mapparch

MAP Archaeological Practice

Land off Watermill Gardens
Penistone
South Yorkshire

MAP 5.22.23

Written Scheme of Investigation-Archaeological Evaluation by Trial Trenching

maparch

MAP Archaeological Practice

Client	Mulgrave Properties
Work Type	Archaeological Evaluation by Trial Trenching
Address	Land off Watermill Gardens, Penistone
LPA Archaeologist	Andy Lines – South Yorkshire Archaeology Services
NGR	SE 24462 03912
Oasis Ref	maparcha1-517898
Site Code	05.22.23
Project Manager	Charlie Puntorno
Project Team	TBC

Version History	Edited/QA by
A150823	Max Stubbings
B061124	Max Stubbings

Land off Watermill Gardens

Penistone

South Yorkshire

05.22.23

Archaeological Evaluation by Trial Trenching

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The South Yorkshire Archaeology Services Standards and Guidance for Archaeological Field Evaluation (dated 22/11/2022) will be adhered to throughout the project. If, during the project, it is deemed necessary to deviate from the standards, this will be discussed with the Archaeologist at SYAS where an updated rationale will be given, and any deviations explicitly specified.

1. Background

1.1 The site is located to the north of Watermill Gardens, north of Barnsley Road and north of Penistone town centre (centred at SE 24462 03912, Fig. 1).

Figure 1: Site Location

1.2 The site is allocated in the Barnsley Local Plan as site HS70 (Land to north of Barnsley Road, Penistone).

1.3 A Desk Based Assessment (Puntorno. 2023) and Geophysical Survey (Phase Site Investigations. 2022) have been carried out in support of a forthcoming planning application. The results of the survey states that '*the majority of the anomalies identified by this survey relate to modern material / objects, agricultural activity and possible natural variations. There are a number of anomalies of uncertain origin. These do not form any clear patterns or obvious relationship that would indicate that they are related to sub-surface features and the majority, if not all of them, are probably associated with agricultural, drainage or other modern features / activity or natural features / variations*'. A leat associated with Nether Mill, which was located to the south-east of the

site, is depicted on cartographic sources (Fig. 2) to have run through the southern portion of the site and, although strong magnetic disturbance in the area was identified by the Geophysical Survey, it' *will not be related to the feature and may mask responses related to the remnants of the leat, if any of it is still present.*' It has been recommended that Archaeological Trial Trenching be undertaken prior to the determination of application, to further assess the archaeological potential of the site.

1.4 The work will be monitored under the auspices of South Yorkshire Archaeology Service (henceforth SYAS) who will be consulted at least one week before the commencement of site works. Where necessary the regional Science Advisor at Historic England may also be contacted about the work.

1.5 In addition to the SYAS Archaeological Field Evaluation Standards and Guidance, MAP will adhere to the principles of the CIfA Code of Conduct (CIfA 2022) throughout the project and to the CIfA '*Standards and Guidance for Archaeological Field Evaluations*' (CIfA 2020).

1.6 Following the acceptance of this Written Scheme of Investigation it is considered that, subject to the developers own timetabling, MAP could carry out the evaluation with approximately 6 weeks notice, with up to 6 weeks being allowed for the on-site work. Dependant on the availability and need of specialist input, it is anticipated that a report would be produced within twelve weeks following the completion of the on-site work.

1.7 The project will be continuously reviewed in order to monitor the projects progress towards meeting its aims and objectives. As a minimum the results of the evaluation will be assessed during the fieldwork is taking place, to allow for any necessary changes to the agreed methodology. Any deviance from the methodology outlined in this document must be agreed by SYAS and an updated document will be produced. At the reporting stage of the project discussions will be held with SYAS regarding the need for additional field work, or post-excavation analysis.

2. Site Information

2.1 *Land Use, Topology and Geology*

2.1.1 The site, which slopes from north to south, currently consists of a single parcel of arable farmland, fencing to the north and south, a stone wall to the west, with no defined physical boundary to the east.

2.1.2 Bedrock geology within the site boundary consists of the Pennine Lower Coal Measures, overlain by River Terrace Deposits of sands and gravels (BGS. 2023). Owing to the presence of a former mill leat and modern development to the immediate south, it is likely that made areas of made ground will be present within the site boundary, particularly close to the south-eastern and southern boundaries. This is substantiated by the results of the Geophysical Survey (Phase. 2023) and the Phase II Geo-Environmental Assessment (Alan Wood & Partners. 2023). The Geo-environmental assessment revealed deposits of topsoil present across much of the site which measured between 0.2m and 0.4m with made ground (consisting predominantly of reworked topsoil and anthropogenic material inclusions such as brick, plastic, UVPC, tiles, woven bags and concrete), being located to a depth of between 0.4m and 1m in the south-western corner of the site and also along the southern boundary (Ibid).

2.1.3 The site falls within Historic Environment Characterisation (HEC) zone HNY6096 which is defined as:

> *'Water powered corn mill first documented when leased to Robert Peck in 1566. Continued in use as a corn mill till the mid-20th century. There was a major fire in 1871 which destroyed much of the mill buildings. Repairs were made and business resumed. The mill finally closed on the death of its final owner in 1958. The mill buildings remained till 1967 and at some point after this Penistone Council purchased the site to widen the road. The land where the mill building stood is now part of the nearby farm, but the Scout Dam still survives with little change. There is no legibility of the earlier landscape'.*

2.2 *Archaeological Potential*

2.2.1 A full Archaeology and Heritage Desk Based Assessment supports the application and should be consulted for a wider archaeological and historical background.

2.2.2 Recognised archaeological activity within the vicinity of the site is scant, with no pre early medieval activity recorded by the South Yorkshire Historic Environment Record within 1km of the site boundary.

2.2.3 Cropmarks of potential late prehistoric enclosures have been identified on land approximately 2.2km to the north-east of the site. The enclosures (HER ID 0576/1) appear to be multi-phase and are likely pastoral in nature

2.2.4 Nether Mill, a water powered corn mill, HER ID 04965, has its origins in at least the mid-16th century (although earlier origins are reputed) and was located to the south of the site. The land and mill was leased, in 1566 to Robert Peck, and by 1615 to Edward Sotwell. The mill is likely to have been served by a leat, called '*Scout dike*' (Nicholson. 2001). By the early 18th century permission had been granted to excavate a new leat from the River Don, and it is likely that refurbishment of the mill also took place around this time (Ibid). In 1761 ownership was taken over by the Stanhope family, and the mill was milled by the Hudson family, who enlarged and repaired the mill several times until the mill was gutted by fire in 1871. The mill was repaired and was productive by 1879, and it is possible that a building containing a corn drier was constructed as part of the repair works (Wardell Armstrong. 2016). The lease of the mill was taken over, in the late 19th century, by the Hincliffe family, who retained the ownership until the business closed in 1958. The mill was then purchased by Penistone Council. The mill building, which contained the waterwheel and associated machinery was demolished in 1961 to facilitate the widening of Barnsley Road.

2.2.5 The South Yorkshire Historic Environment Record for the mill also records the leat, which fed the mill from Scout Dike. Part of the leat is depicted as being located in the south-eastern corner of the site, where it tuned south to serve the mill buildings.

2.2.6 Archaeological excavation was carried out to the south-east of the site (HER ID ESY1893) in advance of the erection of residential development. The work was undertaken over part of the footprint of the former Nether Corn Mill (see above). Work identified structures relating to all phases of the corn mill and evidence of a previously unknown substantial water wheel pit and its associated mill race (Wardell Armstrong. 2016). Although the mill is reputed to have its origins in the Medieval period, no evidence of ore 18th century milling activity was identified. Evidence of the mill race was also identified during a Watching Brief (HER ID ESY192) to the south-west of the site (ASWYAS. 2005). Although the orientation of the feature could not be ascertained (ibid) the proximity of the Watching Brief site to the river to the south may offer an indication.

2.2.7 The first edition Ordnance Survey map depicts the site as agricultural land with the leat, which fed Nether Mill, running through the south-eastern portion of the site. The mill, and its associated mill dam are depicted to the south-east and south respectively. Nether Mill House, and associated outbuildings were located to the east. Penistone is depicted as a small village, with Thurlstone to the west.

2.2.8 A geophysical Survey has been carried out across the site (Phase Site Investigations. 2023). The results of the survey identified no features of likely archaeological origin, although modern material and areas of made ground may mask features, especially those relating to the aforementioned leat, should it survive.

3. Project Details

3.1 *Aims and Objectives*

3.1.1 The aim of the Archaeological Trial Trenching is to determine the presence/absence, nature, date, quality of survival and importance of archaeological deposits to enable an assessment of the potential and significance of the archaeology to be made.

3.1.2 Based on the archaeological deposits likely to be encountered during evaluation, and the development the land use depicted in cartographic sources, the site has the potential to inform the following research questions regarding the Post-medieval period in South Yorkshire.

- What evidence can be found for the use and improvement of water management systems, for the delivery of waterpower, in this period? How did the improvements identified relate to a changing economy?

3.1.3 It is anticipated that the evaluation will allow for sufficient information to be gained regarding the archaeological potential of the site. The results will allow for a reasoned decision to be made regarding the need for further archaeological work prior to development.

3.2 *Excavation Rationale*

3.2.1 Four trenches are proposed, positioned in order to assess potential features highlighted in the results of the Geophysical Survey, but also areas devoid of anomalies (Fig 2).

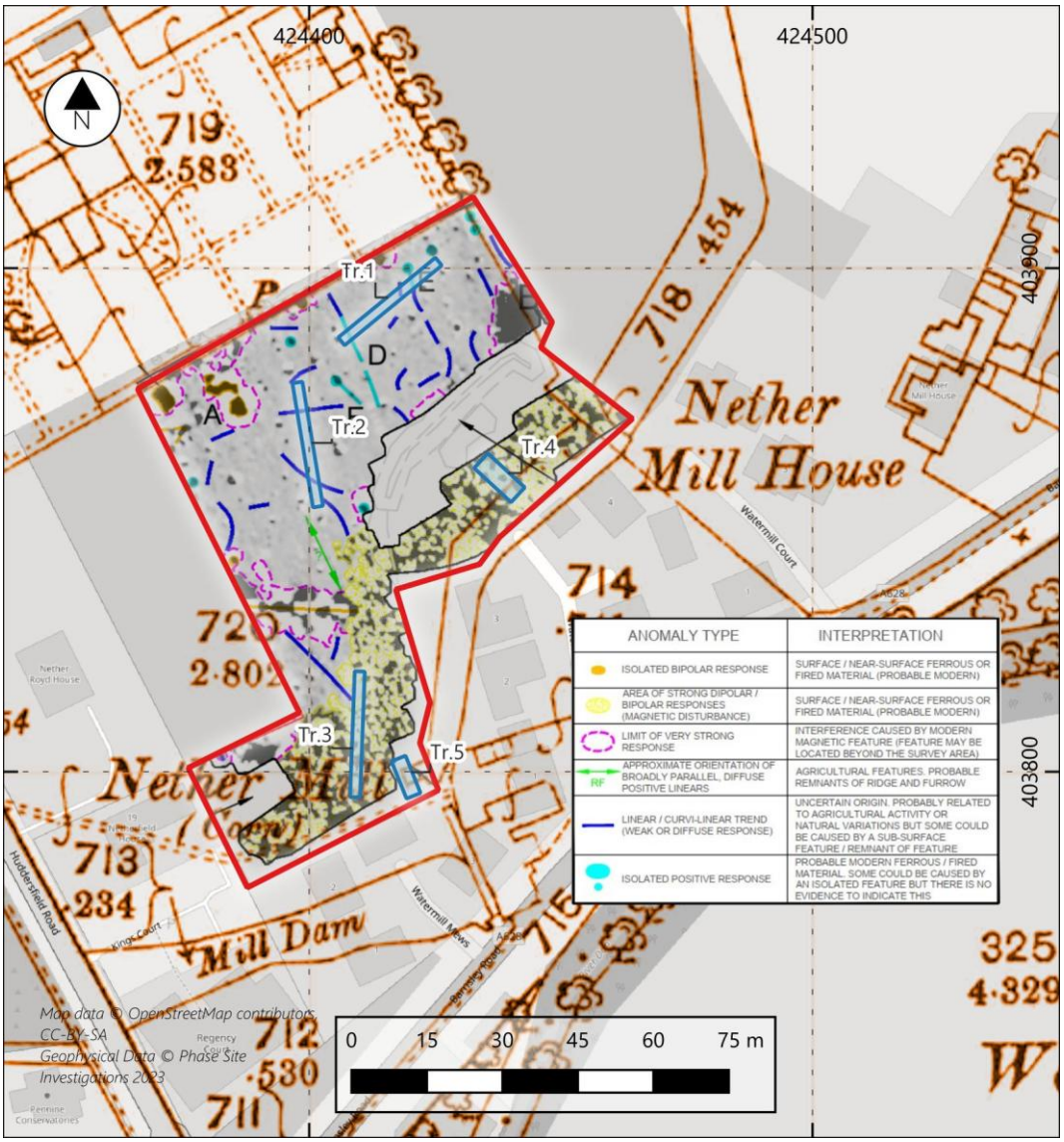

Figure 2. Trench Location

Trench Number	Dimensions & Orientation	Rationale
1	25m x 2m north-east to south-west	To target two geophysical anomalies, close to north-eastern boundary of the site.
2	25m x 2m north to south	To target two geophysical anomalies in the centre of the site.
3	25m x 2m north to south	To target an area of magnetic 'noise' in the results of the Geophysical Survey

4	10m x 4m north-west to south-east	To examine the state of survival of the Nether Mill leat and goit
5	8m x 3m north-west to south-east	To examine the state of survival of the Nether Mill leat and outflow
The following contingencies should be considered at the inception of the project • Should significant archaeology be encountered, a contingency of up to 5% of the original sample area should be allowed for • Specialist sampling and/or scientific dating may be required during the evaluation. This should be discussed at a mid-point review • Conservation of artefacts • Full post-excavation analysis and/or publication should further fieldwork not be required		

3.3 *Output and Dissemination*

3.3.1 It is anticipated that the project will produce the following output

Data type	Detail
Physical Archive	• Drawn plans and sections- permatrace • Site indices (context, photograph, drawing, samples) • Finds collected during the evaluation • Environmental material retained from samples collected during the evaluation
Digital Archive	• Diggit derived data (PDF context sheets and indices. .xlsx indices) • GIS ESRI Shapefile (.shp & .shx & .dbf, plus associated files) • Photographs .jpg, .raw (to be deposited as .tiff). to include all photographs taken during the project • Reports (.docx & PDF). WSI, evaluation report and all associated specialist reports
Reports	• Printed evaluation report

3.3.2 All digital data will be curated in line with the attached Data Management Plan.

3.3.3 MAP undertake public engagement for all appropriate projects. This will be offered in numerous ways to reflect the nature of the archaeological works. It is likely that public engagement will be via site notices and discussions with the public during the duration of the fieldwork. A copy of the evaluation report will be submitted to the South Yorkshire Historic Environment Record for public access.

4. Fieldwork Methodology

4.1 *Excavation Methodology*

4.1.1 All overburden, topsoil and any subsoils will be carefully removed, in spits of no more than 0.20m, by mechanical excavator using a wide toothless blade (ditching bucket), under archaeological supervision, to the top of archaeological features or layers, or natural strata, whichever is encountered first; thereafter all excavation will be by hand. Areas of intensive modern disturbance will be given a low priority in excavation. Where practicable, the fills of these features will be removed by mechanical excavator, with prior agreement with SYAS.

4.1.2 Minor adjustments may be undertaken to avoid previously unknown obstacles such as vegetation or services, or to enable machine manoeuvring. Trenches located to target specific features will not be moved without prior agreement of SYAS.

4.1.3 Should trenched require stepping or shoring to reach their required depth, the base of the trench will reflect the size specified in section 3.2.

4.1.4 Spoil will be scanned for metal artefacts using a metal detector capable of discriminating between metals, and operated by an experienced user, to enhance recovery of artefacts.

4.1.5 Archaeological deposits will be cleaned and excavated by hand using appropriate tools. The stratigraphy of all trenches will be recorded, regardless of a lack of archaeological features.

4.1.6 The excavation sampling policy is:

- An initial half section of all discrete features. Where justified further excavation may be deemed necessary
- linear features will be sampled a minimum of 20% along their length (each sample section to be not less than 1m), or a minimum of a 1m sample section, if the feature is less than 5m long,
- All junctions/intersections and corners of linear features will be investigated, and their stratigraphic relationships determined – if necessary, using box sections. All termini will be examined
- Funerary contexts, buildings and industrial features will be subject to sufficient excavation to establish the objectives of the evaluation

- No archaeological deposit will be entirely removed unless this is necessary to meet the aims of the project

4.2 *Recording Methodology*

4.2.1 All archaeological deposits and features will be recorded using Diggit Archaeology, a digital recording system which is compatible with the MoLAS recording system. All indices will be produced using MAP's pro forma sheets. The MAP recording manual will be used on site where necessary.

4.2.2 A full written, drawn, and photographic record will be made of all material revealed during the course of the Trial Trenching. Plans and section drawings will be drawn to a scale appropriate to the excavated feature (no less than 1:50 for plans and 1:20 for sections). All elevations will be recorded via GPS At least one representative long section of each trench will be drawn.

4.2.3 Digital photography will be undertaken in accordance with standards set by Historic England and the recipient archive. All digital photography will be undertaken using a high quality camera recommended to have no less than an APS-C or DX size sensor of 10 megapixels and to be capable of generating images in RAW format. Appropriately sized scales will be used in all photography.

4.3 *Sampling Strategy*

4.3.1 A sampling strategy for the recovery for environmental remains has been formulated in accordance with an Environmental Strategy written by an Environmental Consultant (Diane Aldritt, appendix 4).

4.3.2 Where necessary provision will be made for relevant specialists to visit the site.

4.3.3 Soil samples will be taken from all securely stratified deposits using a strategy which combines systematic and judgement sampling, but which also follows the methodologies outlined in the English Heritage (2011) '*Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation (Second Edition*)' guidance.

4.3.4 Positive features will also be sampled; retention of structural material such as bricks will be implemented where necessary.

4.3.5 Sampling will also be considered for those features where dating by other methods (for example pottery and artefacts) is uncertain. Such sampling may be carried out at the request of SYAS or

following advice form the Historic England Science Advisor and may include, but is not restricted to, radiocarbon dating, dendrochronological dating, luminescence dating and archaeomagnetic dating

4.3.6 Animal bones will be hand collected, and bulk samples collected from contexts containing a high density of bones. Spot finds of other material will be recovered where applicable.

4.3.7 Flotation samples and samples taken for coarse-mesh sieving from dry deposits will be processed at the time of the fieldwork wherever possible, partly to permit variation of sampling strategies.

4.4 *Human Remains*

4.4.1 Should any inhumation or cremation burials be encountered, their extent, number and state of preservation will be established and SYAS will be notified to discuss an appropriate strategy for their management. Remains should not be removed or chased beyond the existing limits of excavation prior to agreement with SYAS.

4.4.2 It is considered best practice to not remove the remains during evaluation, however, this should be considered at a site-specific level. If it is deemed necessary to remove human remains, this will be carried out under the conditions of, and after the receipt of, licences for the removal of human remains (issued by the Ministry of Justice) and in accordance with the Burial Act (1857), '*Updated Guidelines to the Standards for Recording Human Remains*' (Brickley & McKinley. 2017), CIfA guidelines '*Excavation and Post-Excavation Treatment of Cremated and Inhumed Human Remains*' (McKinley & Roberts 1993), and all Historic England and Advisory Panel on the Archaeology of Burials in England (APABE) guidance, to ensure that they are treated with due dignity. The preferred option would be for them to be adequately recorded before lifting, and then carefully removed for scientific study, and long-term storage with an appropriate museum; however, the burial licence may specify reburial or cremation as a requirement.

4.5 *Artefact recovery*

4.5.1 All stratified archaeological finds will be collected, except for modern (mid-20th century or later) finds from topsoil and subsoil contexts unless it is determined that they are of archaeological interest. All artefacts will be bagged and labelled by type and context.

4.5.2 Removal, packaging, and labelling of finds will be undertaken in accordance with '*First Aid for Finds*' and specific Historic England guidance as required.

4.5.3 Artefacts defined as treasure under the Treasure Act 1996 (as supplemented by the Treasure (Designation) Order 2002) will be treated in accordance with the Treasure Act 1996 Code of Practice. All finds of treasure must be reported to the local coroner within 14 days of discovery. In the first instance, it is recommended that details of the find are provided to the local Portable Antiquities Scheme Finds Liaison Officer to confirm that it constitutes treasure; they will be able to apply for a Treasure Reference Number and declare the find to the coroner on your behalf. SYAS should also be notified. A short Treasure Report will be compiled for submission to the coroner.

4.5.4 Where recovery of treasure cannot be undertaken on the same working day as the discovery, suitable security measures will be taken to protect the finds from theft.

5. Post-Investigation Assessment, Analysis and Reporting

5.1 *Assessment & Analysis*

5.1.1 Upon completion of the evaluation, the artefacts, soil samples and stratigraphic information will be assessed as to their potential and significance for further analysis.

5.1.2 A rapid scan of all excavated material will be undertaken by conservators and finds researchers in collaboration. Material considered vulnerable will be selected for stabilisation after specialist recording.

5.1.3 Where intervention is necessary, consideration will be given to possible investigative procedures (e.g., glass composition studies, residues in or on pottery, and mineral preserved organic material).

5.1.4 Allowance will be made for preliminary conservation and stabilisation of all objects and an assessment of long term conservation and storage needs.

5.1.5 Assessment of artefacts will include inspection of X-radiographs of all iron objects, a selection of non-ferrous artefacts (including coins), and a sample of any industrial debris relating to metallurgy

5.1.6 Once assessed, all material will be packed and stored in optimum conditions, as described in First Aid for Finds.

5.1.7 Waterlogged organic materials will be dealt with, following Historic England documents, Guidelines for the care of waterlogged archaeological leather, and guidelines on the recording, sampling, conservation and curation of waterlogged wood.

5.1.8 Processing of all samples collected for biological assessment, or subsamples of them, will be completed. Bulk and site-riddled samples from dry deposits will have been processed during excavation, where possible.

5.1.9 The preservation state, density and significance of material retrieved will be assessed, following methods presented in Environmental Archaeology (Historic England, 2011). Unprocessed sub-samples will be stored in conditions specified by the appropriate specialists.

5.1.10 Assessments for any technological residues will be undertaken. Samples for dating will be submitted to laboratories promptly, so as to ensure that results are available to aid development of specifications for subsequent mitigation strategies.

5.1.11 Basic stratigraphic information will be supplied to the project specialists outlines in section 7.

5.1.12 Recording of ceramic assemblages will be carried out in a manner compatible with existing typological series in local pottery reference collections, e.g., the South Yorkshire / North Derbyshire Medieval Ceramics Reference Collection.

5.2 *Reporting*

5.2.1 A brief, interim report may be required shortly after the completion of fieldwork.

5.2.2 On completion of the post-excavation assessment, an assessment report will be prepared, to include the following as a minimum:

- An introduction including background information (with planning application details, where appropriate);
- The original research aims and objectives and rationale for selected area of investigation;
- An archaeological and historical baseline;
- A description of results;
- A report of all find and sample categories to assessment level, by appropriate specialists, including their research potential;

- The results of any scientific dating;
- A discussion of the results including a phased interpretation of the site
- A summary of the results in their local, regional, and national context, and the extent to which the work has addressed the project aims and objectives;
- An assessment of the effectiveness of the evaluation strategy, including earlier stages of work
- Recommendations for any further investigation, specialist analysis or conservation, recording and/or preservation of in situ archaeological remains, to be determined in consultation with SYAS;
- Supporting illustrations, including as a minimum:
    - A detailed location map
    - A detailed site plan showing all trenches, as excavated;
    - Plans for all trenches where archaeological features were identified;
    - Detailed plans of archaeological features;
    - Detailed sections of archaeological features;
    - An overall (phased) site plan showing all archaeological features recorded
    - Selection of photographs of work in progress;
    - Select artefact illustrations and/or photographs
- Supporting tables of data
- Archive index
- Acknowledgements identifying those involved in the project, including SYAS.

5.2.3 Where an updated WSI is necessary, the updated document should contain

- Any changes to the aims and objectives of the project;
- The requirement and content of the final analysis report;
- Any changes to the archive arrangements, including details of proposed specialist conservation.
- Any updates to the Selection Strategy and Data Management Plan.

5.2.4 Copies of the report will be submitted to the commissioning body, the Local Planning Authority and South Yorkshire Archaeology Service within 3 months of the completion of the evaluation, unless an alternative timescale is agreed.

5.2.5 We will provide a physical and digital copy of the report to the South Yorkshire Historic Environment Record. A digital copy will also be lodged with Oasis.

5.2.6 Printed copies of reports will be included with the physical archive to the recipient museum (see section 6).

5.2.7 A summary report of an appropriate length, accompanied by illustrations (at 300dpi resolution), will be prepared and submitted in digital format, for publication in Archaeology in South Yorkshire or an equivalent SYAS publication.

5.2.8 Where results warrant it, and following discussion with SYAS, formal publication in the form of a journal article or monograph may be required. This will be discussed at the mid-point review.

5.2.9 Unless the individual/organisation commissioning the project wishes to state otherwise, the copyright of any written, graphic or photographic records and reports rests with MAP.

6. Archive

6.1 *Working Archive*

6.1.1 All material (whether digital or physical) recovered or generated through the duration of the field evaluation project will be appropriately and securely stored in a working project archive. This will be undertaken in accordance with the selection strategy and digital data management plan set out at the commencement of the project (appendices 1 & 2).

6.1.2 All physical documents or drawings will be indexed, collated, and stored in a secure location when not in use.

6.1.3 Digital security copies will be made of physical and born digital records at regular intervals, to be stored and backed up in a secure location. Documents and drawings will be scanned at an appropriate resolution (see appendix 2).

6.2 *Archive Deposition*

6.2.1 The requirements for archive preparation and deposition must be addressed and undertaken in a manner agreed with the Doncaster Museum who will be contacted before commencement of fieldwork. In line with the *'Archaeological Archive Deposition Policy for Museums in Yorkshire and the Humber'*, produced by Renaissance Yorkshire, the museum will also be contacted during a mid-point review of the project during which information will be passed to the museum regarding the archive and the proposed timescale for deposition, and following the completion of work.

6.2.2 Guidance set out in the CIfA Toolkit for Selecting Archives (2019) will be followed, prior to the commencement of fieldwork in order to establish project-specific strategies for the retention or discarding of material. The retention of material will also be discussed with the Doncaster Museum with regards to the significance and research potential of the archive.

6.2.3 Archive deposition will be arranged in consultation with the Doncaster Museum and SYAS, and in accordance with their deposition policy relating to the preparation and transfer of archives. The timetable for deposition shall be agreed on completion of the site archive and narrative. A copy of the archive receipt will be provided to SYAS.

6.2.4 The digital archive will be deposited with the Archaeology Data Service (ADS) at the University of York. A link to the final digital archive will be provided to SYAS.

7. Staffing

7.1 At the time of writing the field work team is to be confirmed however as a minimum the following contacts will be relevant for the duration of the project.

- Charlie Puntorno-MAP Project Manager

  Telephone- 07879791369

  Email- charlie@maparchltd.co.uk

- Andy Lines- South Yorkshire Archaeology Service

  Telephone- 0114 2736354

  Email- andrew.lines@sheffield.gov.uk

- Andy Hammon-Historic England Science Advisor

  Telephone- 07747486255

  Email- andy.hammon@historicengland.org.uk

- Amy Downes-South and West Yorkshire Finds Liaison Officer

  Telephone-0113 5350173

  Email-amy.downes@wyjs.org.uk

7.2 The following Specialists have been contacted as are available to work on the project:

- Prehistoric pottery - T. Manby
- Medieval & Post-medieval pottery - M. Stephens (MAP)
- Roman pottery - P Ware (MAP)
- Flint – Dr. Frederick Foulds
- Animal Bone – Jane Richardson
- Environmental Sampling – Diane Alldritt
- Conservation – York Archaeological Trust
- Human Remains – York Osteology
- Ceramic Building Material – Dr. David Griffith
- Clay Tobacco Pipe - M R Stephens (MAP)

8. Bibliography

Alan Wood & Partners. 2023. Phase II Geo-environmental Assessment, Nether Mill, Penistone

Archaeological Services West Yorkshire Archaeological Services. 2005. Sunnymede, Penistone: Archaeological Watching Brief

British Geological Society. Geology of Britain Viewer. Available at: http://mapapps.bgs.ac.uk/geologyofbritain/home.html [accessed 28.07.23]

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Nicholson V. 2001. Upper Don Watermills

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Puntorno. C. 2023. Land off Watermill Gardens, Penistone, South Yorkshire. Archaeology and Heritage Desk Based Assessment. MAP Archaeological Practice

South Yorkshire Archaeology Service & Historic England. South Yorkshire Historic Environment Research Framework. Web Resource. Available at https://researchframeworks.org/syrf/ [Accessed 28.07.23]

Wardell Armstrong. 2016. Nether Mill Farm, Penistone, Barnsley, Yorkshire. Archaeological Excavation Report

Land off Watermill Gardens

Penistone

South Yorkshire

Evaluation by Trial Trenching

VB 06.11.24

Selection Strategy

Project Information

Project Management		
Project Manager	Charlie Puntorno Charlie@maparchltd.co.uk	
Archaeological Archive Manager	Kelly Hunter kelly@maparchltd.co.uk	
Organisation	MAP Archaeological Practice	
Stakeholders		**Date Contacted**
Collecting Institution(s)	Barnsley Museums Archaeological Data Service	15.08.23
Project Lead / Project Assurance	Collections and Exhibitions Manager Collections Development Manager (ADS)	15.08.23
Landowner / Developer	Mulgrave Properties	
Other		
Resources		
Resources required	No additional resources required outside of the norm	

Describe the resources required to implement this Selection Strategy, particularly if unusual resources are required.	

Context

The full aims and objectives are outlined in the attached WSI. The primary aim of the project is to assess the archaeological potential of the site prior to development. The trial trenching follows a desk-based assessment and Geophysical Survey

The selection strategy will be guided by the aims and objectives of the project as outlined in the WSI.

MAP. 2023. Land off Sheffield Road Warmsworth, South Yorkshire. Archaeology and Heritage Desk Based Assessment

Phase Site Investigations. 2022. Sheffield Road, Warmsworth, Doncaster. Archaeological Geophysical Survey

South Yorkshire Historic Environment Research Framework. Available at https://researchframeworks.org/syrf/ [accessed 26.04.23]

A full bibliography and details of best practice and guidance documents are provided in the WSI.

1 – Digital Data

Stakeholders

Name the individual(s) responsible for the Digital Data Selection decisions (i.e., Archaeological Archive Manager, Project Manager, Collections Curator).

Charlie Puntorno (MAP- Archaeology and Heritage Manager), Max Stubbings (MAP- Archaeology and Geomatics Manager), Kelly Hunter (MAP, Post Excavation Manager)

Selection

Location of Data Management Plan (DMP)

All digital data will be collected, stored and selected in lines with MAP's Data Management Plan (attached to the WSI), located on MAP's servers (available on request).

Strict version control will be applied throughout the project in line with the Data Management Plan (DMP). It is proposed that only the final version of all born digital documents (reports, databases, images-including those created by specialists) will be selected for inclusion in the Archive. Digital photographs will be assessed during post ex and selection based on the principles set out in the DMP and HE guidelines. All raw and processed survey data will be included in the archive.

The digital data will be reviewed following data gathering and analysis to check that data is being properly preserved and version control upheld in-line with the DMP. The final decision about selection for inclusion

in the Archive will be made (by the Archaeology and Geomatics Manager) following the reporting stage of the project and enacted during archive completion. A metadata form consistent with ADS examples will be completed for each dataset and included within the final archive.

The following standards/ guidelines will guide the selection of digital data:
Map Archaeological Practice. 2002.. Data Management Plan.
ADS Guides to good practice. https://guides.archaeologydataservice.ac.uk/g2gp/Main
ADS Guidelines for Depositors http://archaeologydataservice.ac.uk/advice/guidelinesForDepositors
ADS Guidance for the selection of material for deposit and archive
Historic England (2015a) Digital Image Capture and File Storage

De-Selected Digital Data

The procedure for dealing with De-selected digital data and what specialist advice informed this process should be recorded in your DMP. Please copy this information here or attach your DMP as an appendix to this document.

All stakeholders will be consulted on the fate of all de-selected material. It is envisaged that the de-selected material will be retained on the MAP servers for 2 years following the completion of the project at which point they will be reviewed and deleted as necessary in line with the DMP.

Amendments

Date	Amendment	Rationale	Stakeholders

2 – Documents

Stakeholders

Name the individual(s) responsible for the Documents Selection decisions (i.e., Archaeological Archive Manager, Project Manager, Repository Representative).

Charlie Puntorno (MAP- Archaeology and Heritage Manager), TBC (MAP-Project Officer), Doncaster Museum Archives Team

Selection

All original documentary material created during data gathering (including those created by specialists) will be selected for inclusion in the archive. Duplicates, photocopies of originals and research materials will be discarded during archive completion in line with Doncaster Museum's Deposition Standards.

The documentary archive will be reviewed following analysis an again at archive completion in order to select for the inclusion in the archive. The site derived archive will be reviewed and curated continuously by the on-site Project Offer.

The following standards/ guidelines will guide the selection of digital data:
MAP Archaeological Practice. 2022. Data Management Plan.
Map. 2022. Post-excavation finds processing, retention and discard procedures

De-Selected Documents

It is envisaged that the material de-selected from inclusion in the preserved archive will be duplicates or re-productions created during the analysis phase of the project. De-selected material will therefore, either be retained to by MAP or recycled.

Amendments

Date	Amendment	Rationale	Stakeholders

3 – Materials

Note: This step should be completed for each material component of the archaeological archive. Copy this table for the various materials as required, providing the 'Material Type' and a section identifier (e.g., '3.1') for each.

Material type	**Bulk finds** (pottery, CBM, animal bone, metal working debris, flint etc.) **Small finds including**; (Decorated/Stamped/Graffiti on pottery and CBM, Coins and Jettons, Metal jewellery, dress accessories (including buttons) and buckles personal objects, Metal tools and knives, Clay tools and work items, Decorated bone, worked bone and bone tools, Stone tools, querns, worked items and architectural fragments, Leather items). All finds regarded as treasure under the Treasure Act, will be reported and initially recorded as a small find.	**Section 3.**	1

Stakeholders

Charlie Puntorno (MAP- Archaeology and Heritage Manager), Kelly Hunter (MAP-Post-Excavation Manager TBC (MAP-Project Officer), Doncaster Museum Archives Team

The following Specialists have been contacted as are available to work on bulk finds
Pottery - T G Manby (Prehistoric),
M R Stephens (medieval and Post-medieval)
P A Ware (Roman)
Flint – Dr. Frederick Foulds

Animal Bone – Jane Richardson
Ceramic Building Material – Dr. David Griffith

Selection

3.1.1 In line with MAPS Post-excavation finds processing, retention and discard procedures, all artefacts (items made or used by humans) will be retained in the first instance during excavation. Excavators, especially novices, are instructed to err on the side of caution by retaining everything they think may even possibly be of interest.

All material gathered during the evaluation will be returned to the MAP offices for cleaning and assessment, under the management and guidance of the Post Excavation Manager. Where immediate conservation is required, finds will be transported to York Archaeology's conservation department in York.

All finds considered to be 'small finds' will be retained and, where appropriate, fully recorded on site. Examples of 'small finds' include;

- Decorated/Stamped/Graffiti on pottery and CBM
- Coins and Jettons
- Metal jewellery, dress accessories (including buttons) and buckles personal objects
- Metal tools and knives
- Clay tools and work items
- Decorated bone, worked bone and bone tools
- Stone tools, querns, worked items and architectural fragments
- Composite Objects (organic/inorganic/metal)
- Medieval & Roman Glass
- Waterlogged wood, structures and objects: Structural wood and objects should be kept wet, and advice sought immediately from a specialist.
- Leather items

3.1.2 Following analysis by relevant specialists, the entirety of the material archive will be returned to MAP. Following the analysis stage all stakeholders will assess the material and recommendations made by relevant specialists, including recommendations for retention of discard of material. no material will be discarded until all analysis and subsequent reporting (including publication where applicable) has been completed. The Heritage Manager at North Lincolnshire Museum will be kept informed of all decisions regarding the retention or discard of material, and the effect this will have on the final archive.

3.1.3 Advice will be sought by all relevant material specialists (listed above) prior to the archive completion stage of the project. A full list of relevant guidance and best practice documents are included within the WSI.

Map. 2022. Post-excavation finds processing, retention and discard procedures

De-Selected Material

All material will be analysed by a relevant specialist during the assessment and reporting stages of the project.

All de-selected material will, with the agreement of all stakeholders, including developers/landowners, will be reburied or, where appropriate, recycled. A small amount of material may be retained by MAP for use as a reference and/or educational collection.

Amendments			
Date	**Amendment**	**Rationale**	**Stakeholders**

Material type	Environmental remains	Section 3.	2

Stakeholders

Kelly Hunter (MAP-Post-Excavation Manager), Tom Broomfield (MAP-Environmental Processing Supervisor), Doncaster Museum Archives Team

The following Specialists have been contacted as are available to work on environmental material
Carbonised Plant Macrofossils and Charcoal-Diane Alldritt
Geoarchaeology- Kristina Krawiec (York Archaeology)
Pollen Dr Tom Hill (independent)
Diatoms Dr Tom Hill (independent)
Ostracods Dr John Whittaker (independent)
OSL Dr Phil Toms (University of Gloucester)
Plant macrofossils Stacey Adams (York Archaeology)
Insects Dr David Smith (University of Birmingham

Selection

3.2.1 All environmental samples will be processed by suitably experienced personnel, and all remains will be sent to relevant specialists (outlined above) for analysis. Specimens to be included in the working project archive may include glass microscope slides (pollen samples, sediment thin sections), samples in vials (archaeobotanical remains e.g., seeds; pollen sample residues; insect remains; molluscs), resin-embedded sediment blocks and dendrochronology samples (dry wood blocks/cores).

3.2.2 The selection strategy for the retention of environmental material will be decided in collaboration with all revenant specialists throughout the duration of the project. No material will be discarded until the analysis and reporting stage of the project has been completed and any discarded material will be based on recommendations made by specialists. It is possible that material derived from environmental samples, or sub samples thereof, may be retained for future analysis, including scientific

3.2.3 A full list of relevant guidance and best practice documents are included within the WSI.
Dunne, J. (ed.) 2017 Organic residue analysis and Archaeology: guidance for good practice Swindon: Historic England
Dunne, J. (ed.) 2017 Organic residue analysis and Archaeology: supporting information Swindon: 8 Historic England

Historic England 2008 Guidelines for the Curation of Waterlogged Macroscopic Plant and Invertebrate Remains Swindon: Historic England
Historic England (2011) Environmental archaeology: a guide to the theory and practice of methods, from sampling and recovery to post-excavation (second edition) Swindon: Historic England
Historic England (2014) Animal bones and archaeology: guidance for dealing with archaeological animal bones and teeth, from project planning through to post-excavation Swindon: Historic England
Historic England 2015 Geoarchaeology: Using earth sciences to understand the archaeological record Swindon: Historic England

De-Selected Material

All material will be analysed by a relevant specialist during the assessment and reporting stages of the project.

All de-selected material will, with the agreement of all stakeholders, will be discarded. material from samples will be retained by the specialists or by MAP for inclusion in their handling and teaching collections

Amendments

Date	Amendment	Rationale	Stakeholders

Appendix 2

Digital Data Management Plan

Project Administration	
Project Name	Watermill Gardens, Penistone
Site Code	05.22.23
Project Description **(E.g., number of trenches, area of excavation)**	Excavation four archaeological trenches – three 25m x 2m & one 10m x 2m
OASIS ID	maparcha1 -517898
Museum Name & Accession code (where applicable)	Barnsley Museums Accession Code TBC
Client/ Landowner (where applicable)	Mulgrave Properties
Project Lead	TBC
Project Manager	Charlie Puntorno
Date & Version	B 061124

Data Collection

Geophysical survey has previously been undertaken at the site and will be used to inform the excavation strategy. The data images including interpretation are likely to be included within the project report with permission, but the original data copyright resides with the original researchers (Phase Site Investigations Limited) and will not be deposited with this project archive.

Data to be Collected/ Created (to be updated throughout duration of project)		
Type	Format	**Volume**
GIS	ESRI Shapefile (.shp & .shx & .dbf, plus associated files) (Metadata to be deposited as .csv)	WSI= 2 shapefiles
CAD	.dwg, .dxf (Metadata to be deposited as .csv)	
Spreadsheets & databases	Excel (.xlsx) Access (.accdb) (to be deposited as .csv)	
Images	.jpg, .raw (to be deposited as .tiff)	WSI=1 .jpg
Text/ Documents	Word (.docx) PDF (.pdf)	WSI = 3.docx & 5 pdf

- All data will be collected in line with the project specific Written Scheme of Investigation, *Guides to Good Practice* produced by the ADS and MAP's guidance on the *Creation and Treatment of Documentary, Digital and Material Archives*.

- The digital archive will be stored in an appropriately named project specific folder which will be regularly backed up. All data raw data will be stored in the appropriate folder. Version control will be maintained throughout the project.

Documentation and Metadata

- Data collected will include standard formats which maximise opportunities for use and reuse in the future

- Data documentation will meet the requirement of the Museum Deposition Guidelines, Digital Repository Guidelines and the methodology described in the Written Scheme of Investigation. Following the completion of the project all paper-based material will be digitised and included within the archive.

- A metadata form consistent with ADS examples will be completed for each dataset and included within the final archive. As a minimum the metadata will include a file name, keywords & dates, creator & date of creation, copyright holder, location (site address or coordinates as appropriate), software and version

- An archive catalogue documenting both physical and digital archive products will be maintained and submitted with both the Museum and Trusted Digital Repository (ADS).

Ethics and Legal Compliance

- MAP staff must only participate in work which conforms to accepted ethical standards and which they are able to competently preform. Where there is any doubt, which should be raised with management.

- MAP places an emphasis on internal peer review of documents and the discussion of results. All Written Schemes of Investigations are reviewed by the relevant Local Authority Archaeologists prior to submission. Where confidentiality is requested by a client, this is strictly upheld by MAP.

- The project archive will include the names of all individuals who contributed to the project unless it is requested otherwise. No personal data will be held within the project archive.

- MAP have a GDPR compliant Privacy Policy underpins the management of all personal data. Such data is not retained in project specific folders and is not accessible to unauthorised staff nor will it be shared with any third-party companies.

- Unless otherwise agreed at the inception of a project, the copyright of all data collected throughout the project belongs to MAP. The inclusion of data derived from external specialists and/or contractors is secured at the point of agreement of their participation on the project.

- By depositing an archive with an HER or museum MAP gives permission for the material presented to be used by the recipient, in perpetuity, although MAP retains the right to be identified as the author of all project documentation and reports as specified in the Copyright, Designs and Patents Act 1988 (Chapter IV, section 79).

- All relevant licences and permissions to reproduce external data are discussed in the site-specific Written Scheme of Investigation and all subsequent reporting, including Desk Based Assessment. Where site specific licences are required (i.e., for the removal of human remains), licence numbers and dates will also be included within site reports and a copy of the licence held within the archive.

Data Security: Storage and Backup

- MAP's current IT infrastructure is divided between SharePoint for documents and an NAS (Network Attached Storage) drive for larger data files (acting as back up of locally held files on work laptops). Both require username and password intrinsic to the individual users.

- Digital Recording is currently provided by DiggitArchaeology.com, who provide access to their mobile app and web app via email and password login. The backup of recorded material is provided by Diggit's use of the three-point server system with automatic backups working in tandem. Diggit's data is encrypted in transit and stored and backed up on a MongoDB Atlas server cluster of 3 replicate nodes in the Republic of Ireland (in the GDPR-compliant EEA). In the rare event that one server is down, a replicate node instantly replaces it with no perceptible change in behaviour or functionality. These servers are backed up daily, and the datacentres housing them are accredited to ISO 27001 (2005) or higher. In the very unlikely scenario that data must be restored from a backup, we estimate the Recovery Time Objective (RTO) for restoring this data to be approximately

10 minutes of downtime. At the close of the site material will be downloaded and stored using SharePoint.

- In regard to filing within the SharePoint and NAS, a folder template sets out the associated locations of files; these folders should be appropriately named and populated with file names for field data stored on the NAS. See section on "Naming Conventions"

- SharePoint is maintained/delivered under licence by Practical Networks with in-house maintenance by the Commercial Director. The NAS drive is a WD PR2100 and is maintained by the Archaeology and Geomatics Manager with weekly backups and checks of the data; field data such as photographs and survey data to be uploaded weekly by the Project Officer.

- Field and in-house access to the SharePoint and the NAS drive is limited/restricted by user email and password.

- Files such as databases, tables and documents required by the external specialists and in-house post-excavation team will be distributed using the SharePoint system. Any further data such as photographs, AutoCAD files, QGIS projects etc will be distributed via secure alternative means (WeTransfer or similar) to protect the integrity of the NAS Drive.

Selection and Preservation

- A selection strategy and the DMP for each project will be considered from the inception of the work. The process of selection should be devised in consultation with LPA frameworks, guidance and individual stakeholders, reviewed by the Appointed Project Manager at each milestone of a project's lifespan; inclusive a peer review and appropriate consultation with stakeholders to provide quality assurance.

- The strategy should dictate which parts of the archive, both digital and analogue, are relevant and would provide future generations with a soundly curated archive. Documents and Data should be quality assured prior to deposition, checking for consistency and following any deposition guidance of the eventual repository

- All costs relating to the digital archiving have been factored into the original quote and intended repository will be notified. At each milestone costing considerations must be undertaken to ensure that deposition is not out of pocket or unexpectedly above factored levels.

Data Sharing

- A summary of the site will be made available at the earliest opportunity, latterly curated and adapted at each major milestone to reflect most up to date information regarding the site.
- All reports relevant to the site will also be curated and added to the OASIS record, updated at pertinent milestones of the project; the final report must be lodged with the HER in the first instance.
- Any archive material must be authorised for dissemination by the relevant stakeholders, primarily this is likely to be the client; though any such action will only be temporary, and usually as a result of planning issues.

Responsibilities

- The appointed Project Manager shall ensure the DMP is correctly followed, reviewed and adapted (where appropriate) at each milestone. In the unlikely event that the project changes hands, the responsibility will ultimately rest with the Managing Director, who will ensure the needs of the DMP are addressed and properly handed over to the next Project Manager.
- Curation of the field data, data synthesis/analysis, quality assurance should be the responsibility of senior figures of the project team, usually the Project Officer/Supervisor. They will make sure that all data is stored correctly and backed up to minimise any loss of integrity of the archive.
- Reports both internal and external shall be subject to MAP's ideal naming preferences of project files. It is the responsibility of each department to ensure their curated report/work is correct, quality assured and seek clarification from the authors (external or otherwise) of any document which contains errors.
- All work will be latterly audited by the Project Manager working towards creating an archive and level of reporting which is both ethically sound, accurate and reliable for future use by anyone internal or external to the company.

Naming Conventions

- Files and Folders should be named consistently throughout the project folder. The use of an _ (underscore) should be used to separate words instead of spaces e.g., use Pott_Asmnt instead of Pottery Assessment. File names vary according to the content of the file, the _ rule still applies here.
- There should be no spaces in any file naming
- No symbols (e.g., #?,) should be used as they are not ADS compliant
- Full stops in file names are not accepted, except between file name and file type
- Abbreviate where possible, losing extraneous vowels and consonants, as file paths are cumulative and cannot exceed a certain number of characters
- Naming Examples.

- Reports and digitised registers

  Should follow the structure of: Site Code, Type of Work (Adding excavation Phase if required), Component, Version. Varied slightly for digitised registers as per example:

  e.g., 05-08-20-TT_FINALReport_A210622

  05-26-19-EXC_PhsB_App01_CtxtListing

- Digital Photographs and Black & White Photographs

  Should include the Site Code, Type of Work (Adding excavation Phase if required), and Frame No, varied slightly for B&W film:

  e.g., 05-08-20-TT_Digi_001

  05-26-19-EXC_PhsB_BW_FLM01-001

  NB be aware that jpegs and raw (as well as selected archive tiff's) should be in separate folders and be concurrent with each other

- Scanned Site Registers

  Should be scanned in pdf format and be formatted as: Site Code, Type of Work (Adding excavation Phase if required), Register Name.

  e.g., 05-08-20-TT_CtxtReg

05-26-19-EXC_PhsB_DrawReg

- Scanned Context Sheets & other site sheets

  Should be scanned in pdf format and be formatted as: Site Code, Type of Work (Adding excavation Phase if required), Type of Sheet, Sheet Nos.

  e.g., 05-08-20-TT_Ctxt-0001-0050

  05-26-19-EXC_PhsB_Ctxt0001-0050

- Site Drawings and Plans

  Should be scanned as TIFF's and be formatted as: Site Code, Type of Work (Adding excavation phase if required), Drw, Sheet No

  e.g., 05-08-20-TT_Drw_Sh-001

  05-26-19-EXC_PhsB_Drw_Sh-001

NB. The phase of work or field numbers may only be relevant at the time the work was undertaken, if work is part of a larger continuing outline, check where the next tranche of numbers will start and bare that in mind or check with PM prior to archiving reports.

List of Abbreviations

Registers

Ctxt

Drw

Digi

BW

Env

SF

Specialist Reports

Pott	Pottery
ABn	Animal Bone
FeR	Iron Waste Residues
Crbn	Carbonised Plant Remains
Cnsrv	Conservation

Archaeological Field Evaluation

Standards & Guidance

Contents

1 Requirement for Archaeological Field Evaluation

1.1 An archaeological field evaluation is undertaken where there is reason to believe that archaeological remains may exist on the site, or where the significance of known remains is inadequately understood, such that the implications of a planning or other proposal cannot be adequately assessed.

1.2 SYAS should be consulted in advance of any field evaluation to agree a methodology.

1.3 Note: All references are correct at time of publication, and it is the responsibility of the undertaking body to review the guidance and ensure that they refer to the most current.

Professional Standards

1.4 Archaeological work should be carried out using appropriate expertise and the archaeologists undertaking the work should be adequately qualified. It is good practice to use professionally accredited experts such as a CIfA Registered Organisation[1]. SYAS also maintain an open list of archaeological contractors who operate in the region.[2]

1.5 All archaeological work needs to comply with:

1. the Regional Statement of Good Practice for Archaeology in the Development Process;[3]
2. the Chartered Institute for Archaeologist's (CIfA) standards and guidance;[4]
3. Historic England's guidance on managing archaeological projects (MoRPHE)[5]
4. Historic England's best practice guidance relevant to the project.[6]

Written Scheme of Investigation

1.6 The undertaking body may be required to provide a Written Scheme of Investigation (WSI) to set out a proposed scheme of archaeological investigation in sufficient detail to demonstrate the works will be appropriate and proportionate to the known/potential remains and the anticipated level of impact.

1.7 The requirement and contents of a WSI on any given site should be confirmed with SYAS.

1.8 The WSI should be formed in reference to relevant standards, and as a minimum contain:

1. Site location (including map);
2. Context of the project (including planning background and consultations);
3. Project timetable/ work stages;
4. Strategy for seeking preservation in-situ of identified features of importance;
5. Monitoring arrangements;
6. Description of the site identifying its geology, topography, condition etc.;
7. Brief summary of the archaeological and historical background of the site and its environs;
8. Detail implications (of 6 & 7 above) for archaeological and palaeo-environmental potential (of both buried and standing remains);

[1] A register of Registered Organisations is available online: https://www.archaeologists.net/lookingforanarchaeologist
[2] Available online: https://www.sheffield.gov.uk/home/planning-development/south-yorkshire-archaeology-service
[3] SYAS 2018
[4] CIfA 2020a
[5] Historic England 2015a
[6] Available online: https://historicengland.org.uk/advice/find/a-z-publications/

9. Aims and objectives with reference to the South Yorkshire Historic Environment Research Framework and other period specific or thematic research frameworks/strategies, as applicable;
10. A table listing the rationale behind the location of each trench and their dimensions (including a plan that shows their location within the site);
11. Summary of the specific outputs of the project (e.g. report, archives etc);
12. Methodology for site investigation, sampling, assessment, analysis and reporting;
13. Strategy for the deposition of the project archive (including a selection strategy and data management plan produced in accordance with CIfA guidance);
14. Strategy for publication and dissemination of the results;
15. Details of the competent person/persons or organisation undertaking the works.

1.9 Appropriate specialists, including the Historic England Science Advisor, should be consulted in formulating sampling strategies and methodologies specific to the site and project objectives. This should include an outline sediment sampling strategy based on deposit modelling, suspected archaeology, and previous nearby discoveries. Provision should be allowed to revise this strategy during the fieldwork, as appropriate, to account for initial results and unexpected discoveries.

1.10 A template Written Scheme of Investigation covering intrusive archaeological investigations is available[7], providing additional guidance and allowing any deviations from these standards to be identified and justified.

Selection Strategy & Data Management Plan

1.11 A proposed archive selection strategy must be included with the WSI, detailing the project-specific selection process, agreed by all stakeholders, for all records and materials arising from the work in creating the Archaeological Archive.

1.12 Where digital data is anticipated as an output of the project, the selection strategy must include a data management plan, setting out the methodology for data management from acquisition to deposition.

1.13 This should be produced in accordance with CIfA guidance.[8]

Monitoring

1.14 SYAS will be responsible for monitoring the contractor's work. The contractor must give a minimum of one week's notice of the commencement of fieldwork in order that arrangements for monitoring can be made.

1.15 Minor changes to an agreed WSI must be submitted to SYAS for written approval. Major changes will require the preparation of an updated WSI for submission to the approving body (SYAS or planning authority as appropriate).

[7] See guidance for archaeological projects, available online: https://www.sheffield.gov.uk/syas
[8] Available online: https://www.archaeologists.net/selection-toolkit & https://www.archaeologists.net/digdigital

2 Aims

2.1 The purpose of field evaluation is to gain information about the archaeological resource within a given area or site (including its presence or absence, character, extent, date, integrity, state of preservation and quality), in order to make an assessment of its merit in the appropriate context, leading to one or more of the following:

1. the formulation of a strategy to ensure the recording, preservation, or management of the resource.
2. the formulation of a strategy to mitigate a threat to the archaeological resource.
3. the formulation of a proposal for further archaeological investigation within a programme of research.

2.2 The work will be undertaken in reference to general aims and specific objectives formulated with reference to the South Yorkshire Historic Environment Research Framework[9] and other period specific or thematic research frameworks/strategies, as applicable.

2.3 The level of detail included should be proportionate to the importance of any heritage assets affected, and no more than is sufficient to understand the potential impact of the proposal on archaeological significance.

[9] Available online: https://researchframeworks.org/syrf/

3 Scope

3.1 The field evaluation should investigate the whole of the proposal area, including those areas affected by temporary works such as construction compounds.

3.2 The evaluation strategy chosen will represent the best means for evaluating the site, establishing the importance and significance of any remains present, and will be selected to cause the minimum impact to archaeological remains present, operating with due regard to health and safety regulations.

3.3 The most common forms of field evaluation employed in the region include:

1. Geoarchaeological investigations and deposit modelling;
2. Geophysical survey;
3. Evaluation trenching;
4. Shovel/test pitting.

3.4 Field evaluation is often an iterative process, and a combination of strategies may be required dependent on the site and project objectives. For example, after a geophysical survey, trial trenching is usually required.

3.5 Field evaluation should be undertaken at a stage when it can inform the design of appropriate mitigation measures, i.e., before the finalisation of any detailed designs and in advance of a planning application being made.

3.6 The Historic England Science Advisor can be consulted in respect to advice on appropriate approaches to fieldwork, sampling strategies and any archaeological science components.

Recommended Contingencies

3.7 Contingencies should be budgeted for and identified in the WSI, including, where relevant:

Geoarchaeological Investigations and Deposit Modelling

1. Further field survey, up to 10% of the total original boreholes and/or test pits;
2. Specialist analysis and scientific dating

Archaeological Geophysical Survey

1. Additional survey with a complementary technique, up to 10% of the original survey area.

Archaeological Evaluation Excavation

1. Additional trenching or trial pitting, up to 5% of the original sample area;
2. Additional specialist sampling and scientific dating;
3. Conservation of artefacts;
4. For the preparation and submission of a report including the results of post-excavation analysis, in the event that further archaeological fieldwork and follow-on reporting is not required;
5. Publication of results.

4 Geoarchaeological Investigations & Deposit Modelling

4.1 Geoarchaeological investigations and deposit modelling will be undertaken in accordance with standards and guidance published by Historic England.[10]

4.2 Deposit modelling is best deployed early in the planning process as it can be beneficial in identifying areas of archaeological interest/sensitivity; improving cost estimation through determining the depth and range of deposits anticipated at the site; and developing mitigation strategies.

4.3 Deposit models can be applied in any landscape where sediments accumulate, either through natural or anthropogenic processes, including sites of:

1. natural Quaternary (superficial) sediments;
2. deep urban stratigraphy;
3. other deep anthropogenic deposits, e.g. mining waste.

4.4 It is appropriate for the model to be constructed by a geoarchaeologist for large sites or those with complex, deep or significant deposits. On deeply stratified urban sites, they should work in partnership with an experienced urban archaeologist.

4.5 Deposit modelling is an iterative process and should be enhanced as additional data is collected during subsequent project stages.

Desk-Based Deposit Modelling

4.6 Geotechnical borehole logs for a site and its environs should be obtained from existing sources, with readily accessible information including:

1. British Geological Survey geotechnical data (via Geoindex);
2. Previous planning applications for the site and land around it which may include geotechnical surveys (via local authority planning portals);
3. Archaeological reports and archived data for the site and land around it held by the Historic Environment Record and the Archaeological Data Service;
4. Quaternary Research Association's regional field guides;
5. Relevant published literature.

4.7 Data should be collected beyond the site boundary to reduce discrepancies in the model and contextualise the site.

4.8 All data should be reviewed, cleaned, and standardised prior to creating the deposit model. The quality of the data, and its spatial distribution, should be assessed to determine whether a model can be constructed or whether additional field survey (see below) is needed before modelling can take place.

4.9 The South Yorkshire Historic Environment Research Framework and other relevant period-specific and thematic research frameworks and strategies should be consulted in developing research questions for the deposit model.

[10] Historic England 2011, 2015e & 2020

Field Survey

4.10 Where gaps exist or questions remain unanswered in any desk-based model, targeted geoarchaeological boreholes and/or test pits and/or deep geophysical survey should be undertaken as an early stage of evaluation.

1. enhance coverage of existing surveys and target areas of uncertainty
2. enable inspection by a geoarchaeologist to enhance interpretation
3. enable recovery of finds and samples, enhancing dating

4.11 The method of survey will be dependent on the aims of the survey, estimated depth of the sedimentary sequence, the likely sediment characteristics, and the nature of any sampling required. In developing the survey methodology, advice should be sought from appropriate specialists such as a geoarchaeologist and the Historic England Science Advisor.

4.12 Borehole should be drilled to the top of the bedrock (i.e., the full Quaternary sequence). Cores can be recorded on or off site, although all samples of potential further research interest should be retained for later project stages and stored in appropriate conditions.

4.13 Boreholes are also required to ground truth the results of deeply penetrating geophysical surveys, and to aid in its interpretation.

4.14 Where geotechnical site investigations are planned ahead of development, it is encouraged that they are designed in consultation with a geoarchaeologist in order to determine whether the surveys can be integrated, and/or whether they can be monitored by a geoarchaeologist.

Data Processing

4.15 Depositional sequences from investigations within and around the site should be reviewed, and interpreted based on physical characteristics, and laterally equivalent deposits linked to identify stratigraphic layers across the site.

4.16 The surfaces of deposits derived from geophysical survey should be corroborated by ground truth boreholes.

4.17 The method used to prepare the deposit model will be based on the aims of the project, the desired graphical outputs, data distribution and quality, and the size and complexity of the site and depositional sequence. For small or simple sites, a 2D diagram can be produced by hand or computer software. For complex sites, or where more sophisticated graphical outputs are warranted, such as 3D models, specialist software will be required. In either case, the key aim of any deposit modelling exercise is to generate outputs that are clear and informative for all end-users. Guidance from SYAS or Historic England's Science Advisor should be sought on the most appropriate outputs for any given site.

Report

4.18 A report will be produced, containing:

1. Non-technical summary;
2. Site location and description of geology and topographic setting;
3. Aims and objectives of the deposit modelling exercise;
4. Justification and rationale for the survey methodology;
5. Data sources, distribution, and assessment of quality;
6. Methods used to build the model;
7. Chronological control;

8. Statement of reliability of the model and the confidence that can be placed in it;
9. Interpretation of the site-wide deposit sequence and supporting illustrations;
10. Recommendations for how the model should be used and archived;
11. Recommendations for further archaeological work, to be determined in consultation with SYAS;
12. Relevant illustrations which should, as a basic minimum, include appropriate annotations and explanations, be clearly related to base mapping, and might include:
    (a) site location plan;
    (b) distribution of data points;
    (c) location of transects (schematic cross-sections);
    (d) one or more transects, selected, and prepared to address the model objectives
    (e) key surface plot (eg top of bedrock or pre-Holocene surface);
    (f) isopach maps showing extrapolated thicknesses of key units;
    (g) zones of different archaeological potential (character maps).
13. Index to and location of digital archive
14. References
15. Acknowledgements identifying those involved in the project, including SYAS

Dissemination & Archive

4.19 The final report and results of the survey should be disseminated in accordance with the standards and guidelines set out in Section 7 below.

4.20 A project archive should be maintained and prepared in accordance with the standards and guidelines set out in Section 8 below.

5 Standards for Geophysical Survey

5.1 Archaeological geophysical survey will be undertaken in accordance with standards and guidance published by European Archaeological Council (EAC) and CIfA.[11]

5.2 The choice of geophysical technique should be formulated in consideration of a deposit model derived from a bespoke borehole survey/ test pitting, or from the desk-based analysis of the topographic and geological context of the site, its past and present land use, and the anticipated form of archaeological remains present. The Geophysical Survey Database[12], in combination with the British Geological Survey Soil Parent Material Model[13], should be consulted to determine effectiveness of specifical techniques on local geology.

5.3 Where magnetometry is the chosen technique, a cart mounted system is preferred over a handheld system where terrain allows.

5.4 The survey area should be determined in consideration of the aims of the project, and in consultation with SYAS. Where magnetometry is the chosen technique 100% of the suitable area will be surveyed.

5.5 Where there is insufficient information to determine the effectiveness of a given technique (including where depth or type of sediment may prevent identification of features) then it may be necessary to trial several strategies.

5.6 The geophysical survey report should record the rationale for the survey area, choice of geophysical technique/s employed, and review the success of the methodology.

Survey

5.7 The surveyed areas will be accurately tied into the National Grid to enable the surveyed area to be independently relocated by a third party.

5.8 For most sites, where a phased investigation is not proposed, the survey should be of sufficient resolution to enable the delineation of individual archaeological features. An appropriate resolution for most investigations is:

1. For magnetometry, a survey resolution of 0.5m x 0.25m;[14]
2. For earth resistance, a survey resolution of 0.5m x 0.5m.[15]

5.9 Wherever possible, traverses should be oriented perpendicular to any known linear archaeological features (such as those identified from aerial photos) or else to the direction of recent ploughing.

Data Processing

5.10 An unaltered copy of the raw data will be retained. A minimal amount of visual processing may be applied to a copy of the data, such as destaggering, in accordance with best practice guidance. [16]

[11] EAC 2016 & CIfA 2020b
[12] Available online: https://archaeologydataservice.ac.uk/archives/view/ehgsdb_eh_2011/
[13] Available online: https://www.bgs.ac.uk/datasets/soil-parent-material-model/
[14] EAC 2016, 64
[15] EAC 2016, 72
[16] EAC 2016

Report

5.11 A report will be produced, containing:

1. Non-technical summary
2. Introductory statements
3. Aims and purpose of the evaluation
4. Methodology
5. Survey conditions
6. Results
7. Discussion of results
8. Conclusion
9. Plans/plots, including:
   (a) a survey location plan demonstrating relationships to other mapped features and indicating the position of individual data grids (minimum scale 1:2500);
   (b) a greyscale plot of minimally enhanced survey data (minimum scale 1:1000);
   (c) a greyscale plot of improved survey data (minimum scale 1:1000);
   (d) a greyscale plot of processed survey data (minimum scale 1:1000);
   (e) a X-Y trace plot of improved magnetic data (for large sites a sample of the data might be plotted instead); and
   (f) an interpretative plan and plans of results superimposed over first edition Ordnance Survey mapping and aerial imagery (minimum scale 1:1000).
10. Index to and location of digital archive
11. References
12. Acknowledgements identifying those involved in the project, including SYAS

Dissemination & Archive

5.12 The final report and results of the survey should be disseminated in accordance with the standards and guidelines set out in Section 7 below.

5.13 A project archive should be maintained and prepared in accordance with the standards and guidelines set out in Section 8 below.

6 Standards for Archaeological Evaluation Excavation

6.1 Archaeological excavation will be undertaken in accordance with CIfA standards and guidance.[17]

6.2 Detailed procedures for excavation and recording will be undertaken in accordance with professional best practice, such as that established in Historic England's *Excavation Recording Manual*.[18]

6.3 All records, finds and samples generated during the programme of works should be safely stored as part of a Working Project Archive (see Section 7).

Evaluation Strategy

6.4 The form of evaluation should reflect the expected nature of the archaeological evidence, and it may be necessary to deploy several strategies. For example, trial trenching for large linear features, shovel testing for flint scatters.

6.5 For trial trenching, the location and amount of trenching required will be dependent upon the nature of the site and the amount and quality of data from any previous investigations:

1. Where non-intrusive investigations have been carried out, an appropriate level of trenching will be targeted to test anomalies, apparently blank areas, and any areas un-surveyed.
2. Where no such work has been carried out, a minimum 5% sample of the site will be tested.[19]

6.6 Where there is potential for spreads of finds or deposits within the topsoil or subsoil, a programme of shovel/test pitting will be required. A suggested approach would comprise:

1. Shovel pits are to be set out across a 10m survey grid;
2. Pits are to measure 0.25m x 0.25m and hand excavated to a depth of 30-50cm;
3. Spoil is to be sieved and finds recorded by pit.

6.7 The rationale for the chosen strategy will be set out in the written scheme of investigation.

Groundworks

Staking Out

6.8 Archaeological trenches/pits will be staked out using a real-time kinematic global navigation satellite system (RTK GNSS), or other suitably accurate survey method of equivalent accuracy, in accordance with the agreed locations set out in the WSI.

6.9 Minor adjustments may be undertaken to avoid previously unknown obstacles such as vegetation or services, or to enable machine manoeuvring. Trenches or trial pits located to target specific features should not be moved without prior agreement of SYAS.

[17] CIfA 2020c

[18] Available from Historic England's website: https://historicengland.org.uk/content/docs/research/historic-england-archaeological-recording-manual-2018/

[19] Research suggests this is the optimal minimum percentage to guarantee confidence in identifying archaeological remains across all periods (Hey & Lacy 2001, 55).

Machine Excavation

6.10 All machine excavation should be undertaken by adequately qualified and experienced operators, under the supervision and direction of an archaeologist, and cease at the first archaeological horizon or when the natural geology is exposed.

6.11 Breaking ground, whether topsoil or hardstanding, should be undertaken with care, mindful of the potential presence of archaeological deposits.

6.12 Machine excavation will be undertaken by backactor excavator, using a toothless bucket of appropriate width, to reduce ground levels in level spits of no more than 0.20m. Excavated areas should not be smoothed with the back of the bucket. Under no circumstances will the machine be used to cut arbitrary trenches down to natural deposits.

6.13 Toothed buckets are only to be used in exceptional circumstances, and where express permission has been given by the archaeologist.

6.14 Care should be taken when excavating onto suspected occupation sites, or entranceways, in order that subtle features or deposits are not machined off. After the depth of the archaeological horizon has been establish, it may be appropriate to initially machine to just above it to enable hand excavation to establish potential before further machine stripping.

Spoil

6.15 Spoil should be scanned for metal artefacts using a metal detector capable of discriminating between metals, and operated by an experienced user, to enhance recovery of artefacts.

Deep Excavations

6.16 Where necessary to execute the objectives of the project, trenches or trial pits may need to be stepped or shored to reach their final depth. The potential for deep excavation should be identified from geotechnical data, where available, at the outset of the project and appropriate measures included in the WSI.

6.17 The base of the excavation will reflect the size specified for the trench/pit.

Removal of Bulk Deposits and Obstructions

6.18 With the prior agreement of SYAS, bulk deposits of limited archaeological interest may be machine excavated in spits (such as homogenous deposits of made ground or demolition material).

6.19 Large obstructions, such as boulders or engineering structures, will be left in-situ where it is safe to do so. Removal of such structures by machine will be undertaken where they are assessed to cover archaeological deposits, and only where a strategy has been agreed with SYAS on how disturbance of surrounding deposits or structures will be avoided.

Removal of Contaminated Deposits

6.20 The risk of contamination should be established prior to work commencing, and appropriate measures implemented to reduce or avoid risks in accordance with Historic England best practice guidance.[20]

[20] Historic England 2017a

6.21 As soon as contaminated deposits are identified, excavation should immediately cease, and guidance be sought from the appropriate specialist/agency to establish risks and design a forward strategy for safe excavation.

6.22 Where hand excavation is not possible, machine excavation should be undertaken under the direction of an archaeologist. An appropriate strategy for recording will be agreed on a case-by-case basis with SYAS.

Investigation of Archaeological Features

6.23 Archaeological deposits will be cleaned and excavated by hand, using appropriate tools, according to accepted principles of stratigraphic excavation. The stratigraphy of the area is to be recorded, even when no archaeological deposits have been identified.

6.24 All features will be investigated sufficient to determine its nature, extent, and significance:

1. discrete features will be half-sectioned in the first instance;
2. linear features will be sampled a minimum of 20% along their length (each sample section to be not less than 1m), or a minimum of a 1m sample section, if the feature is less than 5m long;
3. the deposits at junctions or interruptions in linear features will be sufficiently excavated for the relationship between components to be established. All termini will be investigated.

6.25 No archaeological deposit will be entirely removed unless this is necessary to meet the aims of the project.

Weathering-out, Drying and Wetting

6.26 Depending on the conditions of the site and geology, particularly on Sherwood/Bunter Sandstone sands and gravels, it may be necessary to allow a minimum of one week following stripping to improve visibility of archaeological deposits.

6.27 In dry conditions or on clayey soils it may be necessary to spray the site to show up changes in the composition of soils and identify features.

6.28 Waterlogged and organic-rich deposits should be kept covered and damp to reduce degradation once exposed.

Features of Unexpected Importance

6.29 Should features of unexpected importance or complexity be identified that would warrant special measures to record or protect them, then the supervising archaeologist should notify SYAS at the earliest opportunity to discuss an appropriate strategy for their management.

Recording

6.30 A standard single context recording system will be used to keep a documentary record of all archaeological remains that are encountered. The individual contexts will be cross-referenced as appropriate to associated features that are exposed.

6.31 Stratigraphy will be recorded in all areas of monitoring, even where no archaeological deposits have been identified, and a Harris Matrix diagram compiled.

6.32 All records will be checked for consistency and stratigraphic relationships.

Drawn Record

6.33 A range of survey methods may be applied depending on the nature of the archaeology encountered, including survey by hand, by total station, real-time kinematic global navigation satellite system (RTK GNSS), or photogrammetry. All measured survey will be undertaken in accordance with relevant guidelines.[21]

6.34 Hand-drawn and digital surveys will be annotated in the field to produce interpretative drawings with relevant context numbers and boundaries between features.

6.35 A drawing register will be maintained, recording the scale, location, date, subject, levels, and surveyor.

6.36 The extent of the excavated areas and archaeological features will be recorded in plan at an appropriate scale (1:500, 1:1250 or at most 1:2500), including the position of section lines, and tied into the National Grid.

6.37 All archaeological features will be drawn in plan and section at an appropriate scale (no less detailed than 1:50 for plans and 1:20 for sections) with Ordnance Datum heights on each drawing. At least one representative long section of each trench or trial pit will be drawn. Detailed plans will be made of key features and section, or elevation drawings provided of cut features and upstanding structures as appropriate.

Photography

6.38 Photographic recording (film or digital) will be required showing the site in context, all excavated trenches and individual archaeological features, and including shots of work in progress.

6.39 Film photography will be undertaken using panchromatic black and white film no faster than ISO400, supplemented with colour slide film.

6.40 Digital photography will be undertaken in accordance with standards set by Historic England and the recipient archive.[22] All digital photography will be undertaken using a high-quality camera recommended to have no less than an APS-C or DX size sensor of 10 megapixels and to be capable of generating images in TIF (v6) or unprocessed RAW format.

6.41 A tripod will be used to allow stable longer exposures in low light conditions.

6.42 Metric scales of appropriate size will be discreetly placed in photographs to preserve a sense scale. Where colour is an important factor, colour control patches will be used.

6.43 A register recording the details of each image will be maintained, including subject, location, date, and photographer.

Finds and Samples

6.44 Provisions should be made for relevant specialists to visit the site where required.

6.45 The Historic England Science Advisor can be consulted for advice on appropriate approaches to sampling and other archaeological science components.

[21] Including Andrews *et al* 2015 and Historic England 2017b.
[22] Historic England 2015c. and Archaeological Data Service 2009

Artefact Recovery

6.46 All stratified archaeological finds will be collected, except for modern (mid-20th century or later) finds from topsoil and subsoil contexts unless it is determined that they are of archaeological interest. All artefacts will be bagged and labelled by context.

6.47 Removal, packaging, and labelling of finds will be undertaken in accordance with 'First Aid for Finds'[23] and specific Historic England guidance as required.

Environmental/Sediment Sampling and Scientific Dating

6.48 All sampling must be undertaken to a bespoke strategy to be set out in the project WSI. It is to be produced in consultation with specialist advice, and in accordance with best practice guidance (including specific guidance on industrial residues, geoarchaeology, animal remains and dating, where appropriate).[24]

6.49 The classes of material to be sampled, and the methodology for collection and assessment, will be dependent on:

1. The nature of past environments, landscape processes and activities;
2. The types of material to be recovered to address the objectives of the project;
3. The types of material likely to survive given anticipated ground conditions

6.50 The sampling strategy should also identify a process for determining when scientific dating will be considered, and the most likely forms appropriate to the site (such as radiocarbon dating, luminescence dating, archaeomagnetic dating, or dendrochronology).

6.51 Provision should also be made in the WSI for the sampling strategy to be refined at suitable stages during the fieldwork programme, utilising appropriate specialists where necessary including the Historic England Regional Science Advisor.

Human Remains

6.52 Should any inhumation or cremation burials be encountered, their extent, number and state of preservation will be established and SYAS will be notified to discuss an appropriate strategy for their management. Remains should not be removed or chased beyond the existing limits of excavation prior to agreement with SYAS.

6.53 Where it is deemed necessary, a licence for removal will be requested from the Ministry of Justice, and SYAS notified, and no development should take place until burials are removed or alternate arrangements made.

6.54 The treatment of human remains will be in accordance with the requirements of Civil Law and all relevant best practice guidance.[25] The remains will be recorded in-situ before lifting in accordance with best practice guidance.[26]

Treasure

6.55 Artefacts defined as treasure under the Treasure Act 1996 (as supplemented by the Treasure (Designation) Order 2002) will be treated in accordance with the Treasure Act 1996 Code of Practice.[27] All finds of treasure must be reported to the local coroner within

[23] Watkinson and Neal 1998
[24] Historic England 2011, 2015d, 2018b, 2019 and 2022.
[25] APABE 2017
[26] Brickley, et al., 2004 and 2017 & Historic England 2018c
[27] DCMS 2008

14 days of discovery. In the first instance, it is recommended that details of the find are provided to the local Portable Antiquities Scheme Finds Liaison Officer to confirm that it constitutes treasure; they will be able to apply for a Treasure Reference Number and declare the find to the coroner on your behalf. SYAS should also be notified.

6.56 A short Treasure Report will be compiled for submission to the coroner.[28]

6.57 Where recovery of treasure cannot be undertaken on the same working day as the discovery, suitable security measures will be taken to protect the finds from theft.

Post-Excavation

6.58 All finds are to be treated in accordance with current best practice guidance. Finds are to be cleaned and marked, according to accepted principles and in line with appropriate period/material guidelines.

6.59 For all categories of material recovered, including finds, palaeo-environmental, industrial and other specialist samples, an assessment by an appropriately experienced specialist will be undertaken in accordance with best practice guidance.[29]

6.60 Basic stratigraphic information will be supplied to the project specialists.

6.61 All sediment samples collected in accordance with the project sampling strategy should be processed, sorted, and assessed (excluding samples form obviously mixed deposits, etc.).

6.62 Scientific dating of suitable material should be undertaken during the evaluation phase where it would assist with meeting the aims of the project.

6.63 Advice from appropriate specialists should be sought on the storage and conservation of unstable artefactual remains (e.g. metallic, wood or leather).

6.64 Ferrous objects, and a selection of non-ferrous objects (including all coins), will be x-radiographed in accordance with Historic England guidance.[30]

6.65 The specialists will provide assessment reports describing the material, proposing selection for the permanent archive, and identifying recommendations for further detailed analysis and illustration in consideration of the project research objectives and any unanticipated research potential.

6.66 For ceramic assemblages, recording shall be carried out in a manner compatible with existing typological series in local pottery reference collections, e.g. the South Yorkshire / North Derbyshire Medieval Ceramics Reference Collection.[31]

6.67 The guidelines for handling Post Roman Ceramics produced by the Medieval Pottery Research Group are also to be followed, for relevant material: MPRG, 2001 "Minimum Standards for the Processing, Recording, Analysis and Publication of Post-Roman Ceramics" Medieval Pottery Res Group Occ Paper 2.

[28] A template treasure report can be requested from the Finds Liaison Officer
[29] Watkinson and Neal 1998, Historic England 2011 & Barclay *et al.* 2016)
[30] Historic England 2006
[31] Available online: http://archaeologydataservice.ac.uk/archives/view/ceramics_eh_2003/

Reporting

6.68 As a minimum, an evaluation report to post-excavation assessment level will be produced. This will provide sufficient objective data to describe and document the results and an assessment of their importance including the research potential of the project archive.

6.69 Where, in consultation with SYAS, further investigation and specialist analysis is necessary to achieve the aims of the project, and this will not form part of a follow-on mitigation phase, then an updated written scheme of investigation (sometimes referred to as an updated project design) will be produced. This update will describe the additional work required and how it will be undertaken.

Evaluation Report

6.70 An evaluation report shall contain:

1. An introduction including background information (with planning application details, where appropriate);
2. The original research aims and objectives and rationale for selected area of investigation;
3. An archaeological and historical baseline;
4. A description of results;
5. A report of all find and sample categories to assessment level, by appropriate specialists, including their research potential;
6. The results of any scientific dating;
7. A discussion of the results including a phased interpretation of the site;
8. A summary of the results in their local, regional, and national context, and the extent to which the work has addressed the project aims and objectives;
9. An assessment of the effectiveness of the evaluation strategy, including earlier stages of work (including geophysical survey);
10. Recommendations for any further investigation, specialist analysis or conservation, recording and/or preservation of in situ archaeological remains, to be determined in consultation with SYAS;
11. Supporting illustrations, including as a minimum:
    (a) A detailed location map;
    (b) A detailed site plan showing all trenches or trial pits, as excavated;
    (c) Plans for all trenches where archaeological features were identified;
    (d) Detailed plans of archaeological features;
    (e) Detailed sections of archaeological features;
    (f) An overall (phased) site plan showing all archaeological features recorded;
    (g) Selection of photographs of work in progress;
    (h) Select artefact illustrations and/or photographs.
    (i) Supporting tables of data, including as a minimum:
12. A detailed context index;
13. An archive index;
14. Acknowledgements identifying those involved in the project, including SYAS.

Updated Written Scheme of Investigation

6.71 An updated written scheme of investigation shall contain:

1. Any changes to the aims and objectives of the project;
2. Schemes of further investigation, conservation or specialist analysis;
3. The requirement and content of the final analysis report;

4. Any changes to the archive arrangements, including details of proposed specialist conservation.
5. Any updates to the Selection Strategy and Data Management Plan.

Dissemination and Archive

6.72 The reports and results of the evaluation should be disseminated in accordance with the standards and guidelines set out in Section 7.

6.73 A project archive must be maintained, prepared, and deposited in a publicly accessible repository in accordance with the standards and guidelines set out in Section 8.

7 Standards for Public Engagement, Dissemination & Publication

Public Engagement & Outreach

7.1 Archaeological work is undertaken for public benefit and SYAS encourage opportunities for public engagement to be integrated from the outset.

7.2 As a minimum on all trenching/test pitting evaluation, the WSI will set out the steps taken towards establishing an engagement and outreach strategy. Where no measures are proposed, then the reason why must be clearly stated.

7.3 Measures to be considered include:

1. Illustrated notices displayed during fieldwork around the site (with the client's agreement), explaining what work is in progress and why, to keep members of the public informed (minimum of A3 size, with font at a minimum size of 16 point);
2. Social media or newspaper updates;
3. Site tours and public talks (e.g. by presenting a paper at South Yorkshire Archaeology Day and talking to local societies);
4. Digital interpretation;
5. Popular publications;
6. Permanent public information board; and
7. Any other opportunities that might be relevant for a given site.

7.4 A bespoke strategy shall be produced for each site.

Dissemination of Results

7.5 Digital and physical copies of the report must be supplied to SYAS for incorporation into the South Yorkshire Historic Environment Record. Copies of select digital data must also be provided, including geophysical results (GeoTIFFs and shapefiles of interpretative plots) and trench/pit locations (shapefiles of extents and features).

7.6 Printed copies of reports will be included with the physical archive to the recipient museum.

7.7 Copies of the report, or details on where it can be accessed, should be provided to all external specialists involved in the project and, where relevant, the archaeologist responsible for any previous geophysical surveys at the site. This is to assist in the design and implementation of future projects.

7.8 The archaeological contractor should initiate or update an online OASIS form[32] at commencement of the project. Details of the results and archive are to be added, along with a copy of all formal reports, upon completion of the project.

Formal Publication

7.9 A summary report of an appropriate length, accompanied by illustrations (at 300dpi resolution), must be prepared and submitted in digital format, for publication in *Archaeology in South Yorkshire* or an equivalent SYAS publication.

7.10 Where results warrant it, and following discussion with SYAS, formal publication in the form of a journal article or monograph should be produced

[32] Via the OASIS online portal hosted by the Archaeological Data Service http://ads.ahds.ac.uk/project/oasis/

Furthering Research

7.11 Provision must be made for updating the South Yorkshire Historic Environment Research Framework where the results of a fieldwork project contribute towards agenda topics. This is to be achieved by adding 'comments' to relevant research questions briefly summarising the results and providing a bibliographic reference to the relevant report[33]..

[33] The research framework is accessible online: https://researchframeworks.org/syrf/ - new users must register for a new account to add comments.

8 Standards for Archaeological Archives

General

8.1 In accordance with regional policy,[34] the archaeological contractor must notify the relevant museum at project initiation, mid-point review and completion stages to discuss archaeological archiving requirements. The relevant form (Project Initiation Form/ Mid-point Review Form/ Completion Form) will be filled out and sent to the museum with a copy provided to SYAS. Template forms are available for download from the SYAS website.[35]

8.2 Details of archiving arrangements should be confirmed with the client and landowner at the outset, and a budget allowed for to cover the museum's expected deposition charge.

Working Project Archive

8.3 All material (whether digital or physical) recovered or generated through the duration of the field evaluation project will be appropriately and securely stored in a working project archive. This will be undertaken in accordance with the selection strategy and digital data management plan set out at the commencement of the project (see paragraphs 1.11-1.13).

Physical Records

8.4 Any physical documents or drawings will be indexed, collated, and stored in a secure location when not in use.

8.5 Film photography will be processed at regular intervals throughout the duration of a project.

8.6 Digital security copies will be made of physical records at regular intervals, to be stored and backed up in a secure location. Documents and drawings will be scanned at an appropriate resolution (no less than 300dpi for documents and drawings, 600dpi for photographic prints, and 4000dpi for negatives or slides) and to an appropriate format (e.g. a lossless format, such as TIF, for scale drawings), and scans checked for quality.[36] Standards adhered to should be included in the Data Management Plan. If digitised data is to form part of the final digital archive it should be treated as set out for Born Digital Records below.

Born Digital Records

8.7 All digital records will be treated in accordance with a project data management plan.[37]

8.8 Digital records will be routinely downloaded, stored, and backed up in a secure location.

8.9 All digital records will be consistently labelled, files logically structured, and embedded with appropriate metadata (or have their metadata stored in an accompanying spreadsheet).[38]

[34] Turnpenny 2012
[35] See guidance for archaeological projects, available online: https://www.sheffield.gov.uk/syas
[36] For further guidance see: Digitisation at The National Archives
[37] CIfA guidance available online: https://www.archaeologists.net/digdigital
[38] Archaeological Data Service 2009

Final Archaeological Archive

Selection Strategy

8.10 On the completion of fieldwork, the relevant specialists and recipient museum will be consulted to update the selection strategy set out in the WSI in accordance with best practice guidance.[39]

8.11 This should consider all documents, finds, samples, and digital files generated during the project, including illustrations.

8.12 The aim of this process is to produce a project archive that allows a full re-examination and interpretation of all the results of the project whilst avoiding replication, repetition, or the retention of materials not considered germane to future analysis.

Archive Deposition

8.13 The final archive will then be assembled in accordance with Archaeological Archives Forum, CIfA, and museum guidelines.[40]

8.14 Agreement in principle for full transfer of title of finds to the recipient museum needs to be obtained at the outset. Confirmation of transfer of title from the landowner and confirmation of assignment of copyright, along with a full archive inventory, will be submitted with a project completion form[41] to the recipient museum. SYAS will be provided with a copy of the completion form, including the assigned accession number.

8.15 The recipient archive will be licensed to use the deposited material, in perpetuity, without restrictions; this licence will allow the archive to reproduce material, including for use by third parties, with the copyright owner suitably acknowledged.

8.16 It is preferred practice for generated material to be archived in its original medium (i.e. physical or digital). Digitising of physical records will only be considered where it retains the same level of accessibility and information as the original medium.

8.17 The physical archive will be deposited with the appropriate museum. A copy of the archive receipt will be provided to SYAS.

8.18 The digital archive will be deposited with a Trusted Digital Repository (CoreTrustSeal certified). For archaeological archives this is presently limited to the Archaeology Data Service (ADS) at the University of York. A link to the final digital archive will be provided to SYAS.

[39] AAF 2011, SMA 2020 & CIfA toolkit for selection archaeology: https://www.archaeologists.net/selection-toolkit
[40] AAF 2011, CIfA 2020e & Turnpenny 2012
[41] Utilising the proforma agreement available online: https://www.sheffield.gov.uk/home/planning-development/south-yorkshire-archaeology-service/guidance-for-archaeological-projects

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APPENDIX 4

Environmental Strategy By Diane Alldrit

The on-site environmental sampling strategy will systematically seek to recover a representative sample of botanical, molluscan (both terrestrial and aquatic), avian and mammalian evidence from the full range of contexts encountered during the excavation. This will enable, at the assessment stage, the possibility for radiocarbon dating material to be obtained, and for an initial analysis of the economic and environmental potential of the site. In order to achieve this, a bulk sample (BS, Dobney *et al* 1992) comprising an optimum size of 40litre of sediment (where possible) should be taken from every stratigraphically secure and archaeologically significant context. In practice it may not always be possible to obtain 28l of sediment from certain features during the assessment stage, for instance from partially excavated pits or post-holes, in which case a single bucket sample, c.10 to 14litre should be taken at the site supervisors discretion. Deposits of mixed origin, for instance topsoil, wall fills and obvious areas of modern contamination, should be avoided where possible, as these will contain intrusive material and not provide secure radiocarbon dates.

All buckets and other sampling equipment must be clean and free of adherent soil in order to prevent cross-contamination between samples. If dry soil is to be stored for any length of time it should be kept in cool, dry conditions, and away from strong light sources. However, it is preferable to process samples as soon as possible after excavation.

Bulk soil samples shall be processed using an Ankara-type water flotation machine (French 1971) for the recovery of carbonised plant remains and charcoal. The flotation tank should contain a >1mm mesh for collection of the retent or 'residue' portion of the sample (which may contain pottery, lithics and animal / bird bone, in addition to the heavier fragments of charcoal which do not float). The 'flot' portion of the sample, which may include carbonised seeds, cereal grain, charcoal and sometimes mollusc shell, should be captured using a nest of >1mm and >300micron Endicot sieves. Flotation equipment, including sieves, meshes, brushes and so forth must be meticulously cleaned between samples in order to prevent contamination of potential radiocarbon dating material. All material resulting from flotation will be dried prior to microscopic examination. Flotation is not suitable for the recovery of pollen or for processing waterlogged samples, which shall be discussed below.

Where there is potential for waterlogged preservation, shown for instance by the presence of wood and other organic or wet material, then a 5 to 10litre size sample should be taken (GBA sample, Dobney *et al* 1992). This material is to be retained for later processing using laboratory methods to enable the recovery of waterlogged plant material and insects. For assessment purposes a 1litre sub-sample of the organic sediment from each potential waterlogged sample shall be processed using laboratory wash-over methods, and once processed kept wet. All waterlogged samples awaiting processing should be kept damp, preferably stored in plastic sealable tubs, and in cool conditions. Where large waterlogged timbers are recovered these should be stored under refrigerated conditions and an appropriate conservator consulted.

There is the possibility that the waterlogged deposits may require parasite egg analysis. It is proposed that the 'squash' technique is adapted, this would require small lumps of raw sediment approximately 3mm in diameter taken from three separate points from within the sample and homogenised in a little water by shaking. After allowing coarse particles to settle for a few moments, a drop of the supernatant was removed. This work would be undertaken by either John Carrott or Harry Kenwood if necessary.

If sediment suitable for pollen analysis is encountered, for instance rich organic peaty deposits, or deep ditch sections with organic preservation, the archaeobotanical specialist is to be consulted prior to any sampling taking place. These deposits would require sampling with large kubiena tins and require the specialist to be on-site. Pollen analysis, even at assessment level, would subsequently impose a considerable cost implication should it be carried out.

The specialist is available to provide consultation and advice on the environmental sampling strategy throughout the course of the excavation and during post-excavation processing if required.

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APPENDIX 5

Conservation Strategy By Ian Panter of York Archaeological Trust

Artefacts from all categories and all periods will be recovered as a matter of routine during the excavation. When retrieved from the ground finds will be kept in a finds tray or appropriate bags in accordance with First Aid for Finds. Where necessary, a conservator may be required to recover fragile finds from the ground depending upon circumstances.

If waterlogged conditions are encountered a wide range of organic materials may be recovered, including wood, leather and textiles. Advice will be sought from a conservator to discuss optimum storage requirements before any attempt is made to retrieve organic finds and structural timbers from the ground.

After the completion of the fieldwork stage, a conservation assessment will be undertaken which will include the X-radiography of all the ironwork (after initial screening to separate obviously modern debris), and a selection of the non-ferrous finds (including all coins). A sample of slag may also be X-rayed to assist with identification and interpretation. Wet-packed material, including glass, bone and leather will be stabilised and consolidated to ensure their long-term preservation. All finds will be stored in optimum conditions in accordance with First Aid for Finds and Guidelines for the Preparation of Excavation Archives for Long-Term Storage (Walker, 1990).

Waterlogged wood, including structural elements will be assessed following the English Heritage guidelines, Waterlogged wood: sampling, conservation and curation of structural wood (Brunning 1996). The assessment will include species identification, technological examination and potential for dating.

The conservation assessment report will include statements on condition, stability and potential for further investigation (with conservation costs) for all material groups. The conservation report will be included in the updated project design prepared for the analysis stage of the project.