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Our Ref: JMJP 071123/ FNY GP1123

Date: 7th November 2023

Dear Mr Peace

Fenay Bridge, Huddersfield, West Yorkshire

Archaeological Services University of Durham (ASDU) has undertaken a geophysical survey at the site.

The results (see **Appendix 1**) in this instance are clear in the fact that other than a number of field boundaries which correspond with early Ordnance Survey maps, there is little in the data to suggest the presence of archaeological features pre-dating the post-medieval agricultural use of the area.

Given that the results show the field boundaries and the ploughing regime, we are assured that the drift geology has good magnetic properties thus any archaeological features such as ditches which pre-date the aforementioned field boundaries should show up just as the agricultural features have.

On the basis of the absence of features pre-dating the post-medieval/ modern agricultural activity, we would recommend that no further works are undertaken as there is little justification for this.

Yours sincerely,

Jim MacQueen

Director (Heritage & Environmental Planning)

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Appendix 1

Geophysical Survey Report

ARCHAEOLOGICAL SERVICES
DURHAM UNIVERSITY

on behalf of
BWB Consulting Ltd

Fenay Bridge
Huddersfield
West Yorkshire

geophysical survey

report 6046
November 2023

Durham University

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Figures

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1. Summary

The project

1.1 This report presents the results of a geophysical survey conducted in advance of a proposed residential development at Fenay Bridge, Huddersfield, West Yorkshire. The works comprised 3.2ha of magnetometer survey.

1.2 The works were commissioned by BWB Consulting Ltd and conducted by Archaeological Services Durham University.

Results

1.3 Current and former plough textures were detected; some of these could reflect traces of former ridge and furrow cultivation.

1.4 Several former field boundaries, a former bridleway and a former gravel pit have been identified, all shown on early Ordnance Survey maps.

1.5 A probable disturbed area was recorded in the north of the field.

2. Project background

Location (Figure 1)

2.1 The proposed development area (PDA) was located at Fenay Bridge, Huddersfield, West Yorkshire (NGR centre: SE 18725 14493). To the north and east was a housing estate, to the south-east were fields, to the south was a factory, and to the west was Penistone Road (A629) with a golf course and farmed fields beyond.

2.2 One survey of 3.2ha was conducted in one land parcel.

Development proposal

2.3 The proposal is for a residential development at Penistone Road, Fenay Bridge, Huddersfield, West Yorkshire (Kirklees Council Planning Ref: 2020/60/92307/W).

Objective

2.4 The aim of the survey was to assess the nature and extent of any sub-surface features of potential archaeological significance within the proposed development area, so that an informed decision may be made regarding the nature and scope of any further scheme of archaeological works that may be required in relation to the development.

2.5 The *Yorkshire Archaeological Research Framework: research agenda* (S. Roskams and M. Whyman 2007) and the *West Yorkshire Research Agendas* (https://researchframeworks.org/wyorks/ accessed 17-10-2023) contain agendas for archaeological research in the region, which are incorporated into regional planning policy implementation. In this instance, the scheme of works was designed to address research themes for the High Medieval and Early Modern periods.

Methods statement

2.6 The surveys have been undertaken in accordance with instructions from the client, a method statement provided by Archaeological Services Durham University and national standards and guidance (see para. 5.1 below).

Dates

2.7 Fieldwork was undertaken on 16th October 2023. This report was prepared for November 2023.

Personnel

2.8 Fieldwork was conducted by Xavier Carter-Roberts, Duncan Hale and Archie Robson. The geophysical data were processed by Xavier Carter-Roberts and Duncan Hale. This report was prepared by Xavier Carter-Roberts and Duncan Hale, with illustrations by Janine Watson. The project manager was Peter Carne.

Archive/OASIS

2.9 The site code is **HFB23**, for **H**uddersfield **F**enay **B**ridge 20**23**. The survey archive will be retained by Archaeological Services Durham University. Archaeological Services Durham University is registered with the **O**nline **A**cces**S** to the **I**ndex of archaeological investigation**S** project (**OASIS**). The OASIS ID number for this project is **archaeol3-519882**.

3. Historical and archaeological background

Previous archaeological works

3.1 A Heritage Impact Assessment for land adjacent to Penistone Road and Woodsome Park, Lepton, West Yorkshire, has been undertaken (Brown 2021); the results of that assessment are summarised here.

3.2 West of the proposed development area lies a Grade I Listed Building, Woodsome Hall, which provides an entry that records the earliest dwellers at Woodsome residing in the area in the 13th century. Moreover, records describe a fulling mill nearby to the west of the PDA also dating to the late 13th century before later being used to grind corn, further attesting to medieval occupation in the area.

3.3 Adjacent to the intersection between Penistone Road and Woodsome Road to the west of the development area is 1, Woodsome Road, Lepton: A Grade II listed building (NHLE 1184154). This former vernacular farmhouse and adjoining barn date to the 18th century or earlier, illustrating clear post-medieval settlement activity around the PDA. Dogley Lane was also realigned in the mid-19th century to become the current Penistone Road. This bisected the land previously farmed by the Wood family who resided at the Flood Green farmstead (now Floyd Green) adjacent to 1 Woodsome Road, which includes the area surveyed in this report. Thus, it is uncertain whether the Wood family at Flood Green continued to farm this land, but it can be assumed that the survey area was farmed until the mid-19th century or earlier.

The medieval and post-medieval periods

3.4 Entries from Woodsome Hall, a Grade I Listed Building, record medieval settlement activity in the Woodsome area during the 13th century, probably related to farming as suggested by the presence of a fulling mill.

3.5 Ordnance Survey (OS) maps dating to the 19th and 20th centuries detail how the proposed development area was split into several parcels of farmland, with the addition of a gravel pit along Penistone Road on the western edge of the survey area. A footpath also aligns north-east to south-west along a field boundary in the proposed development area, connecting Rowley Bottom to Rowley Mills.

3.6 The area remains in agricultural use. Evidence relating to agricultural practice in the medieval and post-medieval periods has the potential to survive within the site boundary.

4. Landuse, topography and geology

4.1 At the time of survey the PDA comprised one arable field that is currently fallow and overgrown. It is bounded by roads to the north and west, and hedgerows of trees to the east and south. Five geotechnical boreholes were present.

4.2 The area sloped down from east to west with mean elevations of approximately 102m OD in the east and approximately 87m OD in the west.

4.3 The underlying solid geology of the area comprises Carboniferous sandstone of the Pennine Middle Coal Measures Formation, with a thin band of Carboniferous mudstone, siltstone and sandstone of the Pennine Lower Coal Measures Formation

on the western edge of the survey area aligned north-west/south-east along the edge of Penistone Road. No superficial deposits are recorded (British Geological Survey 2023).

5. Geophysical survey

Standards

5.1 The survey and reporting were conducted in accordance with the Chartered Institute for Archaeologists (CIfA) *Standard and Guidance for archaeological geophysical survey* (2020); the *EAC Guidelines for the Use of Geophysics in Archaeology* (Schmidt *et al*. 2016); and the Archaeology Data Service & Digital Antiquity *Geophysical Data in Archaeology: A Guide to Good Practice* (Schmidt 2013).

Technique selection

5.2 Geophysical survey enables the relatively rapid and non-invasive identification of sub-surface features of potential archaeological significance and can involve a suite of complementary techniques such as magnetometry, earth electrical resistance, ground-penetrating radar, electromagnetic survey and topsoil magnetic susceptibility survey. Some techniques are more suitable than others in particular situations, depending on site-specific factors including the nature of likely targets; depth of likely targets; ground conditions; proximity of buildings, fences or services and the local geology and drift.

5.3 In this instance, based on previous work, it was considered possible that cut features such as ditches and pits could be present on the site, and that other types of features such as trackways, field boundaries, wall foundations and fired structures (for example kilns and hearths) could also be present.

5.4 Given the anticipated nature and depth of the potential targets, and the non-igneous geological environment of the study area, a magnetic technique, fluxgate gradiometry, was considered appropriate for detecting the types of feature mentioned above. This technique involves the use of magnetometers to detect and record anomalies in the vertical component of the Earth's magnetic field caused by variations in soil magnetic susceptibility or permanent magnetisation; such anomalies can reflect archaeological features.

Field methods

5.5 Magnetic gradient measurements across the area were determined using hand-held Bartington Grad601-2 dual fluxgate gradiometers. A 30m grid was established across the area and related to the OS National Grid using a Leica GS15 global navigation satellite system (GNSS) with real-time kinematic (RTK) corrections typically providing 10mm accuracy. Data were collected along zig-zag traverses in 30m grid units. The instrument sensitivity was effectively 0.03nT, the sample interval was 0.25m and the traverse interval was 1m, thus providing 3,600 sample measurements per 30m grid unit.

5.6 Data were downloaded on site into a laptop computer for initial processing and storage and subsequently transferred to a desktop computer for processing, interpretation and archiving.

Data processing

5.7 Geoplot v.4 software was used to process the geophysical data and to produce a continuous tone greyscale image of the raw (minimally processed) data. Trace plots of the data were examined but are not presented in this report. The greyscale image is presented in Figure 2; geophysical and archaeological interpretations are presented in Figures 3 and 4. In the greyscale image, positive magnetic anomalies are displayed as dark grey and negative magnetic anomalies as light grey. A palette bar relates the greyscale intensities to anomaly values in nanoTesla.

5.8 The following basic processing functions have been applied to the magnetometer data:

clip	clips data to specified maximum or minimum values; to eliminate large noise spikes; also generally makes statistical calculations more realistic
zero mean traverse	sets the background mean of each traverse within a grid to zero; for removing striping effects in the traverse direction and removing grid edge discontinuities
de-stagger	corrects for displacement of geomagnetic anomalies caused by alternate zig-zag traverses
interpolate	increases the number of data points in a survey to match sample and traverse intervals; in this instance the data have been interpolated to 0.25m x 0.25m intervals

Interpretation: anomaly types

5.9 A colour-coded geophysical interpretation plan is provided. Three types of magnetic anomaly have been distinguished in the data:

positive magnetic	regions of anomalously high or positive magnetic field gradient, which may be associated with high magnetic susceptibility soil-filled structures such as pits and ditches
negative magnetic	regions of anomalously low or negative magnetic field gradient, which may correspond to features of low magnetic susceptibility such as wall footings and other concentrations of sedimentary rock or voids
dipolar magnetic	paired positive-negative magnetic anomalies, which typically reflect ferrous or fired materials (including fences and utilities) and/or fired structures such as kilns or hearths

Interpretation: features

5.10 A colour-coded archaeological interpretation plan is provided. For ease of reference, anomaly labels shown bold in the text below (eg **a**, **b**, etc) are also shown on the archaeological interpretation plan.

5.11 A series of closely spaced, parallel, weak, alternate positive and negative magnetic anomalies has been detected across much of the field, aligned broadly north/south. These anomalies reflect the most recent plough direction (eg **a**).

5.12 Additional series of parallel magnetic anomalies have also been detected across parts of the PDA, on different alignments. These series are more widely spaced and bound by broader positive and negative magnetic anomalies. The sets of anomalies could reflect traces of ploughed-out ridge and furrow cultivation (eg **b**, **c**); the latter anomalies correspond to several former field boundaries (eg **d**, **e**, **f**), as recorded on 19th and early 20th-century OS map editions.

5.13 A strong rectilinear dipolar magnetic anomaly has been detected at the south-western edge of the field. This corresponds to an infilled former gravel pit (**g**), recorded on the 1st edition OS map of 1854.

5.14 A strong linear magnetic anomaly has been detected in the south-east of the field; this anomaly continues south-westward as a very weak positive magnetic anomaly. These anomalies correspond to a former path/bridle road (**h**) shown on 19th and early 20th-century OS map editions.

5.15 In the north of the survey, an irregularly-shaped cluster of mixed magnetic anomalies was detected. This feature is probably a former hollow or pit, which has been infilled with various materials (**i**). It is evident as a disturbed area on recent aerial images.

5.16 The only other anomalies detected here are small, discrete dipolar magnetic anomalies. These almost certainly reflect near-surface items of ferrous and/or fired debris, such as horseshoes and brick fragments. Five larger dipolar magnetic anomalies in a quincunx arrangement reflect capped boreholes.

6. Conclusions

6.1 A magnetometer survey of 3.2ha was undertaken on land at Fenay Bridge, Huddersfield, prior to proposed residential development.

6.2 Current and former plough textures were detected; some of these could reflect traces of former ridge and furrow cultivation.

6.3 Several former field boundaries, a former bridleway and a former gravel pit have been identified, all shown on early OS maps.

6.4 A probable disturbed area was recorded in the north of the field.

7. Sources

Brown, A, 2021 *Land adjacent to Penistone Road and Woodsome Park, Lepton, West Yorkshire: Heritage Impact Assessment.* Report 2021/130, Archaeological Research Services Ltd

CIfA 2020 *Standard and Guidance for archaeological geophysical survey*. Chartered Institute for Archaeologists

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https://geologyviewer.bgs.ac.uk – British Geological Survey (accessed 19-10-23)

https://researchframeworks.org/wyorks/ - West Yorkshire Research Agendas (accessed 17-10-2023)

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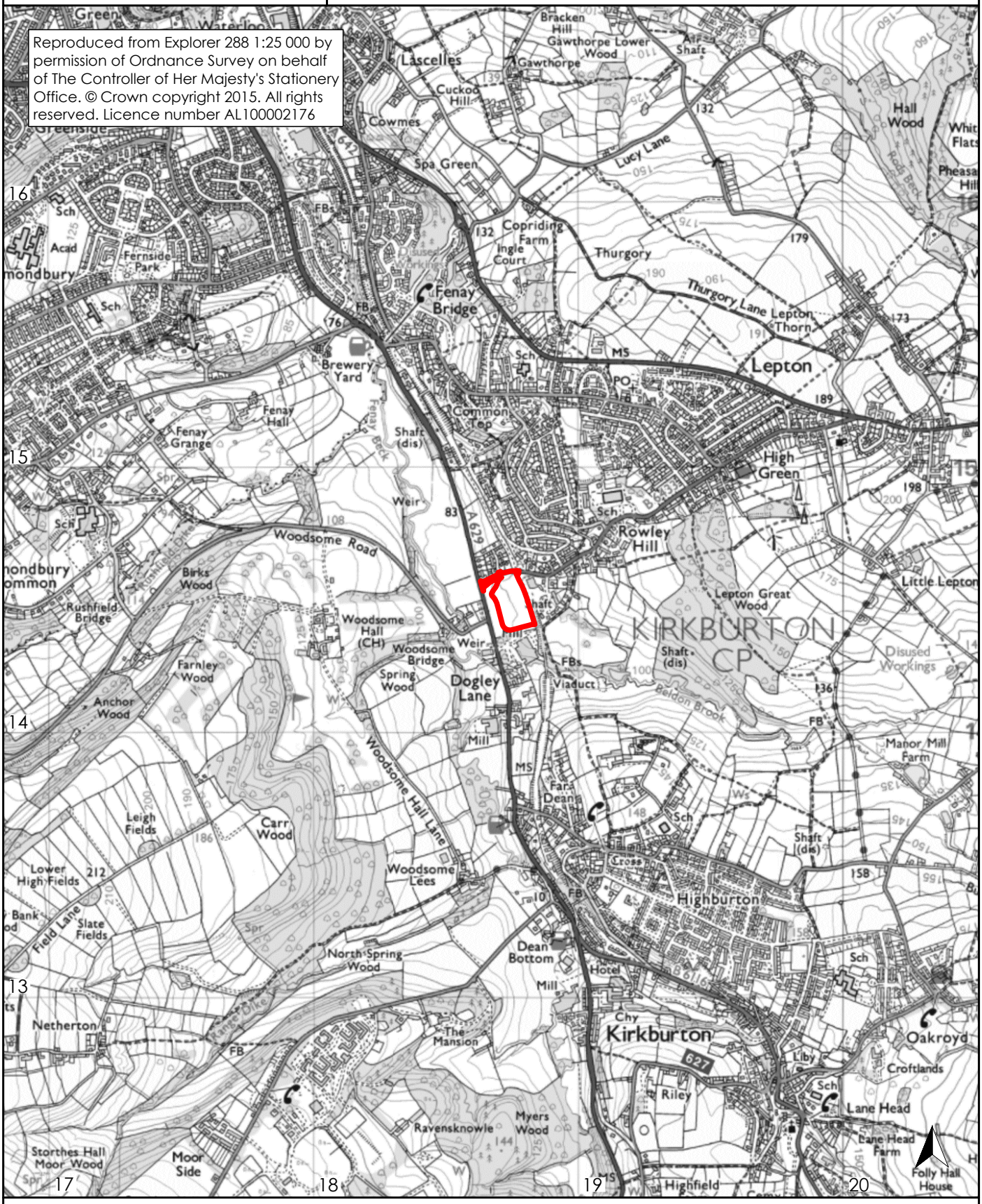
Figure 1: Site location



site boundary

0 1km
scale 1:20 000 for A4 plot

site boundary

land ownership boundary

magnetometer survey

-12 nT 15

146

145

144

WOODSOME ROAD

PENISTONE ROAD

186

187

188

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0 50m
scale 1:1000 for A3 plot

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Figure 2: Magnetometer survey

site boundary

land ownership boundary

magnetometer survey

dipolar magnetic anomaly

positive magnetic anomaly

negative magnetic anomaly

146

145

144

WOODSOME ROAD

PENISTONE ROAD

186

187

188

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0 50m
scale 1:1000 for A3 plot

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Figure 3: Geophsyical interpretation

site boundary

land ownership boundary

magnetometer survey

disturbed area

former gravel pit

former track

former field boundary

former ploughing

borehole

146

145

144

WOODSOME ROAD

PENISTONE ROAD

186

187

188

a

b

c

d

e

f

g

h

i

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0 50m
scale 1:1000 for A3 plot

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Figure 4: Archaeological interpretation