

Summary

- A geophysical survey was undertaken on land at Sleaford, Lincolnshire.
- The survey detected a number of potential ditches.
- A group of possible pits were recorded in the south eastern part of the site.
- A number of zones of magnetic variation probably reflect modern/recent features, including former ponds and a small structure.
- Elsewhere, widespread variation probably relates to iron concretions/pans, including those contained within palaeochannels

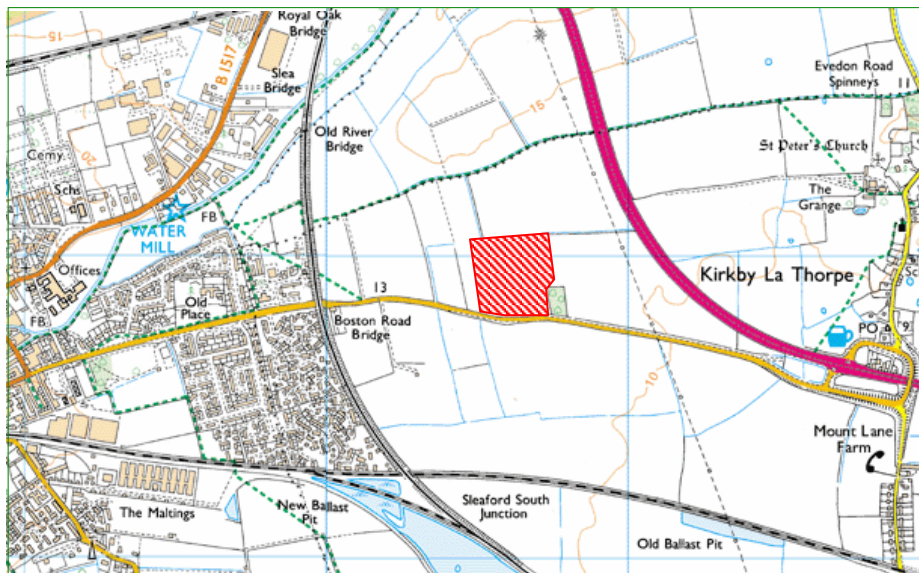


Fig.1: Location of site 1:25,000

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1.0 Introduction

Pre-Construct Archaeology commissioned Pre-Construct Geophysics to undertake a Fluxgate Gradiometer survey on land at Sleaford, Lincolnshire. This work formed part of an archaeological evaluation in advance of a proposed renewable energy plant.

2.0 Location, description and geology (Figs. 1 – 2)

Sections 2, 3 and 5 include information contained within a desk based assessment (DTA) of the site (AOL Archaeology Group, 2007).

The application site comprises c. 5.8 hectares of open and level arable land that lies approximately 1.6 km to the east of Sleaford Town centre, to the immediate north of Boston Road (centred at NGR TF 0868 4586).

The majority of the site is contained within one field, which is bounded to the north by a ditch, to the east by a hedged boundary and to the south east by a small copse. The western edge of the site is unbounded. A narrow strip of land, in an adjoining field to the north of the copse, was also surveyed.

The drift geology of the site comprises Sleaford sand and gravels. These are underlain by Peterborough Member mudstone of the Callovian period.

3.0 Archaeological Context

There is no recorded evidence of significant archaeological activity within the development area. However, the DTA concludes that the archaeological potential of the site is high, given that traces of occupation dating from the prehistoric are prevalent within the general area, with 64 Historic Environment Records (sites and monuments) identified within a 1km radius of the centre of the application site.

In 2007, a number of probable Roman pottery sherds were noted during a site walk-over.

The 1st Edition Ordnance survey map (dated 1889) indicates an east to west aligned field boundary in the northern part of the site. The map also depicts three ponds, and a small enclosure containing a building in the north east corner (see report cover).

4.0 Methodology

The survey methodology was based upon English Heritage guidelines: *'Geophysical Survey in Archaeological Field Evaluation'* (David, 1995).

Gradiometry is a non-intrusive scientific prospecting technique that is used to determine the presence/absence of some classes of sub-surface archaeological remains (e.g. pits, ditches, kilns, and occasionally stone walls). By scanning the soil surface, geophysicists identify areas of varying magnetic susceptibility and can interpret such variation by presenting data in various graphical formats and identifying images that share morphological affinities with diagnostic archaeological remains.

The gradiometer survey was undertaken using three Bartington Grad-601 Dual Fluxgate Gradiometers. The zigzag traverse method of survey was used, employing 1.0m wide traverses with readings taken at 0.25m intervals along a 30m x 30m grids. The survey area was recorded by DPGS (Leica TR50) and by manual measurement (Fig. 2).

The data was processed using *ArcheoSurveyor 1.3.0.6*. It was clipped to reduce the distorting effects of extremely high or low readings caused by discrete pieces of ferrous metals on the site. The results are plotted as trace, colour scale, greyscale and interpretive images at 1:1250 (Figs. 3 - 6).

The survey was undertaken by Peter Heykoop, Gareth Ward Stevens, George Bunn and Sophie Bunn on 12/03/08 and 21/03/08.

5.0 Results and discussion (Figs. 3 - 6)

The survey recorded a number of linear and curvilinear anomalies in the southern part of the site (Fig. 6: red lines). These probably reflect buried ditches.

A relatively dense scatter of discrete magnetic anomalies was recorded close to the southern boundary (Fig. 6: red dots). These might signify pits and/or burnt soil, an interpretation enhanced by their close proximity to the potential ditches and by the presence of pottery sherds in this area (as noted during the survey). However, a natural origin as tree boles is also feasible, given that the 1889 map indicates trees along the southern boundary (AOL Archaeology Group, 2007).

Elsewhere, widespread and apparently random magnetic variation almost certainly reflects ferrous-rich natural deposits, such as iron concretions/panning (typical of sand/gravel based geologies) (Fig. 6: zones boxed/circled in green).

It is likely that anomalies 1 and 2 relate to former ponds, as depicted on the 1889 map: 1 as ferrous backfill and 2 as (magnetically weaker) silt deposits (Fig. 6: boxed in pink).

A zone of strong magnetic readings in the north east corner of the site probably represents remnants of the structure shown on the same map (Fig. 6: 3, boxed in pink)

Less dense scatters of probable brick/tile fragments and/or iron objects (e.g. ploughshares) were recorded elsewhere (examples circled in pink).

6.0 Conclusions

It is likely that a number of buried ditches lie in the southern parts of the site. A group of potential pits was also recorded in this area.

The survey recorded probable traces of two ponds and a former structure (as depicted on the 1st Edition Ordnance survey of 1889).

Widespread magnetic variation, principally in the northern half of the site, almost certainly relates to natural processes and features, such as iron panning and palaeochannels.

7.0 Acknowledgements

Pre-Construct Geophysics would like to thank Pre-Construct Archaeology for this commission.

8.0 References

- AOL Archaeology Group 2007 *The Proposed Development Of Sleaford Renewable Energy Plant, Lincolnshire*. Archaeological Desk Based Assessment.
- Clark, A. J. 1990 *Seeing Beneath the Soil*. London, Batsford.
- David, A. 1995 *Geophysical Survey in Archaeological Field Evaluation*. London, English Heritage: Research & Professional Guidelines No.1.