 93551

Stats
Max: 102.40
Min: -106.51
Std Dev: 2.96
Mean: -0.09
Median: -0.24
Composite Area: 5.3343 ha

UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 476258.021260073, 177641.072546705 m
Southeast corner: 476627.871260073, 177389.392546705 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Dimensions
Survey Size (meters): 370 m x 252 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 122319, Recorded: 122319

Stats
Max: 106.50
Min: -95.23
Std Dev: 1.55
Mean: -0.68
Median: -0.77
Composite Area: 9.3084 ha
Surveyed Area: 4.2166 ha

Filename: Sonning Quarry 3-4-23 A RAW.xcp
Instrument Type: MLgrad Import
Units:
UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 475988.999644704, 177214.350052849 m
Southeast corner: 476218.579644704, 176929.650052849 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Dimensions
Survey Size (meters): 230 m x 285 m
Processed data
Filename: Sonning Quarry A.xcp
Stats
Max: 2.21
Min: -2.20
Std Dev: 0.76
Mean: 0.08
Median: 0.04
Composite Area: 7.0116 ha
Surveyed Area: 1.9679 ha

GPS based Proce5
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 Clip from -2.00 to 2.00
5 DeStagger by: 50.00cm, Shift Positions

Filename: Sonning Quarry B.xcp
Stats
Max: 2.21
Min: -2.20
Std Dev: 0.83
Mean: 0.07
Median: 0.03
Composite Area: 7.935 ha
Surveyed Area: 0.85587 ha

GPS based Proce4
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 Clip from -2.00 to 2.00

Filename: Sonning Quarry C.xcp
Stats
Max: 2.21
Min: -2.20
Std Dev: 0.89
Surveyed Area: 3.1598 ha

Filename: Sonning Quarry 3-4-23 C RAW.xcp
Instrument Type: MLgrad Import
Units:
UTM Zone: 30
Survey corner coordinates (X/Y):
Northwest corner: 475785.089197283, 177339.220148746 m
Southeast corner: 475985.029197283, 177198.560148746 m
Direction of 1st Traverse: 90 deg
Collection Method: Parallel
Sensors: 2 @ 1 m spacing.
Dummy Value: 32702

Dimensions
Survey Size (meters): 200 m x 141 m
X&Y Interval: 0.13 m
Source GPS Points: Active: 45031, Recorded: 45031

Stats
Max: 104.82
Min: -107.15
Std Dev: 3.12
Mean: 0.20
Median: 0.02
Composite Area: 2.8124 ha
Surveyed Area: 1.4575 ha

GPS based Proce6
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 Clip from -2.00 to 2.00
5 DeStagger by: 20.00cm, Shift Positions
6 DeStagger by: 20.00cm, Shift Positions

Filename: Sonning Quarry F.xcp
Stats
Max: 2.21
Min: -2.20
Std Dev: 0.55
Mean: 0.01
Median: 0.00
Composite Area: 3.4717 ha
Surveyed Area: 2.1642 ha

GPS based Proce6
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 Clip from -2.00 to 2.00
5 DeStagger by: 20.00cm, Shift Positions
6 DeStagger by: 20.00cm, Shift Positions

Filename: Sonning Quarry G.xcp
Stats
Max: 2.21
Min: -2.20
Std Dev: 0.58
Mean: 0.00
Median: 0.00
Composite Area: 11.713 ha
Surveyed Area: 6.3176 ha

Mean: *0.05*
Median: *0.02*
Composite Area: *5.1801 ha*
Surveyed Area: *2.6138 ha*

GPS based Proce5
1 *Base Layer.*
2 *Unit Conversion Layer (Lat/Long to UTM).*
3 *DeStripe Median Traverse:*
4 *Clip from -2.00 to 2.00*
5 *DeStagger by: 50.00cm, Shift Positions*

Filename: *Sonning Quarry D.xcp*
Stats
Max: *2.21*
Min: *-2.20*
Std Dev: *0.74*
Mean: *0.04*
Median: *0.02*
Composite Area: *3.3219 ha*
Surveyed Area: *1.6554 ha*

GPS based Proce4
1 *Base Layer.*
2 *Unit Conversion Layer (Lat/Long to UTM).*
3 *DeStripe Median Traverse:*
4 *Clip from -2.00 to 2.00*

Filename: *Sonning Quarry E.xcp*
Stats
Max: *2.21*
Min: *-2.20*
Std Dev: *0.51*
Mean: *0.02*
Median: *0.01*
Composite Area: *10.443 ha*
Surveyed Area: *4.2387 ha*

GPS based Proce8
1 *Base Layer.*
2 *Unit Conversion Layer (Lat/Long to UTM).*
3 *DeStripe Median Traverse:*
4 *Clip from -2.00 to 2.00*
5 *DeStagger by: 40.00cm, Shift Positions*
6 *DeStagger by: 40.00cm, Shift Positions*
7 *DeStagger by: 40.00cm, Shift Positions*
8 *DeStagger by: 50.00cm, Shift Positions*

Filename: *Sonning Quarry K.xcp*
Stats
Max: *2.21*
Min: *-2.20*
Std Dev: *0.93*
Mean: *0.07*
Median: *0.02*
Composite Area: *2.7313 ha*
Surveyed Area: *1.6034 ha*

GPS based Proce5
1 *Base Layer.*
2 *Unit Conversion Layer (Lat/Long to UTM).*
3 *DeStripe Median Traverse:*
4 *Clip from -2.00 to 2.00*
5 *DeStagger by: 20.00cm, Shift Positions*

Filename: *Sonning Quarry L.xcp*
Stats
Max: *2.21*
Min: *-2.20*
Std Dev: *0.75*
Mean: *0.06*
Median: *0.00*
Composite Area: *4.0245 ha*
Surveyed Area: *1.0285 ha*

GPS based Proce6
1 *Base Layer.*
2 *Unit Conversion Layer (Lat/Long to UTM).*
3 *DeStripe Median Traverse:*
4 *Clip from -2.00 to 2.00*
5 *DeStagger by: 20.00cm, Shift Positions*
6 *DeStagger by: 20.00cm, Shift Positions*

Filename: *Sonning Quarry H.xcp*
Stats
Max: *2.21*
Min: *-2.20*
Std Dev: *0.72*
Mean: *0.07*
Median: *0.01*
Composite Area: *4.5898 ha*
Surveyed Area: *1.579 ha*

GPS based Proce9
1 *Base Layer.*
2 *Unit Conversion Layer (Lat/Long to UTM).*
3 *DeStripe Median Traverse:*
4 *Clip from -2.00 to 2.00*
5 *DeStagger by: 40.00cm, Shift Positions*
6 *DeStagger by: 40.00cm, Shift Positions*
7 *DeStagger by: 40.00cm, Shift Positions*
8 *DeStagger by: 20.00cm, Shift Positions*
9 *DeStagger by: 10.00cm, Shift Positions*

Filename: *Sonning Quarry J.xcp*
Stats
Max: *2.21*
Min: *-2.20*
Std Dev: *0.65*
Mean: *0.00*
Median: *0.01*
Composite Area: *4.3118 ha*
Surveyed Area: *2.1429 ha*

GPS based Proce5
1 *Base Layer.*
2 *Unit Conversion Layer (Lat/Long to UTM).*
3 *DeStripe Median Traverse:*
4 *Clip at 1.00 SD*
5 *DeStagger by: 50.00cm, Shift Positions*

Filename: *Sonning Quarry 3-4-23 A.xcp*
Stats
Max: *3.27*
Min: *-3.12*
Std Dev: *0.55*
Mean: *0.03*
Median: *0.01*
Composite Area: *6.4326 ha*
Surveyed Area: *3.3547 ha*

GPS based Proce4
1 *Base Layer.*
2 *Unit Conversion Layer (Lat/Long to UTM).*
3 *DeStripe Median Traverse:*
4 *Clip at 1.00 SD*

Filename: *Sonning Quarry 3-4-23 B.xcp*
Stats
Max: *3.03*
Min: *-2.86*
Std Dev: *0.70*
Mean: *0.06*
Median: *0.02*
Composite Area: *5.2376 ha*
Surveyed Area: *3.0461 ha*

GPS based Proce4
1 *Base Layer.*

1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 Clip from -2.00 to 2.00
5 DeStagger by: 40.00cm, Shift Positions
6 DeStagger by: 20.00cm, Shift Positions

Filename: Sonning Quarry M.xcp
Stats
Max: 2.21
Min: -2.20
Std Dev: 0.57
Mean: 0.04
Median: 0.01
Composite Area: 6.7195 ha
Surveyed Area: 2.4454 ha

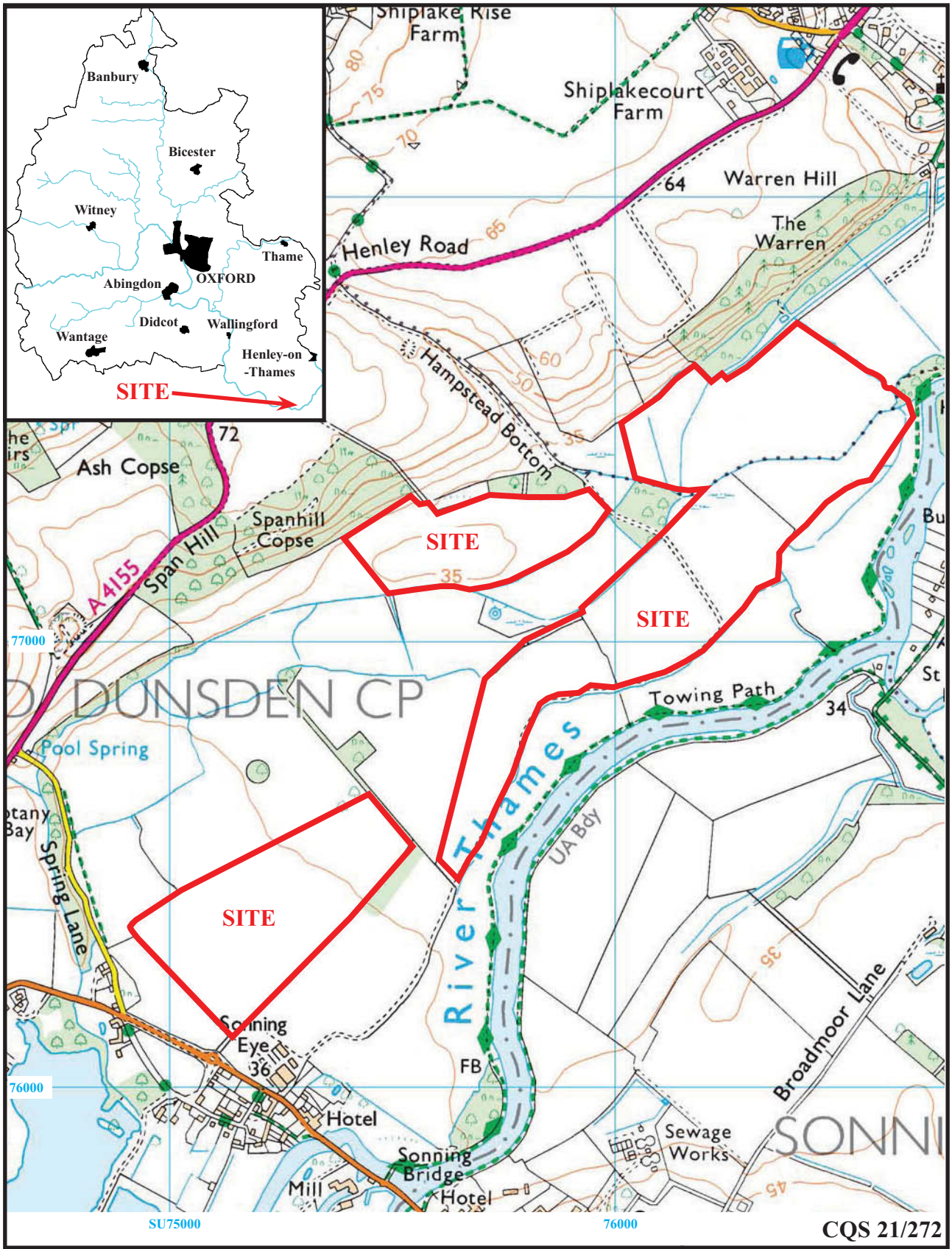
GPS based Proce6
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 Clip from -2.00 to 2.00
5 DeStagger by: 40.00cm, Shift Positions
6 DeStagger by: 20.00cm, Shift Positions

Filename: Sonning Quarry N.xcp
Stats
Max: 2.04
Min: -1.89
Std Dev: 0.59
Mean: 0.03
Median: 0.01
Composite Area: 9.3084 ha
Surveyed Area: 4.2054 ha

2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 Clip at 1.00 SD

Filename: Sonning Quarry 3-4-23 C.xcp
Stats
Max: 4.08
Min: -3.99
Std Dev: 0.74
Mean: 0.02
Median: 0.01
Composite Area: 2.7463 ha
Surveyed Area: 1.3836 ha

GPS based Proce4
1 Base Layer.
2 Unit Conversion Layer (Lat/Long to UTM).
3 DeStripe Median Traverse:
4 Clip at 1.00 SD



Sonning Quarry East Extension,
Sonning Eye, Oxfordshire

Figure 1. Location of site in relation to Sonning Eye and within Oxfordshire.

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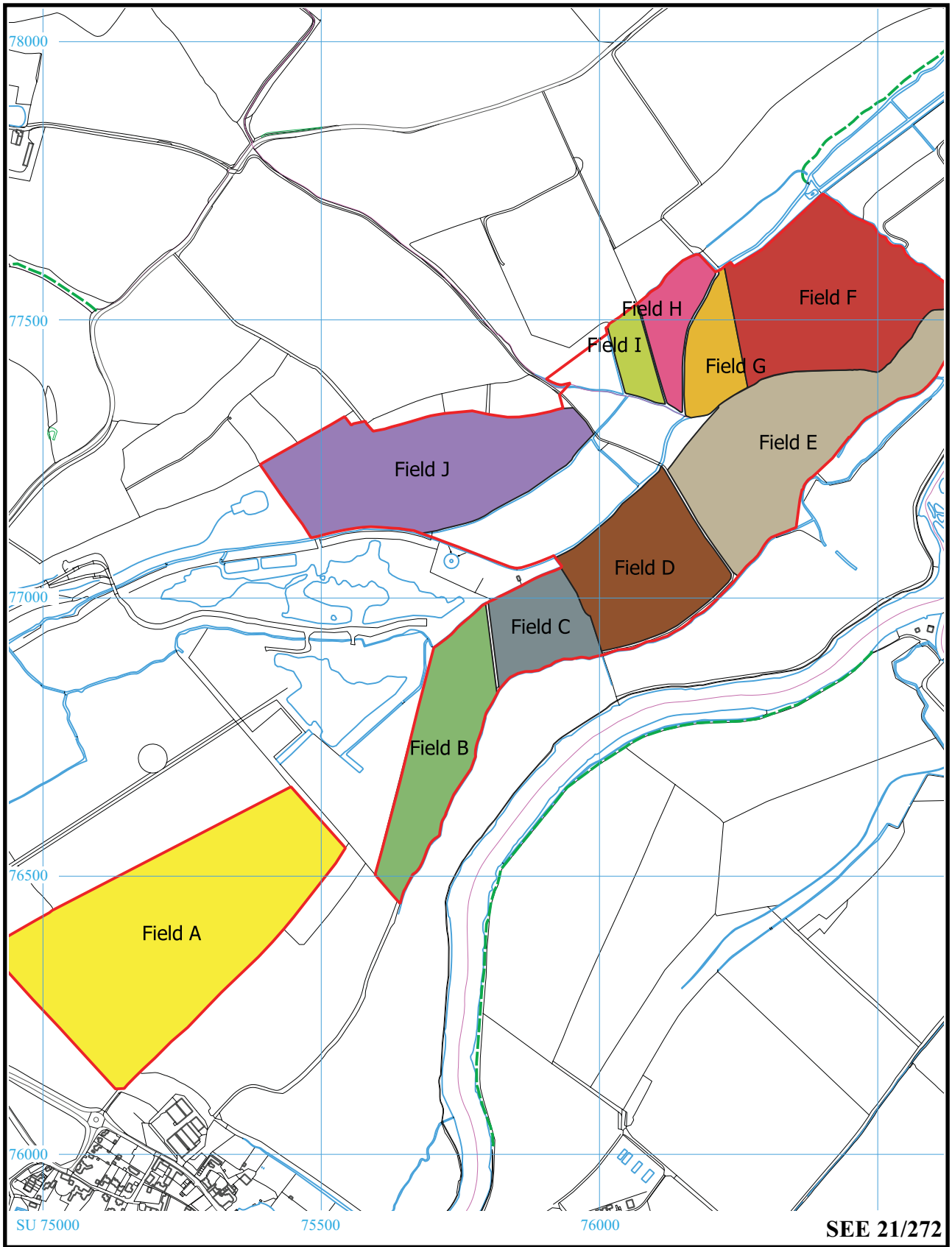
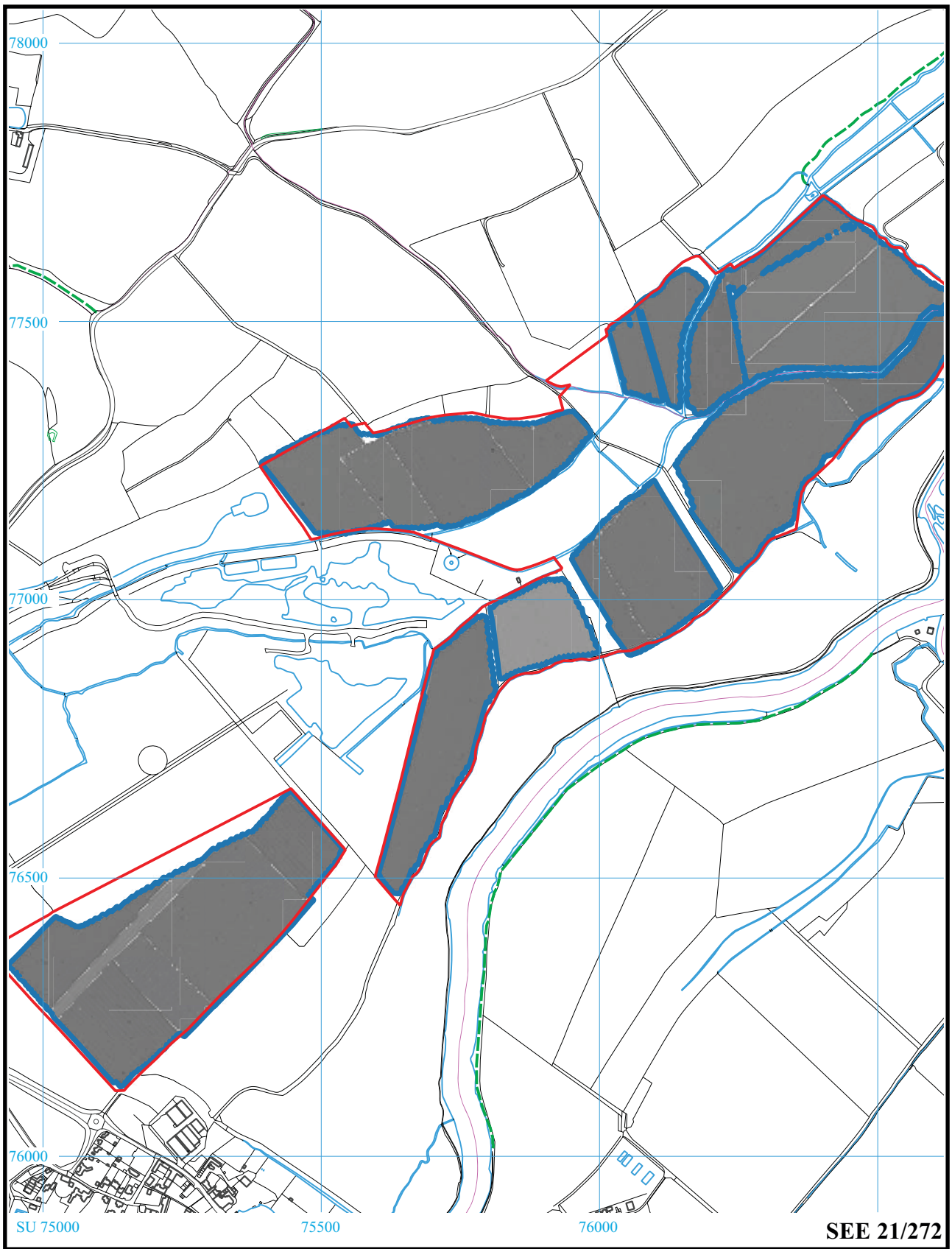


N

Sonning East Extention, Sonning Eye, Oxfordshire, 2023
Geophysical Survey (Magnetic)
Figure 2. Plot of fields.

0m 500m

THAMES VALLEY ARCHAEOLOGICAL SERVICES



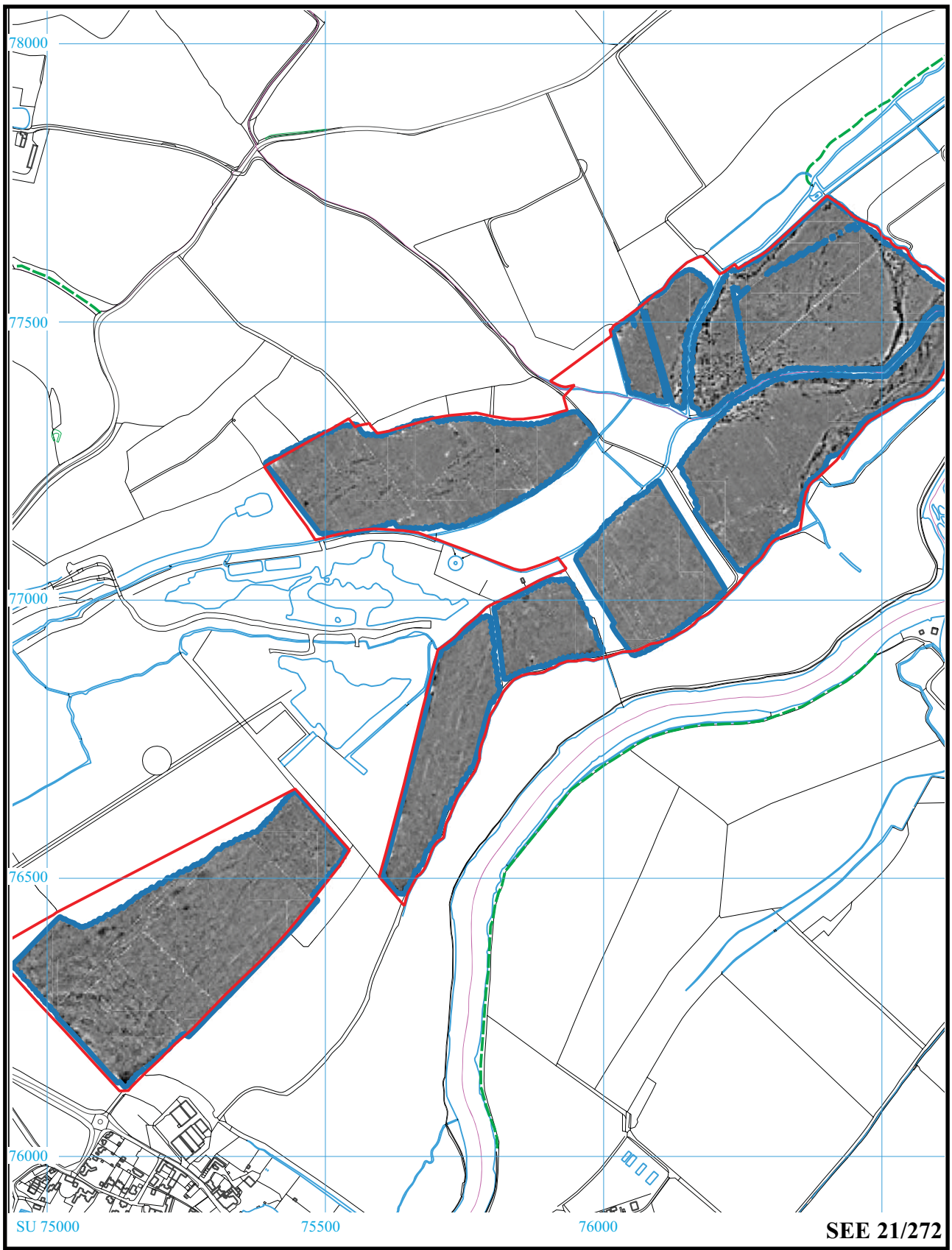
N

Sonning East Extention, Sonning Eye, Oxfordshire, 2023
Geophysical Survey (Magnetic)
Figure 3. Plot of raw gradiometer data.

+100
nT
-100

0m 500m

THAMES VALLEY ARCHAEOLOGICAL SERVICES



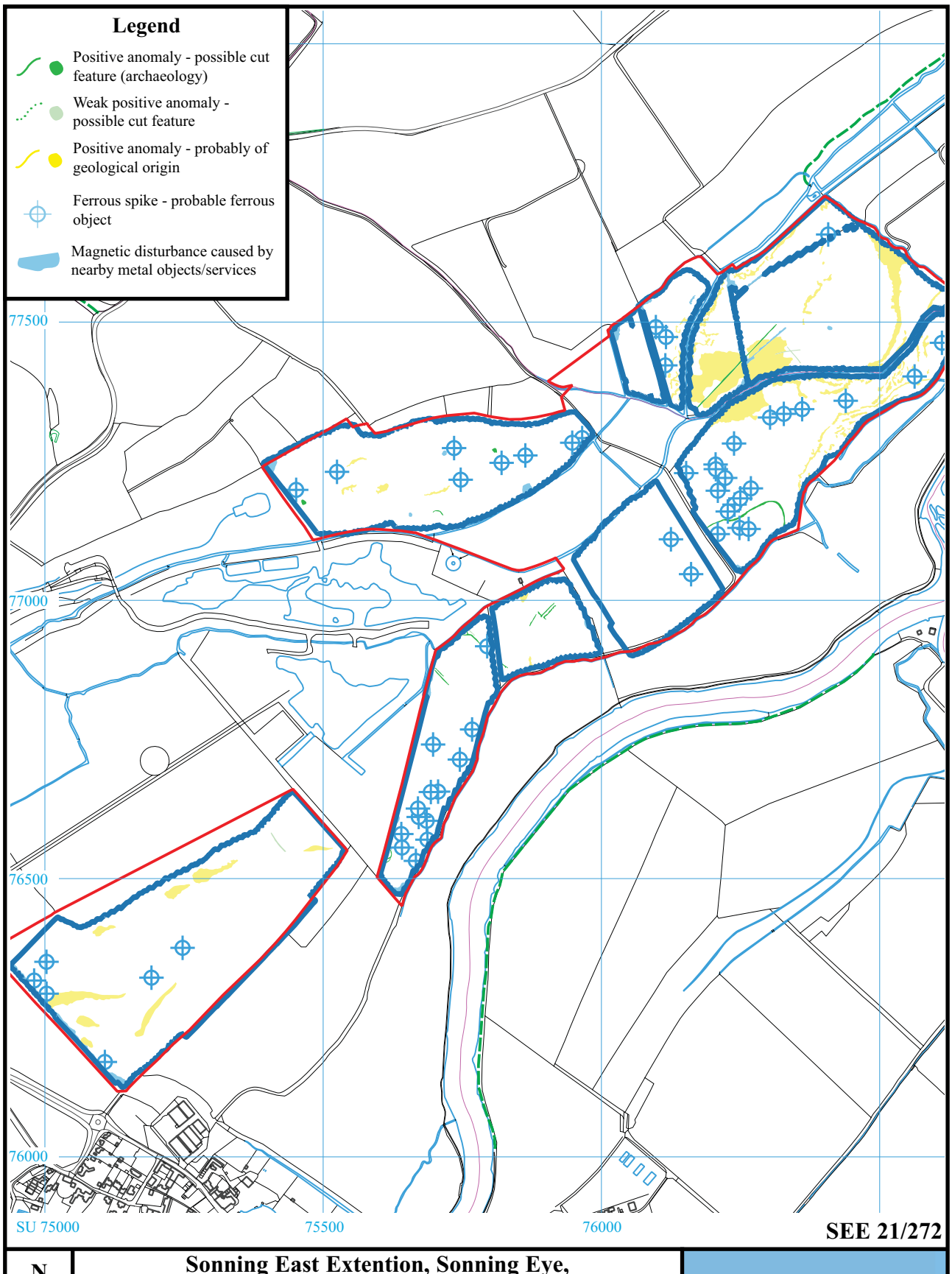
N

Sonning East Extention, Sonning Eye, Oxfordshire, 2023
Geophysical Survey (Magnetic)
Figure 4. Plot of processed gradiometer data.

+2.21
nT
-2.20

0m 500m

THAMES VALLEY ARCHAEOLOGICAL SERVICES

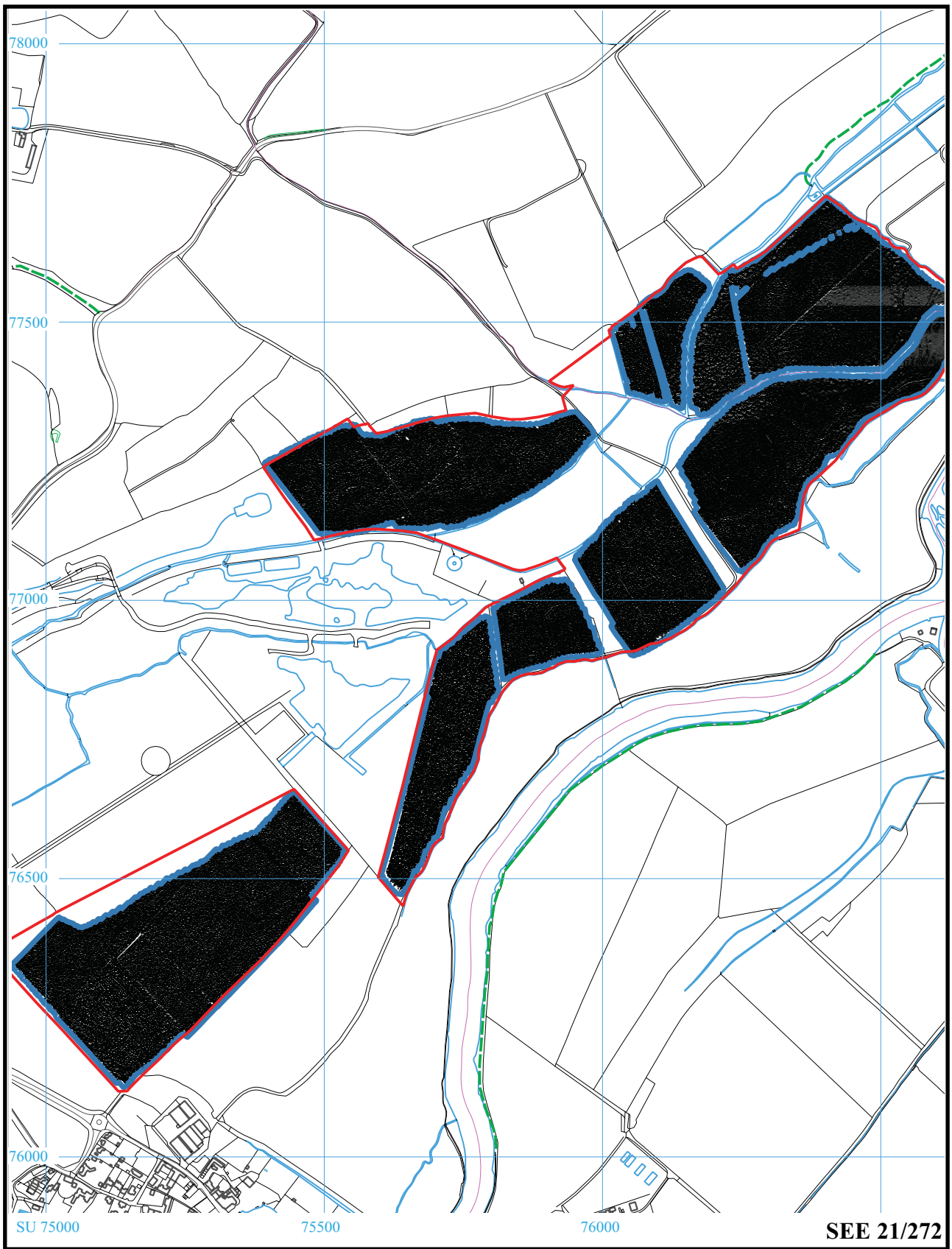


N

Sonning East Extention, Sonning Eye, Oxfordshire, 2023
Geophysical Survey (Magnetic)
Figure 5. Interpretation plot.

0m 500m

THAMES VALLEY ARCHAEOLOGICAL SERVICES



N

Sonning East Extention, Sonning Eye, Oxfordshire, 2023
Geophysical Survey (Magnetic)
Figure 6. XY plot.

0m 500m

nT 20 10 0 -10 -20

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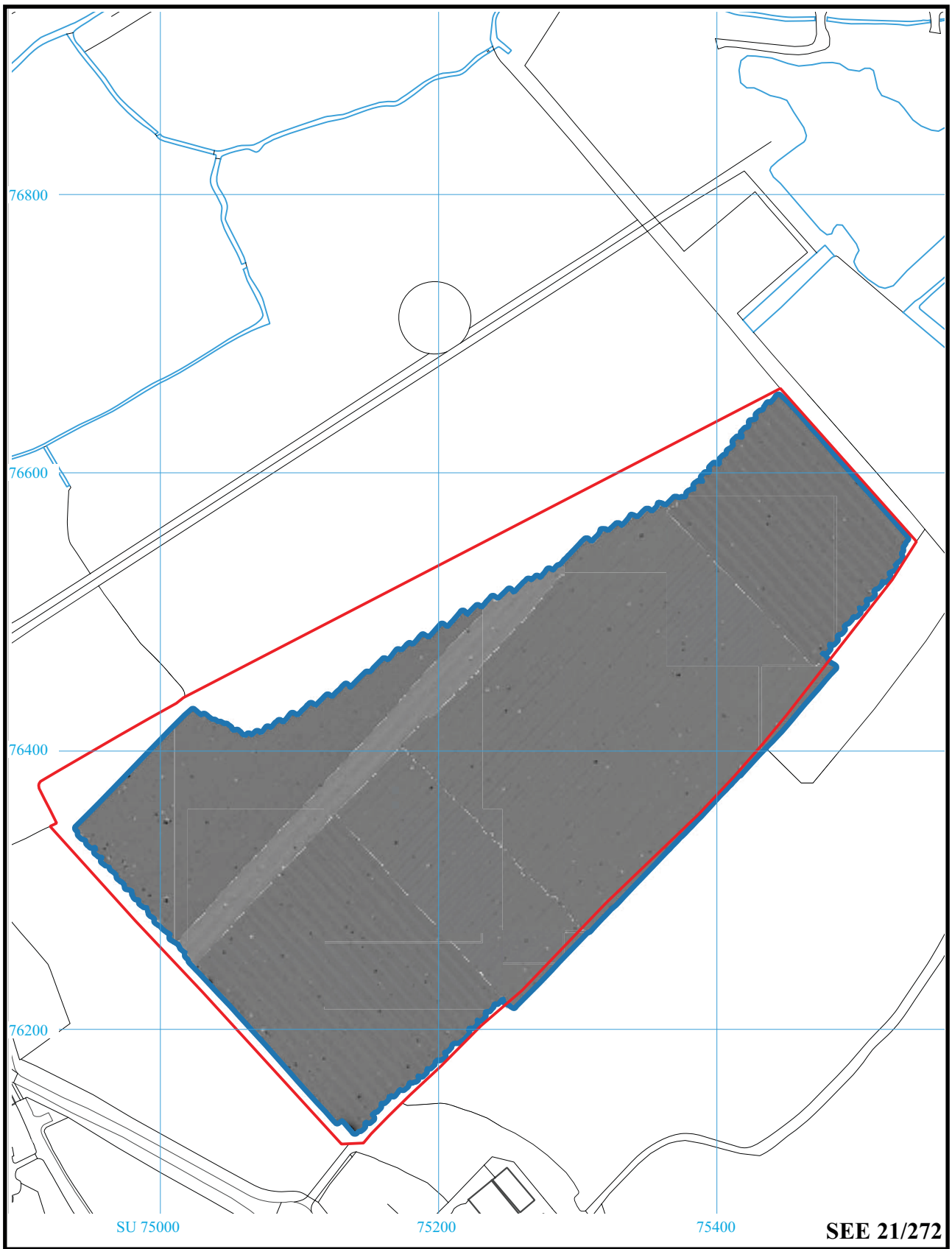
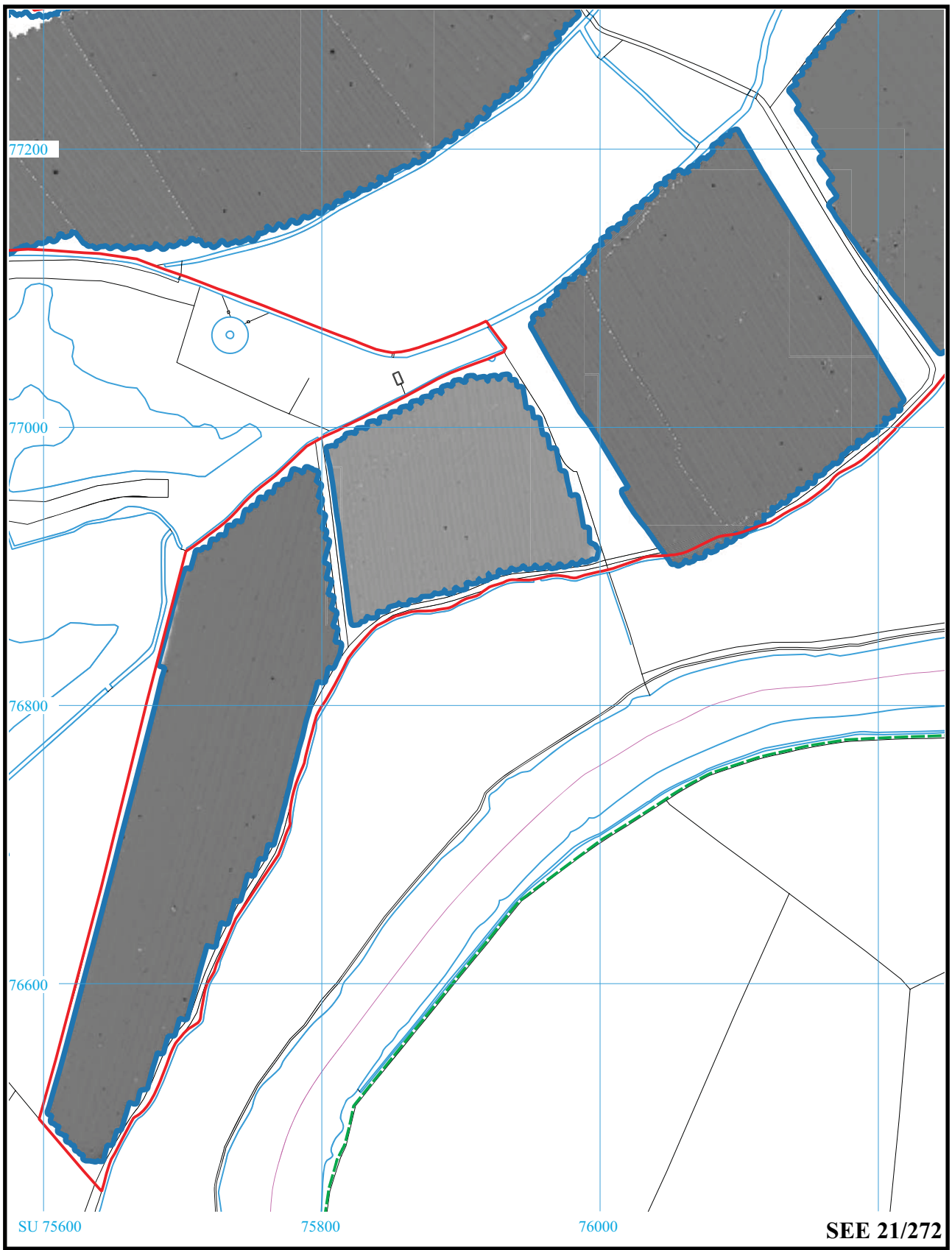


Sonning East Extention, Sonning Eye, Oxfordshire, 2023
Geophysical Survey (Magnetic)
Figure 7. Focused plot of raw gradiometer data.
(Field A)



Sonning East Extention, Sonning Eye, Oxfordshire, 2023
Geophysical Survey (Magnetic)
Figure 8. Focused plot of raw gradiometer data.
(Field B, C, D)

N

0m 200m

+100
nT
-100

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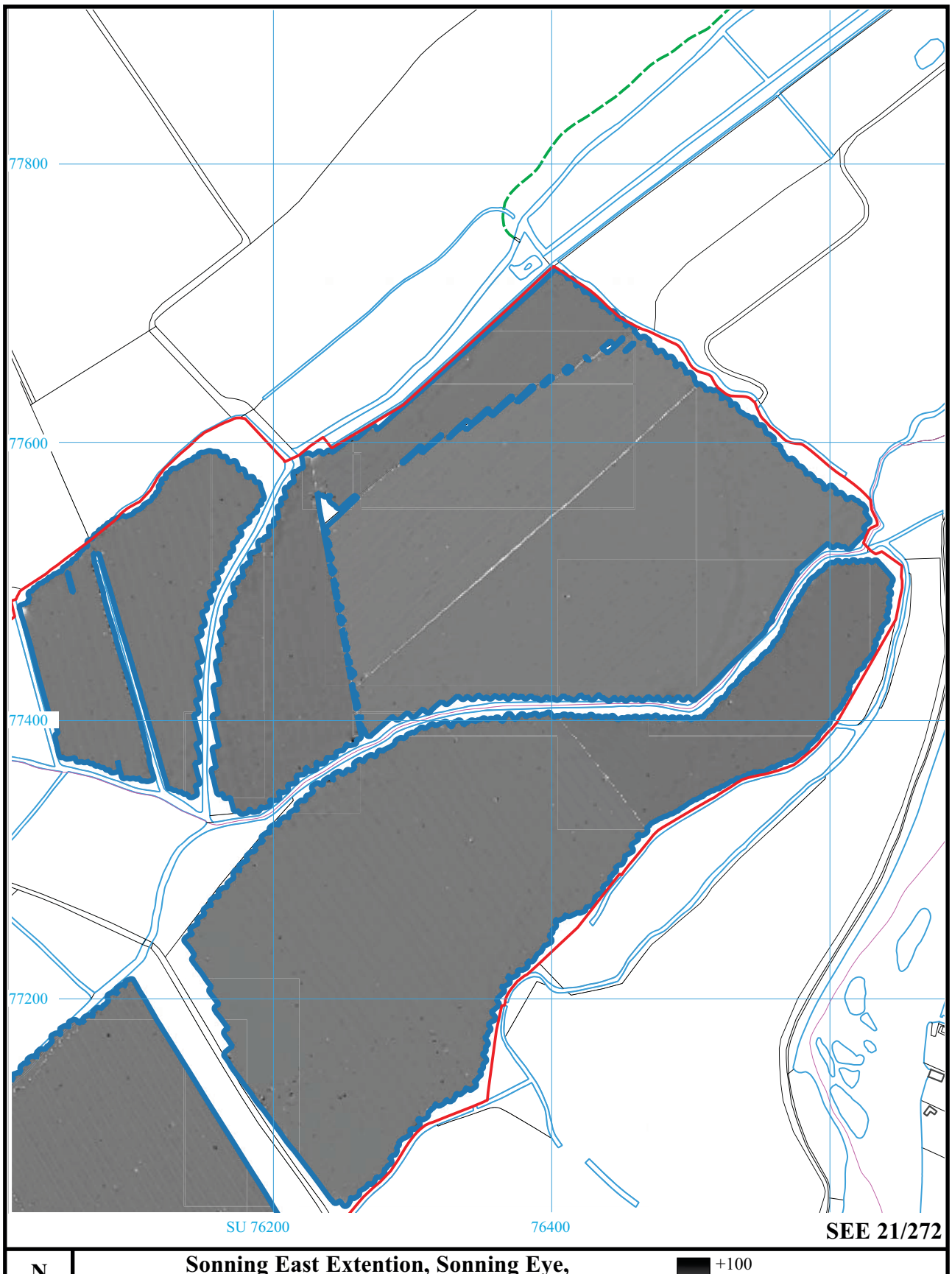
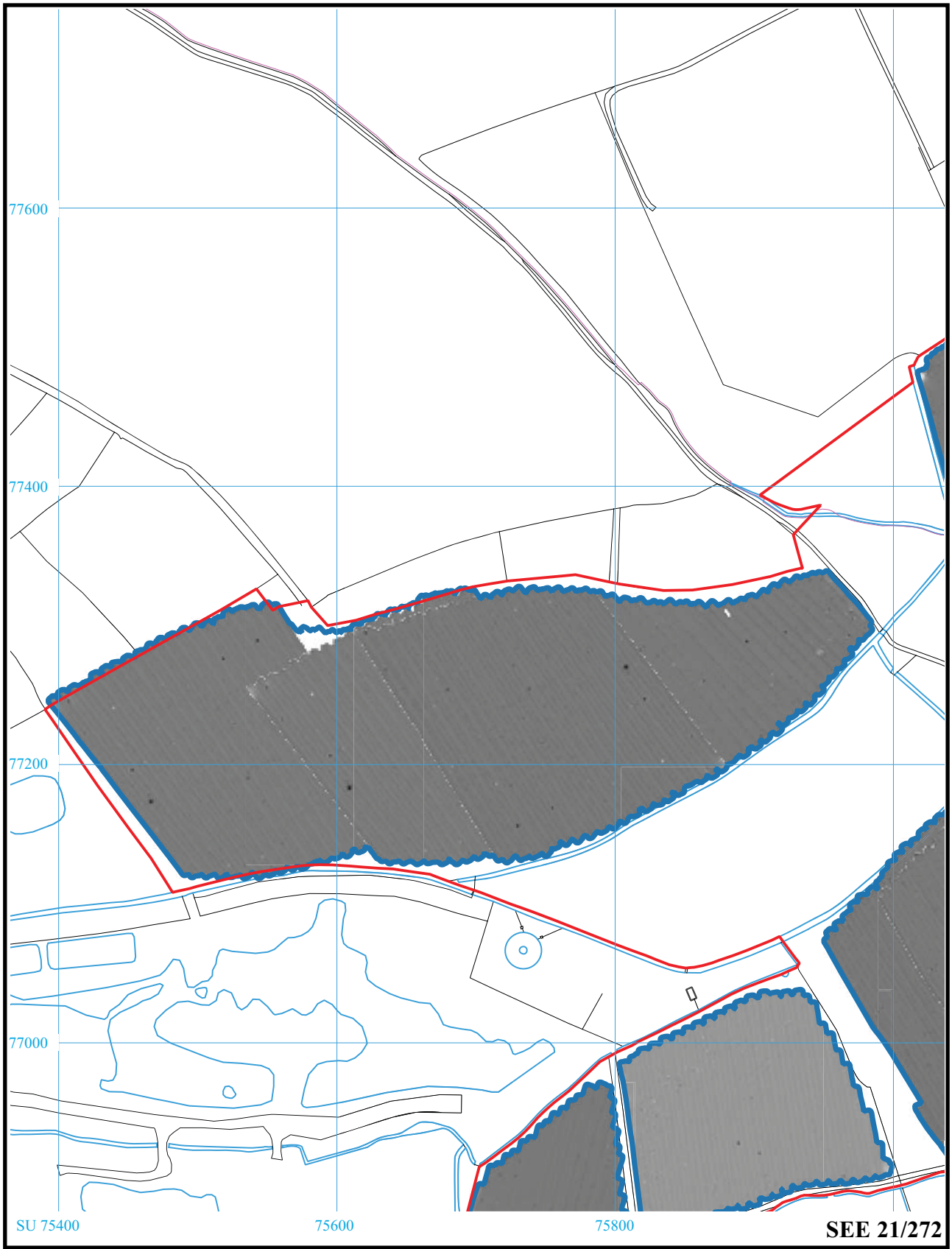


Sonning East Extention, Sonning Eye, Oxfordshire, 2023
Geophysical Survey (Magnetic)
Figure 9. Focused plot of raw gradiometer data.
(Field E, F, G, H, I)



N

Sonning East Extention, Sonning Eye, Oxfordshire, 2023
Geophysical Survey (Magnetic)
Figure 10. Focused plot of raw gradiometer data.
(Field J)

0m 200m

+100
nT
-100

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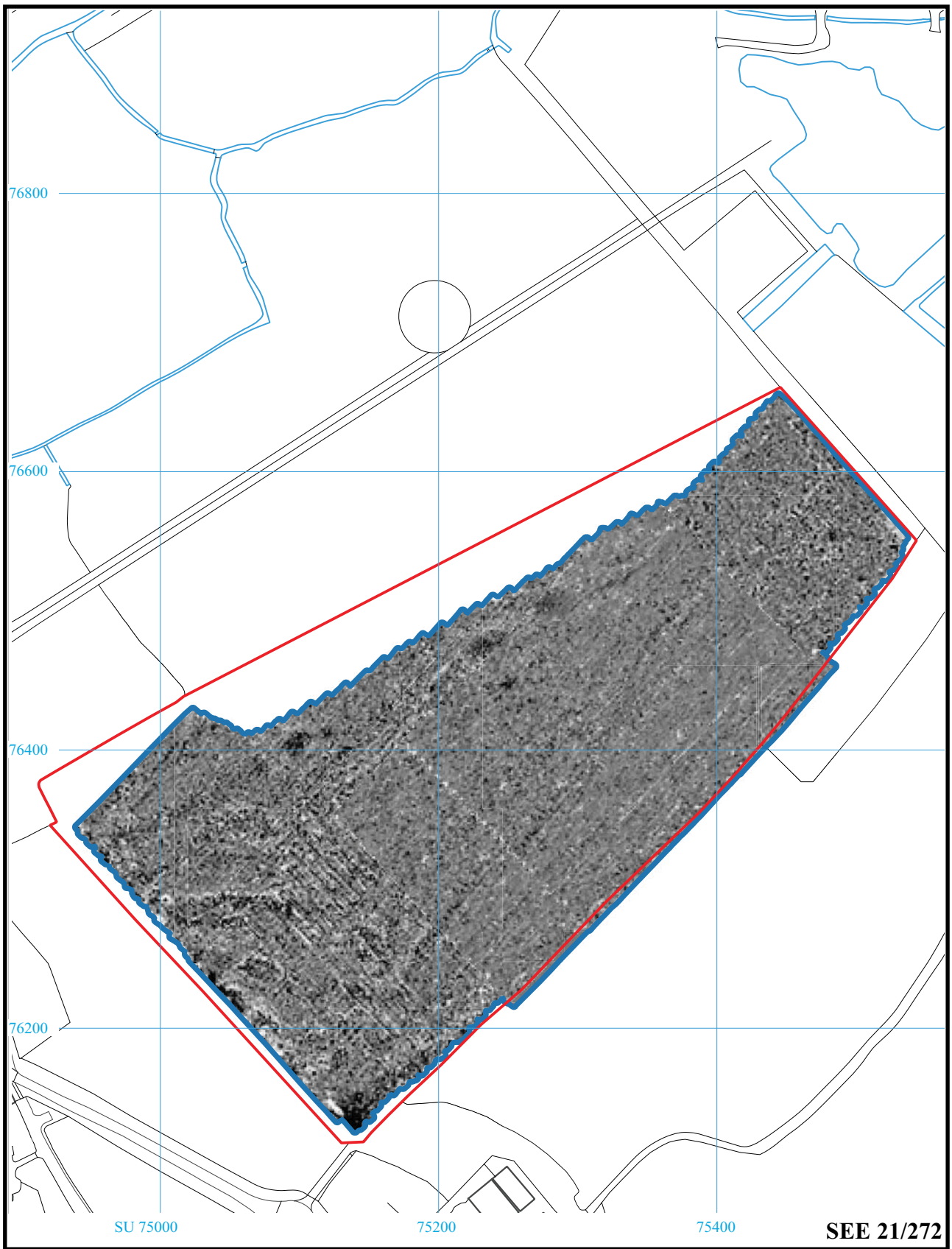

N

Sonning East Extention, Sonning Eye, Oxfordshire, 2023
Geophysical Survey (Magnetic)
Figure 11. Focused plot of processed gradiometer data. (Field A)

0m 200m

+2.21
nT
-2.20

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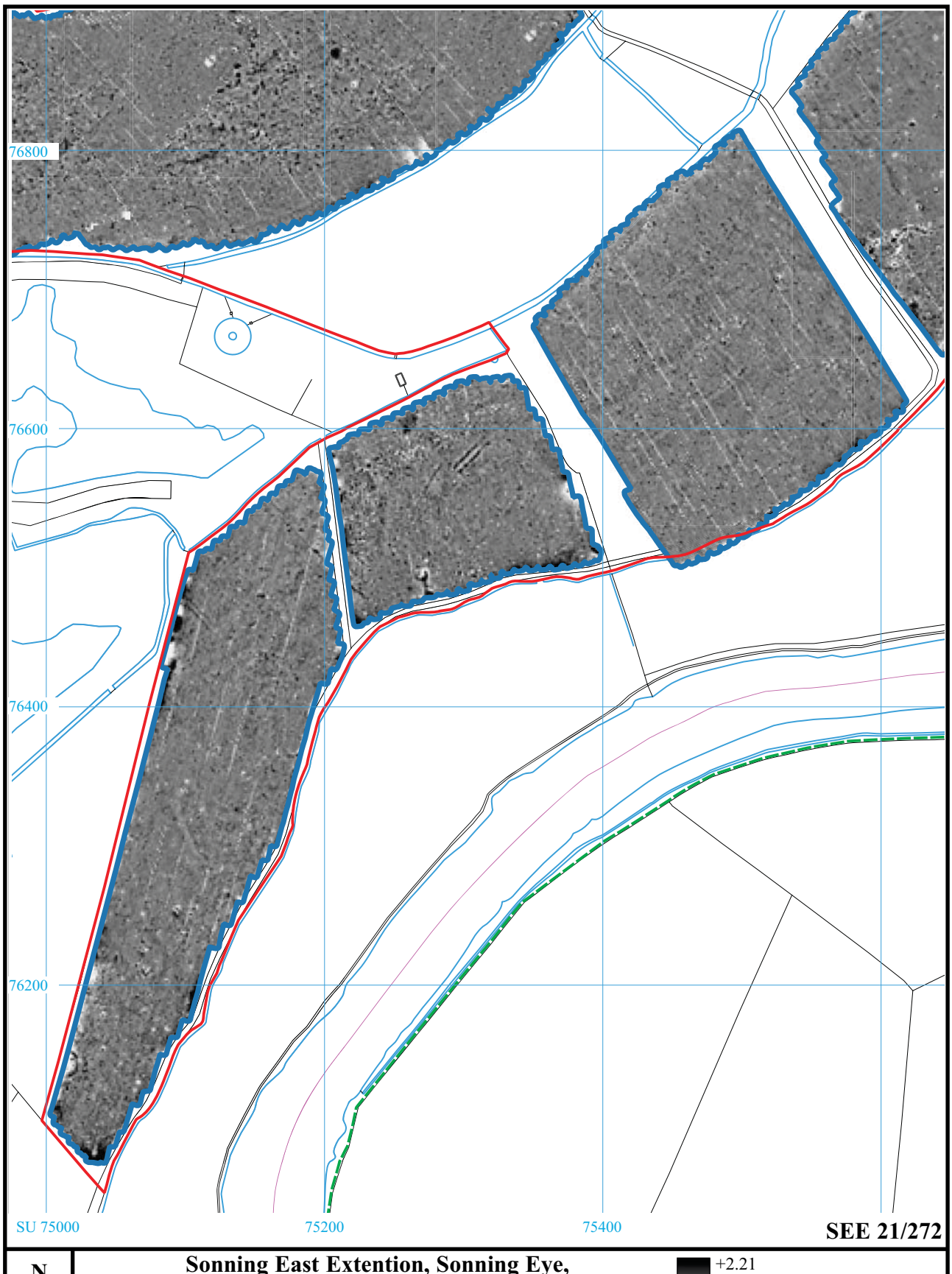
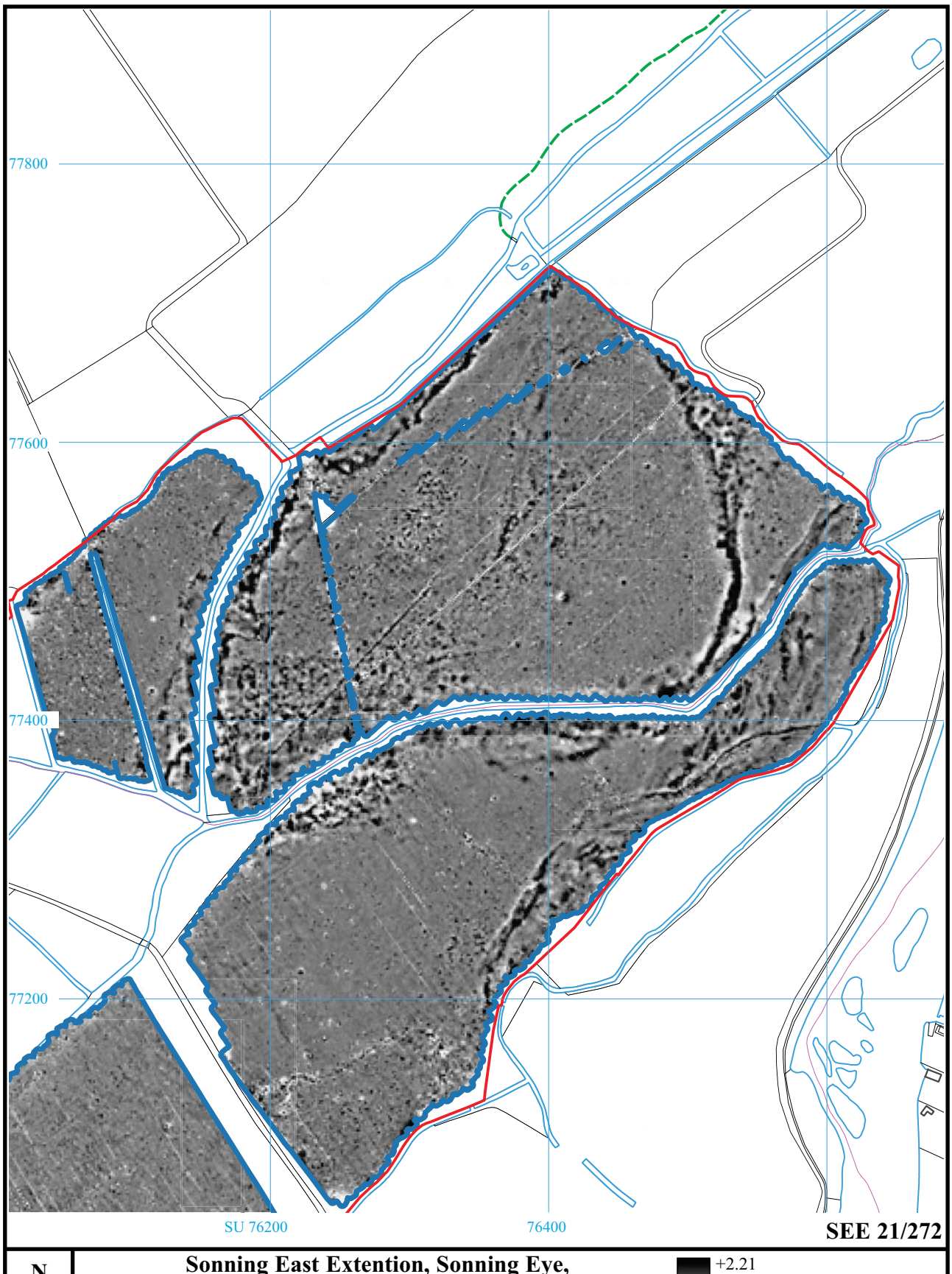
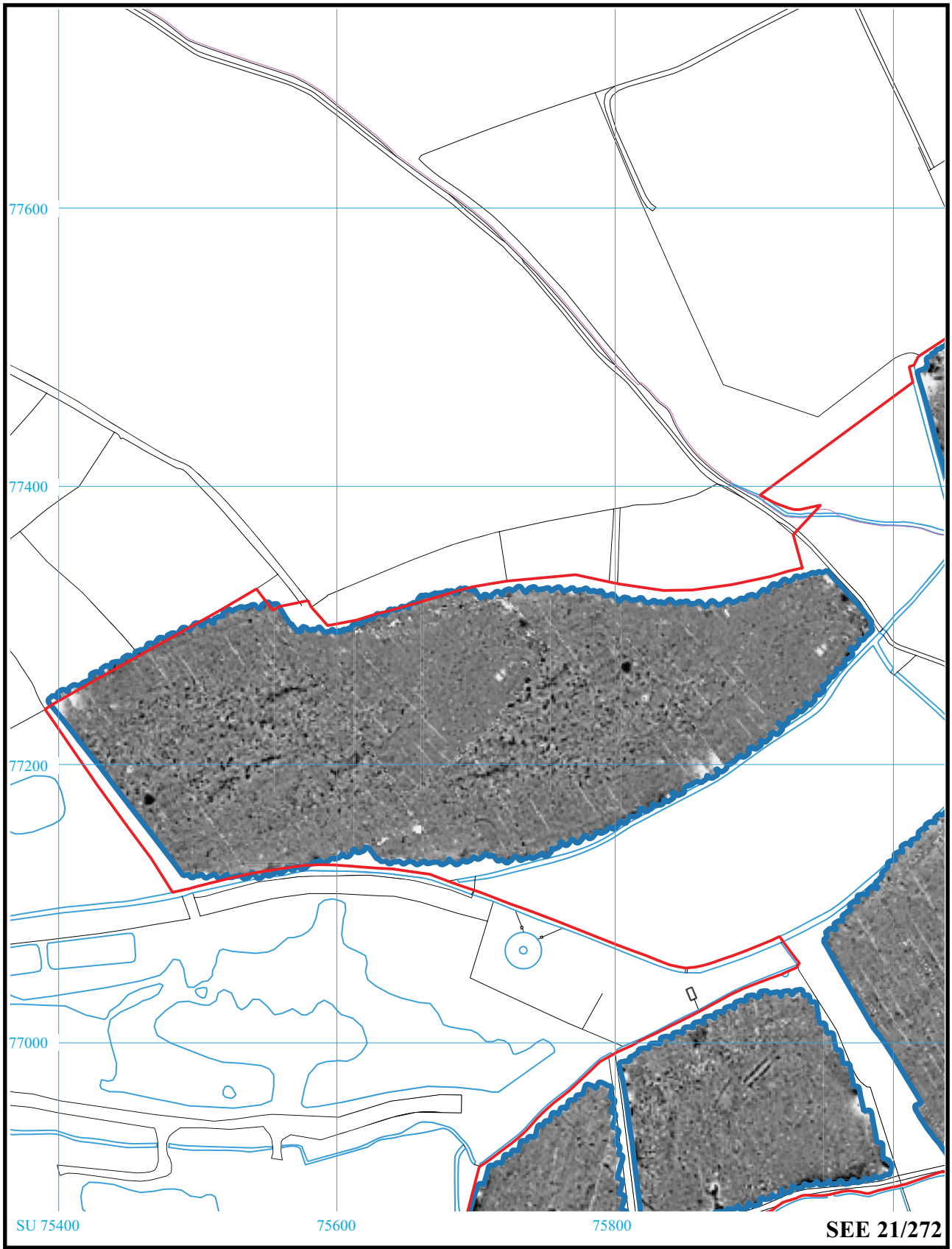


Sonning East Extention, Sonning Eye, Oxfordshire, 2023
Geophysical Survey (Magnetic)
Figure 12. Focused plot of processed gradiometer data. (Field B, C, D)



Sonning East Extention, Sonning Eye, Oxfordshire, 2023
Geophysical Survey (Magnetic)
Figure 13. Focused plot of processed gradiometer data.
(Field E, F, G, H, I)



N

Sonning East Extention, Sonning Eye, Oxfordshire, 2023
Geophysical Survey (Magnetic)
Figure 13. Focused plot of processed gradiometer data. (Field J)

0m 200m

+2.21
nT
-2.20

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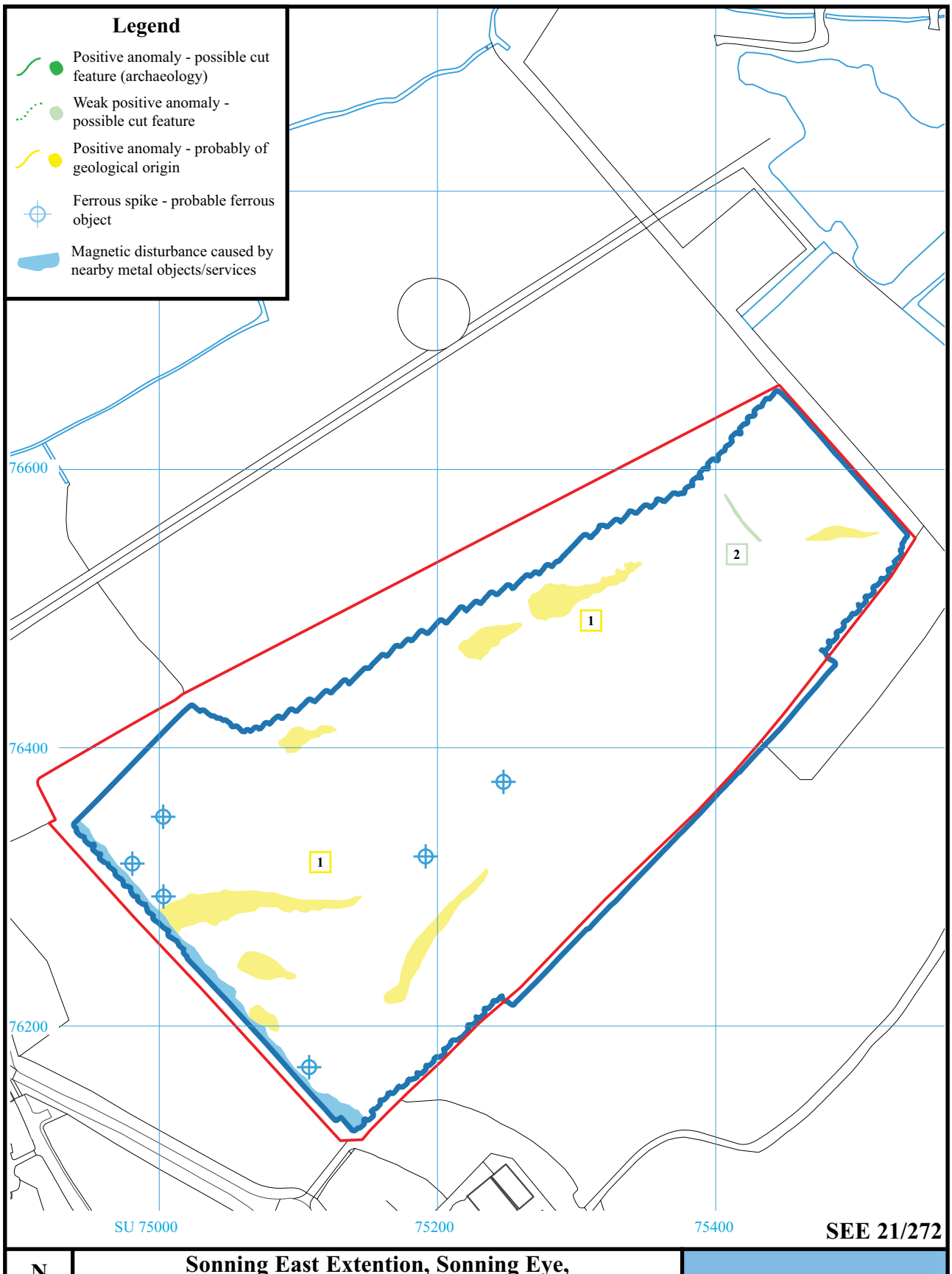

N

Sonning East Extention, Sonning Eye, Oxfordshire, 2023
Geophysical Survey (Magnetic)
Figure 15. Focused interpretation plot.
(Field A)

0m 200m

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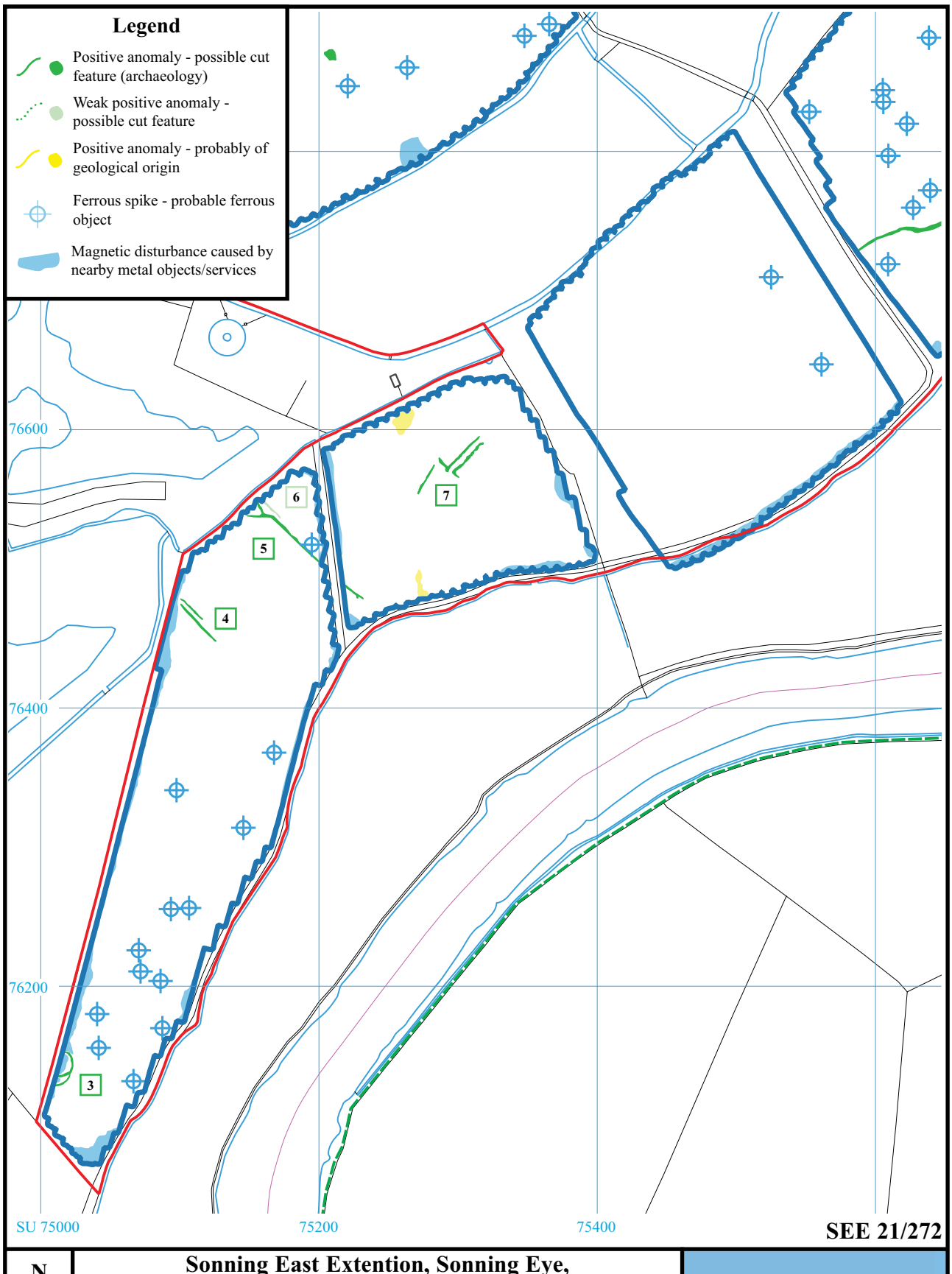

N

Sonning East Extention, Sonning Eye, Oxfordshire, 2023
Geophysical Survey (Magnetic)
Figure 16. Focused interpretation plot.
(Field B, C, D)

0m 200m

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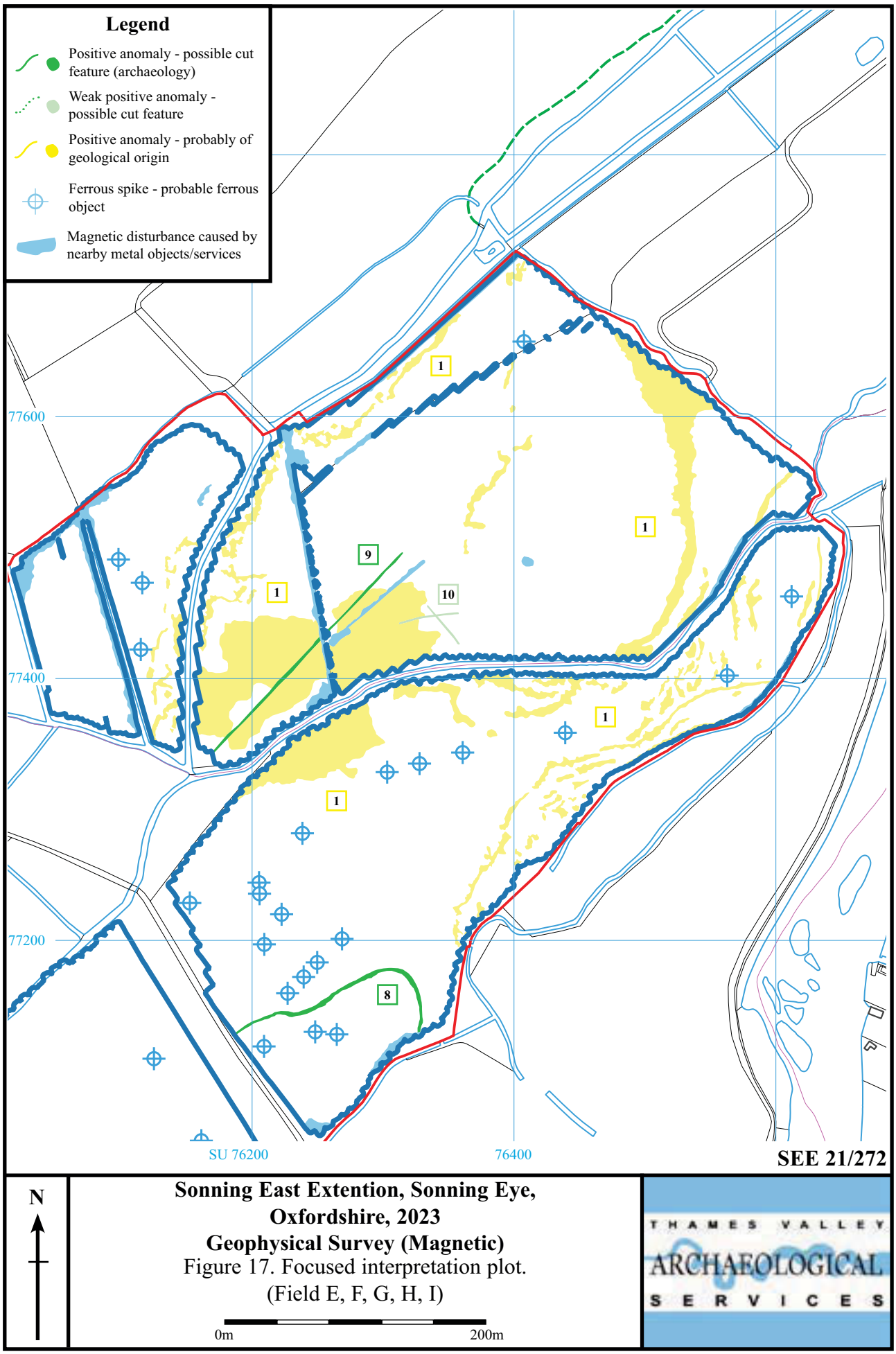

Sonning East Extention, Sonning Eye, Oxfordshire, 2023
Geophysical Survey (Magnetic)
Figure 17. Focused interpretation plot.
(Field E, F, G, H, I)

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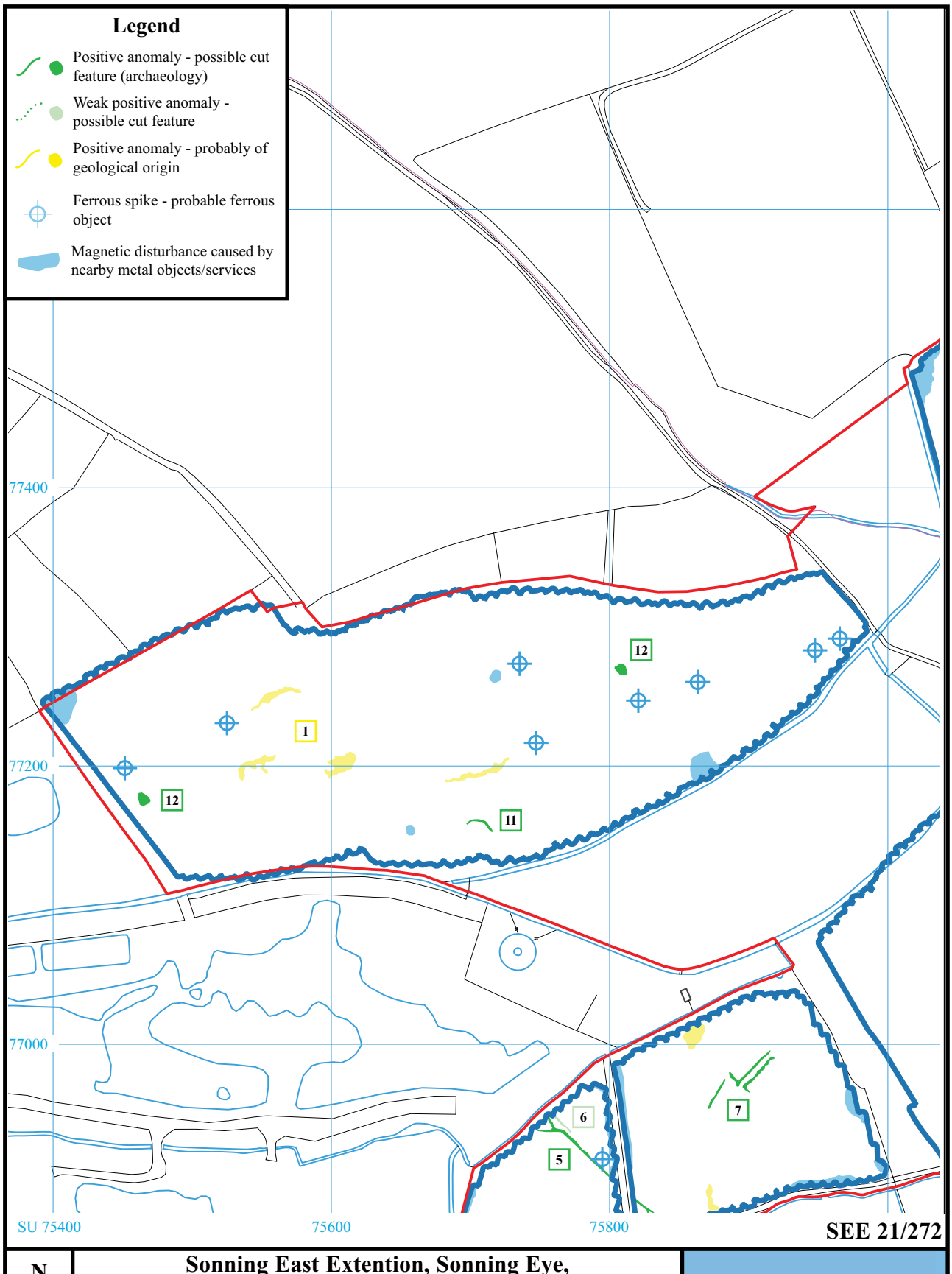

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Sonning East Extention, Sonning Eye, Oxfordshire, 2023
Geophysical Survey (Magnetic)
Figure 18. Focused interpretation plot.
(Field J)

0m 200m

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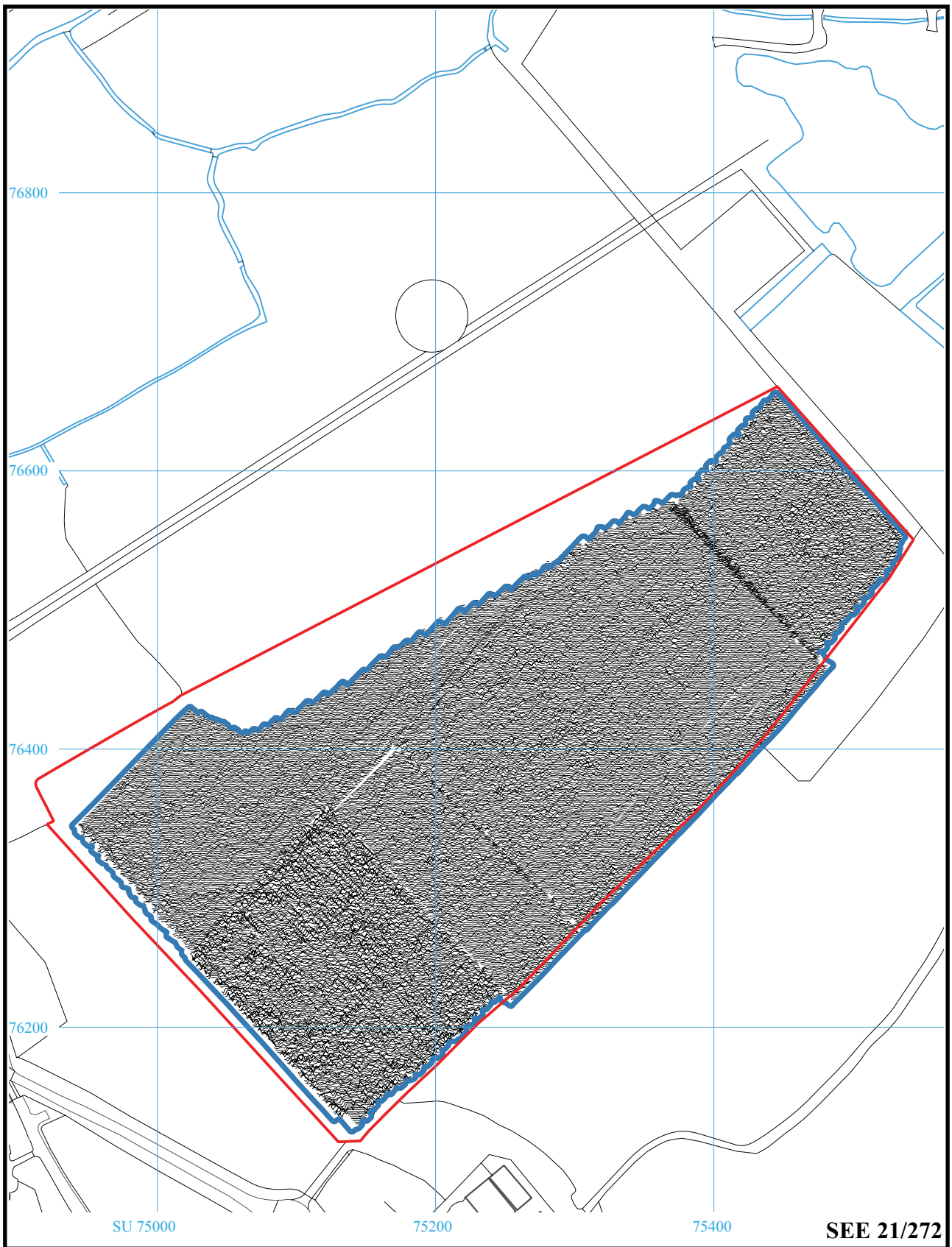

N

Sonning East Extention, Sonning Eye, Oxfordshire, 2023
Geophysical Survey (Magnetic)
Figure 19. Focused XY plot.
(Field A)

0m 200m

nT 20 10 0 -10 -20

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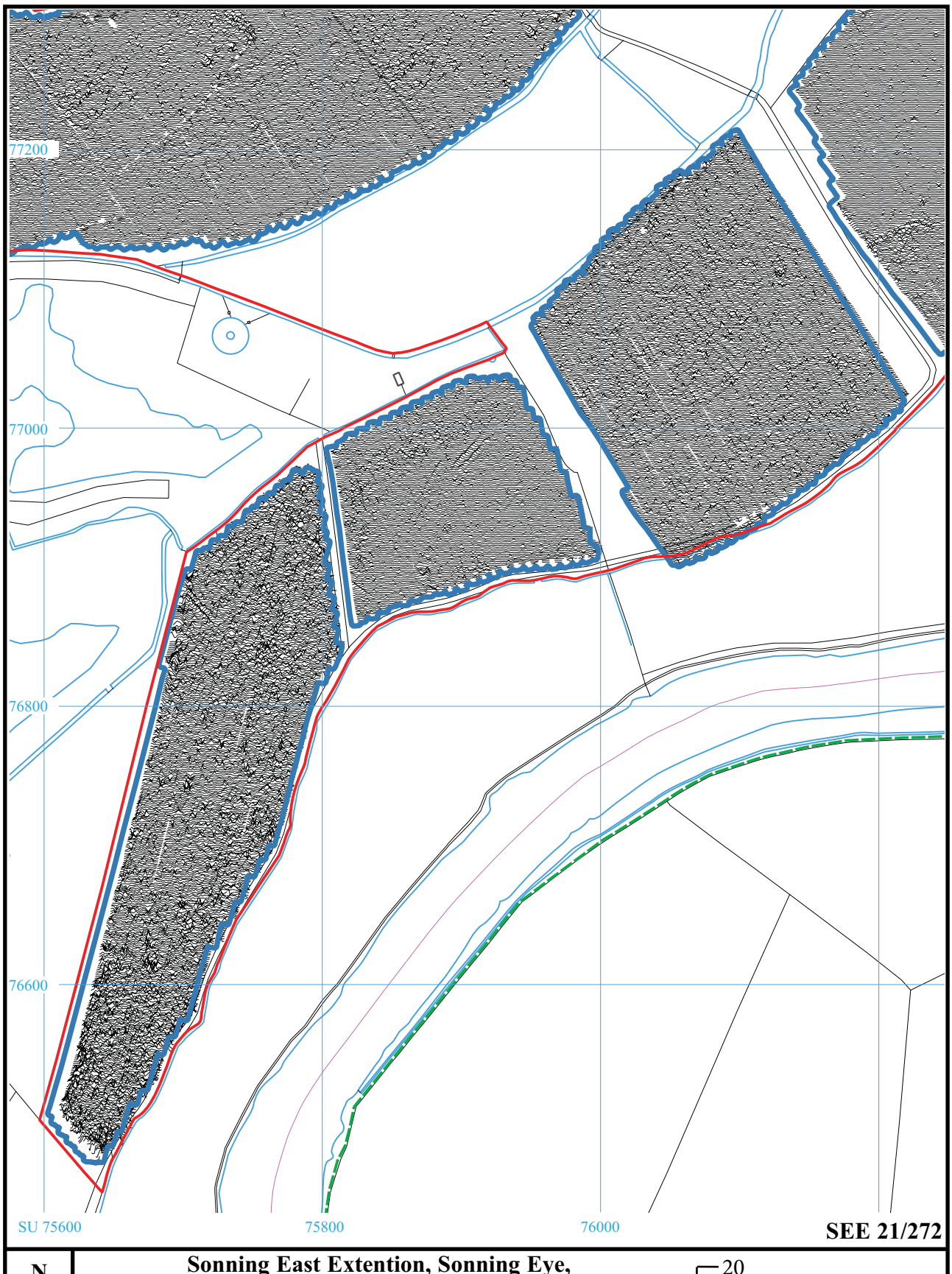

N

Sonning East Extention, Sonning Eye, Oxfordshire, 2023
Geophysical Survey (Magnetic)
Figure 20. Focused XY plot.
(Field B, C, D)

0m 200m

nT 20 10 0 -10 -20

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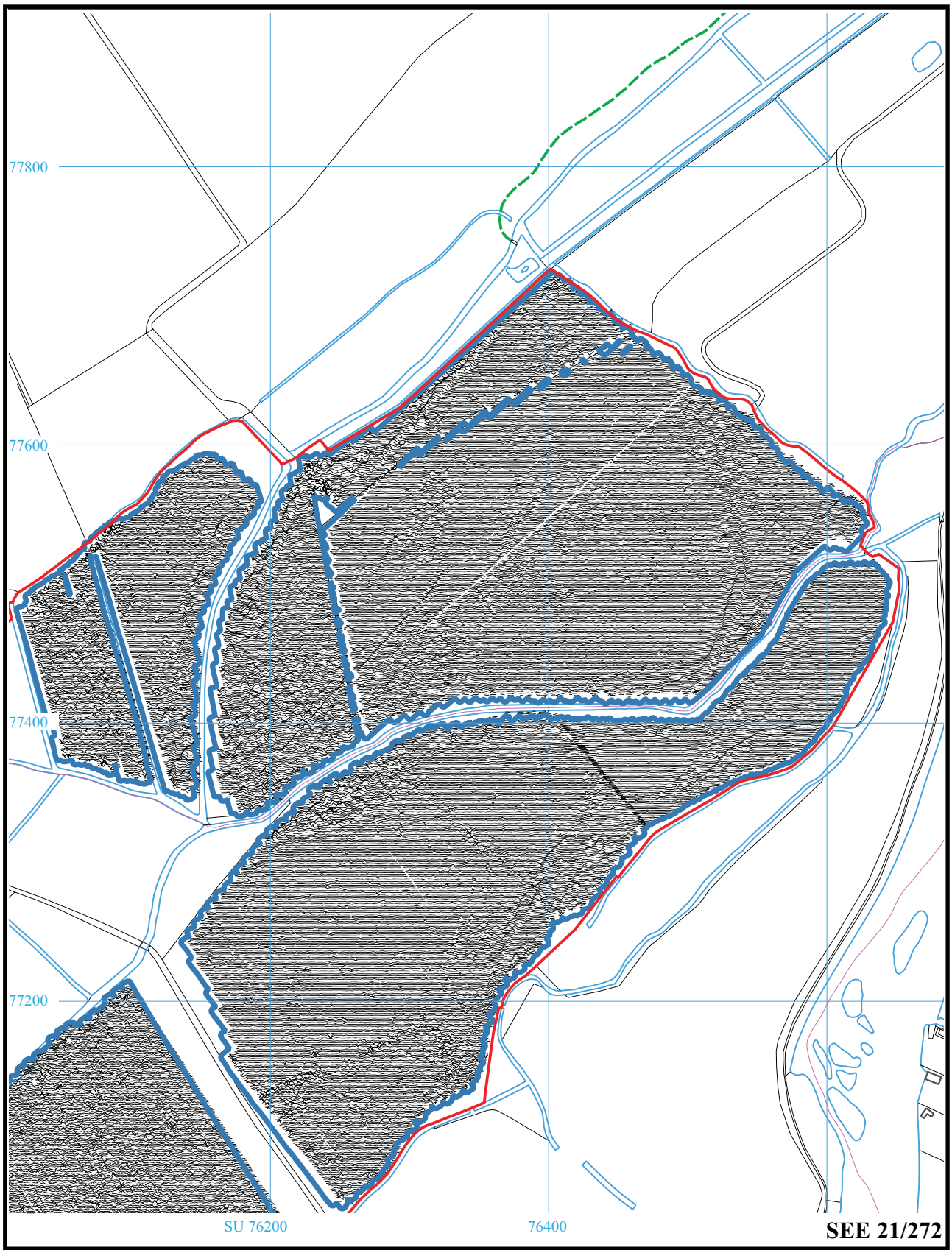

N

Sonning East Extention, Sonning Eye, Oxfordshire, 2023
Geophysical Survey (Magnetic)
Figure 21. Focused XY plot.
(Field E, F, G, H, I)

0m 200m

nT 20 10 0 -10 -20

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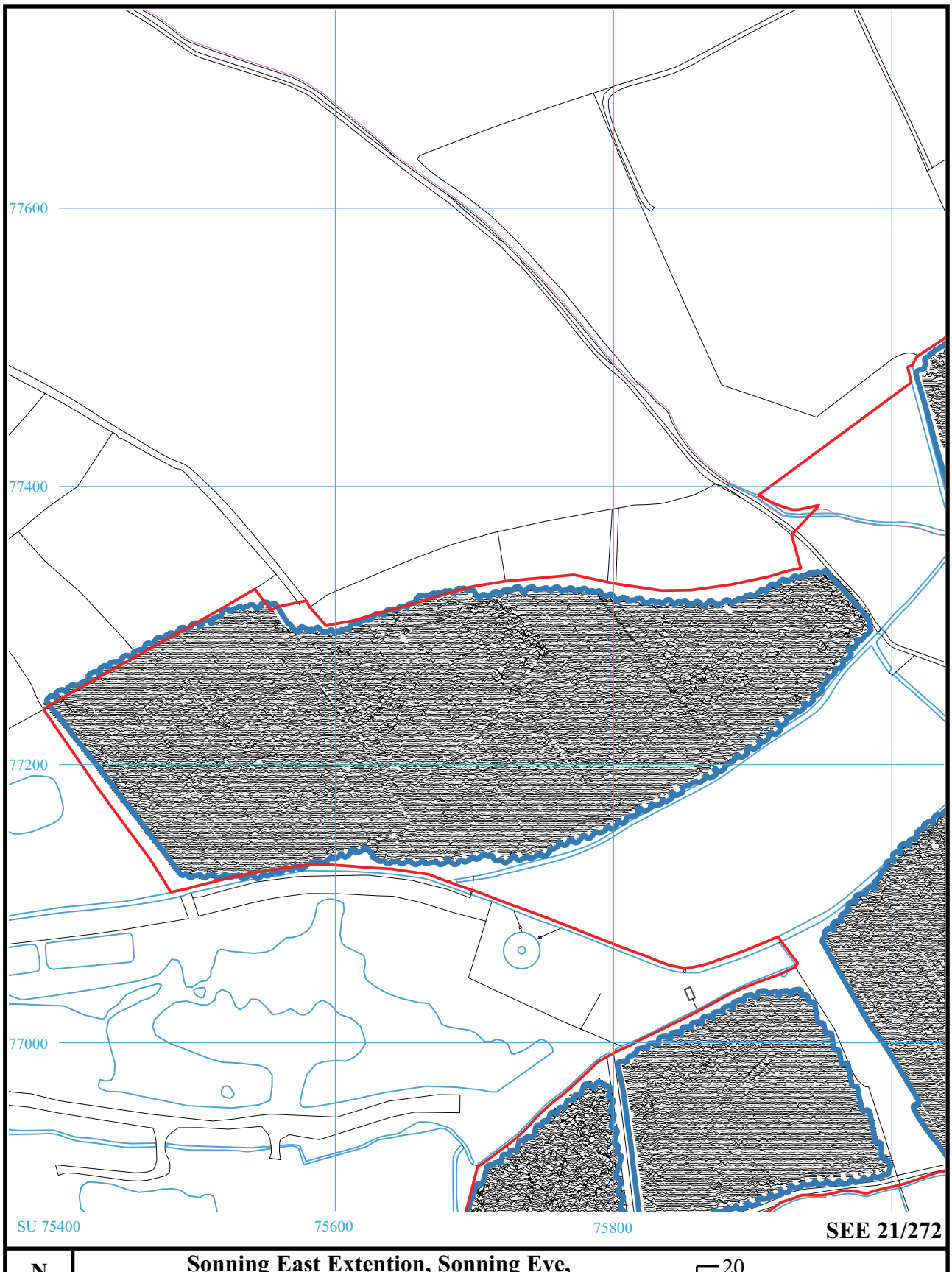

N

Sonning East Extention, Sonning Eye, Oxfordshire, 2023
Geophysical Survey (Magnetic)
Figure 22. Focused XY plot.
(Field J)

0m 200m

nT 20 10 0 -10 -20

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Plate 1. Field A looking north-west

Plate 2. Field B looking north-east.

Plate 3. Field C looking north-east.

Plate 4. Field D looking east.

SEE 21/272

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Oxfordshire, 2023
Geophysical Survey (magnetic)
Plates 1 to 4.

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Plate 5. Field E looking north-east

Plate 6. Field F looking north-east.

Plate 7. Field G looking south.

Plate 8. Field H looking south.

SEE 21/272

Sonning Extension East, Sonning Eye
Oxfordshire, 2023
Geophysical Survey (magnetic)
Plates 5 to 8.

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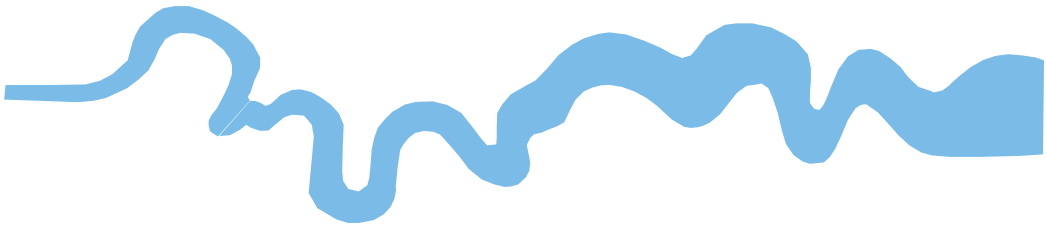
Plate 9. Field I looking west

TIME CHART

	Calendar Years
Modern	AD 1901
Victorian	AD 1837
Post Medieval	AD 1500
Medieval	AD 1066
Saxon	AD 410
Roman	AD 43
	AD 0 BC
Iron Age	750 BC
Bronze Age: Late	1300 BC
Bronze Age: Middle	1700 BC
Bronze Age: Early	2100 BC
Neolithic: Late	3300 BC
Neolithic: Early	4300 BC
Mesolithic: Late	6000 BC
Mesolithic: Early	10000 BC
Palaeolithic: Upper	30000 BC
Palaeolithic: Middle	70000 BC
Palaeolithic: Lower	2,000,000 BC



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