WRITTEN SCHEME OF INVESTIGATION & RISK ASSESSMENT METHOD STATEMENTS FOR GEOPHYSICAL SURVEY

GEOPHYSICS FOR ARCHAEOLOGY & ENGINEERING

Samlesbury, Lancashire

Client
HCUK Group

For
Harleyford Aggregates Ltd

Ref. No.
Sumo-08508

Date
September 2022

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Surveyors:

	Signature
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Prepared By	Signature	Date	Approved By	Signature	Date
Fiona Sidley		*28.09.2022*	*Claire Rose*		*28.09.2022*

1 INTRODUCTION, SITE LOCATION

1.1 **SUMO Geophysics Ltd** on behalf of **SUMO Services Ltd** has been contracted to carry out a geophysical survey.

1.2 This survey forms part of the programme of pre-determination archaeological works.

1.3 The site consists of 41ha of land at Samlesbury, Lancashire (See Figure 1).

1.4 The site work will take place from 28th November – 6th December 2022.

1.5 Preliminary results will be available within a couple of days after completion of fieldwork.

1.6 Final report is typically available 2 weeks after completion of fieldwork.

2 SURVEY OBJECTIVE (S)

2.1 To determine the presence/absence of archaeological features. The results of the survey will inform the requirement and scope for further archaeological investigation.

3 CRITERIA FOR THE SELECTION OF THE GEOPHYSICAL METHOD

3.1 Solid geology: Sherwood Sandstone Group - Sandstone.
Superficial geology: River Terrace Deposits, 2 - Sand and gravel (BGS 2022).

3.2 Archaeology: Extract taken from Land at Lower Hall Farm and Seed House Farm, Samlesbury, Lancashire, Geoarchaeological Desk-based Assessment Report. Oxford Archaeology. December 2021.

Floodplain sediments may contain artefacts or seal buried land-surfaces containing archaeology. River terraces contain sand and gravel deposits that could yield in-situ archaeological artefacts or those that have been eroded and re-deposited from older contexts.

The Bezza meander that constitutes the site is situated between the Brockholes meander and the Lower House meander. Correlation of terrace deposits across these sites, together with new lithostratigraphic data from boreholes throughout the Bezza meander, indicate that there are substantial deposits of terrace sequences T1-T3 within the Bezza meander, with thinner presence of deposits of terrace sequences T4 and T5.

From an archaeological / palaeoenvironmental viewpoint, the River Ribble represents a natural boundary / routeway; the deposits within the valleys could contain evidence of multi-period occupation and landscape change. The established sequence of deposits suggests that there is potential for archaeology to exist, buried under the gravels and sediments (OA 2007, section 9.1.1

3.3 Detailed magnetic survey has been selected as the most suitable technique for this site as it can detect a wide range of features including those that may be associated with later prehistoric occupation and medieval settlement such as ditches, land boundaries and agricultural features, including ridge and furrow. It is also fast and more suited to prospection over large survey areas.

3.4 There are no Scheduled Monuments on the site thus Scheduled Monument Consent is not required.

4 SITE METHODOLOGY

4.1 A temporary grid system will be established over the site and marked out using wooden pegs or canes. The location of the grid will be set out using an RTK GPS system theoretically accurate to some 0.01m and referenced to OS co-ordinates.

Dependent upon access agreements and ground conditions, either a cart or hand-held system will be employed.

4.2.1 **Cart System:** Data will be collected using a cart carrying four paired Bartington magnetic sensors (see below). Each data point is geographically referenced using an on-board Trimble RTK survey grade GPS system. Readings will be taken at 0.125m centres along traverses 1.0m apart.

4.2.2 **Hand-Held:** Data will be collected using a Bartington Grad 601-2. The instrument consists of two paired sensors (see below) and readings are logged at 0.25m centres along traverses 1.0m apart across 30m grids. The collection of data at 0.25m centres provides an appropriate methodology balancing cost and time with resolution as per Historic England guidelines.

4.3 **Sensors:** Two sensors mounted 1m horizontally apart and very accurately aligned to nullify the effects of the earth's magnetic field. Readings relate to the difference in localised magnetic anomalies compared with the general magnetic background.

4.4 The readings are logged consecutively into the data logger which in turn is daily downloaded into a portable computer whilst on site. At the end of each job, data are transferred to the office for processing and presentation.

5 REPORTING AND ARCHIVING

5.1 The report for the survey will comprise a written section describing the background to the survey, the methodologies used and a discussion of the results. The text will be illustrated using plots of the results using CAD to overlay the results and interpretations over the base mapping. The format for these drawings will either be A3 or A1 depending on the size and configuration of the survey areas.

5.2 Processing of the data will be carried out using the specialist software ***Anomaly*** and ***GeoSub,*** sometimes ***Geoplot***. This can emphasise various aspects contained within the data, but which are often not easily seen in the raw data. Basic processing of the magnetic data involves 'equalising' the background levels with respect to adjacent traverses (Zero mean traverse). 'Despiking' is very occasionally performed to remove the anomalies resulting from small iron objects often found on agricultural land but this practice is not favoured as it creates a ‘false’ dataset. Once the basic processing has levelled the background it is then possible to carry out further processing including de-stagger and interpolation to emphasise the archaeological or man-made anomalies.

5.3 The presentation of the CAD drawings will include:

- a general location plan
- detailed site location showing the grid position
- grey scale plots of the minimally processed and processed data

- Interpretation plot showing anomalies identified

5.4 As a minimum the report will contain;

- Non-technical summary
- Introductory statement
- Aims and purposes of the evaluation
- Methodology
- Results, including a confidence rating for the results and their interpretation
- Conclusion
- Plans/plots, including interpretive plans of the results
- References

5.5 The archaeological DBA, if provided, will be consulted, along with historic mapping of the survey area to inform the interpretation of anomalies located during the survey. The degree of uncertainty pertaining to influences drawn from the results will also be discussed.

5.6 The full report will be uploaded to the OASIS database with a 12-month release delay unless informed otherwise.

6 STAFFING

6.1 Site work will be carried out by an appropriate number of field teams (led by an Experienced Team Leader) to complete the work within the given timescale. The Team will be co-ordinated from designated offices personnel, where the first point of contact for the client and site team will be:

Upton Office	Rebecca Fradgley	07917 416847	rebecca.fradgley@sumoservices.com
Team Leader	TBC		

7 WORKING PRACTICES AND STANDARDS

7.1 All site work and reporting will be carried out in accordance with the latest guidance documents issued by Historic England (EH 2008) (then English Heritage), the Chartered Institute for Archaeologists (CIfA 2014, updated 2022), the European Archaeological Council (EAC 2016)

7.2 **SUMO Geophysics Limited** is a **Registered Organisation** and as such is committed to upholding the standards and policies set out by the **Chartered Institute for Archaeologists**.

7.3 **SUMO Geophysics Ltd** (through its parent company **SUMO Services Ltd**) is a member of the **EuroGPR Association**

PLEASE NOTE - fieldwork will be carried out following the latest guidelines for best working practices as a result of Covid-19.

8 HEALTH AND SAFETY

8.1 Colin Carnachan, Company Secretary is the responsible post holder for Health & Safety matters; **SUMO** also employs an external Health & Safety advisor who can be consulted if necessary.

8.2 All **SUMO** team leaders are first-aid trained, with all of our field operatives being part of a rolling programme of first-aid training.

8.3 All **SUMO** field teams are equipped with mobile phones for use in an emergency.

8.4 In the event of an emergency the team will immediately stop work and report the incident to the relevant emergency services and **SUMO** head office. If it is safe to do so they will administer first-aid and render assistance to any emergency teams on site.

8.5 **SUMO** will monitor the general safety arrangements and will communicate any further requirements / short falls to the client.

8.6 **SUMO** site personnel will be equipped with full Personal Protective Equipment (PPE).

8.7 In the event of an Accident: all **SUMO** site operatives are trained to Appointed Persons standard and all vehicles carry first aid kits. In the event of a serious injury/accident dial 999.

8.8 In case of minor injury, the closest **A & E Hospital** – see Figure 2.

8.9 **Welfare Facilities** – see Figure 3.

8.10 **Emergency Contacts**

In the event of an accident staff to report in accordance with Sumo Ltd's Health and Safety Policy and in accordance with RIDDOR.

Name	Company	Role	Telephone
Colin Carnachan	SUMO Services Ltd	Managing Director	02392 415020
Simon Haddrell	SUMO Geophysics Ltd	Operations Director	01684 592266
Rebecca Fradgley	SUMO Geophysics Ltd	Project Officer	07917 416847
TBC	SUMO Geophysics Ltd	On site Team Leader	
Charlotte Vallance	Samlesbury, Lancashire	Client	07776 532733

9 INSURANCES

9.1 **SUMO** carries a limit of £10 million Employers liability insurance.

9.2 **SUMO** carries a limit of £10 million Public liability insurance and Products liability insurance.

9.3 **SUMO** carries a limit of £5 million Professional Indemnity insurance

Figure 1
Site Location

Figure 2
Nearest Hospital

Royal Preston Hospital, Sharoe Green Lane, Fulwood, Preston PR2 9HT.
Tel: 01772 716565.

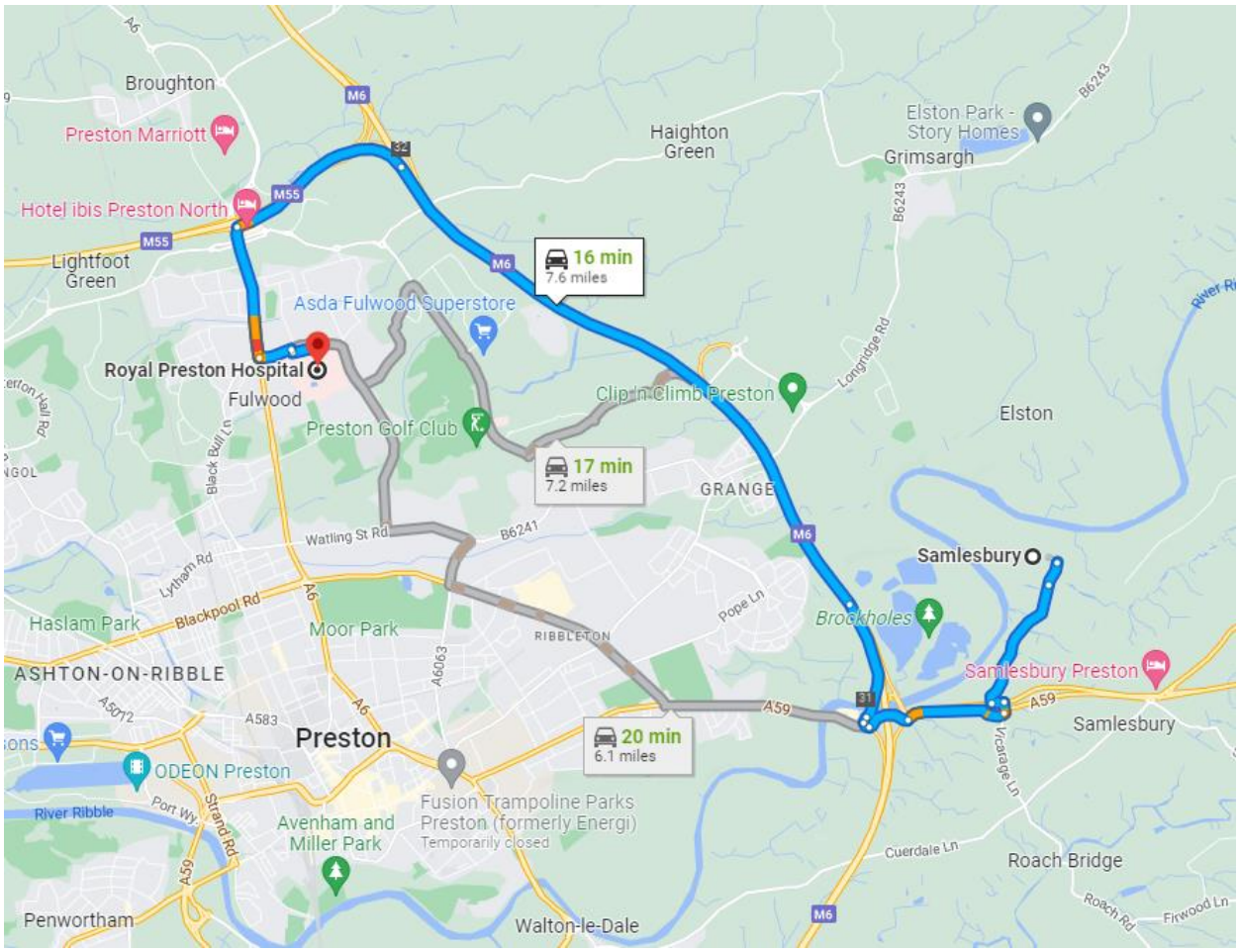

Figure 3
Welfare Facilities

Surveyors will use client site facilities only with prior permission. In the event that welfare facilities are not available at the site, then staff will use local public amenities.

Hand gel / wipes / water carrier for hand washing at remote locations must be carried at all time. The team Leader is responsible for re-stocking these when away from the office.

The closest public amenities are at:
Shell, 556-610 New Hall Lane, Preston, PR1 4TE.