

NKWF13/001



THORNTON LANE WIND TURBINE
TILMANSTONE
KENT

Geophysical Survey

July 2013

**Thornton Lane Wind Farm,
Tilmanstone,
Kent**

**Geophysical Survey
2013**

Prepared by S.Mayes

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Abstract

A Magnetometer survey was undertaken over two sites within the study area for a proposed wind farm at Thornton Lane, Tilmanstone. The work was conducted to assist in the site selection processes and establish whether there are likely to be any issues regarding heritage assets which might have to be dealt with during the planning process.

The Site produced responses from three distinct linear anomalies and a small circular anomaly, within a general background scatter of magnetic anomalies that are either natural or isolated magnetic ferrous anomalies. No other features of archaeological significance were apparent in the study areas.

1. Introduction

This report describes a geophysical survey undertaken on sites selected for a proposed wind turbine at Thornton Lane, Tilmanstone, Kent.

The survey was carried out by Headland Archaeology (UK) Ltd, Specialists in Archaeogeophysics in conjunction with Bartlett Clark Consultancy of Oxford in 2013.

The Site is an area of farmland bounded by the Dover Road to the east and the Chillende and Eythorne road to the west (NGR 630632,152869). The land is currently used for the cultivation of crops. The village of Tilmanstone is located towards the south and the villages of Buttsole and Eustray lie to the north

2. Objectives of the Survey

The general aim of the geophysical survey was to identify the extent and character of any archaeological remains capable of producing a magnetic response; these can include ditches, large pits, kilns, ovens etc.

3. Geological Background

No drift geology or superficial deposits are recorded for the site. The bedrock geology is formed from a Margate Chalk Member, this sedimentary bedrock was formed approximately 71 to 86 million years ago in the Cretaceous Period indicating the local environment was previously dominated by warm chalk seas (BGS).

4. Archaeological Background

The registered records held by Kent council HER indicate that there are a series of cropmark ring ditches and ditched boundaries within the Site which probably reflect the presence of Bronze Age barrows and fields or enclosures of later prehistoric date. There is therefore high potential for further similar sub-surface remains of Bronze Age or Iron Age date within the Site not currently registered as cropmarks (HER Kent Council).

Dover Road which bounds the east side of the study area is known to follow the line of a Roman road. Further towards the east of the survey area a large Anglo Saxon cemetery was identified and excavated during the construction of the bypass in 1989 (NGR TR 3115, 5375).

The Site is likely to have been agricultural land in the medieval period and the potential for subsurface archaeological features of this period is considered to be low, although there may be evidence of field divisions within the Site.

5. Survey Procedure

The procedure used for the investigation was a recorded magnetometer survey carried out across the shaded areas indicated on Illustration 1.

5.1 Magnetometer survey

A survey grid was set out and tied to the OS grid using a GPS system with Omnistar correction to provide 0.1m or greater accuracy for both areas. The plans are therefore geo-referenced, and OS co-ordinates of map locations can be read from the AutoCAD version of the plans.

The magnetometer readings were collected along transects 1m apart using Bartington 1m fluxgate gradiometers, and are plotted at 25cm intervals along each transect. The results of the survey are presented as grey scale plots (Illustrations 2-3), and as graphical (x-y trace) plots in Illustrations 4-5 (all at 1:1250 scale). Inclusion of both types of presentation allows the detected magnetic anomalies to be examined in plan and profile respectively.

The graphical (x-y) plots represent minimally pre-processed magnetometer readings, as recommended for initial presentation of survey data in the 2008 English Heritage geophysical guidelines document (English Heritage 2008). Adjustments are made for irregularities in line spacing caused by variations in the instrument zero setting (as is required for legibility in gradiometer data), but no further filtering or other process which could affect the anomaly profiles or influence the interpretation of the data has been applied. A weak additional 2D low pass filter has been applied to the grey scale plot to reduce background noise levels.

An interpretation of the grey scale plot is shown in illustration 2.

6. Results

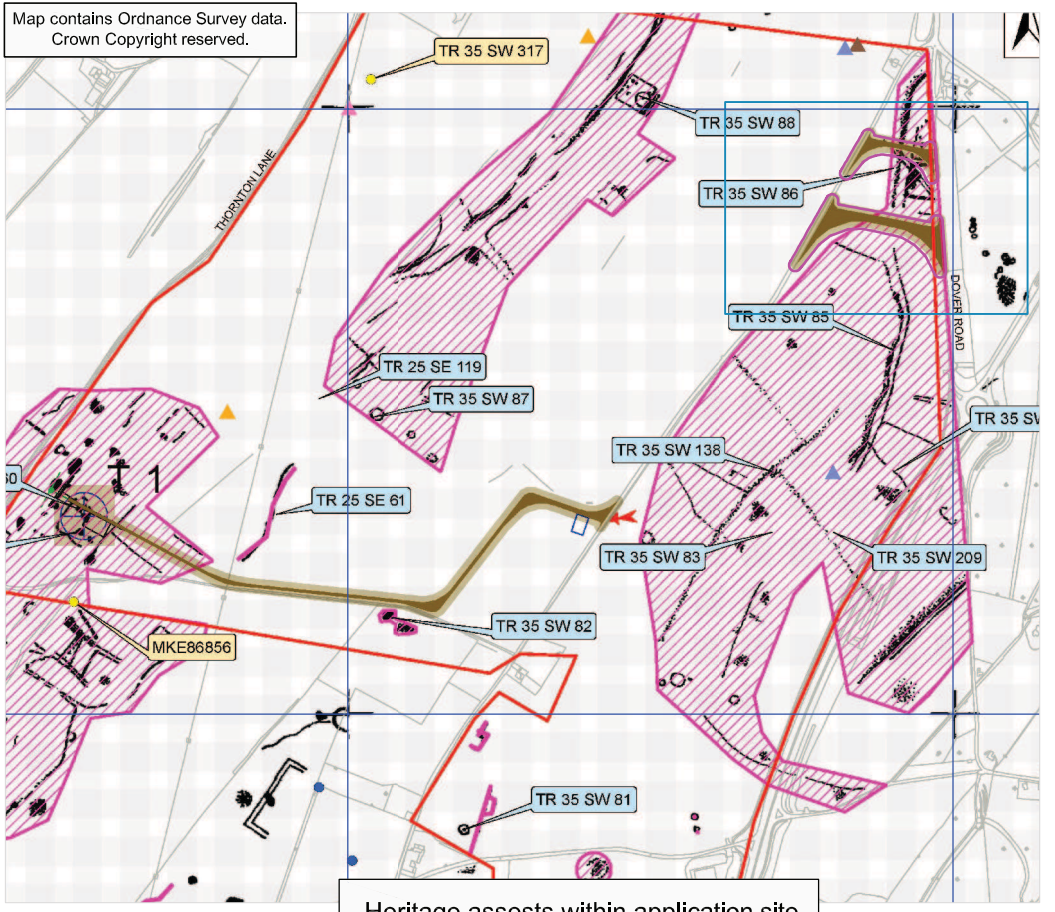
The results of the geophysical survey identified three possible features of interest within the two areas surveyed.

Within Area 1, a linear anomaly, aligned north south with an approximate length of 25m and an approximate width of 2m (A) was observed. Located towards the east of (A), a small circular response (B) with a radius of approximately 1.25m and a circumference of 7.8m was identified, both responses were indicative of buried features.

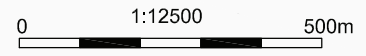
The geophysical survey results within Area 2 identified one linear feature (C), running at a tangent from the west boundary line, aligned northwest-southeast, the anomaly measures over 50m in length with a magnetic response width of 1.0m. The identified anomaly is also indicative of a buried feature; however it may actually represent a buried pipe, rather than an archaeological resource.

Aligned with the western boundary of the site and running northeast south west a large linear anomaly (D), probably representing a buried service was observed and appeared run between both survey areas (See Illustration 2).

Map contains Ordnance Survey data.
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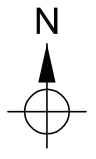


Heritage assests within application site
(from Headland Archaeology Figure 11.1a)

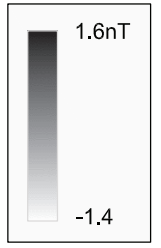


- Findspot**
- ▲ Palaeolithic
 - ▲ Prehistoric
 - ▲ Bronze Age
 - ▲ Iron Age
 - ▲ Roman
 - ▲ Anglo-Saxon
 - ▲ Early Med
 - ▲ Med
 - ▲ Post-Med
 - ▲ undated
 - ▨ Cropmark Areas
 - ▭ Approximate Red Line
 - ▭ Track
 - ▭ 10m wide Buffer Area

154000N



AREA A



AREA B

B

A

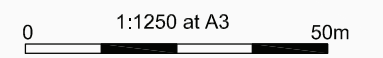
A

C

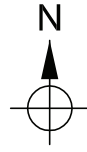
D






Areas proposed for magnetometer survey

Thornton Lane Wind Turbine,
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Illustration 1: Magnetometer survey
(grey scale plot)



Surveyed by Bartlett - Clark Consultancy (01865 200864)
for Headland Archaeology



-  magnetic anomalies (archaeological ?)
-  magnetic anomalies (natural / non-archaeological ?)
-  magnetic anomalies (recent ?)
-  pipe
-  strong magnetic disturbances (mainly ferrous)



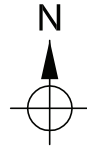
45 nT






Thornton Lane Wind Turbine,
Eastry, Kent
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Illustration 2: Magnetometer survey
(with interpretation)

0 1:1250 at A3 50m

Map contains Ordnance Survey data.
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154000N

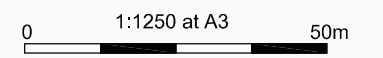


-  magnetic anomalies (archaeological ?)
-  magnetic anomalies (natural / non-archaeological ?)
-  magnetic anomalies (recent ?)
-  pipe
-  strong magnetic disturbances (mainly ferrous)



631000E

Thornton Lane Wind Turbine,
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Illustration 3: Summary of findings



Surveyed by Bartlett - Clark Consultancy (01865 200864)
for Headland Archaeology

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