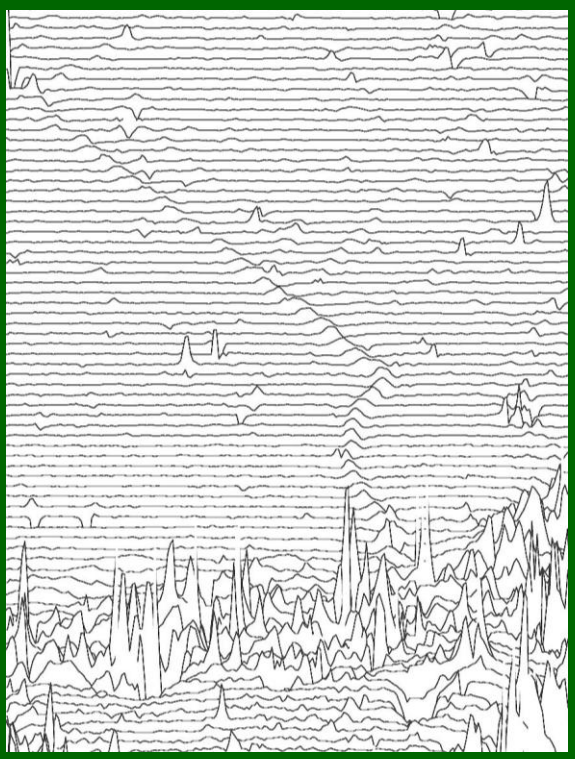
Compton Park
Wolverhampton
(NGR SO 8916 9912)

Archaeological Geophysical Survey



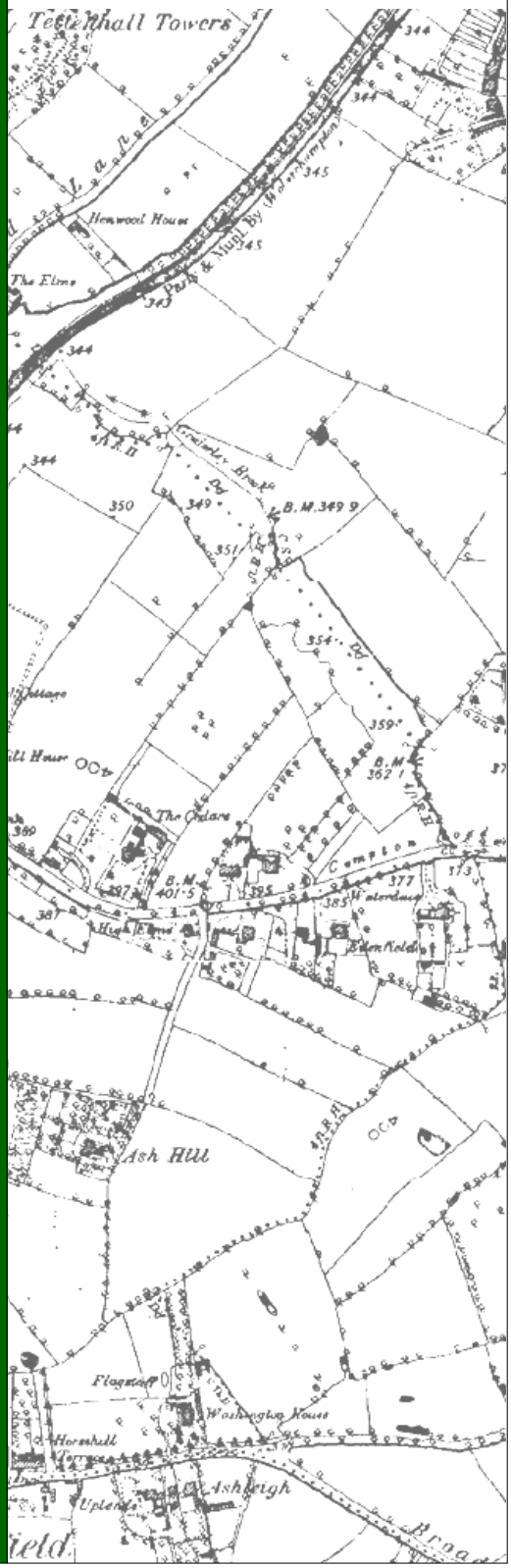
Souterrain Archaeological Services Ltd

March 2012

commissioned by
MetroMOLA

on behalf of
Redrow Homes Limited

Souterrain
Archaeological Services Ltd



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PREFACE

All statements and opinions in this document are offered in good faith. Souterrain Archaeological Services Ltd (Souterrain) cannot accept responsibility for errors of fact or opinion resulting from data supplied by a third party, or for any loss or other consequence arising from decisions or actions made upon the basis of facts or opinions expressed in this document.

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SUMMARY

In February 2012, Souterrain Archaeological Services Limited carried out an archaeological geophysical survey in advance of proposed development at Compton Park, Wolverhampton. The survey was commissioned by MetroMOLA, on behalf of Redrow Homes Limited

The survey used the technique of fluxgate gradiometer. The aim of the survey was to detect potential buried archaeological remains, in particular, of the prehistoric, Roman and early medieval periods. the results of which would be used to help develop a strategy for evaluation by trial trenching.

The survey was carried out in two zones: one in the southwest part of St.Edmund's School, covering the present football pitches and the proposed Wetland Area; and the other across the school football pitches to the northwest.

The survey of the southwest area revealed archaeological-type anomalies in the form of buried field boundaries, previously unrecorded ditches, and the former course of a brook. Other linear anomalies resulted from field drainage systems. The survey of the northwest area revealed an extensive system of field drains.

1. INTRODUCTION

Subject of the Survey

1.1 Full planning permission (ref. 11/00828/FUL) was granted on the 21st December 2011 to a client group comprising Redrow plc, Wolverhampton Wanderers Football Club, Inspire, Wolverhampton University and the Archdiocese of Birmingham, for the residential development of land at Compton Park, Wolverhampton (Figure1). The proposed development entails: the demolition of school and university buildings; the creation of sports facilities, pitches, tennis courts and associated buildings; the reorganisation and upgrading of existing pitches; and the construction of 55 four and five bedroom two storey dwellings, with access roads, open space and car parking. A condition attached to the planning consent concerns the archaeological research interest in the site.

1.2 In view of this condition, geophysical survey (fluxgate gradiometer) was conducted between the 12th and 14th February 2012 in two areas of Compton Park by Souterrain Archaeological Services Ltd. The survey was commissioned by MetroMOLA, for Redrow Homes Limited.

Site description and location

1.3 The site is presently playing fields for St Edmund's School and the former campus and amenity grassland of the University of Wolverhampton. The Wolverhampton Wanderers training ground is also located in the study area, which includes several football pitches[1]. Large areas of the Application Area have been landscaped, especially around the University campus area in the southern of the site, and the St Edmunds school site. The extent of landscaping for school sports fields and football pitches are presumed to have been either built up or levelled.[2] This report concerns two areas of survey, referred to as: St Edmund's Pitches (south), centred at NGR SO 8893 9912, and St. Edmund's Pitches (north), centred at NGR SO 8888 9933.

1.4 The site of St Edmund's Pitches (south) covers an area of approximately 1.76 hectares. It appears fairly flat, yet has a gentle, almost imperceptible, gradient southeast to northwest, from 107.2m OD to c.106m OD over a distance of c. 220m. A Wetland Habitat Area is proposed in the north-western part of the area. The survey area is bounded to the west by trees[3] and to the northwest and north by a hedge-line, beyond which is a tract of meadowland[4]. An artificial mound, c.3 metres in height, concealing a modern conduit, flanks the east side of the survey area, and the southern side is bounded by tennis courts. The surface of the survey area is uneven and gently undulating, which appears to be as a result of field drainage systems and tree hollows.

1.5 The site of St Edmund's Pitches (north) is located on a plateau and covers an area of c.2.8 hectares. There is a gradient southeast to northwest, from 111m OD and c.107.5m OD over a distance of c.175m. It is flanked to the northwest by a steep escarpment down to a canal. This escarpment continues around the southwest and south part of the site. The north and east sides

[1] See site walkover notes: *Planning Application for the development of land at Compton Park for the replacement of St.Edmund's Catholic School, improvement of the Wolverhampton Wanderers Football Academy and Residential Development. On land owned by the University of Wolverhampton, the Archdiocese of Birmingham and Wolverhampton City Council. Archaeological Desk-based Assessment,* September 2011, AECOM: section 3.40

[2] Ibid. Section 3.41

[3] National Inventory of Woodland and Trees (England); Multi Agency Geographic Information for the Countryside

[4] Lowland Meadows (England); Multi Agency Geographic Information for the Countryside

of the site are bounded by a metal fence, beyond which are playing fields to the north and an all-weather pitch to the east.

Geology and soils

1.6 The solid geology consists of upper mottled sandstone and soft red sandstone, with areas of boulder clay and alluvium also likely to be found in the area (British Geological Society 1975).

2. ARCHAEOLOGICAL BACKGROUND

2.1 The archaeological potential of the site has been explored in a desk-based assessment[5], prepared by AECOM of behalf of the client group, as part of a master-planning process in Compton Park, Wolverhampton. The assessment followed the requirements set out in Planning Policy Statement 5 Planning for the Historic Environment.

2.2 The site does not contain any listed buildings, Scheduled Monuments, or known sites of archaeological interest.

2.3 The assessment concluded that there is medium potential for previously unrecorded remains to be discovered of the prehistoric, Roman and early medieval periods and low potential for the medieval and post-medieval periods[6]. Since the school playing fields were created from agricultural fields, there is potential for the presence of previously unrecorded and relatively undisturbed archaeological sites pertaining to these periods[7]. For instance, the former course of Graiseley Brook which runs through the site has potential for archaeological remains associated with prehistoric activity, such as burnt mounds[8], while the postulated route of a Roman road has been traced north-south across the Application Area.

2.4 The assessment recommended a field evaluation by geophysical survey and/or trial trenching[9] to provide further information about the nature and extent of buried deposits, which would enable an appropriate mitigation strategy to be applied by the Local Planning Authority. Subsequent to this advice, Mike Shaw, the County Archaeologist recommended to the planning officer that a phase of evaluation of the site by geophysical survey should be undertaken in areas of open land[10]. Any anomalies discovered should then be tested by trial trenching. He further advised that the evaluation should take place ahead of determination.

3. OBJECTIVES

3.1 The geophysical survey represents the first stage of a programme of archaeological field evaluation. The purpose of the survey was to identify potential sub surface archaeological features, which would aid the development of an trial trenching strategy.

[5] AECOM, 2011
[6] Ibid. Sections 3 and 5.4
[7] Ibid., Section 3.44
[8] Ibid., Section 3.45
[9] Ibid., Section 4.7
[10] Email. From: Archaeology. Sent: 20th September 2011. To: Jenny Davies. Cc: R & T Development Control. Subject: Planning Consultation from Development Control referenced 11/00828/FUL

4. METHODOLOGY

Technique

4.1 The aim of the magnetic (gradiometer) survey is to detect changes, referred to as anomalies, in the Earth's magnetic field caused by underground archaeological features. The types of anomaly and how they relate to buried archaeological remains are explained at Sections 5.2 to 5.4 below.

Survey Grid

4.2 A survey grid at 20m intervals (Figure 2) was set out on alignment to the Ordnance Survey national grid by RTK GPS.

Instrumentation, configuration and software

4.3 The instrumentation used for the survey was a *Geoscan Research* Fluxgate Gradiometer FM36 with an external digital encoder (*Geoscan Research* Sample Trigger Unit ST1). A tuning location and 'Zero Point' for the survey was selected where relatively uniform measurements were found, indicative of the background geology of the site. The 0.1ηT range was selected in order to provide greater resolution and to detect any weaker archaeologically magnetic responses. One sample reading was logged every 0.25m, on traverses set at 1m intervals. The results were produced using *Geoplot* v.3 software.

Survey conditions and constraints

4.4 Conditions and constraints observed during data collection have been taken into consideration in the examination and interpretation of the survey data. Whenever possible, attempts to reduce unwanted affects were taken in the field. The weather condition throughout the survey was rainy and windy.

5. SURVEY RESULTS

Presentation of the data

5.1 The results of the survey in this report are presented as Shade Plots and Trace plots (Figure 5 and 6) and an Interpretative Diagram (Figures 3 and 4). The composite data in Figures 5 and 6 is presented after smoothing and rectification of minor variations in the zero drift, removal of high "noise" spikes caused by presumably modern magnetic disturbances/ ferrous litter, and re-alignment of lines of traverse in areas where high vegetation impeded walking pace. The data is unfiltered.

Types of response

5.2 Magnetic anomalies fall into two categories, *induced* magnetism and *thermoremanent* magnetism. Induced magnetism is caused by magnetically susceptible material which is found in features cut into the subsoil, such as pits and ditches. Thermoremanent magnetism is caused by structures such as hearths, kilns, brick walls and brick rubble.

5.3 Areas of high magnetism (positive anomalies) are presented on the grey scale plot as dark shades and areas of low magnetism (negative anomalies) as lighter shades. The intermediate shade represents the background geology.

5.4 In the interpretative diagrams (Figures 3 and 4) individual anomalies or groups of anomalies are numbered, and assigned to the following categories:

- *Positive linear responses/anomalies.* These are the result of *induced* magnetism, which is caused by features that have been 'cut' into the natural geology and subsequently in-filled with magnetically susceptible material (i.e. rich in iron oxides). Features of this type include ditches, gullies, foundation trenches, or in-filled ruts of track-ways. The strength of these features depends on the sufficiency of magnetically susceptible material in the fill, to enable a contrast against the local background geology. Some of these are clearly visible whilst others merely ephemeral. Non-anthropogenic forms may comprise in-filled hollows where trees or substantial shrubs had formerly stood, or in-filled cavities caused by burrowing animals.

- *Discrete positive anomalies*. Dependent on the cause of this type of anomaly, the magnitude of the response will be of varying strength. Features of anthropogenic origin may include pits, hearths and ovens. A pit containing sufficient magnetically susceptible material (*induced* magnetism) will normally show on the trace plot as a localised gentle to moderate positive peak with a negative halo. A broad positive response with a negative return may indicate a possible hearth. Isolated areas of abrupt strong magnetic disturbance may include kilns, industrial activity or burnt material.

- *Negative responses*. These anomalies are caused by features that are less magnetic than the surrounding geology. They may result from track ways, natural features, or even banked material or building stone.

- *Discrete ferrous anomalies, or iron 'spikes'*. These are caused by buried ferrous objects. They are characterised on the trace plot by a sharp positive peak and a sharp negative return.

Description and interpretation

St Edmund's Pitches (south)
(Figure 3)

5.5 Feature **1** denotes a series of linear positive anomalies caused by induced magnetism which corresponds to the field boundary shown on the Ordnance Survey second edition map 1889. The northernmost ditch gives the strongest magnetic response, in the general range of +5ηT to +10ηT. The other ditches fall generally between +1ηT and +4ηT.

5.6 Feature **2** is a curvilinear anomaly understood to be caused by a combination of thermoremanent magnetism and ferrous material. The anomaly corresponds closely to the former course of the Graiseley Brook that is depicted on 19th -20th century Ordnance Survey maps (e.g. 1889 to 1919). It seems to show that the watercourse was possibly culverted and the ditch in-filled with rubble.

5.7 Feature **3** comprises is a linear positive anomaly of varying strength (generally in the range of +3ηT to +9ηT) caused by induced magnetism, which is visible for a distance of approximately 25m. It is possibly a former ditch.

5.8 Feature group **4** consists of two faint parallel linear features caused by induced magnetism. These are set apart approximately 4m and are parallel to the in-filled course of the former Graiseley Brook. The westernmost feature is visible for a distance of approximately 12m and is generally within the range of +3ηT to +5ηT, while the eastern one, visible for approximately 15m, falls generally within the range of +4ηT to +11T. They have the appearance of gullies or ditches.

5.9 Feature **5** is a small faint discrete positive anomaly (generally +9ηT to +15ηT) as a result of induced magnetism. Its origin is uncertain, a possible cause being the site of a former tree.

5.10 Feature **6** is a small faint discrete positive anomaly as a result of induced magnetism. Its origin is uncertain, a possible cause being the site of a former tree.

5.11 Feature group **7** comprises a series of positive straight linear anomalies caused by induced magnetism, extending over the north-west part of the survey area. These are generally in the range of +1.5ηT to +4ηT. It is probably a 'parallel' field drainage system. Approximately mid-way along the course of the north-easternmost linear is an amorphous induced anomaly (Feature **10**) (c.+2ηT to c.+7ηT), approximately 12m x 8m. It is of uncertain origin, a possible cause being an in-filled hollow or the former site of trees.

5.12 Feature group **8** comprises a series of regularly spaced (c.7m) parallel linear anomalies located in the north-west part of the survey area, caused by a combination of induced magnetism and thermoremanent magnetism (generally min the range of +/-1ηT to +/-7ηT). It is probably a 'herringbone' field drainage system.

5.13 Feature **9** denotes a large linear disturbance caused by a combination of thermoremanent magnetism and ferrous material. It corresponds to the artificial mound beneath which there is a modern culvert.

5.14 There is general spread of ferrous litter across the survey area, which is to be expected in modern playing fields and public areas. The large ferrous anomalies denote goal posts and their settings.

St Edmund's Pitches (south)
(Figure 4)

5.15 The results of the magnetic survey are dominated by a series of regularly-spaced (c.7m) linear thermoremanent anomalies, aligned north-northwest/south-southeast, caused by a parallel field drainage system. Two main drains, approximately 58m apart, can also be seen on a northwest/southeast alignment. The large ferrous anomalies are responses from goal posts and their settings, and other buried features associated with the sports ground. There are no clearly identifiable archaeological-type responses due the magnitude of the drainage anomalies.

6. CONCLUSIONS

6.1 The purpose of the gradiometer survey was to attempt to identify potential sub surface archaeological features that may be affected by the development proposals. A grid-by-grid examination of field conditions was undertaken to identify and eliminate surface phenomena and litter that might have a detrimental effect on the data and its interpretation.

6.2 At St Edmund's Pitches (south) a number of linear archaeological-type responses (**1**) were revealed as a result of induced magnetism. Some of these are clearly the remains of ditches flanking former field boundaries which are shown on late 19th century mapping. The antiquity of the boundaries is not known. A few other linear features (i.e. **3** and **4**) to the southeast of the survey area may also represent former enclosure ditches. It is not possible to identify discrete archaeological-type anomalies along the course of the Graiseley Brook due to the magnitude of thermoremanent and ferrous magnetism, which is understood to be a result of possible culverting and the infilling of the ditch with rubble.

6.4 At St Edmund's Pitches (north) there were no clearly identifiable archaeological-type responses.

6.5 The survey revealed no anomalies at either site that might indicate the purported course of the Roman road.

7. GENERAL

Statement of Indemnity

7.1 All statements and opinions presented in this report arising from the programme of investigation are offered in good faith and compiled according to professional standards. Whilst every effort has been made to ensure that interpretation of the survey presents a good indication of the nature of sub-surface remains, any conclusions derived from the results form an entirely subjective consideration of the data. Geophysical survey enables the collection of data relating to variations in the form and nature of buried soils. This may only reveal certain archaeological features, and may not record all. No responsibility can be accepted by the author of the report for any errors of fact or opinion resulting from data supplied by any third party, or for loss or other consequence arising from decisions or actions made upon the basis of facts or opinions expressed in any such report(s), howsoever such facts and opinions may have been derived.

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7.3 Souterrain undertakes to respect all requirements for confidentiality about the Applicant's proposals provided that these are clearly stated. It is expected that owners respect Souterrain's and the Institute for Archaeologists' general ethical obligations not to suppress significant archaeological data for an unreasonable period.

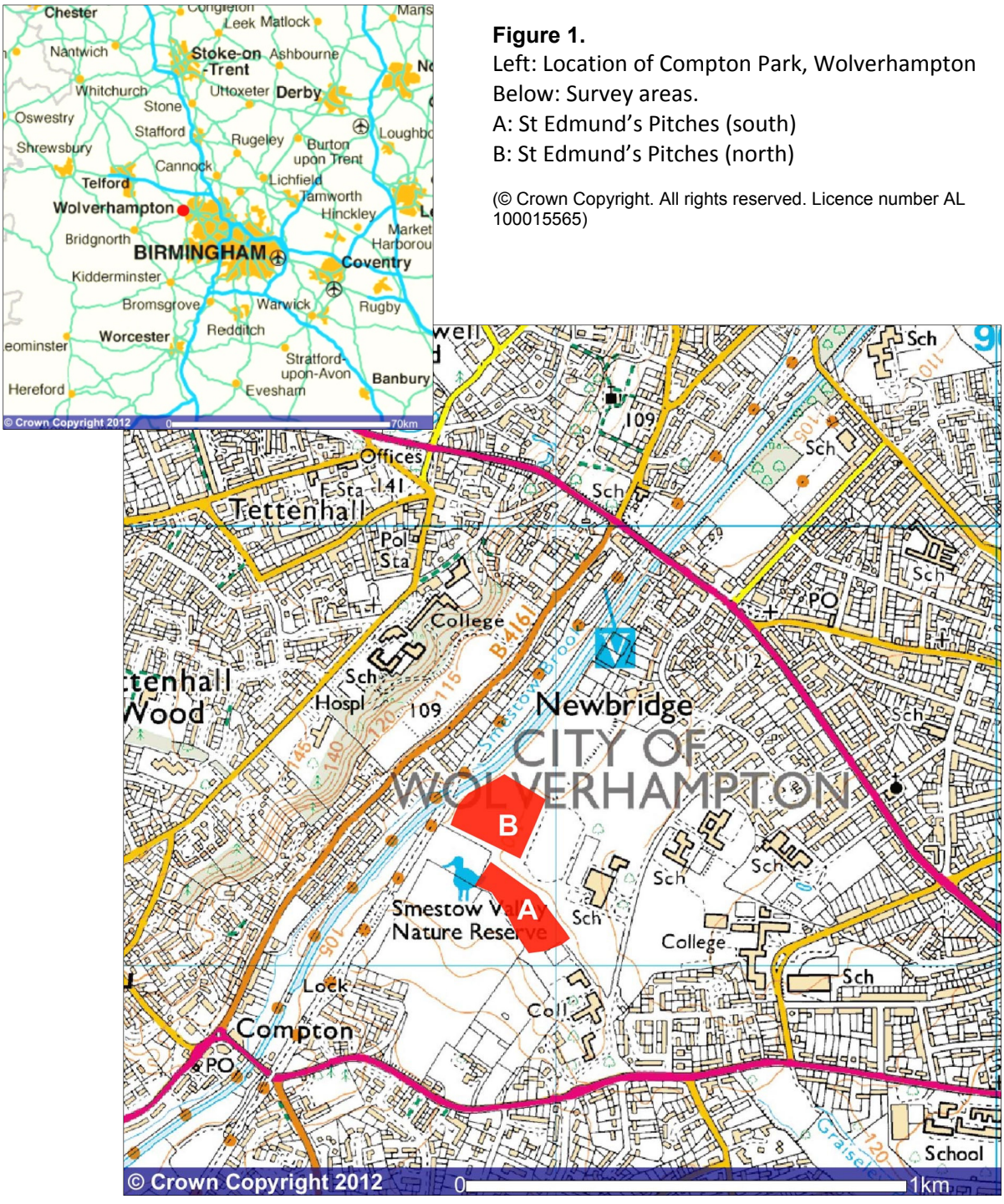


Figure 1.
Left: Location of Compton Park, Wolverhampton
Below: Survey areas.
A: St Edmund's Pitches (south)
B: St Edmund's Pitches (north)

Figure 2: Location of geophysical survey grids

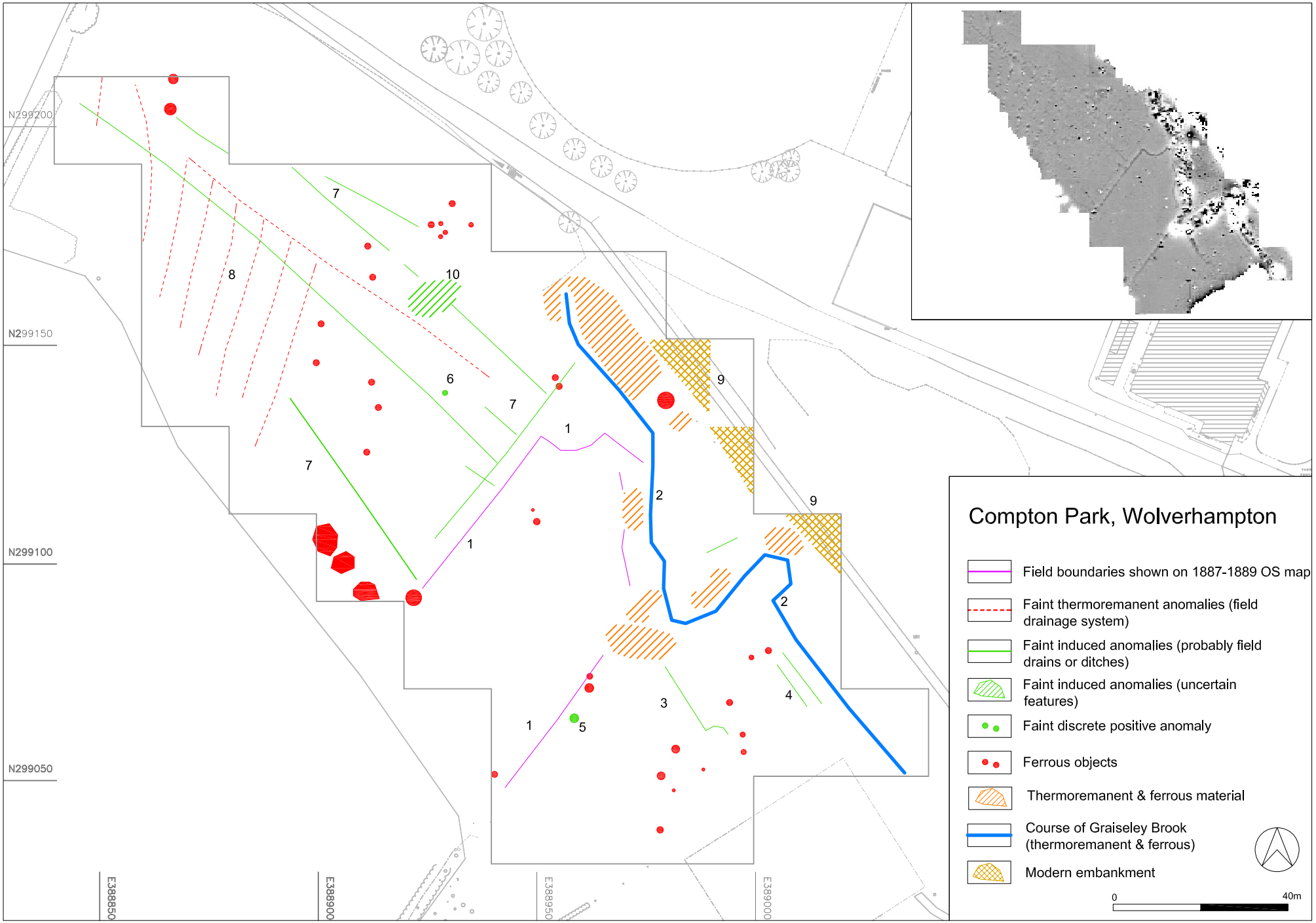


Figure 3: Gradiometer survey of St. Edmund's Pitches (south) and proposed Wetland Habitat: interpretative diagram

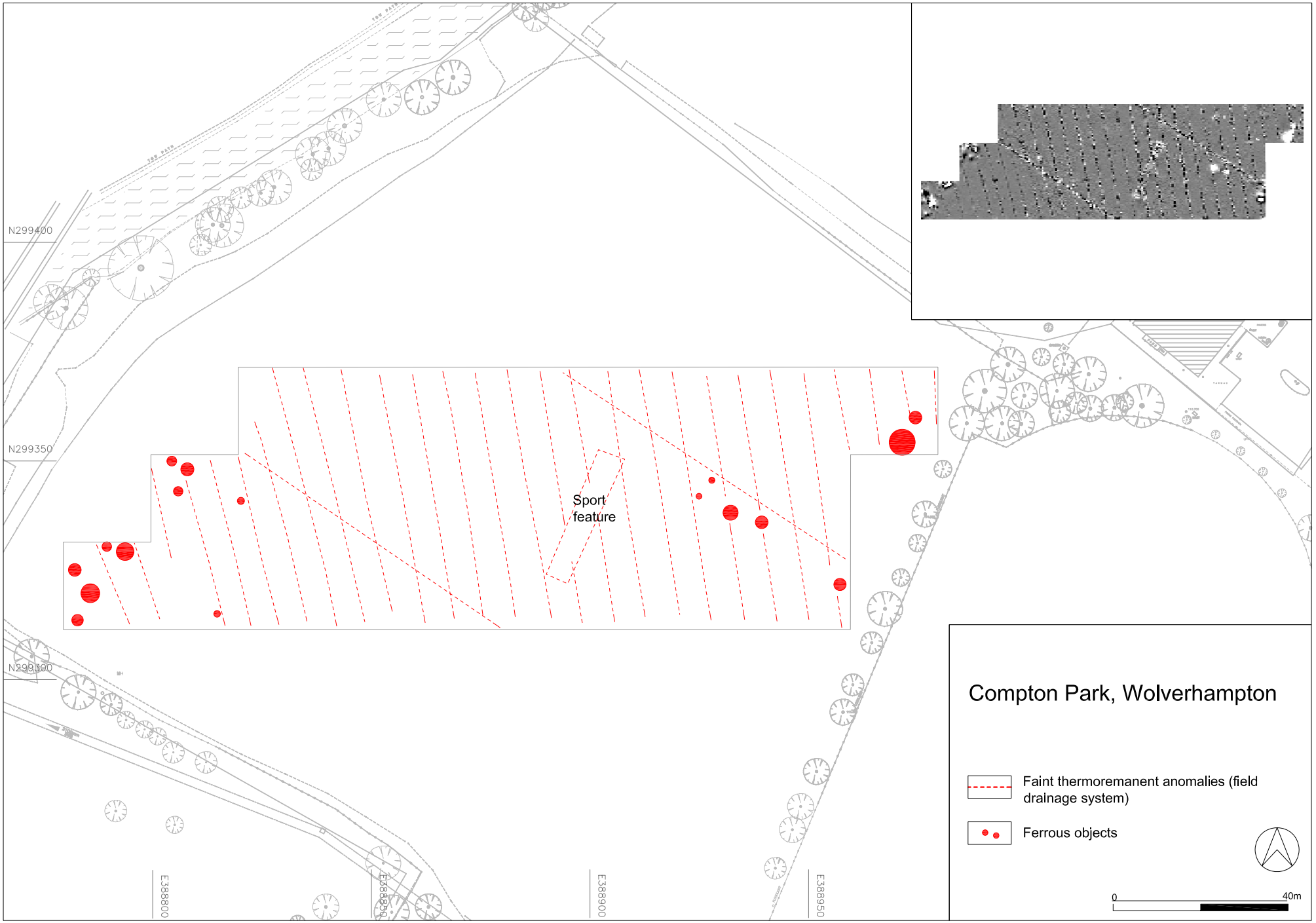
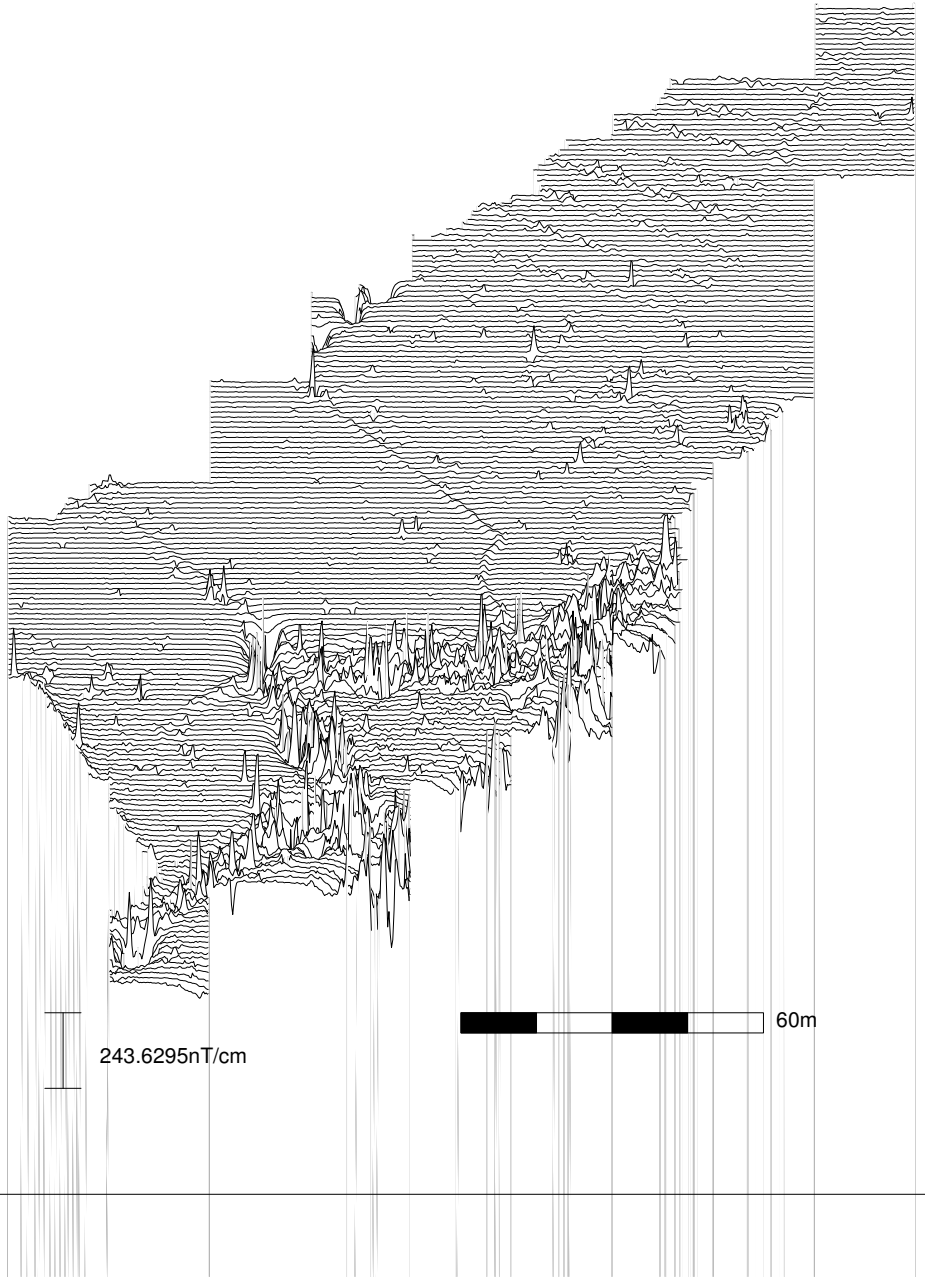


Figure 4: Gradiometer survey of St. Edmund's Pitches (northwest): interpretative diagram

Figure 5. Fluxgate Gradiometer Survey: St. Edmunds's Pitches (south) & proposed Wetland Habitat Area, Compton Park, Wolverhampton, February 2012
A: Stacked Trace Plot. B:Grey Scale Plot



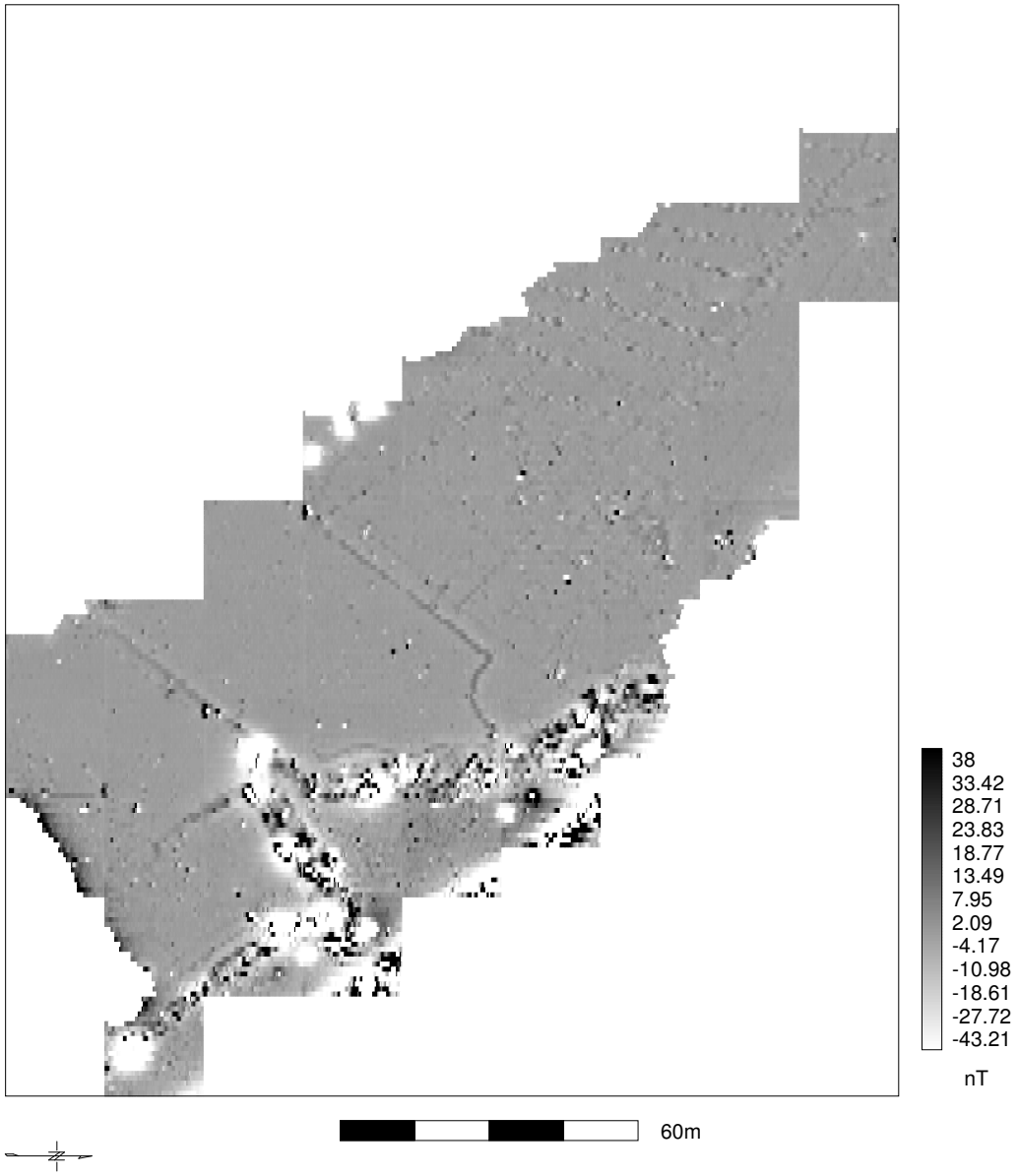


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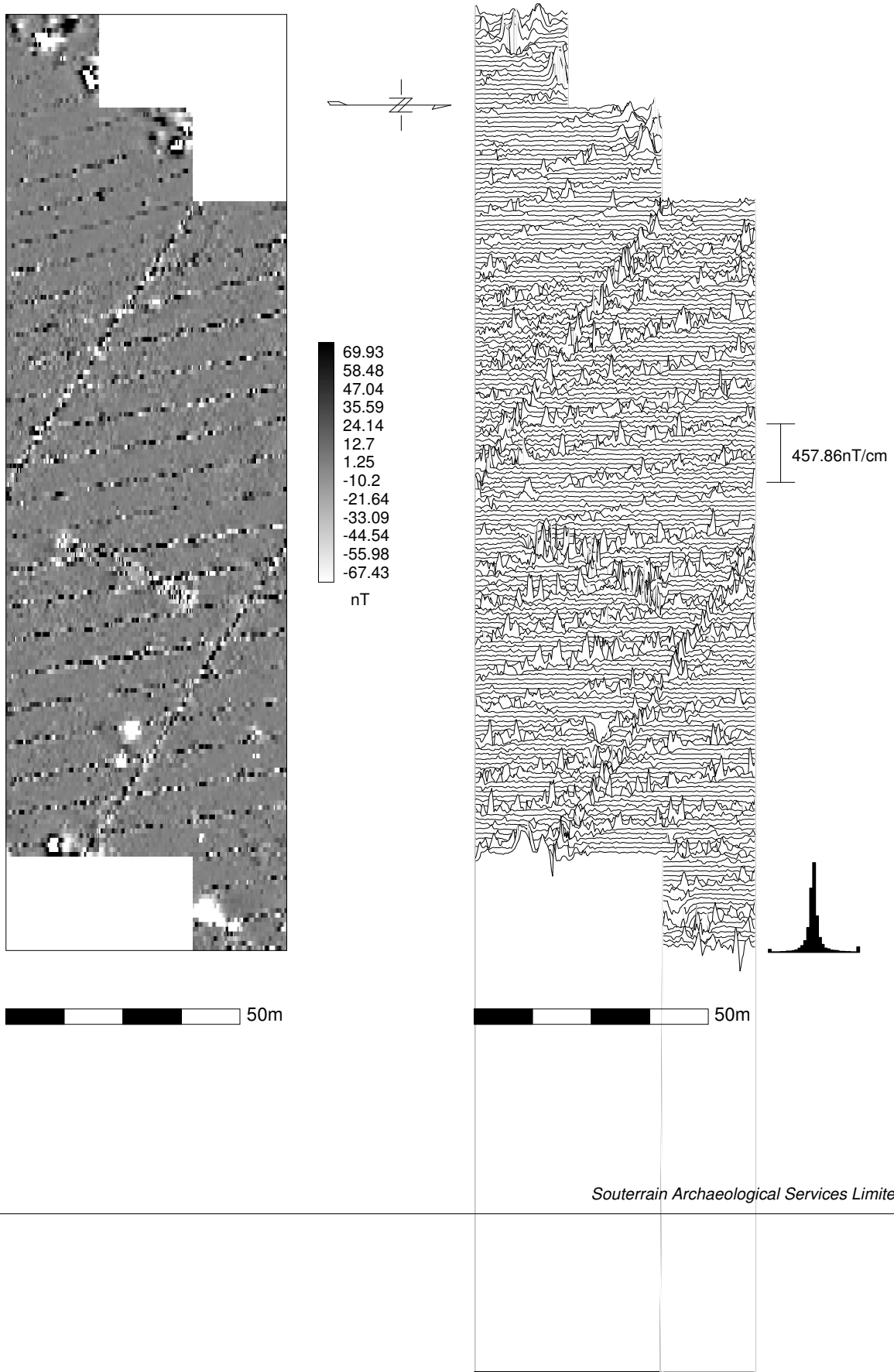
Figure 6. Fluxgate Gradiometer Survey:
St. Edmund's Pitches, Compton Park, Wolverhampton, February 2012

A: Grey Scale Plot. B: Stacked Trace Plot



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