



© Crown Copyright and Database Rights 2021 Ordnance Survey 0100031673

© Local Government Information House Limited Copyright and Database Rights 2021 0100031673

						ROAD	_						CELL	3	
+ + +	+ + + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + 4 + 4 + 4 2 1	+ + + + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + +
+ + +	+ + + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + $\overset{\bullet}{\Omega}$ + + + + + + + + + + + + + + + + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + + 52.75	+ + + + +	+ + + + + + + +
+ + +	+ + + + + + + + + + + +	+ + + + + + + + + +	+ + + + +	+ + + + +	+ + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + + +	+ + + + +	+ + + +
- 52.84	-52.84	- 52.84	-52.84	- 52.83	- 52.82	- 52.81	- 52.79	- 52.77	- 52.74	- 52.70	- 52.65	- 52.60	- 52.55	- 52.50	- 52.45
-52.50	-52.50	-52.50	-52.50	-52.50	- 52.50	-53.75	-52.75	-52.75	-52.75	-52.75	-52.75	-52.75	-52.75	- 52.75	- 52.75
65.00	70.00	75.00	80.00	85.00	90.00	95.00	100.00	105.00	110.00	115.00	120.00	125.00	130.00	135.00	140.00

		CELL 3	i						ROAD		-			FLOOD N	ITTIGATION A
+ + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + +	+ + + + +	+ + + + +	+ + + + +	+ + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +
+ + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + +	+ + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +
+ + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + +	+ + + +	+ + + + +	+ + + + +	+ + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +
+ + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + +	+ + + + +	+ + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +
+ + + +	+ + + + +	+ + + + +	+ <u>5</u> 2 + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + +	+ + + + +	+ + + + +	+ + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +
+ + + +	+ + + + +	+ + + + +	+ 67 + + +	+ + + + +	+ + + + +	+ + + + +	+ + + +	+ + + + +	+ 🛛 + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +
+ + + +	+ + + + +	+ + + + +		+ + + + +	+ + + + +	+ + + + +	+ + + + +	<u>+++++</u> +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +
+ + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + + + + + + + + + + + + + + + + +
+ + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + +	+ + + + +	+ + + + +
+ + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + +	+ + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +	+ + + + +
40	.25	60	.94	17	.62	45	28	13	36	17	.60	20	40	35	30
23	23	23	22	22	22	52	22	52	21	21	21	21	21	21	21
10	10	10	2	2	2	10	10	2	2	0		00	0	2	0
2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	.7	6		2	6.0	.5.	.4
22	22	223	223	223	223	223	22	223	233	51		21	-20	20	20
1	I	I	I	I	I	I	I	I	l.	I	Ι	I	I	I	I.
65.00	70.00	75.00	80.00	85.00	90.00	95.00	100.00	105.00	110.00	115.00	120.00	125.00	130.00	135.00	140.00

E. Geophysical Survey Report



GEOPHYSICAL SURVEY REPORT

Staplefield Southern Water Wetland Creation

Client

Archaeology South-East

Survey Report

14053

OASIS Ref. No.

sumogeop1-518872

Date

05 September 2023



Survey Report 14053: Staplefield Southern Water Wetland Creation

Survey dates	29 August 2023
Field co-ordinator	Darcy Hooper MSc
Field Team	Robert Ottolangui MSc
Report Date	05 September 2023
CAD Illustrations	Thomas Cockcroft MSc MCIfA
Report Author	Thomas Cockcroft MSc MCIfA
Project Manager	Simon Haddrell BEng AMBCS PCIfA

Report approved Dr John Gater BSc DSc(Hon) MCIfA FSA

SUMO Geophysics Ltd Vineyard House Upper Hook Road Upton upon Severn Worcestershire WR8 0SA

T: 01684 592266

www.sumoservices.com geophysics@sumoservices.com

TABLE OF CONTENTS

1	LIST OF FIGURES	.3
2	LIST OF APPENDICES	.3
3	SURVEY TECHNIQUE	.3
4	SUMMARY OF RESULTS	.4
5	INTRODUCTION	.4
6	RESULTS	.5
7	DATA APPRAISAL & CONFIDENCE ASSESSMENT	.6
8	CONCLUSION	.6
9	REFERENCES	.7
10	ARCHIVE	.7

1 LIST OF FIGURES

Figure 01 NT	TS	Site Location
Figure 02 1:1	1500	Magnetometer Survey - Greyscale Plots
Figure 03 1:1	1500	Magnetometer Survey - Colour Plots
Figure 04 1:1	1500	Magnetometer Survey - Interpretation
Figure 05 NT	TS	Greyscale Plots / Interpretation /
		c. 1892-1914 Ordnance Survey Mapping / 1944- 1972
		National Grid Mapping
Figure 06 NT	TS	Greyscale Plots / Interpretation / 2018 (bottom left) & 2022
		(bottom right) Aerial Imagery
Figure 07 1:1	1500	Minimally Processed Data - Greyscale Plots
Figure 08 1:1	1500	XY Trace Plots (clipped at +/-15nT)
Figure 09 1:1	1500	XY Trace Plots (clipped at +/-50nT)
Figure 10 1:1	1500	XY Trace Plots (clipped at +/-100nT)

2 LIST OF APPENDICES

Appendix A	Technical Information: Magnetometer Survey Methods, Processing and				
	Presentation				
Appendix B	Technical Information: Magnetic Theory				
Appendix C	OASIS Data Collection Sheet				

3 SURVEY TECHNIQUE

3.1 Detailed magnetic survey (magnetometry) was chosen as the most efficient and effective method of locating the type of archaeological anomalies which might be expected at this site. All survey techniques followed the guidance set out by CIFA (2014, updated 2020), Historic England (2008), and the European Archaeology Council (EAC) (2016).

Bartington Grad 601-2 Traverse Interval 1.0m Sample Interval 0.25m

The only processes performed on data are the following unless specifically stated otherwise:

Zero Mean	This process sets the background mean of each traverse within each grid to
Traverse	zero. The operation removes instrument striping effects and edge
	discontinuities over the whole of the data set.
Step Correction	When gradiometer data are collected in 'zig-zag' fashion, stepping errors
(De-stagger)	can sometimes arise. These occur because of a slight difference in the
	speed of walking on the forward and reverse traverses. The result is a
	staggered effect in the data, which is particularly noticeable on linear
	anomalies. This process corrects these errors.

4 SUMMARY OF RESULTS

4.1 A magnetometer survey of 3.5 hectares of land south of Staplefield has recorded magnetic responses that have been interpreted as being of archaeological interest. Numerous discrete anomalies, trends and zones of increased response have been categorised as possible archaeology, they could be associated with the former forge. Several uncertain anomalies have also been recorded and are likely to have been caused by agricultural practises or other modern processes. Land drains are visible in Area 2 along with several anomalies of natural origin.

5 INTRODUCTION

5.1 **SUMO Geophysics Ltd** were commissioned to undertake a geophysical survey of an area outlined for the construction of an Integrated Constructed Wetland. This survey forms part of an archaeological investigation being undertaken by **Archaeology South-East**.

5.2 Site Details

NGR / Postcode	TQ 28044 27458 / RH17 6ES
Location	The site is located 700m south of Staplefield and 3.5km north-west of Cuckfield. The survey area is bounded to the east by Cuckfield Road and to the south by the River Ouse.
HER	West Sussex HER
OASIS Ref. No.	sumogeop1-518872
District	Mid Sussex District
Parish	Ansty and Staplefield Civil parish
Topography	Flat
Land Use	Arable agriculture
Geology (BGS 2023)	Bedrock: Upper Tunbridge Wells Sand - Sandstone and siltstone, interbedded. Weald Clay Formation – Mudstone.
	Superficial: Alluvium - Clay, silt, sand and gravel.
Soils (CU 2023)	Soilscape 8: Slightly acid loamy and clayey soils with impeded drainage
	Soilscape 18: Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils
Survey Methods	Magnetometer survey (fluxgate gradiometer)
Study Area	3.5 ha

5.3 Archaeological Background (MM 2022)

- 5.3.1 The assessment has identified 16 designated heritage assets (15 Grade II Listed buildings and one Conservation Area) within a 1km study area, and eight non-designated heritage assets within 500m of the Site. These generally comprise farmhouses, Second World War assets and a Historic Parkscape. The nature of the proposal, creating a wetland environment, will alter the setting of Little Ashford, Bridge House Historic Farmstead and the Second World War Type 24 Pillbox and Anti-Tank Blocks as the rural landscape of the Site will be modified to form a wetlands.
- 5.3.2 Little is known about the Site prior to the medieval period and the site has likely mostly remained in agricultural use. Although Mesolithic and Neolithic flint artefacts were recovered during a watching brief immediately south of the Site. The recovery of these artefacts may indicate the potential for further remains from these periods. Historic Ordnance Survey maps from the late 19th century depict an elongated mound within the southern part of the Site which likely relates to the site of a Medieval Forge (MM20) noted as such on later maps. By the mid-20th century,

Ordnance Survey maps indicate this feature was removed and no longer contained within the Site. However, deposits from the former forge site were revealed during a watching brief on the WTW to the east. There are also superficial deposits of alluvium present within the Site, which provide the right environment for survival of Palaeoenvironment material.

5.4 Aims and Objectives

5.4.1 To locate and characterise any anomalies of possible archaeological interest within the study area.

6 RESULTS

6.1 The survey has been divided into two survey areas (Areas 1-2) and specific anomalies have been given numerical labels [1] [2] which appear in the text below, as well as on the Interpretation Figure(s).

6.2 **Possible Archaeology**

- 6.2.1 In the south-east of Area 2 a linear band of increased magnetic response [1] appears to but against an elongated mound depicted on historic Ordnance Survey maps dating from 1892-1914 (see Fig 05 and right); these responses could mark the location of a ditch associated with the bank.
- 6.2.2 To the east of this former mound is a magnetically enhanced zone [2] which includes short linear and discrete responses, plus some very strong anomalies. They appear to form a series of ditch-like intermittent and pit-like responses, including probable waste slag deposits. This interpretation is based on



the fact the site of a Medieval Forge is visible on 1944-1972 maps immediately south of the River Ouse at this location (see Figure 05). The magnetic results suggest that deposits associated with the forge originally extended north of the river.

6.3 Uncertain

6.3.1 Several responses of *Uncertain Origin* have been detected across the survey which generally lack the defined morphology of anomalies that would ordinarily be interpreted as being of archaeological origin. They are likely to have been caused by modern agricultural processes though some of the stronger responses in the south-west corner of the survey might be associated with the forge (see 6.3.1).

6.4 Agricultural – Land Drains

6.4.1 Several well-defined linear anomalies are visible in the south of Area 1, some of which form a herringbone patterns; they mark the routes of land drains.

6.5 *Natural / Geological*

6.5.1 In the south of Area 2 bands of increased response are visible; they are sinuous and amorphous in shape and include a number of intermittent discrete responses. They are likely to be alluvial deposits or former channels associated with the River Ouse that is located due south of the site.

6.6 Ferrous / Magnetic Disturbance

6.6.1 Ferrous responses close to boundaries are due to adjacent fences and gates. Smaller scale ferrous anomalies ("iron spikes") are present throughout the data and are characteristic of small pieces of ferrous debris (or brick / tile) in the topsoil; they are commonly assigned a modern origin. Only the most prominent of these are highlighted on the interpretation diagram.

7 DATA APPRAISAL & CONFIDENCE ASSESSMENT

7.1 Historic England guidelines (EH 2008) Table 4 states that the typical magnetic response on the local soils / geology is variable. The results from this survey indicate the presence of discrete anomalies, trends and zones of increased response; as a consequence, there is no *a priori* reason why archaeological features would not have been detected.

8 CONCLUSION

8.1 The magnetometer survey has recorded a series of discrete anomalies, trends and zones of increased response which are likely to be associated with a former forge which is recorded due south of the site. Other magnetic responses have been assigned to the category of uncertain and are likely to have been caused by agricultural practises or other modern processes. The routes of several land drains have been plotted in the magnetic data. In the south-east of Area 2 bands of increased response, within which a number of intermittent discrete responses are visible, are likely to have been caused by alluvial deposits or former channels associated with the River Ouse.

9 REFERENCES

BGS 2023	British Geological Survey, Geology of Britain viewer [accessed 04/09/2023] <i>website</i> : (<u>http://www.bgs.ac.uk/opengeoscience/home.html?Accordion1=1#maps</u>)
ClfA 2014 Amended 2020	Standard and Guidance for Archaeological Geophysical Survey. Amended 2020. ClfA Guidance note. Chartered Institute for Archaeologists, Reading https://www.archaeologists.net/sites/default/files/ClfAS%26GGeophysics 3.pdf
CU 2023	The Soils Guide. Available: www.landis.org.uk. Cranfield University, UK. [accessed 04/09/2023] <i>website: <u>http://mapapps2.bgs.ac.uk/ukso/home.html</u></i>
EAC 2016	EAC Guidelines for the Use of Geophysics in Archaeology, European Archaeological Council, Guidelines 2.
EH 2008	Geophysical Survey in Archaeological Field Evaluation. English Heritage, Swindon (now withdrawn, but used for evaluating suitability of soil types)
MM 2022	Staplefield Southern Water Wetland Creation Historic Environment Desk Based Assessment. <i>Mott MacDonald, Cambridge</i>

10 ARCHIVE

- 10.1 The minimally processed data, data images, XY traces and a copy of this report are stored in **SUMO Geophysics Ltd.'s** digital archive, on an internal RAID configured NAS drive in the Midlands Office. These data are also backed up to the Cloud for off-site storage.
- 10.2 The Grey Literature will be archived with OASIS and the relevant HER within a period of 12 months.













2		N							
	+2nT -1nT								
	KEY								
	Possible archaeology (discrete anomaly / trend / increased response)								
	Uncertain Origin (discrete anomaly / trend / increased response)								
	~	Land drain							
	Natural (e.g. geological / pedological)								
		Ferrous							
A TRACE		SUIVEY SUIVEY GEOPHYSICS FOR ARCHAEOLOGY & ENGINEERING							
	Title: Gre Ie	yscale Plots / Interpretation / 2018 aft) & 2022 (bottom right) Aerial Ima	(bottom agery						
	Client:	Archaeology South-East							
	Project: 14	053 - Staplefield Southern Water V Creation	Vetland						
	Scale:	NOT TO SCALE	Fig No: 06						