T H A M E S   V A L L E Y

ARCHAEOLOGICAL

S E R V I C E S

Central M40, Land at Overthorpe Road, Banbury, Phase 2 (Northamptonshire section)

Geophysical Survey (Magnetic)

by Rebecca Constable

Site Code: ORB15/150

(SP 4742 3965)

Central M40, Land at Overthorpe Road, Banbury, Phase 2 Northamptonshire Section

Geophysical Survey (Magnetic) Report

For DB Symmetry

by Rebecca Constable

Thames Valley Archaeological Services Ltd

Site Code ORB 15/150

November 2015

Summary

Site name: Central M40, Land at Overthorpe Road, Banbury, Phase 2, (Northants section)

Grid reference: SP 4742 3965

Site activity: Magnetometer survey

Date and duration of project: 9th November - 13th November 2015

Project manager: Steve Ford

Site supervisor: Rebecca Constable

Site code: ORB 15/150

Area of site: 5.35ha

Summary of results: The geophysical survey has yielded a very high number of anomalies certainly or probably of archaeological interest. These appear to comprise large and small mostly curvilinear enclosures grouped across the centre and south west of the site, perhaps with a second focus to the south east. A water main running across the site, and the railways to the north (disused) and south (current) of the site boundary caused large areas of magnetic disturbance which could have obscured other anomalies of archaeological origin. Medieval ridge and furrow field system was present across the entirety of the site.

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

Report edited/checked by:	Steve Ford✓ 07.12.15
	Andrew Mundin✓ 07.12.15

by Rebecca Constable

Report 15/150

Introduction

This report documents the results of a geophysical survey (magnetic) carried out at Central M40, Land at Overthorpe Road, Banbury, Phase 2, Northamptonshire Section (SP 4742 3965) (Fig. 1). The work was commissioned by Mr Tim Webster, Development Surveyor for and on behalf of DB Symmetry, Grange Park Court, Roman Way, Northampton, NN4 5EA.

The site lies on the west side of the M40, south of Overthorpe Road, Banbury, Oxfordshire, but is mostly situated within Northamptonshire. Planning permission (S/2014/0302/MAO) has been gained from South Northamptonshire District Council to erect new industrial units on the site along with a balancing pond. This consent is subject to a condition (7) relating to archaeology. A separate scheme of work has been produced for the components of the project which lie in Oxfordshire. This is subject to a condition which requires the implementation of a geophysical survey, the results of which will be used to provide targets for any subsequent trenching. This is in accordance with the Department for Communities and Local Government's National Planning Policy Framework (NPPF 2012), and the District's policies on archaeology. The field investigation was carried out to a specification approved by Ms Liz Mordue of Northamptonshire Archaeology. The fieldwork was undertaken by Rebecca Constable and Will Attard between the 9th and 13th November 2015 and the site code is ORB 15/150.

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 within a 5.35ha parcel of land on the west of the M40, south of Overthorpe Road, Banbury, Oxfordshire. However, this part of the site stands within Northamptonshire (Fig. 1). The topography of the site was fairly even and covered in short grass. The underlying geology is described as Lower Lias Clay (BGS 1982). The site lies at 90.66m above Ordnance Datum.

Site history and archaeological background

The archaeological potential of the site has previously been evaluated in a desk-based assessment (Ford 2004), a 112 trench evaluation (Ford 2008) in Oxfordshire, with a smaller evaluation and recording action following in Northamptonshire (McNicoll-Norbury 2014; Bray 2015). To summarise these previous works, the site lies beyond the historic core of Banbury, but is within the area of where a medieval hospital once stood. Extensive trenching of the site revealed little of archaeological interest. A few undated, or post-medieval, field boundaries were revealed, as were sherds of medieval pottery and a single sherd of Roman pottery. East of the Northamptonshire county boundary is the remains of a 1st World War munitions factory (Cocroft 1999 fig. 6. 21).

The later evaluation in 2014 revealed a modern truncation, in which the backfill contained bullets, some of which were still within magazines. It is possible that these are remnants of the munitions factory, possibly displaced in the construction of the M40. No archaeological deposits pre-20th century were revealed in the evaluation. The site, as such, appears to have a low archaeological potential.

Methodology

Sample interval

Data collection required a temporary grid to be established across the survey area using wooden pegs at 20m intervals with further subdivision where necessary. Readings were taken at 0.25m intervals along traverses 1m apart. This provides 1600 sampling points across a full 20m × 20m grid (English Heritage 2008), providing an appropriate methodology balancing cost and time with resolution. The grid was set up along the major axis of the site, on alignment with the railway running parallel to the bottom of the site. Although a newt fence ran across the site, on a relative N-S alignment, the grid was laid out across the entirety of the site without obstruction.

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.

<u>Equipment</u>

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 English Heritage (2008) and the Chartered Institute *for* Archaeologists (2002, 2011, 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 a dual sensor Bartington Instruments Grad 601-2 fluxgate gradiometer. The instrument consists of two fluxgates mounted 1m vertically apart with a second set positioned at 1m horizontal distance. 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.

A Trimble Geo7x handheld GPS system with sub-decimetre real-time accuracy was used to tie the site grid 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 -6.80 to 7.20 nT	Enhance the contrast of the image to improve the appearance of possible archaeological anomalies.
Interpolate: *y* doubled	Increases the resolution of the readings in the *y* axis, enhancing the shape of 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 -2 intervals	Cancels out effects of site's topography on irregularities in the traverse speed.

Once processed, the results are presented as a greyscale plot shown in relation to the site (Fig. 3), followed by a second plan to present the abstraction and interpretation of the magnetic anomalies (Fig. 4). Anomalies are shown as colour-coded lines, points and polygons. The grid layout and georeferencing information (Fig. 2) is prepared in EasyCAD v.7.58.00, producing a .FC7 file format, and printed as a .PDF for inclusion in the final report.

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 2.10.1 Pisa 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

The geophysical survey for the site produced a large number of positive magnetic anomalies of archaeological interest (Fig. 4). Positive anomalies commonly represent buried cut features, such as pits and ditches. These can be of archaeological or agricultural origin.

The most striking positive magnetic anomaly **[Fig. 4: 1 and 2]** of probable archaeological origin is a linear crossing the site from NW to SE. Presumably, this is a single linear cut feature. However, this is impossible to determine for certain as a large magnetic disturbance **[52]**, running perpendicular to the anomaly and caused by a water main, blocks a portion of the linear in the results of the geophysical survey.

A linear positive anomaly **[3]** runs perpendicular to the main linear, forming an L-shape. The shape of this anomaly suggests that it is of archaeological origin. Also in the vicinity of the previous linears is a circular cut feature of archaeological origin **[4]**, which does not appear to be associated with either previous anomaly due to its placement and shape.

To the SW of the above features appear two more positive magnetic anomalies. One of these **[5]** is represented by three linear anomalies, forming a rectangular enclosure. The shape of this anomaly suggests that it is of probable archaeological origin. Directly to the west of this enclosure is a circular anomaly **[6]**, also of

probable archaeological origin. The placement of this circular reading is of uncertain relationship with the rectangular anomaly. It is possible that the two are related.

To the north of the first linear anomaly is a smaller linear **[7]** that shows as strong at its S end, and weak to the N. The majority of this linear appears as a weak magnetic anomaly. It runs perpendicular to the first linear, and is not associated with the agricultural anomalies that surround it. Due to its placement, it appears to be of archaeological origin.

To the south of the rectangular and circular anomalies, a sub-circular positive magnetic anomaly **[8]** can be seen. The sub-circular anomaly is placed to the east of the area disturbed by the water main. Due to the magnetic disturbance of the main, it is difficult to see whether this feature is associated with the previous enclosures. The shape of this anomaly shows it is probably an archaeological cut or buried feature.

Southeast of the sub-circular feature is a positive anomaly of probable archaeological origin **[9].** This linear positive magnetic reading does not appear to be associated with any of the surrounding anomalies of either archaeological or agricultural origin.

Two semi-circular positive magnetic readings lie to the SE of the previous anomaly **[10]** with one anomaly truncating the other. These anomalies are likely associated, and are both of probable archaeological origin. The truncating reading appears to be slightly more rectangular in shape than its partner, and could suggest an enclosure similar to anomalies 5 and 6 in layout beyond the site boundary, but on a larger scale.

Lying directly north is another circular positive magnetic anomaly **[11]** that is likely a cut or buried feature of archaeological origin. Possibly in relation to this is a V-shaped anomaly **[12]** directly to the east. This magnetic reading cannot be associated to any of the surrounding archaeological anomalies, but does appear to be of archaeological origin.

Northwest of the circular cut or buried feature appears two J-shaped anomalies **[13]**. These anomalies also appear to be unrelated to any surrounding positive magnetic readings. Their shape suggests that they are of archaeological origin.

To the NE of the above described feature are a series of linear positive magnetic readings **[14]** that form a cluster of rectangular enclosure shapes. As the anomalies appear clearly as rectangular enclosures, it is extremely probably that they are of archaeological origin, and represent cut or buried features.

Two positive magnetic readings **[15]** can be seen to the west, forming a curved line that could be part of a larger buried or cut feature. To the north of this feature is a larger, more defined J-shaped anomaly **[16]** that could possibly be related to the curved linear, forming a large rounded rectangular enclosure.

Intersecting the north of the large rounded rectangular enclosure, two linear positive anomalies [17] form an L- shape. These are likely of archaeological origin, probably representing the corner of a small rectangular enclosure. It is difficult to be certain of the exact shape and size of the L-shaped anomaly, as it is interrupted by an irregular magnetic reading [18] that could be of either archaeological or agricultural origin. It is possible that this reading, which is seemingly un-associated with the surrounding anomalies, has been disturbed by the later agricultural features (ridge and furrow).

Running perpendicular to the main NW-SE linear anomaly is a short linear [19] of apparent archaeological origin. This seems to be associated with a linear anomaly [21] running parallel to the NW-SE linear, and perpendicular to the previously mentioned anomaly, forming boundaries to a rectangular enclosure.

Southwest of anomaly 21 is a sub-linear anomaly [20]. The shape of this anomaly is unusual, as it is not a direct line but more of a hook shape. It appears as if the magnetic reading represents a cut or buried archaeological feature that is likely associated with the rectangular enclosure previously mentioned. It is possible that the irregular shape of this anomaly is due to later agricultural disturbance.

Directly north of this represented enclosure is a sub-circular positive magnetic anomaly [22]. The circular shape and similar alignment to close by archaeological anomalies suggests that this magnetic reading is also of archaeological origin, representing a cut or buried feature. This probable feature seems to lead off the main NW-SE linear anomaly, and is very likely related to it in some way.

Connected to 22 is a linear anomaly [23] heading east, away from the feature. It is likely that this linear is of archaeological origin, and associated with the sub-circular cut or buried feature. However, this linear reading is on a different alignment to the surrounding magnetic anomalies. It appears as though 22 and 23 could be remnants of an archaeological feature similar to previously mentioned circular-and-rectangular enclosures [5 and 6; 11 and 12] that have been disturbed by subsequent archaeological cut or buried features.

As with the sub-circular magnetic anomaly, a number of surrounding anomalies [24] appear connected with the main NW-SE linear anomaly, and, consequently, are likely associated archaeologically with it. One such anomaly is directly SE to the sub-circular anomaly, seemingly representing a small rectangular enclosure. This apparent enclosure is formed by two unconnected, but parallel linear magnetic readings. Following this is a semi-circular anomaly, with a smaller circular reading attached to the SW. These rounded magnetic readings appear to be separate, but associated, archaeological features. Finally, this series of associated magnetic anomalies ends with a larger rectangular shape, most likely representing another archaeological cut or buried feature.

Southeast of the aforementioned anomalies, seemingly either truncating, or at the end of, the main NW-SE anomaly is a large circular magnetic reading **[25]**. This circular positive anomaly appears as one large circular reading, with a smaller sub-circular reading in the northern half of the larger circle. The shape and location of this anomaly shows it to be of archaeological origin. Leading away to the NW are two parallel, weaker, linear anomalies. It is possible that the linear anomalies are associated with the circular enclosure.

To the NE lies a curved linear positive magnetic anomaly **[26]**. As this anomaly manifests as a weak positive magnetic reading, it is more difficult to determine the extent of the feature it represents. However, it is probable that this anomaly is representative of another circular cut or buried feature of archaeological origin, as it is on a very similar alignment to anomaly 25.

In the easternmost corner of the site is a cluster of circular positive magnetic anomalies **[27]**. It is highly probable that these circular readings represent a group of cut or buried archaeological features. These circular features are aligned with anomalies 24 to 26, but are very weak magnetic readings; this makes it difficult to tell whether the anomalies are all associated.

One of the northernmost positive anomalies is a long linear reading **[28]**, running perpendicular to the main NW-SE anomaly, and on the same alignment as anomaly 19. This is, in all probability, of archaeological origin. It is possibly the same cut or buried feature as anomaly 19, which could have been truncated in areas by later archaeological features.

Branching away from the above anomaly, heading NE, is another linear magnetic reading **[29]**. This linear appears unrelated to anomaly 28. Nevertheless, it appears to be of archaeological origin, with a small number of seemingly un-associated truncated anomalies on its southern side.

The larger magnetic reading **[30]** associated with the aforementioned linear is truncated by the linear's western end. The anomaly is represented by three linears of various length forming a sub-rectangular enclosure that slightly overlaps anomaly 28. Inside this large rectangle is an irregular positive magnetic reading **[31]**. This reading manifests as a number of interacting linear and sub-linear anomalies forming no distinguished shape. This anomaly could be either archaeological or agricultural in origin; it is possible that it is an archaeological cut or buried feature that has been disturbed by later agricultural disturbance.

Also attached to anomaly 29 is a singular short linear, heading SE **[32]**. This appears to be unrelated to any other features of an archaeological or agricultural nature. The linear does not line up with the surrounding ridge and furrow marks, and as such is likely to be a cut or buried archaeological feature.

In the SE corner of the site, there appears to be a concentrated cluster of strong positive magnetic anomalies: it seems as thought there is one large circular cut or buried feature divided into four segments [33, 34, 39 and 42], represented by a number of curved linears, containing a number of smaller, more rectangular archaeological features [36, 37, 38, 40, 41, 43 and 44]. There is also a linear magnetic reading that is represented inside the larger structure, from the northernmost to the southernmost point [35].

The uppermost large segment [33] in the eastern side of the site, is a small, sub-circular anomaly represented by one strong magnetic reading and one weak magnetic reading, both of which are curved linears. This sub-circular anomaly is representative of an archaeological cut or buried feature; no smaller features are enclosed within this possible structure.

South of this lies a much larger, sub-rectangular anomaly [34], formed by a curved linear crossing E-W, and a linear running N-S [35]. This large anomaly is truncated by the site boundary, but appears to be a large rectangular cut or buried archaeological feature. Contained within this feature are two smaller anomalies: one circular [38] and one rectangular, formed by two linears [36 and 37]. It is highly likely that the smaller anomalies are also of archaeological origin.

Directly west of the northern half of the above-mentioned segment is a smaller, wedge-shaped anomaly [39]. Within this cut or buried feature is a rectangular anomaly [40], possibly containing another, yet smaller, sub rectangular magnetic abnormality [41]. However, the presence of another possible enclosure below this one, along with the incomplete condition of the represented boundaries makes it difficult to ascertain the exact shape, and therefore placement and relationship, of the enclosed features. The surrounding agricultural ridge and furrows may have displaced the underlying archaeology, which could atone for the indistinct feature boundaries.

The final, and bottommost, segment of this large anomaly is fairly large, and is sub-rectangular in shape [42]. It is also of probable archaeological origin. Contained within this enclosure are numerous smaller positive magnetic readings. The most significant and identifiable of these anomalies are two connected, small square shapes represented in the survey data [44]. These very clearly represent two cut or buried archaeological features. Less identifiable are the other anomalies contained within the larger structure. A few small, irregularly shaped linears are present [43], but do not appear to make up an identifiable structure. They are most likely of archaeological origin, as they bear no resemblance to the surrounding agricultural anomalies.

Northwest of the overlying large, sub-circular enclosure there are two small, parallel linear anomalies [45 and 46] which do not appear to be associated with any of the surrounding agricultural or archaeological magnetic readings. The linears are certainly associated with each other, and appear to be of archaeological

origin. It is possible that they represent part of a cut or buried feature that has been damaged by later agricultural disturbance.

Southwest of the aforementioned linears is another, weaker, linear positive magnetic anomaly [47]. This linear appears to be on a similar alignment to the uppermost of the two previously mentioned readings, and as such is likely associated. Therefore, this weak linear magnetic anomaly is presumably an archaeological cut or buried feature.

The entirety of the site as could be surveyed appears, in the geophysical data, to show linears of agricultural origin. These are ridge and furrow lines caused by ploughing the fields for agricultural use. The ridge and furrow in this site appears in four groups [48, 49, 50 and 51] due to differences in width or direction. One type of ridge and furrow are quite thick, and travel from NW-SE [48]; these are present along the SW site boundary. Another type, present just above the previous group, are very thin and head from SW-NE. West of the thin ridge and furrow are thicker linears, travelling NW-SE [50]. These appear very similar to the first group of marks, but are marginally thicker. Many of these marks have been obscured by archaeological anomalies, but the majority can be seen to the west of a large linear area of magnetic disturbance [52]. The final group of ridge and furrow marks are in the northernmost edge of the site; they are quite thin, and aligned with the NW-SE linears.

As has been briefly mentioned previously, there is a considerable area of magnetic disturbance covering a portion of the site, from the northern corner heading SW to the bottom of the site [52]. This disturbance has been caused by the presence of a water mains beneath the surface of the field, running across the length of the site.

Running along the southern site boundary is another, slightly smaller, area of magnetic disturbance [53]. This disturbance to the geophysical data has been caused by a current railway running parallel to the bottom of the site.

To either side of the larger area of magnetic disturbance, at its northern end, are two small areas of scattered ferromagnetic debris [54 and 55]. It seems likely that these areas of debris were caused by the disturbance of a disused railway track when the area was altered for agricultural use, in order to allow agricultural machines access to surrounding fields.

Also evident from the geophysical survey are numerous ferrous spikes, which are commonly caused by ferrous objects found in the surface layer, or sub-surface, of the site. Common ferrous objects include agricultural debris such as broken metal from old ploughs. There is a small cluster of spikes directly below the

western area of scattered ferromagnetic debris. It is likely, then, that this cluster of spikes is also due to the disturbance of the disused railway running along the top of the site.

Conclusion

A high number of anomalies of certain or probable archaeological origin were identified by the geophysical survey. Many of the anomalies comprised curviliear features but with one long straight linear aligned NW-SE seemingly acting as a baseline for a number of more rectilinear anomalies.   Many of these anomalies can be interpreted as small enclosures some of which overlap and indicate a chronological procession. The SE corner of the site also yielded some significant anomalies perhaps representing a large sub-circular structure, with smaller areas enclosed within. Such features would be typical of Middle and Late Iron Age sites.

There are portions of the site obscured by areas of magnetic disturbance, caused by a modern services and the railways bordering the site to the north and south. A number of ferrous objects, some of which are likely related to the disused railway to the north of the site boundary, are also represented in the data. Though the data have revealed probable archaeological anomalies across a significant proportion of the site, identifiable later agricultural activity such as the medieval ridge and furrow may have a masking effect on features in other parts of the site.

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Appendix 1. Survey and data information

Programme:
Name: TerraSurveyor
Version: 3.0.25.0

Raw data
Direction of 1st Traverse: 180 deg
Collection Method: ZigZag
Sensors: 2 @ 1.00 m spacing.
Dummy Value: 2047.5

Dimensions
Composite Size (readings): 1120 x 240
Survey Size (meters):   280 m x 240 m
Grid Size: 20 m x 20 m
X Interval: 0.25 m
Y Interval: 1 m

Stats
Max: 97.24
Min: -100.00
Std Dev: 28.88
Mean: -3.30
Median: -0.45
Composite Area: 6.72 ha
Surveyed Area: 4.7321 ha

Source Grids: 147
 1 Col:0 Row:6 grids\145.xgd
 2 Col:0 Row:7 grids\146.xgd
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 4 Col:0 Row:9 grids\148.xgd
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11 Col:2 Row:4 grids\131.xgd
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121 Col:11 Row:9 grids\35.xgd
122 Col:11 Row:10 grids\36.xgd
123 Col:11 Row:11 grids\37.xgd
124 Col:12 Row:0 grids\14.xgd
125 Col:12 Row:1 grids\15.xgd
126 Col:12 Row:2 grids\16.xgd
127 Col:12 Row:3 grids\17.xgd
128 Col:12 Row:4 grids\18.xgd
129 Col:12 Row:5 grids\19.xgd
130 Col:12 Row:6 grids\20.xgd
131 Col:12 Row:7 grids\21.xgd
132 Col:12 Row:8 grids\22.xgd
133 Col:12 Row:9 grids\23.xgd
134 Col:12 Row:10 grids\24.xgd
135 Col:12 Row:11 grids\25.xgd
136 Col:13 Row:0 grids\02.xgd
137 Col:13 Row:1 grids\03.xgd
138 Col:13 Row:2 grids\04.xgd
139 Col:13 Row:3 grids\05.xgd
140 Col:13 Row:4 grids\06.xgd
141 Col:13 Row:5 grids\07.xgd
142 Col:13 Row:6 grids\08.xgd
143 Col:13 Row:7 grids\09.xgd
144 Col:13 Row:8 grids\10.xgd
145 Col:13 Row:9 grids\11.xgd
146 Col:13 Row:10 grids\12.xgd
147 Col:13 Row:11 grids\13.xgd

Processed data
Stats
Max: 7.20
Min: -6.80
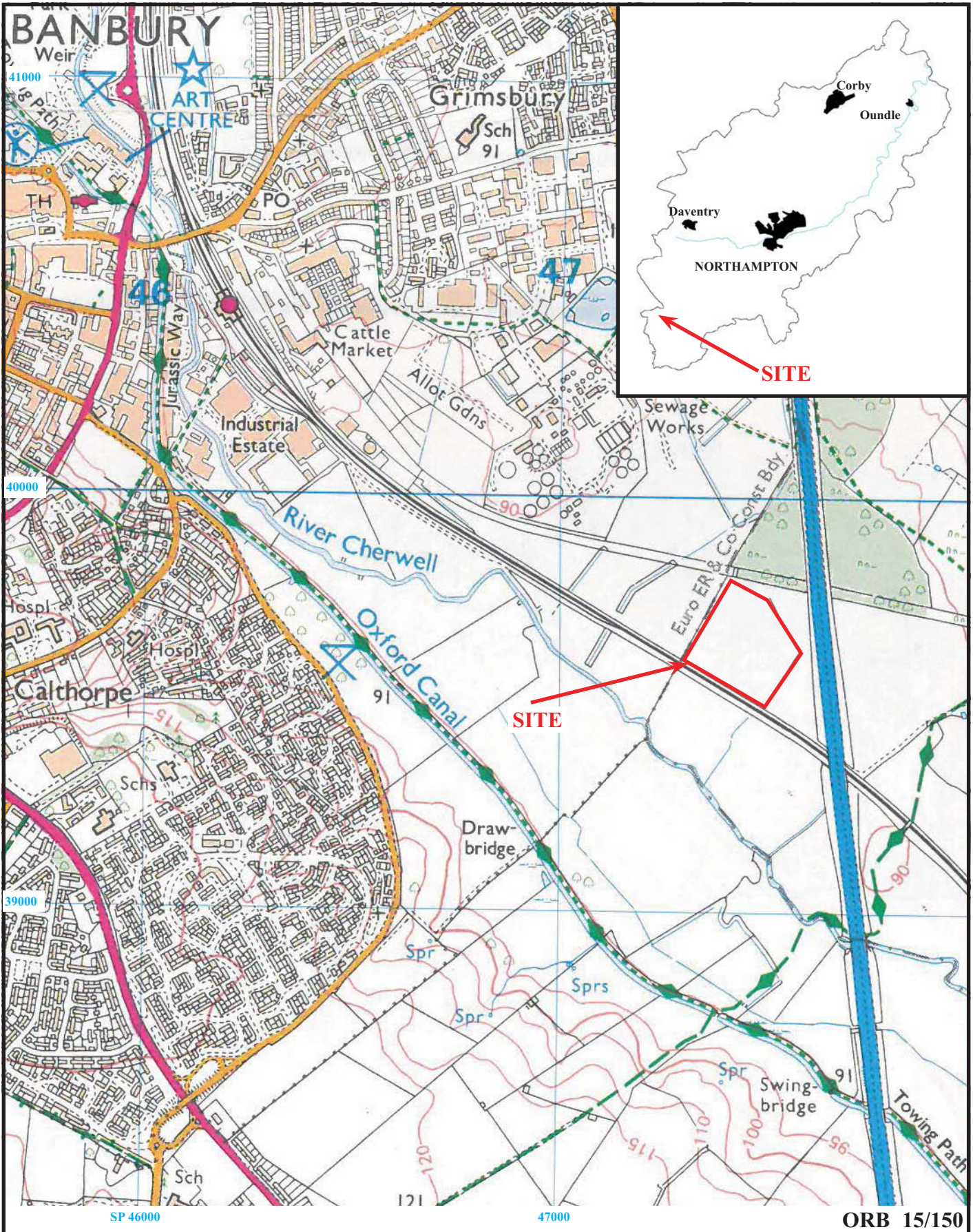Std Dev: 4.16
Mean: 0.08
Median: 0.02
Composite Area: 6.72 ha
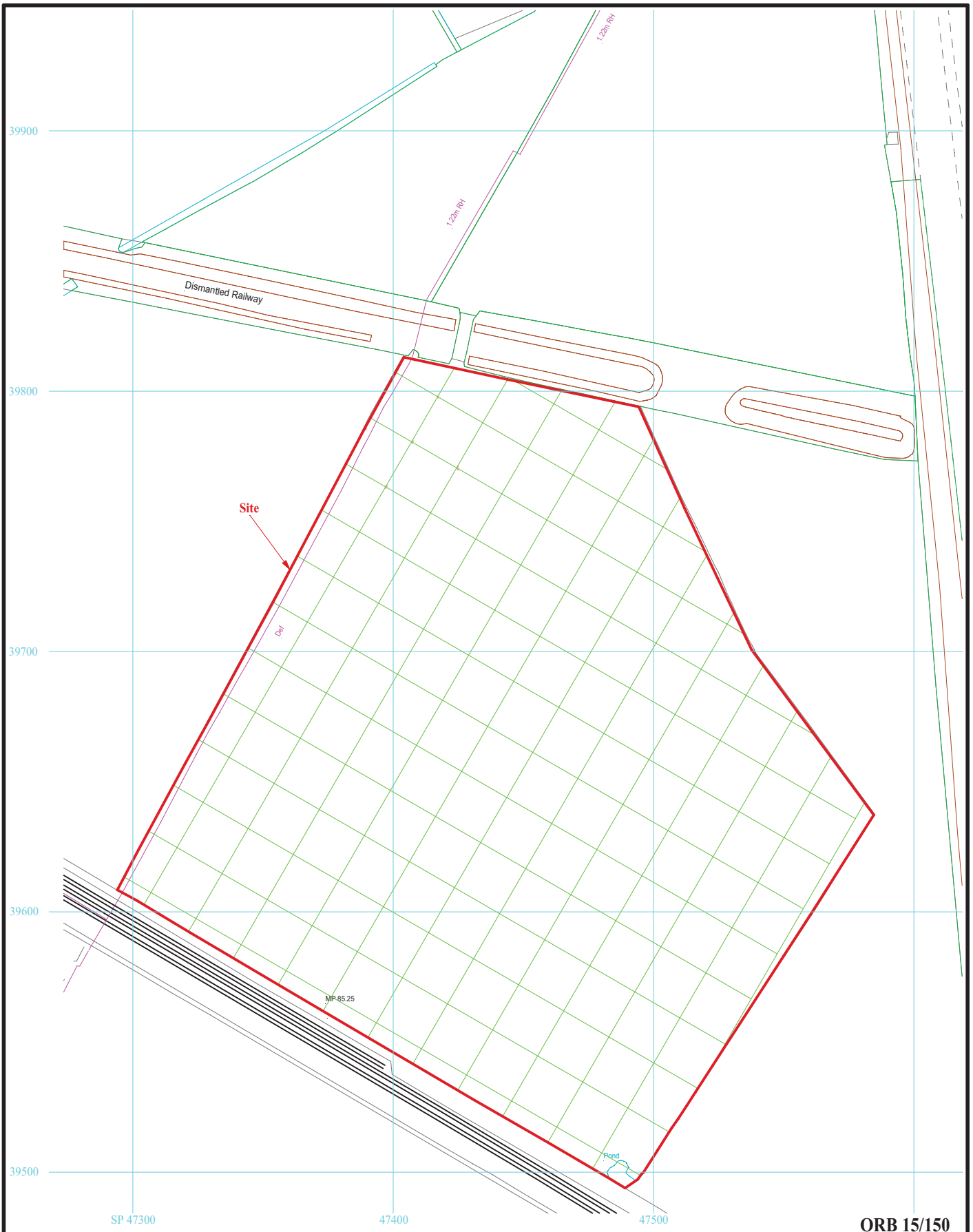Surveyed Area: 4.7172 ha

Processes: 6
 1 Base Layer
 2 DeStripe Median Sensors: All
 3 De Stagger: Grids: All Mode: Both By: -2 intervals
 4 Despike Threshold: 1 Window size: 3x3
 5 Interpolate: Y Doubled.
 6 Clip from -6.80 to 7.20 nT

SITE

SITE

ORB 15/150

Central M40, Land at Overthorpe Road, Banbury, Phase 2
Northamptonshire, 2015
Geophysical Survey (Magnetic)

Figure 1. Location of site within Banbury and
Northamptonshire
Reproduced from Ordnance Survey Explorer 191 at 1:12500
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THAMES VALLEY
ARCHAEOLOGICAL
S E R V I C E S

39900

39800

Dismantled Railway

Site

39700

39600

MP 85.25

Pond

39500

SP 47300   47400   47500

ORB 15/150

N

Central M40, Land at Overthorpe Road, Banbury, Phase 2
Northamptonshire, 2015
Geophysical Survey (Magnetic)

Figure 2. Survey grid layout.

0   100m

THAMES VALLEY
ARCHAEOLOGICAL
S E R V I C E S

SITE

39900
39800
39700
39600
39500

1.22m RH

Dismantled Railway

Def

SP 85.25
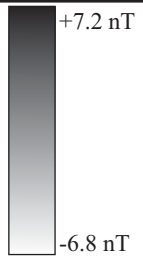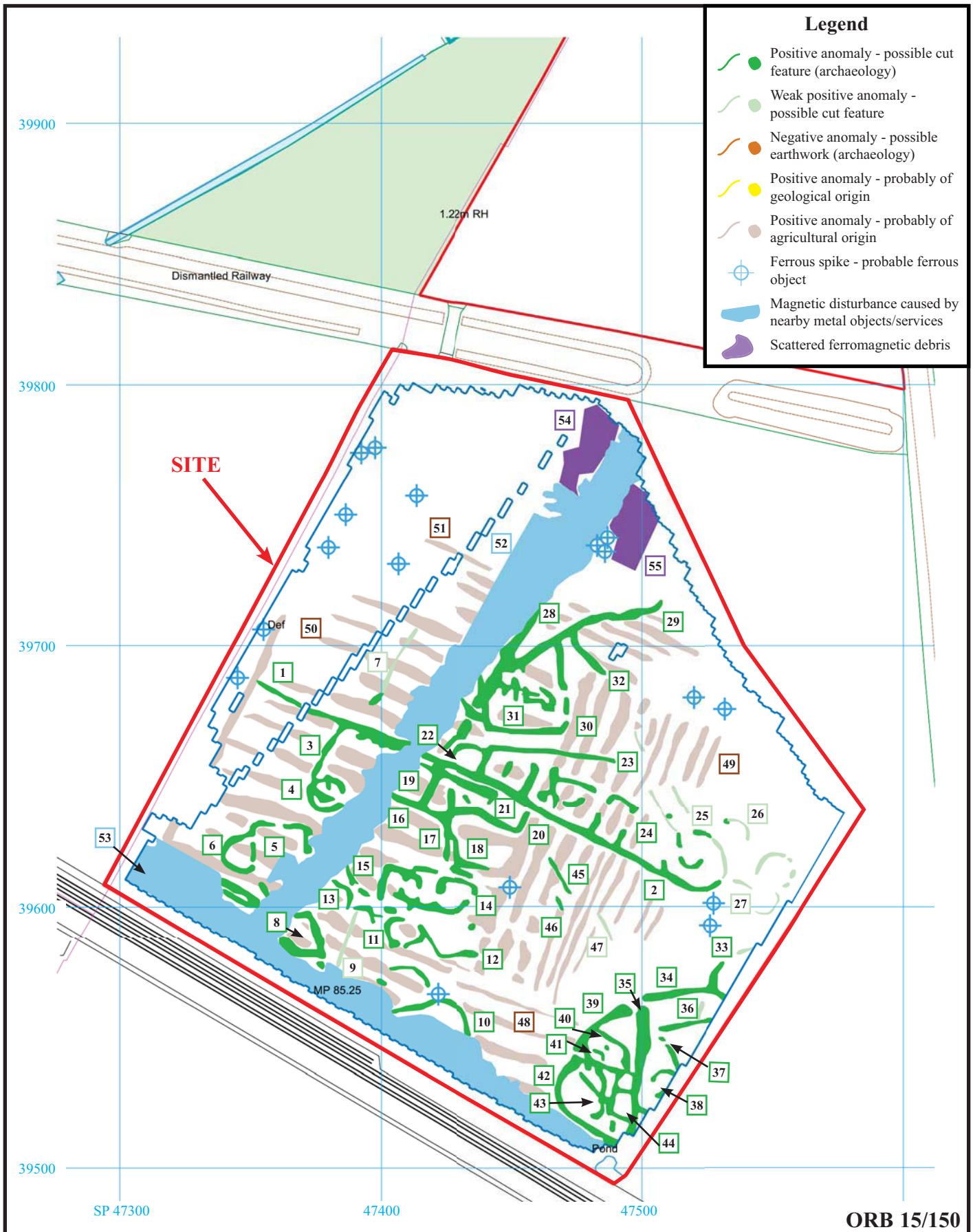
Pond

SP 47300   47400   47500

ORB 15/150

N

Central M40, Land at Overthorpe Road, Banbury, Phase 2
Northamptonshire, 2015
Geophysical Survey (Magnetic)
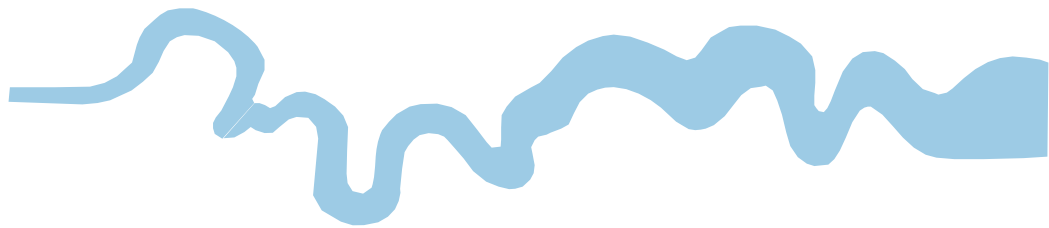
Figure 3. Plot of minimally processed gradiometer data.

+7.2 nT

-6.8 nT

THAMES VALLEY
ARCHAEOLOGICAL
SERVICES

0m   100m

Legend

- Positive anomaly - possible cut feature (archaeology)
- Weak positive anomaly - possible cut feature
- Negative anomaly - possible earthwork (archaeology)
- Positive anomaly - probably of geological origin
- Positive anomaly - probably of agricultural origin
- Ferrous spike - probable ferrous object
- Magnetic disturbance caused by nearby metal objects/services
- Scattered ferromagnetic debris

SITE

1.22m RH

Dismantled Railway

ORB 15/150

N

Central M40, Land at Overthorpe Road, Banbury, Phase 2
Northamptonshire, 2015
Geophysical Survey (Magnetic)

Figure 4. Interpretation plot.

0m   100m

THAMES VALLEY
ARCHAEOLOGICAL
SERVICES

TIME CHART

	Calendar Years
Modern	AD 1901
Victorian	AD 1837
Post Medieval	AD 1500
Medieval	AD 1066
Saxon	AD 410
Roman	AD 43
Iron Age	BC/AD 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