APPENDIX C – COTSWOLD ARCHAEOLOGY PROJECT DESIGN FOR AN ARCHAEOLOGICAL WATCHING BRIEF

Cotswold Archaeology

Hinkley Point C Connection Project
Stage 9
Portishead 132 kV Substation

Project Design for
an Archaeological Watching Brief

for:
Balfour Beatty

CA Project: CR0509

September 2020

Andover Cirencester Exeter Milton Keynes Suffolk

Hinkley Point C Connection Project
Stage 9
Portishead 132 kV Substation

Project Design for
an Archaeological Watching Brief

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CONTENTS

1. INTRODUCTION

1.1. This Project Design (PD) has been prepared by Cotswold Archaeology (CA; the "Archaeological Contractor") to supplement a *Written Scheme of Investigation* (WSI; National Grid 2015) and an *Archaeological Method Statement* (AMS; National Grid 2020) for a programme of archaeological work to be undertaken during Stage 9 of the authorised development at Portishead Substation as part of the Hinkley Point C Connection Project (centred at NGR: 348756 176755).

1.2. This PD gives details of CA's recording systems, methodologies, processes, personnel and specialists. It is not intended to repeat the full excavation, recording and analysis methodologies presented in Sections 6–8 of the AMS, which should be referred to for further details.

2. AIMS AND OBJECTIVES

2.1. The project aims and objectives are as defined in Section 4 of the AMS.

3. METHODOLOGY

3.1. As defined in the AMS, the archaeological works which are the subject of this PD will comprise an archaeological watching brief during the removal of topsoil and overburden associated with the construction of pylon and crane bases, cable working width, accesses and temporary laydown and construction compounds; cable trench excavation and the excavation of any launch and reception pits for non-open cut crossings or horizontal directional drilling.

3.2. A detailed methodology for this watching brief is presented in Section 6 of the AMS. The paragraphs below set out CA's specific excavation and recording procedures. All CA technical manuals referred to are included as appendices to this PD (Appendix B).

3.3. Archaeological features will be investigated, planned and recorded in accordance with *CA Technical Manual 1: Fieldwork Recording Manual*. Each context will be recorded on a pro-forma context sheet by written and measured description. Hand-drawn sections of excavated archaeological features will be prepared (scale 1:10 or 1:20, as appropriate). Features/deposits will be recorded in plan using Leica GPS or Total Station (as appropriate), in accordance with *CA Technical Manual 4: Survey Manual*. Photographs (digital colour) will be taken as appropriate.

3.4. In the event of archaeological deposits being found for which the resources allocated are not sufficient to support excavation and recording to a proportionate standard, or which are of sufficient significance to merit an alternative approach (such as contingency excavation), client and Curator will be contacted immediately. Destructive work in the affected area(s) will cease until agreement has been reached on an appropriate archaeological response.

Artefacts

3.5. Artefacts will be recovered and retained for processing and analysis in accordance with *CA Technical Manual 3: Treatment of Finds Immediately after Excavation*. Artefacts will be collected and bagged by context. Artefacts from topsoil, subsoil and unstratified contexts will normally be noted but not retained unless they are of intrinsic interest. All artefacts from stratified excavated contexts will be collected, except for large assemblages of post-medieval or modern material. Such material may be noted and not retained or, if appropriate, a representative sample may be collected and retained.

Environmental remains

3.6. The selection, collection and processing of environmental samples will follow the guidelines outlined in *Environmental Archaeology: A guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation* (English Heritage 2011) and *CA Technical Manual 2: The Taking and Processing of Environmental and Other Samples from Archaeological Sites*.

3.7. Due care will be taken to identify deposits which may have environmental potential and, where appropriate, a programme of environmental sampling will be initiated. The sampling strategy will be adapted for the specific circumstances of the site, in close consultation with the CA Environmental Officer and Curator, but will follow the general selection parameters set out in the following paragraphs.

3.8. Secure, phased deposits, especially those related to settlement activity and/or structures, will be considered for sampling for the recovery of charred plant remains, charcoal and mineralised remains. Any cremation-related deposits (where excavated; see *Human remains*, below) will be sampled appropriately for the recovery of cremated human bone and charred remains. If any evidence of *in situ* metal working is found, suitable samples will be taken for the recovery of slag and hammerscale.

3.9. Where sealed waterlogged deposits are encountered, samples will be considered for the recovery of waterlogged remains (including insects, molluscs and pollen) and any charred remains. The taking of sequences of samples for the recovery of molluscs and/or waterlogged remains will be considered through any suitable deposits, such as deep enclosure ditches, barrow ditches, palaeochannels, or buried soils. Monolith samples may also be taken from suitable deposits as appropriate to allow soil and sediment description/interpretation, as well as sub-sampling for pollen and other micro/macrofossils such as diatoms, foraminifera and ostracods.

3.10. The need for more specialist samples (such as OSL, archaeomagnetic dating and dendrochronology) will be evaluated on site. If required, any such samples will be taken in consultation with the relevant specialists.

3.11. Sample processing will be carried out in conjunction with the relevant specialists. Flotation or wet sieve samples will be processed to 0.25mm. More specialist samples, such as those for pollen, will be prepared by the relevant specialists.

Treasure

3.12. Upon discovery of treasure, CA will notify client and Curator immediately. CA will comply fully with the provisions of the Treasure Act 1996 and the Code of Practice referred to therein. Findings will be reported to the Coroner within 14 days.

Human remains

3.13. Any human remains (skeletal or cremated) will be treated with due decency and respect at all times. Where human remains are encountered, these will not be excavated unless their disturbance by the development is unavoidable. In cases where disturbance is unavoidable, or where full exhumation of the remains is deemed necessary, exhumation will be conducted following the provisions of the Coroner's Unit in the Ministry of Justice. All excavation of human remains and associated post-excavation processes will be in accordance with the standards set out in *Updated Guidelines to the Standards for Recording Human Remains* (CIfA 2017).

4. PROJECT STAFF

4.1. This project will be under the management of Alex Thomson, MCIfA, Project Manager, CA (the "Supervising Archaeologist").

Project Manager: Alex Thomson, MCIfA

MA (Dist) Archaeology (Prehistory); Durham University

BA (Hons) Archaeology; Durham University

Project Manager with over 10 years of professional archaeological experience. Has worked with Cotswold Archaeology for nearly 10 years at their Kemble (Glos.) Office.

4.2. The Field Archaeologist(s) will be confirmed once the project programme has been finalised. They will be drawn from CA's core of appropriately qualified and experienced staff. All CA Field Staff hold valid CSCS cards.

4.3. Specialists who may be invited to advise and report on specific aspects of the project as necessary are:

- **Ceramics:** Ed McSloy MCIfA (CA)
- **Metalwork:** Ed McSloy MCIfA (CA)
- **Flint:** Jacky Sommerville PCIfA (CA)
- **Animal bone:** Andy Clarke BA (Hons) MA (CA)/Matty Holmes BSc MSc ACIfA (freelance)
- **Human bone:** Sharon Clough MCIfA (CA)
- **Environmental remains:** Sarah Wyles MCIfA (CA)
- **Conservation:** Pieta Greeves BSc MSc ACR (Drakon Heritage and Conservation)
- **Geoarchaeology:** Dr Keith Wilkinson (ARCA)
- **Building recording:** Peter Davenport MCIfA FSA (freelance)

4.4. Depending on the nature of the deposits and artefacts encountered, it may be necessary to consult other specialists not listed here. A full list of specialists currently used by CA is given as Appendix A.

5. HEALTH, SAFETY AND ENVIRONMENT

5.1. CA will conduct all works in accordance with the Health and Safety at Work Act 1974 and all subsequent health and safety legislation, as well as the CA Health and Safety and Environmental policies and the CA Safety, Health and Environmental Management System (SHE). Any client/developer/Principal Contractor policies and/or procedures will also be followed. A site-specific Construction Phase Plan (form SHE 017) will be formulated prior to commencement of fieldwork.

6. INSURANCES

6.1. CA holds Public Liability Insurance to a limit of £10,000,000 and Professional Indemnity Insurance to a limit of £10,000,000.

7. QUALITY ASSURANCE

7.1. CA is a Registered Organisation (RO) with the Chartered Institute for Archaeologists (RO Ref. No. 8). As a RO, CA endorses the Code of Conduct (CIfA 2019) and the *Standard and guidance for commissioning work or providing consultancy advice on archaeology and the historic environment* (CIfA 2014). All CA Project Managers hold Member status within the CIfA.

7.2. CA operates an internal quality assurance system as follows: projects are overseen by a Project Manager, who is responsible for the quality of the project. The Project Manager reports to the Chief Executive, who bears ultimate responsibility for the conduct of all CA operations. Matters of policy and corporate strategy are determined by the Board of Directors and, in cases of dispute, recourse may be made to the Chairman of the Board.

8. PUBLIC ENGAGEMENT, PARTICIPATION AND BENEFIT

8.1. It is not anticipated that this watching brief will afford opportunities for public engagement or participation during the course of the fieldwork. However, the watching brief results will be made publicly available on the ADS and CA websites, as set out in Section 6.

9. STAFF TRAINING AND CPD

9.1. CA has a fully documented mandatory performance management system for all staff. This system reviews personal performance, identifies areas for improvement, sets targets and ensures the provision of appropriate training within CA's adopted training policy. In addition, CA has developed an award-winning career development programme for its staff. This ensures a consistent and high-quality approach to the development of appropriate skills.

9.2. As part of CA's requirement for continuing professional development, all members of staff are required to maintain a personal development plan and an associated log; these are reviewed within the performance management system.

10. REFERENCES

National Grid 2015 *Hinkley Point C Connection Project: Vol 5.26.4C, Environmental Statement Construction Environmental Management Plan Appendix 3 Archaeological Written Scheme of Investigation*

National Grid 2020 *Hinkley Point C Connection Project, Stage 9 of the authorised development: Requirement 6(1)(h) – Archaeological Method Statement, Document 9.6H A*

APPENDIX A: COTSWOLD ARCHAEOLOGY SPECIALISTS

Ceramics

Neolithic/Bronze Age	Ed McSloy BA MCIFA (CA) Emily Edwards (freelance) Dr Elaine Morris BA PhD FSA MCIFA (University of Southampton) Anna Doherty MA (Archaeology South-East) Sarah Percival MA MCIFA (freelance) Steve Benfield BA (CA)
Iron Age/Roman	Ed McSloy BA MCIFA (CA) Kayt Marter Brown BA MSc MCIFA (freelance) Steve Benfield BA (CA)
(Samian)	Gwladys Montell MA PhD (freelance) Steve Benfield BA (CA)
(Amphorae stamps)	Dr David Williams PhD FSA (freelance)
Anglo-Saxon	Paul Blinkhorn BTech (freelance) Dr Jane Timby BA PhD FSA MCIFA (freelance) Sue Anderson, M Phil, MCIFA, FSA (freelance)
Medieval/post-medieval	Ed McSloy BA MCIFA (CA) Kayt Marter Brown BA MSc MCIFA (freelance) Stephanie Ratkai BA (freelance) Paul Blinkhorn BTech (freelance) John Allan BA MPhil FSA (freelance) Richenda Goffin BA MCIFA (CA) Sue Anderson M Phil, MCIFA, FSA (freelance)
South-West	Henrietta Quinnell BA FSA MCIFA (University of Exeter)
Clay tobacco pipe	Reg Jackson MLitt MCIFA (freelance) Marek Lewcun (freelance) Kieron Heard (freelance) Richenda Goffin BA MCIFA (CA)
Ceramic building material	Ed McSloy MCIFA (CA) Dr Peter Warry PhD (freelance) Sue Anderson M Phil, MCIFA, FSA (freelance) Richenda Goffin (Roman painted wall plaster) CBM, BA MCIFA (CA) Steve Benfield BA (CA)

Other finds

Small finds	Ed McSloy BA MCIFA (CA) Richenda Goffin, (non-metalwork) BA MCIFA (CA) Steve Benfield CA Dr I Riddler (freelance) Dr Alison Sheridan, National Museum of Scotland
Metal artefacts	Ed McSloy BA MCIFA (CA) Dr Jörn Schuster MA DPhil FSA MCIFA (freelance) Dr Hilary Cool BA PhD FSA (freelance) Dr I Riddler (freelance)
Lithics	Ed McSloy BA MCIFA (CA) Jacky Sommerville BSc MA PCIFA (CA) Michael Green (CA) Sarah Bates BA (freelance)
(Palaeolithic)	Dr Francis Wenban-Smith BA MA PhD (University of Southampton)
Worked stone	Dr Ruth Shaffrey BA PhD MCIFA (freelance) Dr Kevin Hayward FSA BSc MSc PhD PCIFA (freelance)

Inscriptions	Dr Roger Tomlin MA DPhil, FSA (Oxford)
Glass	Ed McSloy MCIFA (CA) Dr Hilary Cool BA PhD FSA (freelance) Dr David Dungworth BA PhD (freelance; English Heritage) Dr Sarah Paynter (Historic England) Dr Rachel Tyson (freelance) Dr Hugh Wilmott (University of Sheffield)
Coins	Ed McSloy BA MCIFA (CA) Dr Ruth Beveridge (CA) Dr Peter Guest BA PhD FSA (Cardiff University) Dr Richard Reece BSc PhD FSA (freelance) Jude Plouviez (freelance) Dr Andrew Brown (British Museum) Dr Richard Kelleher (Fitzwilliam Museum) Dr Philip de Jersey (Ashmolean Museum)
Leather	Quita Mould MA FSA (freelance)
Textiles	Penelope Walton Rogers FSA Dip Acc. (freelance) Dr Sue Harrington (freelance)
Iron slag/metal technology	Dr Tim Young MA PhD (Cardiff University) Dr David Starley BSc PhD Lynne Keys (freelance)
Worked wood	Michael Bamforth BSc MCIFA (freelance)
Biological remains	
Animal bone	Dr Philip Armitage MSc PhD MCIFA (freelance) Dr Matilda Holmes BSc MSc ACIFA (freelance) Julie Curl (freelance) Lorrain Higbee (Wessex Archaeology)
Human bone	Sharon Clough BA MSc MCIFA (CA) Sue Anderson M Phil, MCIFA, FSA (freelance)
Environmental sampling	Sarah Wyles BA MCIFA (CA) Sarah Cobain BSc MSc ACIFA (CA) Dr Keith Wilkinson BSc PhD MCIFA (ARCA) Anna West BSc (CA) Val Fryer (freelance)
Pollen	Dr Michael Grant BSc MSc PhD (University of Southampton) Dr Rob Batchelor BSc MSc PhD MCIFA (QUEST, University of Reading)
Diatoms	Dr Tom Hill BSc PhD CPLHE (Natural History Museum) Dr Nigel Cameron BSc MSc PhD (University College London)
Charred plant remains	Sarah Wyles BA MCIFA (CA) Sarah Cobain BSc MSc ACIFA (CA)
Wood/charcoal	Sarah Cobain BSc MSc ACIFA(CA) Dana Challinor MA (freelance) Dr Esther Cameron (freelance)
Insects	Enid Allison BSc D.Phil (Canterbury Archaeological Trust) Dr David Smith MA PhD (University of Birmingham)
Mollusca	Sarah Wyles BA MCIFA (CA) Dr Keith Wilkinson BSc PhD MCIFA (ARCA) Dr Mike Allen (Allen Environmental Archaeology)

Ostracods and Foraminifera	Dr John Whittaker BSc PhD (freelance)
Fish bones	Dr Philip Armitage MSc PhD MCIFA (freelance)
Geoarchaeology	Dr Keith Wilkinson BSc PhD MCIFA (ARCA)
Soil micromorphology	Dr Richard Macphail BSc MSc PhD (University College London) Dr Mike Allen (Allen Environmental Archaeology)
Scientific dating	
Dendrochronology	Robert Howard BA (NTRDL Nottingham)
Radiocarbon dating	SUERC (East Kilbride, Scotland) Beta Analytic (Florida, USA)
Bayesian chronological modelling	Dr Derek Hamilton (SUERC) Professor John Hines (Cardiff University)
Archaeomagnetic dating	Dr Cathy Batt BSc PhD (University of Bradford)
TL/OSL Dating	Dr Phil Toms BSc PhD (University of Gloucestershire)
Conservation	Karen Barker BSc (freelance) Pieta Greaves BSc MSc ACR (Drakon Heritage and Conservation) Julia Park-Newman (Conservation Services, freelance)

APPENDIX B: COTSWOLD ARCHAEOLOGY TECHNICAL MANUALS

Cotswold Archaeology

Fieldwork Recording Manual

Technical Manual No. 1

May 2017

Andover Cirencester Exeter Milton Keynes

FIELDWORK RECORDING MANUAL

COTSWOLD ARCHAEOLOGY
TECHNICAL MANUAL NO. 1

MAY 1996
REVISED MARCH 2005
REVISED APRIL 2007
REVISED AUGUST 2013
REVISED MAY 2017

Contents

1. Introduction

This manual exists to explain standard Cotswold Archaeology (CA) on-site recording procedures. The site record, with its associated artefacts and ecofacts, is often the only evidence which survives of excavated remains (preservation by record), this places a professional responsibility on the recording archaeologist to ensure that the written, drawn and photographic records are as complete and accurate as possible. The field records form part of the archive which is the primary resource for all post-excavation analysis and reporting. The archive from every site is deposited for public access at the end of the project and **must** be accurate and complete.

It is essential that the procedures set out in this manual are adhered to, so that a uniform and consistent system of excavation and recording can exist between different sites from year to year.

It is the responsibility of the recorder to ensure that as complete a record as possible is made of the archaeological contexts encountered. This includes records of all artefactual finds and palaeoenvironmental samples. Procedures for the recovery, recording and handling of these materials are contained in CA Technical Manuals 2 *(The Taking and Recording of Environmental and Other Samples from Archaeological Sites)* and 3 (*Treatment of Finds Immediately after Excavation)* and must be followed at all times.

Different projects may require different approaches to recording, in both methodology and level of detail. The most appropriate method of recording will be set in advance of fieldwork, and the Project Leader will advise recorders of the methods to be adopted for each site. At times, recording strategies may also be modified during a project on the instruction of the Project Leader.

In certain circumstances, particularly where we encounter more complex stratigraphy, the use of single context recording may be most appropriate. This will be determined in advance of or during fieldwork by discussion between the Project Manager and the Project Leader and the details of the exact methodology will be determined and explained to all relevant staff.

Whichever approach is taken, the detail of records must be maintained in exactly the same way and to the same standards of quality.

If in doubt about the approach to be taken to recording, or about the detailed content of the record, consult the Project Leader.

2. Excavation strategy

The process of excavation is very straightforward, and should always follow the same steps –whether you are half-sectioning a discrete posthole or excavating an area of complex stratigraphy. The following prompts take you through the process step by step and should ensure that you fully record each context:

- Clean the area that you are to excavate, whether this is a slot through a ditch, or an area of complex stratigraphy.
- Determine the limits of the uppermost (i.e. the stratigraphically latest) context, and construct a working hypothesis to allow you to develop an excavation strategy for this context bearing in mind the surrounding contexts (will you remove the whole context in plan, excavate a slot, half-section etc).
- Assign a number to the context. If the context is a fill do not take out a cut number until it is clear there are no further fills.
- Take pre-excavation photographs of context if required (see **Section 11** for more details).
- Create a plan (and/or elevation if a wall etc) of the context, making sure that there are context number(s), co-ordinates, levels and section numbers (if required) on the drawing.
- Determine the stratigraphic relationship(s) and cross reference on the recording sheet(s) of the overlying context(s).
- Describe the context on the relevant sheet.
- Excavate the context recovering artefacts and environmental samples as necessary.
- Complete and check the description and stratigraphic relationship(s) on context sheet and add further notes in your discussion and interpretation. Add any further information to previously excavated contexts.
- Deposit the artefacts and environmental samples for checking and processing. All site records should be deposited for checking once they are not required for cross-referencing adjacent contexts.
- Define the limits of the next context: If the next context is a cut number, photograph, draw and record as above, as appropriate, and then define the limits of the next context. If the next context is a deposit repeat the whole process.

The excavation process is dependent on accurate definition of individual contexts, interpretation of their function and formation process, and an understanding of their sequence and other attributes such as dating. This process remains the same on all projects, from excavations to watching briefs and what follows is therefore applicable to all CA fieldwork projects.This process should be applied whatever the type of context you are excavating. Always dig stratigraphically, context by context. Remember that if you are digging slots through features you should record each context as you dig it, not after excavation is completed, and that you may have to record cuts on different plans if your slot is through an intersection of two features – don't just plan the natural substrate after you have removed all the fills. You cannot always plan two features on one plan, draw overlays using the same Drawing Points or grid and construct a Plan Matrix to show the drawing order.

The strategy you develop should be the one which is most suitable for the circumstances and will allow the archaeology to demonstrate the sequence and nature of the deposits/cuts. Strategy may be affected by the date or significance of the features, sampling strategies, or practical site constraints. You may need to adapt the strategy as excavation continues – talk through the strategy with your Project Leader/Supervisor.

Finally, make sure all paperwork is fully cross-referenced and checked.

Multiple interventions

Each intervention or discrete part of a deposit is recorded separately with separate context numbers for both the cuts and fills. This means that if you dig 12 slots through what appears to be a single ditch with a single fill, you will have 12 separate cuts and 12 separate sets of fills. This allows finds to be securely allocated to both a spatial and stratigraphic location, and means that if the ditch turns out to be two ditches, the contexts and finds and environmental material can be separated.

There is, however, a need to pull all these disparate context sheets together in order to associate the contexts together so it is easier to refer to them on site, and to record information about the overall feature or group of deposits – in post-excavation this is done by the process of Setting and Grouping, however it is not usually possible or desirable to formally Set or Group contexts on site. We can use **SAME AS** to indicate that contexts were once part of the same stratigraphic event (but are now discrete contexts); however this should only be used where the contexts are **definitely** the same. We also use two other mechanisms to link contexts on site, and to ensure that information on the overall feature or group of deposits is recorded:

Feature labels

Feature labels are assigned on site to an area, a group of contexts or a structure and act as a purely spatial descriptive term to make identification and orientation easier on site. They do not have a record sheet and all information is still recorded on the relevant context sheets.

The Feature Label itself is formed of an appropriate descriptive term (e.g. Ditch, Roundhouse, Pit, Building etc) followed by a letter taken in alphabetical sequence. If the letters A to Z are all used, then use AA to AZ and so on.

The Feature Label has no stratigraphic or temporal restrictions: unlike post-excavation Sets or Groups a Feature Label can be applied to both a Roman ditch cut and its Roman and medieval fills. Feature Labels should be thought of simply as 'nicknames' or spatial identifiers to make recording simpler on site (e.g. pit located to south of Ring-ditch E; similar alignment to Ditch F etc). Feature Labels should only be assigned by the Project Leader/supervisor and a record of the label, and what it refers to, is kept in the site archive

on the Feature Label Register (CA/FRM/2). The relevant Feature label is added to the context sheets.

Master contexts

Master contexts are designated by the Project Leader/supervisor as the individual context sheet where the overall discussion and interpretation is recorded for a feature or a group of contexts. For example: for a fence-line of 10 postholes each context sheet would record the relevant information for that context, but one context, normally the lowest numbered cut, would **additionally** contain discussion of the whole line of postholes, as well as a detailed sketch of the contexts, and an overall matrix. For a ditch with multiple interventions the Master context sheet would contain the overall dimensions of the ditch and a discussion of the ditch as a whole, in addition to the specific description of that context. Master contexts are not the same as Feature labels, which are purely spatial labels.

Master contexts can also be assigned for an individual feature: a pit with several fills, or a building consisting of several masonry contexts and deposits and cuts. The Master context therefore fulfils the role of a 'Group' or 'Structure' sheet used by some organisations, without creating additional non-stratigraphic units which do not obey the rules of our post-excavation system.

The relevant Master context number should be added to the other context sheets that form the group or feature in the 'other information' box on the rear of the context sheet.

Stratigraphy and matrix compilation

Matrices are the means with which we display the stratigraphic sequence of our contexts. CA use the stratigraphic matrix initially developed by Dr Edward C Harris in Winchester. All the systems used by CA are based on stratigraphic principles of excavation, whether you are digging a slot through a ditch or an urban sequence. The stratigraphic matrix underpins all our excavation and post-excavation records. CA use matrices not only to display stratigraphic information, but as a tool in checking paperwork, phasing and interpreting site sequences: throughout the excavation, assessment and analysis of a site the matrix forms the skeleton on which all other data hangs. The matrix is not just something to be completed at the end of site, it is a tool for ensuring that the site sequence is correctly understood, excavated and recorded. Matrices should be seen as an integral part of excavation. This is especially important on complex or urban sites, but no less important on simpler evaluations, watching briefs and excavations.

Matrices were initially developed for open-area excavation of complex archaeology where the **interface** between contexts is recorded rather than the **body** of the context (as in Section-led archaeology). Matrices work well for section-led archaeology as long as you are careful to realise that sections are not truly stratigraphic. It is important to note that the sequence of contexts visible in any one section may be different (but not contradictory) to the overall sequence which is a combination of all stratigraphic relationships, with all redundant relationships removed. Therefore it is important to record sufficient information that the stratigraphic relationships between contexts can be established, and that they can be demonstrated by the recorded evidence (e.g. on a section drawing or by overlaying plans). Consider whether each context needs to be individually planned in order to allow this: do not just plan the natural substrate after you have finished digging! If you do not plan a context ensure that there is sufficient record of its spatial extent and vertical height so that its relationships can be both reconstructed and demonstrated. Consult your Project Leader/supervisor as necessary.

Constructing stratigraphic matrices

You should construct your matrix as you excavate, updating and revising the matrix as necessary. Remember there is a difference between physical (touching) relationships and direct stratigraphic relationships. For further information on how to create a matrix see the section 'Creation of a Matrix' in Chapter 3, Single Context Recording.

Best practice is to record a full matrix on the reverse of each Master Context and Trench Record sheet, draw a matrix of the drawn contexts beside each section drawing, and also on every context sheet. It is the responsibility of every excavator to make sure the matrices are kept up to date and are correct and show every context. Draw out an annotated matrix for each trench/area/site as appropriate on permatrace. Final matrices will be drawn electronically in Excel.

The use of '+' (plus)

'+' is a symbol used to indicate both the top of the sequence, and unrecorded modern overburden or truncation. It can be useful to record that there is nothing stratigraphically above the context by using the '+' symbol.

Redundant relationships and physical relationships

Under Harris's basic rules many of the relationships recorded as being between *physically touching* contexts can be ignored as they are made redundant by *direct* stratigraphic relationships. We are constructing a stratigraphic sequence, not showing how all the contexts physically touch each other. If we were to display these redundant relationships on a complex site the resultant matrix would be impossible to follow.

Always consider the sequence in which contexts were created. Think about how they could have been formed and consider if there are any 'missing' contexts such as horizontal truncations that need adding.

Fills and cuts

Be careful that you have the correct relationships between intercutting features, sections do not always show the correct stratigraphic sequence. Cut features may have more complex relationships than at first appears.

Remember a cut **can** cut a cut! For example, a feature cutting the top of another partially-filled feature.

Tunnelled contexts and accumulations in sealed spaces

Contexts which were tunnelled are hard to matrix as they do not seem to obey the rules. The cut is still stratigraphically later then the context physically above it, as is the fill of the 'tunnel'! Similarly contexts that have accumulated in sealed spaces often cause confusion, the classic case being the coffin fill. The coffin fill is usually later than the coffin, even when it is physically beneath the lid but consult your Project Leader/supervisor if it is unclear. Another example is that of a postpipe within a posthole.

Cross-overs

Matrices are a method of displaying the relational data of contexts on a 2D surface. Due to the 3D nature of stratigraphy we sometimes cannot draw a matrix without lines crossing over each other. We get around this by using 'bridges' or 'cross-overs'. These indicate that there is no relationship between the lines where they overlap. Cross-overs are especially common where you have long linear contexts that have many relationships.

Cross-overs can be kept to a minimum by careful laying out of the matrix. On complex sites you may need to employ other techniques to show relationships where use of cross-overs would be problematic due to space restrictions.

Loops/cycles

These are caused by illogical cycles in the matrix where a context has been recorded as being stratigraphically below a context it is also recorded as being stratigraphically above. If such a cycle occurs then you will have to go back through the records to find out why, and remove the incorrect relationship. Cycles often occur where two contexts have been recorded as one, or where two contexts have uncertain edges. You may need to consider whether you need to remove uncertain stratigraphic relationships.

H-structures

Where two or more contexts both overlie the same contexts then this is shown using an H structure. You need to be very careful when using H structures that all the constituent contexts are indeed related as shown and are **ALL** above **ALL** the contexts shown.

Same as

Where two contexts are exactly the same processual event then they can be termed ‘same as’. This is indicated on a matrix by use of the = sign. Only use this sign where they are exactly the same context, e.g. two parts of the same wall, and not for where they are merely the same phase (e.g. episodes of backfill in separate ditch sections). Contexts which are ‘same as’ will need to be shown at the same vertical level of the matrix.

Laying out matrices: horizontal layout

It is important to lay out a matrix carefully. The relationships must not only be correct, but the way it is laid out should be carefully considered.
You may wish to lay out a matrix so contexts at the east of the site are on the left, those on the west to the right. This may help locating contexts easily on a large site. You may however want to lay out the matrix so there are the least number of cross-overs.
You can identify specific trenches or areas with a heading at the top or by using coloured pencils to divide the matrix into blocks. Make sure any such lines do not get confused with matrix lines.

Vertical layout

‘Up’ is late, and ‘down’ is early on all matrices. So lay out your matrices showing modern features towards the top, and prehistoric towards the bottom. Where two features are contemporary (but not same as) then show them on the same level. Similarly where there is no relationship between two contexts but one is Roman and the other medieval, then show this by vertical spacing.

Clustering

You can show how contexts relate to each other in a further way. Draw contexts that are related close to each other, indicating how they will be ‘setted’ in post-excavation. So arrange the cuts of a ditch and their primary fills together, with the backfills at a higher level indicating that it is temporally later.

Annotation

Annotate matrices with descriptions, spot dates, sample numbers and notes. Ensure such annotation does not obscure detail - you must be able to see the matrix clearly.

3. Single Context Recording

The single context recording system is a plan-led system of excavation by which the stratigraphic relationships between contexts can be determined, accurately recorded, and demonstrated, in addition to a full record of the individual contexts being made. It therefore provides a sound basis for constructing an accurate stratigraphic sequence and a full record of all excavated contexts. Single context recording is a very effective way of recording stratigraphy, and is the quickest and most efficient way of recording complex stratigraphy fully.

Where might we use single context?

Single context recording is not a purely urban tool. It can be used for any site, although on sites with scattered, discrete, features with limited stratigraphy it is unlikely to be the most suitable methodology. Even on a classic 'rural' site there is a place for single context recording where there is a complex structure (such as a building) or an area of intercutting features where excavation by section will not allow a full understanding of either the context or the sequence.

Single context recording is actually a very flexible system – although you do have to know the underlying rules before you can break them. The theory and approach behind single context excavation can be applied to any context whether you record it in a strict single context methodology or not, whether it is in a 7m deep structural sequence, or a pit in a field.

Common misconceptions

Perhaps surprisingly, given that single context recording developed in cities with deep and complex stratigraphy, the single context system is very simple and highly logical. It is simply a case of defining the latest context in the site, recording it, and removing it. This process of **Define, Record, Remove** is repeated until all the contexts have been removed in the exact reverse sequence that they were laid down.

The 'single' in single context recording does **not** in fact refer to planning *every single context*, it refers to each planned context being on its own individual plan sheet, allowing the plans to be overlaid to establish sequence. In single context recording you do not normally plan fills, but do plan all cuts, masonry and nearly all layers. This is so you can reconstruct the site from those plans that demonstrate the extents of the contexts, and their sequence.

Multi-context plans are only permissible under certain specific rules as the plans are used to demonstrate the site sequence via the plan matrix and multi-context plans do not allow this to be easily done. Multi-context plans are only permissible where all the contexts on the plan are below the same planned context, and all are above the same planned context

Sections can easily be integrated into single context recording in the normal way, but the level of detail on the plan should mean that you can reconstruct a section across the site between any two points from the plans.

Methodology

The basis of single context recording is to excavate and record the contexts in the exact reverse of the order in which they were constructed or deposited. Each context is recorded in isolation, once all the overlying (and therefore stratigraphically later) contexts have been removed and recorded. This allows the total extent and relationships of the context to be accurately determined and recorded.

Not only is each context recorded in isolation but it is recorded in plan on a separate sheet of drawing film. This allows the drawings of separate contexts to be overlaid and the relationship between planned contexts to be established (the Plan Matrix) – for details of how this is carried out see 'creation of the matrix' section below. The insertion of unplanned contexts into this Plan Matrix allows the Harris Matrix, which shows the stratigraphic relationship between contexts, to be compiled rapidly and accurately.

Therefore when you are about to record a context you must usually know its full horizontal extent and when excavating the context you must usually remove the whole deposit, otherwise the limits of the underlying contexts cannot be fully defined. It is permissible to partially excavate a context when working to a contractor's formation level where excavation is halted out of sequence, or on evaluations where a sample only is excavated but it is best avoided otherwise. It is best not to number contexts until they are ready to be excavated, however in some cases (e.g. the need to number an upstanding wall whilst removing the deposits dumped against it) it is permissible.

The context must be fully recorded by completing the Context Sheet as described in section 2 of this manual. The key to the successful implementation of the single context system is the accurate planning of the horizontal extents and vertical height (levels) of the context. The plan must have sufficient levels to allow the physical relationships of the context to be established by comparison with other plans in that grid square. As a minimum levels should be taken on the top, base and on any breaks of slope within the context. Particularly important is the noting of truncations on plans. This builds up into a Plan Matrix for each grid-square, when all the plan matrices are combined they form a site or trench plan matrix to which unplanned contexts are added. This then creates a stratigraphic matrix which is demonstrable by the evidence.

For all single context sites the excavation area will be divided into grid squares, usually 5m by 5m (CA has permatrace with a predrawn 5m by 5m grid for use when utilising single context recording). These grid squares may be on Ordnance Survey (OS) grid or on a local, arbitrary grid (see Section 10 for planning with grids).

- Each grid square is referred to by the coordinate of its south-western corner e.g. 105/210 which is derived in the same way as an OS grid reference,
- as with OS maps, north is **always** at the top of the page.
- All plans must be drawn based on this grid i.e. grid square 105/210 will have a series of plans, as will grid squares 110/210 and 105/215 etc; if a context extends across a number of grid squares a separate sheet of permatrace must be used for each grid square.
- The context must be planned in the correct position within the gridsquare, not to suit the context, again in the same way as objects on an OS map.
- If a context extends into an adjacent grid square by less than 200mm then it is not necessary to plan this small area – although it is best practice, and the context must be included in the Plan Matrix of the adjacent grid square.

This system means that the identifying co-ord of any plan is composed of two numbers, each of which ends in a 5 or a 0 (e.g. 210/105). This allows the subsequent overlaying of plans to determine the stratigraphic relationships of contexts and their rapid digitisation. When drawing a context that has an edge defined by a previously recorded context (e.g. where a floor is truncated by a pit) the plan of the later context may be used and the edge traced if it has not changed; this ensures that contexts are consistently recorded.

When using this system the context number of features/deposits should also be used as the drawing number. This number is used for every sheet of the plan, no matter how many sheets there are, the individual plan sheets are identified by their south-western coordinate and the number of sheets noted on the context sheet. This allows quick and easy cross-referencing, essential when dealing with complex stratigraphy.

Sections and Single context recording

There is no fundamental reason why every context or feature could not be half-sectioned and recorded using single context procedures. Sections can be drawn wherever and whenever required, however sections are *not* usually drawn for every context. Although if a section is required these can be reconstructed between any two points on a site using the planned extents of the contexts, the levels, hachures and details of breaks of slopes, it is always preferable to draw a potentially important section prior to excavation. Also good use of the edge of excavation and other baulks can be made to provide sections to be recorded.

A separate drawing register should be maintained for all drawn sections using drawing numbers in the usual fashion, taking care to preface the drawing number with an S, e.g. S.12 to avoid confusion with plans. The co-ordinates and datum height of all section drawings must be recorded on the section register to allow their locations to be entered into the site CAD drawing, section points should additionally be indicated on relevant plans.

In some circumstances a ‘running section’ across parts of the site may be maintained, or specific features may have their sections drawn. The Project Leader will make the decision on this requirement and the recording processes to be adopted to create this section.

The Process of Single Context Recording

As you can see, the processes are the same as for 'standard' excavation.

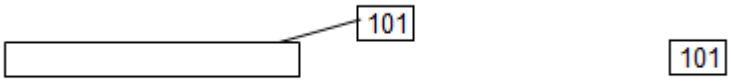
- Clean the area that you are to excavate, whether this is will be a slot through a ditch, or an area of complex stratigraphy.
- Determine the limits of the uppermost (i.e. the stratigraphically latest) context, and construct a working hypothesis to allow you to develop an excavation strategy for this context bearing in mind the surrounding contexts (will you remove the whole context in plan, excavate a slot, half-section etc).
- Assign a number to the context. If the context is a fill do not take out a cut number until it is clear there are no further fills.
- Take pre-excavation photographs of context as appropriate.
- Create a plan and/or elevation of the context (making sure that there are context number(s), co-ordinates, levels and section numbers (if required) on the drawing). If hand-planning use a planning frame if practical to do so.
- Determine the stratigraphic relationship(s) and cross reference on the recording sheet(s) of the overlying context(s).
- Describe the context on the relevant sheet.
- Excavate the context recovering artefacts and environmental samples as necessary.
- Complete and check the description and stratigraphic relationship(s) on context sheet and add further notes in your discussion and interpretation. Add any further information to previously excavated contexts.
- Deposit the artefacts and environmental samples for checking and processing. All site records should be deposited for checking once they are not required for cross-referencing adjacent contexts.
- Define the limits of the next context: If the next context is a cut number, photograph, draw and record as above as appropriate and then define the limits of the next context. If the next context is a deposit repeat the whole process.

Creation of the matrix

If a single context recording system is to be used on part of a site (or indeed the whole site) stratigraphic relationships between contexts should normally be established using the following process:

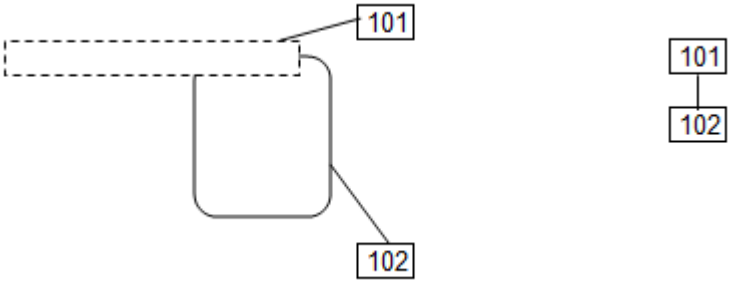
1: The latest context is fully defined, planned, recorded and excavated and its context number placed on the appropriate matrix. It is important that accurate levels for the top of the context are recorded on each plan.

Context 101 is excavated, recorded and placed on the matrix:



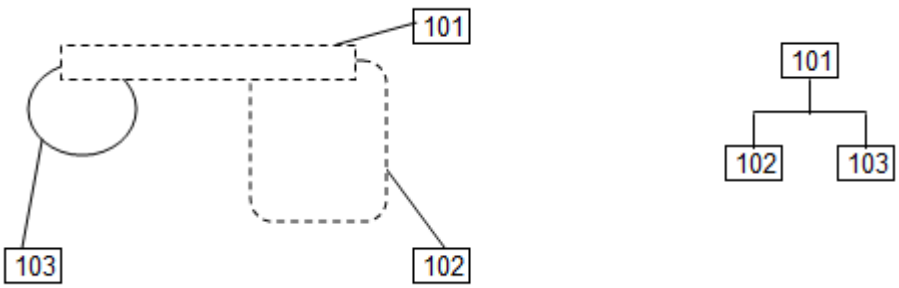
2: After the full excavation of context [101] the next context, in this case [102], is excavated and recorded by the same process. Its relationship with context [101] is established by overlaying the previous the plan for context [101], comparing levels and any relationship can be noted on the matrix.

The plan of context 101 is compared to that of the newly excavated context 102 and 102 is found to be the earlier context:



3: The next context is excavated and recorded by the same process. When the plan for the next context [103] is compared to the plans of the previously excavated contexts [101] and [102], it is apparent that context [103] has a relationship with context [101] but not with context [102]. This is also displayed on the matrix.

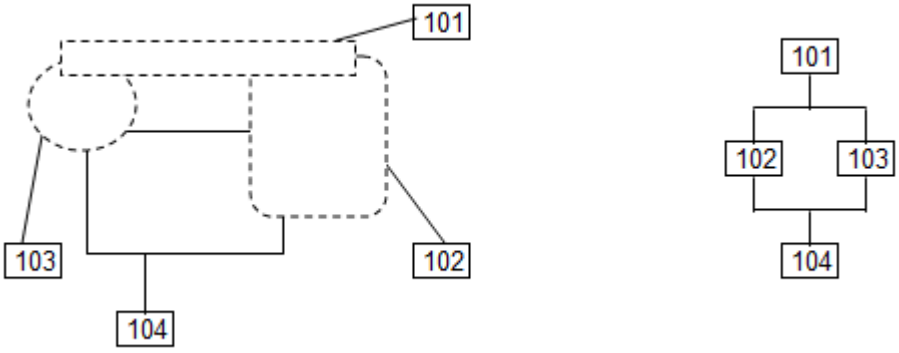
Context 103 is shown to be earlier than context 101 but has no relationship with 102:



4: This same process can be continued throughout the area to be excavated. Each new plan

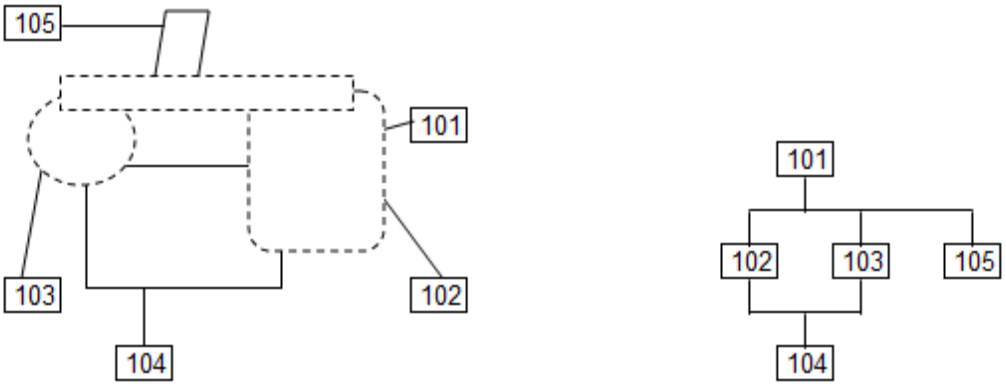
is initially compared to the plans of contexts whose numbers have nothing below them on the matrix. In this particular example the plan of context [104] is compared to the plans of contexts [102] and [103].

Context 104 is shown to be earlier than both contexts 102 and 103:



5: If the excavated context, in this case [105], does not have a relationship with last context to be excavated then the process must be repeated back up the matrix until a relationship is established. In this case context [105] is shown to be earlier than context [101] and this is reflected on the matrix.

Context 105 is shown to be earlier than 101 but has no relationship with any other excavated context:



Remember that as outlined on page one of this section the fills of cuts may not have been planned on permatrace and that they will need to be added in to the matrix based on the individual matrices recorded on the context sheets.

4. Excavating and recording contexts

Introduction

The principal method used to understand the phases of activity on a site is through analysis of individual contexts and their stratigraphic relationships. Any single identifiable action, whether it leaves a positive record (e.g. a fill, deposit or structure) or negative record (i.e. a cut) within the stratigraphic sequence, is known as a context. Within any such sequence the chronologically earliest context will always be sealed or cut by a chronologically later context. Here chronology refers to the relative date of the activity represented by the context.

The Context Sheet (CA/FRM/3) is our key primary record of these individual stratigraphic units and must be fully completed for every deposit or cut encountered on site. In certain circumstances this may be replaced by specially designed sheets e.g. for skeletons, coffins, timber or masonry (described in sections 5-9), but these are simply enhancements of the basic context record and the basic principles remain constant.

The Context Sheet is designed to allow you to record:

- the physical attributes of a cut or deposit
- the processes involved in their creation or deposition
- any identifiable processes which have subsequently acted upon them after deposition or creation
- a suitable interpretation, within the limits of the excavated data and dating evidence
- their stratigraphic relationships with other features.

Information recorded on the Context Sheet needs to allow the stratigraphic sequence to be analysed on site and during post-excavation work. It also needs to be accurate and sufficiently detailed so as to allow the characteristics of the context to be reconstructed from the records.

This section sets out how to complete the Context Sheet so that all categories are recorded in a consistent and detailed way, rather than simply noting what might seem important at the time. It also includes agreed CA terminology to help us achieve consistency in description and interpretation.

Responsibilities

CA expects all field staff to record those contexts which they themselves have cleaned or excavated, since they should have the best understanding of those cuts and deposits. For example, subtle differences in soil texture or colour, or concentrations of finds, may only be discernible during excavation and might not be apparent to anyone trying to record the context at a later date.

It is recognised that CA site staff will have different levels of experience and awareness. Through the agreed procedures set out in this section and through proper training, however, all staff should be able to record to a common standard. If an excavator is in any doubt about how to complete the Context Sheet they should discuss the procedure with their supervisor or Project Leader.

When to fill out the Context Sheet
Before investigating a new deposit or cut, a context number should be taken from the Context Register (CA/FRM/1), and a Context Sheet must then be started, before any excavation takes place. Fill out the relevant sections of the context sheet as excavation proceeds, don't leave it all until the end of the site.

Whenever a new deposit or cut is encountered and is about to be excavated, a new number should be issued and entered on the Context Register.

A record should first be made of any relevant visible surface details before and during initial cleaning of a deposit. Additions and amendments to the sheet should be made as more information emerges during the excavation process. Do not make notes elsewhere (e.g. in a notebook) as this information is easily lost, and the notebook will not usually form part of the archive. In wet conditions context sheets and other registers can be protected inside a large, transparent, polythene sample bag, if unavoidable record the information on permatrace for transfer to the context sheet as soon as possible. Never fill out context sheets from memory, or away from the site of excavation.

The relevant details must be added to the context sheet during the excavation and recording process, and the sheet should be completed and all cross-referencing done as soon as possible after excavation of the context is completed.

Before submitting the sheet for checking, you must read it and check that it has been fully and accurately completed.

Completing the context sheet

CA context sheets are specifically designed to guide you through the process of recording each context and to highlight specific areas where attention must be paid.

Please note that you should fill out all the appropriate boxes on the sheet unless specifically instructed otherwise by the Project Leader. If a box is not relevant (e.g. finds for a cut sheet) then neatly strike through the box. The final grey boxes on the reverse of the context sheet are for Project Leaders only and should not be filled out unless explicitly instructed to do so for that project.

Even if the context you are recording is being recorded digitally through rectified photography or 3D modelling, please ensure all the relevant information is still recorded on the context sheets. Certain details (e.g. physical and stratigraphic relationships) may not always be clear from the photographs and it is essential that this information is still recorded.

You should endeavour to cross-reference as much information as possible immediately after the relevant action. Don't leave cross-referencing until the end!

Context No.

A unique consecutive number taken from the Context Register (CA/FRM/1) or Trench Recording Form (CA/FRM/16) must be allocated to a context before any recording, excavation or finds collection. In certain circumstances context numbers will need to be assigned prior to detailed investigation or excavation e.g. where site security or the fragility of artefacts on the surface of an, as yet, un-excavated deposit makes their advance collection and/or labelling essential.

Context number allocation

The Project Leader will determine the approach to be taken to numbering contexts and will hold a list of number sequences to be used. Sequences of context numbers will generally include a prefix formed from the trench or area number and a suffix starting from 00 or 000 dependant on the size of the project. This numbering system helps to identify contexts to trench/area and helps to avoid duplication. Do not start with 01 or 001.

For **evaluations** where you are unlikely to have more than 100 contexts in each trench always use the trench number suffixed by **00**, e.g. in evaluation trench 1 topsoil would be coded as 100, followed by subsoil as 101 etc.

For **excavations** (or evaluations where it is likely that trenches may contain more than 100 contexts) always suffix with **000**, so the first context would be 1000, followed by 1001 etc.

Make sure that all individual contexts are given unique numbers and that there is no duplication.

If there has been a previous phase of fieldwork it is imperative that you do not duplicate any numbering from previous phases. This applies whether or not CA did the previous work and is especially applicable when the previous work was undertaken by CA under the same site code. The Project Leader should check the archive to ensure that all number sequences do not duplicate previously used numbers. This may result in multi-digit context numbers: if a site was evaluated by 100 trenches, contexts up to at least 10,000 will have been allocated. The excavation context numbers will therefore have to start from at least 11,000.

For complex sites such as pipelines the allocation of numbers may be more complex and include details of plot or field number. Check with your Project Manager/Leader at the start of the project as to what sequence of numbers you should use for your site, as they may be issued in blocks for each field/road crossing/type of intervention etc.

When context numbers are cross-referenced on any record sheets (such as Context Sheet, Skeleton Sheet etc.), drawings or matrices the different types of context should be differentiated by enclosing the number in differently shaped boxes or brackets, depending on which will be most legible. Context numbers for cuts should be placed in a rectangular box ▭ or square brackets [ ]. Deposit numbers should be recorded in ovals ⬭ or curving brackets ( ). Context numbers for masonry features such as walls should be placed in a rectangular box with a pointed top ⏢ or square brackets with a triangle drawn over the top. Sample numbers are recorded in diamonds ◇ or pointed brackets < >. Registered Artefact numbers are recorded in triangles △ or with the prefix RA.

Do not assign numbers to actions for which you have no definite physical evidence, e.g. the cut of an unexcavated feature that is only seen in plan. Sometimes it is necessary to assign cut numbers to inferred events for which you do not have evidence in order to prevent errors in the understanding of the site sequence, e.g. an inferred horizontal truncation such as within a Dark Earth sequence, or where it is clear that a horizontal truncation has taken place.

- Cut numbers **do not** have to be the earliest context number for a feature. Context numbers are allocated as they are excavated/recorded: therefore the cut should in fact be the latest context. There is no need to make numbers run sequentially within each area or intervention; do not change numbers to make the cut number ‘earliest’.

- **Never** change context numbers without checking with your Project Leader/supervisor as there may be finds that have been allocated to the number, and it may have been referenced on other record sheets.

Site Code

The site code is assigned by a CA Post-Excavation Supervisor before commencement of a project. It will normally consist of three or four letters, usually abbreviated from the site name or address, followed by two numbers denoting the year that the project commenced, e.g. BQB 01 (= Broad Quay Bristol 2001). Successive phases of work on a site would normally share the same site code if they start in the same year. Phases of work starting in subsequent years would have the suffix relevant to the year of excavation (i.e. BQB 02, etc). In certain areas, e.g. London, the site code is issued by the local museum or curatorial body and may be retained for all phases of work on that site. Check with the CA PES if unsure.

Museum accession codes do not need to be recorded on context sheets. However for archiving purposes they are entered on all site registers and should be entered onto these sheets on site if the accession number is known.

Location

For all evaluations insert the trench number here, and for all excavations any references to site sub-divisions should be given, e.g. Area D, Trench 12, etc. Locations may be archaeological, or refer to construction processes e.g. underpinning pit 5, pile-cap C14.

Grid Ref.

At the start of a project the Project Leader will normally notify field staff whether an overall site grid will be used, what form it will take and if grid refs are required. For most watching briefs, evaluations and for sites surveyed using GPS/TST you should cross through this box, but for excavations using a grid recording system, such as single context recording, the references provide a means to rapidly locate individual contexts and plans, and helps in constructing site matrices and should be recorded here.

The site grid is composed of 5x5 metre squares which are each identified by the co-ordinates of their south-west corner, written in the format of the Easting followed by the Northing, with the two readings separated by a forward slash for example 110/225. The grid will be laid out across site using a TST and or tapes and grid pegs will be labelled with their co-ordinates. The site grid will normally use the same Ordnance Survey co-ordinate system we use for GPS and CAD, although the first 3 numbers will be missed off each Easting and Northing.

Add the co-ordinates of all the grid squares that your context lies within, e.g. 120-5/590 indicates that the context is present in grid squares 120/590 and 125/590.

Occasionally a site grid will not use OS co-ordinates, and may even not be aligned to OS grid north, in these cases the grid will have a point of origin (e.g. 100/500) outside of, and to the SW of all the areas of archaeological recording. The grid will use the arbitrary co-ordinates in the same way as OS grid co-ordinates.

If only a part of a site requires a grid (e.g. an area of intercutting pits or horizontal stratigraphy) then this local grid can either be located on OS grid, or on an arbitrary grid as appropriate to the area requiring it.

If using an arbitrary grid then note that although plans are aligned to the Grid North, there is no change to the direction of site north as far as feature orientations/sections etc is concerned.

Whatever the source of your grid values, it is used in the same way, and all plans are always related to the SW co-ordinate of a specific grid square.

Type

State whether the context is a **cut** or a **deposit**, **fill** or **layer**. If the context is masonry, timber, skeleton or coffin then the appropriate CA recording sheet should be used instead of the standard context sheet (see sections 5 to 9 below).

Context Number

Write the context number in this box.

Deposit and cut prompts.

These prompts are designed to help you fully and accurately describe your excavated context. A context is either a positive or negative event: a deposit or a cut; it cannot be both and you should complete only the relevant section of the context sheet.

You should work through each associated prompt. For clarity, please prefix each part of the description with the relevant prompt number. To avoid confusion, strike through the prompt list which does not apply.

If you are unsure of the meaning of descriptive terms, or the context you are recording does not fall within the suggested list of acceptable terms, discuss it with your supervisor or Project Leader.

Deposit prompts

The characteristics of each deposit must be accurately described in order to form a permanent record of the deposit and to allow comparison and interpretation of the deposit. For these reasons the recording of every deposit must be carried out according to standardised guidelines structured to guide you through the process of recording and to ensure you capture all available information in a logical order.

CA have simplified their approach to recording deposits and have discarded the complex and contradictory controlled vocabularies for size and percentage. This has been replaced with a simple system that should be applied to all deposits. In nearly all cases a deposit consists of a soil matrix which can be described in terms of proportions of clay, silt and sand, with its coarse components described separately.

Describe the deposit in the order of the prompts printed on the context sheets and number each part of your description with the relevant prompt number. If a prompt is not applicable to your context, write N/A after the prompt number.

If a feature has not been excavated but is retained *in situ* you should describe only its visible/surface characteristics and note this in the discussion.

1. Colour

Try to record colours during excavation, when a deposit is moist but not waterlogged. Try and ensure that the colour descriptions you use are consistent throughout the excavation. Using the terms below state the gradation and hue (if necessary) followed by the dominant colour e.g. mid yellowish brown. Munsell soil colour charts are not used by CA.

Note any colour variations through the deposit, recording any lenses or mottles and describing their abundance, size and the sharpness of boundaries. Note any changes to colour during or after excavation such as with oxidisation of clay. Remember that artificial lighting can affect your perception of deposit colours.

Appropriate descriptions of deposit colours are:

Gradation	Hues	Colours
Dark	Whitish	Black
	Greyish	White
Mid	Brownish	Grey
	Greenish	Brown
Light	Bluish	Green
	Reddish	Blue
	Yellowish	Red
	Orangey	Yellow
	Pinkish	Orange
		Pink

2. Composition/particle size

The composition of a deposit is an expression of its constituent parts. CA differentiates between mineral components smaller than about 2mm (clays, silts and sands) and larger coarse components such as stones and finds which are recorded under prompt 4: Inclusions.

Use only the following descriptions

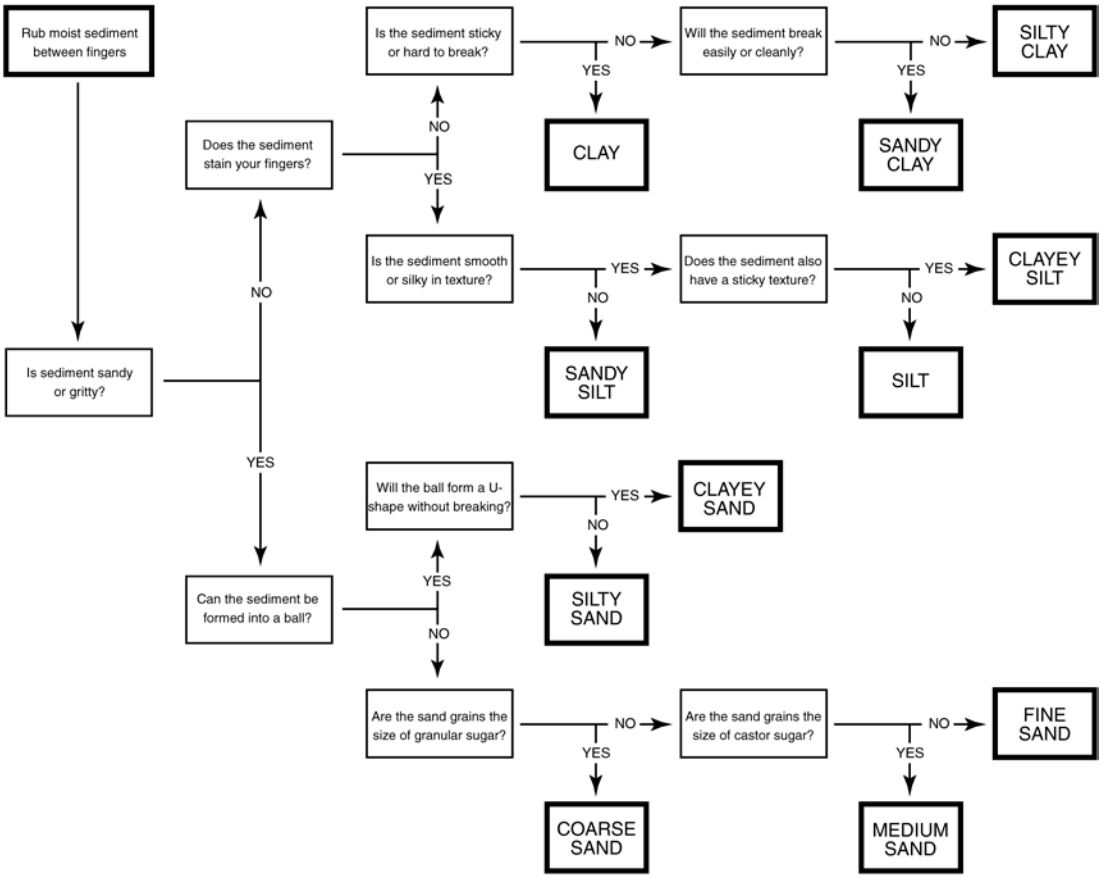
Clay	under 0.02mm
Silt	0.02mm – 0.06mm
Sand	0.06mm – 2mm

Field tests

The rule of thumb is that clay coheres, silt adheres and sand does neither. Clay is sticky and plastic, silt has particles invisible to the naked eye and a ‘soapy’ and somewhat sticky texture and can be smeared on the skin, and sand particles glisten and feel gritty when moistened. Use Figure 1 to assist in identifying texture.

The proportion of different particles should be assessed, e.g. if there is more sand than silt in a deposit describe it as a silty-sand, which implies that it is a sandy deposit containing some silt. This description applies to all the ‘soil’ matrix of the deposit, and should not be expressed as a percentage.

Deposit texture



The composition of a deposit may indicate the formation processes and conditions in which a deposit formed, or where the deposit originated from and is very useful in the analysis and comparison of deposits.

3. Compaction

This refers to the strength of the deposit, assessed when the deposit is moist but not waterlogged. The compaction can give evidence of the function of a deposit – for instance a clay floor is unlikely to be loosely compacted. Mention areas of differential compaction for example different areas of compaction on a floor which may indicate differential wear patterns.

Mineral deposits

Term	Definition	Excavation technique
Loose	The deposit cannot maintain a self-supporting form	Can be easily excavated with a hoe or trowel
Friable	Crumbles easily under pressure	Can be trowelled or hoed
Compact	If a cube of the deposit doesn't break	Requires a mattock to dig quickly
Hard	Cannot be moulded with fingers	Cannot dig easily with a trowel except by using stabbing action
Concreted	Particles cemented together e.g. By ironpanning or chemical bonding such as mortar	Need to use a pick or jack-hammer to make progress

Peaty deposits

Term	Definition
Firm	Fibres compressed together
Spongey	Very compressible and open structure
Plastic	Can be moulded in hands and smeared between fingers

In addition you may qualify the compaction with the terms such **plastic** or **brittle** to further qualify the nature of the deposit.

Note any variations in the degree of compaction vertically through, and horizontally across, a deposit. Vertical differences might, for example, help differentiate looser road make-ups from compacted metalled surfaces. Variations in the degree of compaction across the surface of a deposit might identify wear patterns, whilst protruding and unworn material above its surface might suggest the context had been rapidly covered by another deposit.

4. Inclusions

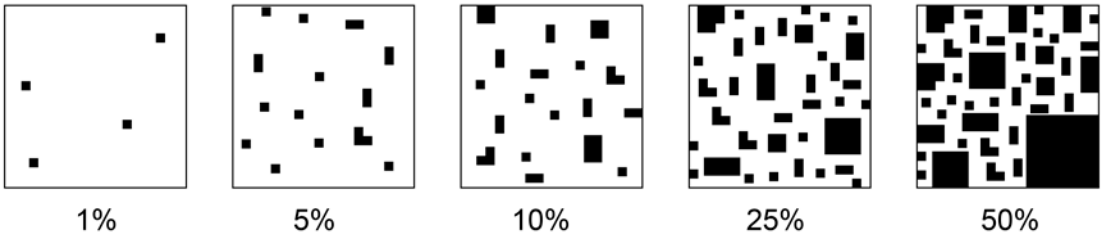
This section is used to describe everything larger than 2mm within the deposit, including ecofactual material (animal bone, mollusca, shell, etc) as well as artefactual material (ceramic building material, pottery, building rubble etc).

For each type of inclusion record its frequency as a **percentage**, its **size in mm** and its **angularity** (or abrasion for artefacts). Angularity should be recorded using the terms **well-**

rounded, rounded, sub-rounded, sub-angular, angular, very angular. Record how **well sorted** the inclusions are. This is a measure of how frequently particles with the same size occur i.e. if the deposits consists of mainly one size of particle it is well sorted and if it is a complete mix it is very poorly sorted. Also record if there are any lenses within the deposit, or if there are concentrations of inclusions in any area of the deposit, this can help you understand the formation processes affecting the deposition.

The frequency of components and inclusions (see below) can be estimated using the following table. In each example the overall percentage is the same as in each quadrant. The quadrants show how the same percentage can be achieved with different sized inclusions. Do not attempt to record the percentage to greater accuracy than 5% as it will not be accurate. Assess the percentage of each class of inclusion in turn, and by comparison between each other. Do not try and make the percentages add up to 100% unless there is no soil fraction recorded under composition (prompt 3).

Frequency of components and inclusions (redrawn after Hodgson 1974)



5. Horizon clarity

This refers to how clearly defined the deposit you are recording is against its physically-adjoining contexts both above **and** below. Use the following terms only:

Good The interfaces are clear and definite. The deposits were clearly differentiated in excavation. Be aware that there may have been a horizontal truncation if the horizon clarity is very good.

Moderate The interfaces are clear, but cannot be precisely differentiated, there may have been some post-depositional erosion of the surface of the deposit, or a slow change of deposition.

Poor The interfaces are unclear and very diffuse. There may have been an arbitrary division between the contexts as the boundaries were not clear.

The horizon clarity can indicate formation processes and aid interpretation of a context such as a floor.

6. Contamination risk

This refers to the degree to which the deposit you are recording (and in particular any artefactual and ecofactual material within it) may have been contaminated by or had material

introduced or removed through later activity. Sources of contamination would include episodes of re-cutting or reworking, tree roots, animal burrowing, worm action, cross-contamination during the excavation process, etc. The likelihood of intrusive finds being present within the deposit and the security of the stratigraphic relationships can then be assessed.

Use the following terms only and explain what the potential, or known, contamination risks are:

High intercutting features or deposits which were excavated out of sequence or recorded after excavation. Intrusive activity likely such as tree-roots and rabbit burrows, or reworking of the top of the deposit. Finds from these deposits will have to be treated as having potentially dubious provenance.

Medium There is a possibility of contamination of finds, although generally the excavation was secure, there is no obvious intrusive activity. Finds are probably secure from this deposit

Low discrete features and well-sealed contexts excavated under good conditions, with little risk of intrusive activity and a good understanding of the limits of the context. Finds can be judged as being safely derived from this deposit.

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7. Methods and conditions

This category allows an assessment of the quality of excavation and of finds retrieval.

Note whether a feature has been half-sectioned, or perhaps excavated in quadrants or by slots, and state which portion(s) were excavated and the width of any slots/sondages. Was the context completely excavated? Was excavation halted at a certain depth for safety reasons?

Briefly describe the tools/methods used during excavation (e.g. trowel, mattock, mechanical excavation) and any conditions (e.g. frozen or dry ground, heavy rain or high water table, poor light, excavation under rapid salvage conditions, etc) which may have affected finds retrieval or the quality of excavation recording.

Do not record weather conditions if they are irrelevant to the excavation and recording process.

8. Other comments

Use this category for noting any other useful information about the deposit e.g. only partially exposed or difficulty in defining its extent, its changing nature with depth, any concentrations of finds, unusual odour (e.g. in the case of deposits with high organic content), iron panning, etc.

Cut prompts

Cuts are 3-dimensional contexts which need to be recorded in all 3-dimensions. This will usually mean a section and/or profiles are drawn in addition to a plan. Whether or not a section is drawn adequate levels must be taken to ensure the cut can be reconstructed accurately – at a minimum the level of the top, base and any breaks of slope must be taken.

The prompts on the context sheet will allow the nature of the cut to be fully reconstructed, and help in understanding the nature, function and use of the cut.

1. Shape in plan

Describe the shape at the top of the cut. Use the following terms only:

square
rectangular
circular
oval
linear
irregular

Use modified versions of the above as required, qualified with '**sub**' where applicable e.g. sub-rectangular.

For linear features state whether the sides are **parallel** or **tapering**, **straight** or **curving**. If a cut is very complex then refer to sketches, plans or sections.

2. Corners

If present describe the shape of any corners in plan. Use the following terms only:

square
rounded

Use modified versions of the above as required, qualified with '**sub'** where applicable e.g. sub-rounded.

The shape of corners can help indicate the nature of any lining, for example; a pit with square corners is more likely to have had a timber lining than a pit with rounded corners which is more likely to have been wattle lined.

3. Sides

Note whether the break of slope, top is:

imperceptible
rounded
sharp

A rounded or imperceptible break may suggest that the cut has been open for some time and has weathered, whereas a sharp break may indicate a cut that was backfilled quickly, or has been horizontally truncated by ploughing or machining. If it is clear that a cut has been truncated and this is not the original break of slope indicate this, e.g.: 'truncated by machining; sharp'.

Use the following terms to describe the side of the cut:

vertical
concave
convex
straight
irregular /stepped
undercut

State whether the opposing sides of a cut are **symmetrical** or **asymmetrical** and indicate whether they slope gently, moderately or steeply or are vertical. Note also the smoothness or irregularity of the sides. Use the following terms to describe the slope:

Gentle	less than 30˚
Moderate	30-60˚
Steep	more than 60˚
Vertical	approximately 90˚

Terms such as V-shaped and U-shaped should be avoided as descriptions of sides as they describe the overall profile, rather than the individual aspects of the side –use those terms in the discussion and interpretation of the cut.

4. Base

Note whether the break of slope at the base of the slope is

imperceptible
rounded
sharp

This can help in understanding the function of the feature, for example a feature with a sharp break of slope, base, is more likely to be a beamslot than a gully, where you would expect a gradual or imperceptible break.

Describe the base of the cut, noting whether it is

flat
stepped
sloping (indicate direction of slope)
tapered or **pointed**,
rounded (concave or convex) or
uneven

For linear cuts please indicate whether there is a fall from one end of the cut to the other, this can help determine which way a drain flowed, or the slope of the original ground surface. This is obviously linked to taking appropriate levels as described above.

For postholes and stakeholes indicate whether the base is a

tapered point
tapered blunt point
tapered round point
vertical sided with a flat base

This will help reconstruct the type of post or stake that was originally used.

5. Orientation

For features with a discernible axis describe their orientation e.g. North-west/south-east. If you are excavating only one part of a large feature state its orientation at the point you are excavating as well as its overall orientation.

For postholes and stakeholes that are not vertical, give the direction of the top of the cut relative to the base, for example ‘top is south-west of the base’.

Inclination of axis

For stakeholes and postholes indicate the inclination of the cut. Either state that it is vertical, or give the gradient in terms of **Y**mm (vertical) in **X**mm (horizontal) and the direction the post would have leant towards (e.g. 80mm in 320mm, to south). If you have a post-pipe or post ghost that is not vertical record this in the discussion of the relevant fills.

6. Other comments

Use this category to describe any other useful information e.g. 'not bottomed', 'base found using hand auger'. Note whether there is any truncation from e.g. ploughing, machining, modern foundations, other features or from later recutting. Give details of any cuts that truncate this context in the 'Cut by' box below. Can the original dimensions and profile can be reconstructed?

Note whether a feature has been fully excavated, half-sectioned, excavated in quadrants, or by slots. State which portion(s) were excavated and the width of any slots/sondages. Record if excavation was halted at a certain depth for safety reasons

Draw profile overleaf

Ensure that you draw one or more annotated profiles of the cut on the back of the context sheet, even if you have drawn a section. Tick that this has been done.

Drawings

Each plan, section/elevation or drawn profile will have a unique drawing number taken from the Drawing Register (CA/FRM/8). Plans and sections/elevations are taken from a single number sequence, with the exception of single context plans where the plan number will usually be the same as the context number.

On most **evaluations** a drawing register is not used, and drawings are recorded on the Trench Recording Form. The drawing number is formed from the trench number and a number in a sequence starting at 1, separated by a '.' e.g. Trench 34 will have drawings in the sequence 34.1, 34.2 etc.

For excavations it is imperative that there is no duplication of drawing numbers used in previous phases of work which were recorded under the same sitecode. The Project Leader will check the archive for previous number sequences and will decide on new sequences which will be in the same format as those used for evaluations: e.g. 101.1, 101.2.

Plan No.

Note all the permatrace plans on which this context appears. Where a plan extends over more than one sheet of permatrace record the number of sheets that this context is drawn on, e.g. 35.1(x3).

If the plan of the context was recorded by GPS then write GPS in the box.

Section No.

Note all the sections on which this context appears. Where a section extends over more than one sheet of permatrace record the number of sheets that this context is drawn on, e.g. 14.3(x3).

Length, width/diameter

Record the horizontal and vertical dimensions of your context in these boxes.

Measure length along the longest axis of the context and width perpendicular to this. If the dimensions vary considerably then it is useful to give maximum, minimum and average dimensions. Measurements cannot always be checked in the field and it is your responsibility to ensure that noted dimensions are accurate, and they match your drawn record where appropriate. All measurements must be in metres only, e.g. 0.79m, unless they are under 0.1m in size in which case millimetres should be used e.g. 8mm. **Never** use centimetres when recording measurements.

If you have only partially excavated a feature you should note the dimensions of the excavated deposit or exposed cut on the sheet in the '**excavated dimensions**' boxes and make a separate note of the dimensions of the overall context in the 'overall dimensions' boxes. If you have 100% excavated the context then do not duplicate the entry.

Depth/thickness

Depth: (cuts only)

Record the surviving vertical depth of a cut, note that dimensions must be from the top of the context to the base of the context, not from contemporary ground level. Calculate the depth from the highest and lowest level readings as appropriate. If your context is a sloping post or stakehole then the depth is measured along the axis of the hole.

Thickness: (deposits only)

Record the surviving thickness of a deposit, noting maximum, minimum and average dimensions where there is considerable variation. Note that thickness must be measured from the top to the base of each context not from contemporary ground level. Note maximum, minimum and average dimensions where there is considerable variation.

Stratigraphic matrix

The establishment of an accurate and demonstrable stratigraphic sequence is essential for all sites. The final stratigraphic matrix is the framework on which all post-excavation work will hang, it is therefore essential that you record the correct stratigraphic relationships on your context sheets.

Stratigraphic relationships are not concerned with which contexts physically touched one another, but with the sequential order of contexts.

Enter the number of your context in the central box and the numbers of the context or contexts which are immediately stratigraphically above and below it in the relevant boxes, i.e. those contexts that are immediately earlier or later than the context being recorded. Do not list every context physically above or below the one you are excavating, only those that have an immediate stratigraphic relationship with your context. An example is a pit that cuts through a number of earlier deposits. The only direct stratigraphic relationship when considering the pit cut is that between the cut and the latest deposit through which it was cut. The relationships between the pit cut and the earlier deposits that the pit was cut through, or the relationship between the fills of the pit and the earlier deposits are all purely physical relationships. Although the pit cuts through a number of deposits it has only one implication for the stratigraphic sequence of the site.

If you are uncertain about the stratigraphic sequence of which your context is part, then ensure you discuss this with your Project Leader.

Physical relationships

CA records both stratigraphic and selected physical relationships. Enter the relevant contexts in the boxes and strike through the incorrect header e.g. Filled by/~~Fill of~~.

Filled by/Fill of

Filled by: List all deposits lying within the cut including linings e.g. brick-lined cesspit. Note this may include timber, masonry, skeleton and coffin numbers.

Fill of: Record the cut which contains the context you are dealing with.

Cut by/Cuts

Cut by: List all cuts which truncate this context, whether they have a direct stratigraphic relationship or not. If there is an un-recorded modern truncation use the plus (+) symbol.

Cuts: List all deposits which this cut truncates, whether it is a direct stratigraphic relationship or not. Note this may include timber, masonry, skeleton and coffin numbers.

Same as

Is to be used when two contexts turn out to be a single entity, e.g. a single fill of a pit which has been dug as two quadrants. It can also be used when it emerges through fuller investigation that two or more contexts assigned different numbers in the field are demonstrably the same. This fact must be recorded on all the related context sheets.

Other physical relationships such as butts/butted by, and part of/includes should be recorded and discussed in the discussion box.

Part of/Includes

Part of: If the context you are dealing with forms part of some larger context e.g. a lens, special artefact or ecofact group within a larger deposit. These situations rarely occur. Not to be confused with ‘Includes’.

Includes: Contexts *entirely within* the context you are recording, e.g. lenses of deposit, specific and special artefact or ecofact groups. These situations rarely occur. Not to be confused with ‘Part of’.

You must ensure that all relevant stratigraphic and physical relationships have been clearly defined on completion of excavation of the context and the final checked status recorded on the completed sheet. Wherever possible you should aim to be able to demonstrate stratigraphic relationships, preferably in plan, or in section.

Where it is clear that there is a relationship between the context you are dealing with and another context but it remains unclear what that relationship is (e.g. two pits where it is unclear which pit cuts the other) it is important to discuss this with your Project Leader and note the situation within the discussion section of the context sheet. If you are initially unsure of the relationship between two contexts you should avoid stating this on the context sheet initially as the relationships between contexts may only become apparent after full excavation.

Feature label

Feature labels are given by the Project Leader to features on site so that they can be easily referred to, for example 'this deposit is aligned with Ditch A'. The label is merely a spatial 'handle' and carries no stratigraphic or post-ex meaning. Write in the Feature label, if any, which your context is related to, e.g. Ditch A, Pit group B, Hearth G. This must then be recorded on the Context and Feature label Registers (CA/FRM/1 and 2).

Master context

Master contexts are designated by the Project Leader as the context sheet where the overall discussion and interpretation is recorded for a feature or a group of contexts. For example; for a line of 10 postholes each cut and fill sheet would record the relevant information for that context, but one context, normally the lowest numbered cut, would additionally contain discussion of the whole line of posts, as well as a detailed sketch of the contexts, and an overall matrix. The Master context for each feature label should be noted in the relevant column on the Feature label register (CA/FRM/2).

Interpretation and Discussion

It is essential that after recording the physical attributes and dimensions of your context, and its stratigraphic relationships with other contexts, you should then set out clearly and concisely your thoughts on its character and function.

Features should not be excavated and recorded in isolation, and interpretation is not an end stage after completion of the act of excavation but an ongoing process. Avoid mechanistic digging and cursory interpretation. Avoid writing just 'backfill of ditch', state **why** you think it is a backfill, how it got there, was it a quick event or a gradual process, where did the backfill come from etc? If you are not sure as to the interpretation, state this, and what you know it is not, e.g. 'this deposit does not appear to be a floor as it is not compacted'.

Similarly do not excavate features and then interpret them later: interpretation is an iterative process where you should be developing your interpretation as you excavate.

Dig all features stratigraphically wherever possible: rather than digging out all the fills of a ditch and assigning context numbers afterwards, take each fill down in sequence, recording as you proceed, and add additional comments to your context sheets when the whole feature is completely excavated. This way you will dig the feature correctly, following any tip lines or soil changes and the finds are more likely to be securely assigned to the correct context, and you can correct any mistakes as you identify them.

Remember that the context sheet forms a major part of the record of the context you are digging: these records are the **only** record of the context once it has been excavated. Write all of your interpretation down, stating any evidence to support your interpretation, and listing possible alternative or discarded interpretations and why you believe your final view is correct.

Once you have committed your interpretation to paper you may wish to discuss your thoughts with your supervisor or Project Leader, who may wish to review the excavated context and its likely origin with you and other field staff. Any discussions, different interpretations and reasons for dismissing alternatives should be recorded along with the initials and date.

Your interpretation will be used and relied on during the post-excavation and reporting stage, so please ensure that this section is completed fully and accurately.

Some ideas to bear in mind

Consider whether your cut or deposit was internal or external, i.e. within or outside of a building. If your context formed part of a structure you should note whether it was internal or external, e.g. an internal trampled clay floor, external mortar floor protected by a colonnade, an external cobbled yard surface, an internal or external well shaft, an external gully etc. Place a tick in the relevant internal, external, structural, or other box and remember that a context can be both external *and* structural.

Present all positive and negative evidence that supports your interpretation of the context, but be honest and note any conflicting evidence too e.g. the absence of particular types of evidence that might be expected given your interpretation of a deposit or feature. Mention any significant association with other contexts, and when citing other contexts these should be underlined or the relevant shaped box used e.g. this pit cut [2004] forms part of a clear alignment with [2002] and [2006].

Discuss the derivation of the context. In the case of a cut, assess whether the shape of the cut gives you any information on the function or form of the feature e.g. a posthole with a flat base might indicate a flat upright post whereas a posthole undercut on one side with a pointed base could mean an angled post, driven into the ground.

In the case of a deposit, assess whether it was deliberate human deposition, such as backfilling or dumping, or whether it resulted from natural processes e.g. silting, flood deposition, etc.

Your interpretation will be vital during on-site or post-excavation data analysis and it is important that it is as considered as it can be, but must be based on a realistic appraisal of the context and the certainty which can be attributed to your attribution of its origin or function. Do not over-elaborate your interpretation.

Note also the provisional date of any artefactual or ecofactual material recovered from your context, and any certainty or problems in knowing where within the deposit this material came from.

Note also any post-depositional processes which may have acted upon the context e.g. truncation resulting from landscaping, mixing of deposits by ploughing, etc.

Try and sum up the context in one line box e.g. ‘primary fill of ditch’, ‘construction trample from wall 2456’, ‘levelling dump within building’ and keep this separate from the discussion.

Do remember that anything written on the context sheet forms part of the permanent site archive, which will be microfilmed and may well be accessed by other archaeologists and interested members of the public.

Date and initial any subsequent entries/revisions to the sheet.

Note if a continuation sheet has been used.

Initials and date

Add your initials and the date the context sheet was completed.

Provisional date

Record the provisional date of your context, giving the reasoning for the decision, e.g. RB pottery, aligned with medieval street, similar form to other pits dated to LIA.

Registered artefacts/Environmental Samples

Record the numbers of any Registered Artefacts (in triangles) and Environmental Samples (in diamond brackets) on the context sheet and cross-reference to the Registered Artefact and Environmental Sample Registers.

Finds

Tick the relevant boxes of those finds which have been retained and bagged. Indicate if finds have been observed but not kept (NK) – what they were and why they were not kept must be recorded.

Sketch

Sketches can enhance the drawn and written record. Use the gridded space to convey information not already recorded on your plan or section e.g. relationships between other features, extended matrices, etc. The sketch is your opportunity to illustrate the context sheet and show aspects of the context that need annotation that cannot be shown on a plan or section. For example draw an annotated schematic cross-section through the feature, or a reconstruction of its original extent, or a cross-section showing the construction technique or sequence of a foundation. Sketches are very useful in post-excavation but do not merely copy your section drawing or plan.

In some cases, such as the construction backfill of a wall, no formal plan of the context will be required and a sketch may suffice (though you will need to check first with your supervisor). If the only drawn record of a context will be a sketch then add sufficient annotation to ensure the clarity of the sketch including **hachures**. If there is no other record of the deposit you will need to take appropriate **levels** on the context and indicate these and the context **dimensions** on your sketch. Show the context in relation to planned contexts so it can be reconstructed if necessary.

For each group of contexts (e.g. a pit and its fills, a building, a series of slots through a ditch) draw out a matrix on the reverse of the Master context sheet (normally the cut, sheet) showing all the contexts in the group, and what is above and below them. Refer to this Master context sheet on the related context sheets.

Levels

Record the highest and lowest reduced levels for your context in these boxes. These can be used to determine thickness/depth, as well as being very useful for recording floor levels etc.

Use the levels grid to record levels if not using a levels register such as for string lines, fills or when using single context recording. Transfer levels to the drawings

Other information

Record any other relevant information

Photos

Tick the box to show that this context has been photographed and enter the unique film number alongside. The frame (counter) number will normally be added at the post-excavation stage. For digital photos use the file format shown on the camera e.g. 108-8012. For 35mm photos use the format Film number/frame number, e.g. 10/23-25 to indicate frames 23 to 25 on Film 10.

Recorded by

It is vital that you complete this relevant box with your initials as soon as you start the context sheet so that you can be contacted if your sheet has not been filled in properly, or if we need to discuss a feature with the excavator. Date the context sheet on completion.

Checked by

The Project Leader/supervisor will check that your context sheet has been fully filled in and identify any problems. The Project Leader will also look at the sheets in looking at the site as a whole. The Project Leader/supervisor can also initial and date here to note that the context has been fully checked.

The final three boxes are greyed out on the context sheet and are filled in by the Project Leader/Supervisor only when required. This will be determined at the start of the project following discussion with the Project Manager/PX Manager and is likely to only be required on excavations – check with the Project Leader for clarification.

Checked Interpretation

The Project Leader/supervisor will add comments to the Discussion and Interpretation sections as appropriate - clearly initialling and dating all additions. They may make comments on the validity of interpretations made by the excavator, and note possible correlations and higher level interpretations that the excavator may not have been aware of. They will also add a checked interpretation which consists of a short text for entry into the project database. This will be a short, distilled version of the interpretation - normally one sentence in length.

The **combination** of the final two boxes (Basic Process and Basic Interpretation codes) allows PLs and specialists to understand the nature of the context and adds nuance to the attribute data held in the database. This system is usually applied in post-excavation, however on some sites it may be done on site as part of checking. Generally the Basic Int and Basic Process are independent of dating or other specialist data and can be carried out on site as long as the site sequence is properly understood.

Basic Interpretation Code

This forms a one or two letter code which indicates the **basic interpretation (basic int)** of the deposit or cut. There is a controlled list of codes that are available to use, and it is unusual to not be able to apply a code to a context and have to resort to ‘XX’ (unspecified).

About 30 codes exist, ranging from simple codes such as PIT (pit), WAL (wall), TIM (timber), FL (floor), D (ditch), SK (skeleton) to more interpretative codes such as DEM (destruction debris).

The code is applied to each individual context and it is entirely possible that the codes within a feature will be different, so a rubbish pit (P) may have a wattle lining (TIM) where the stakes are driven into stakeholes (ST), and the primary rubbish fill (F) is sealed by a backfill

of demolition material (DEM). The top context in the sequence may be interpreted as a levelling deposit (MU) for a building etc, or an external dump (DUM).

The following are the allowed codes for contexts, please discuss with your Project Leader/supervisor.

B **Bank**
A positive feature usually associated with ditches. Could be constructed for defensive purposes (e.g. around a town or fort), water management (e.g. flood defences) or ritual purposes (e.g. burial mounds). Some banks have agricultural functions, such as lynchets, or headlands resulting from ploughing.

BS **Buried Soil**
A pre-modern layer preserved under a later positive feature (e.g. bank) or layer (e.g. subsoil or make-up layer)

COF **Coffin**
Container- frequently wood, but also possibly lead, iron etc. - used in the inhumation of skeletal remains.

CR **Cremation**
A deposit of burnt skeletal remains, sometimes within a vessel (urn), but often just inside a cut pit. Some cremation pits also contain grave goods.

CUT **Cut**
A form of cut not covered by ditch, gully, pit, posthole, structural cut or stakehole.

D **Ditch (cut)**
The most common linear feature on most sites. Usually dug either for land management (e.g. field boundary ditches) or for defensive purposes.

DEM **Destruction debris**
Deposit of building material resulting from the demolition of a structure.

DEP **Deposit**
Not a fill.

DUM **Dump**
Deliberate deposit of material not in a pit.

ES **External surface/yard/road metalling/cobbling**
If you're outside a structure and on a surface, then this is the code to use.

F **Fill**
Material within a cut feature. This could result from man-made activity (e.g. the deposition of refuse in a pit) or natural processes (e.g. the gradual silting up of a ditch).

FUR **Furrow**
Linear feature caused by plough action.

FL **Floor**
An internal surface, commonly compacted.

G **Grave**
Any feature cut for the purpose of burying skeletal remains.

GUL **Gully (for drainage)**
Like a ditch, but might be smaller and must be for drainage.

HE **Hearth**
Defined area of low-level burning, generally for domestic heat or cooking, as opposed to KIL below

KIL **Furnace, oven, kiln, fireplace, flue, chimney, stokehole**
Material burned at a high temperature for a specific and generally 'industrial' function, typically within a purpose-built structure.

MU **Make-up/levelling**
A deposit of material that raises or flattens the ground level.

NAT **Natural soil/strata**

The natural geological layer on site. This is usually the layer that features will be cut into. The natural will normally be either bedrock (e.g. chalk, mudstone etc.) or superficial deposits (e.g. head clay, alluvial gravels etc.).

OCC **Occupation deposit**
Deposit of material rich in domestic artefacts such as pottery that indicates *in situ* settlement activity.

PH **Posthole (cut)**
Negative feature. Like a pit, but smaller. Can be a result of the digging of a small pit for the placement of a post, or of the driving of a post into the ground. May contain packing stones used to keep the post in place.

PIT **Pit (cut)**
A discrete negative feature dug in order to place material into the ground (for refuse or storage) or to take material out of the ground (such as clay or mineral extraction).

SC **Structural cut (beamslot etc)**
Coverall for negative features used in construction that are not postholes or stakeholes.

SH **Stakehole (cut)**
Like a posthole, but smaller. Usually the result of driving a stake into the ground, so likely to have a tapered or pointed base.

SK **Skeleton**
Articulated bones.

SUB **Subsoil**
Modern layer beneath the topsoil. In rural sites this is often a mixture of topsoil and natural formed by ploughing, though may also be formed by natural processes such as alluvial (river silting) or colluvial (hill wash) deposition.

TH **Tree throw/hole**
A negative feature, of any period, resulting from the presence of a tree.

TIM **Timber**
Wood.

TOP **Topsoil**
Modern layer, often recognisable by the grass growing out of it.

WEL **Well**
A deep hole in the ground used to access subterranean water. Will often have lined sides.

WAL **Wall/pier/postpad/steps etc**
In situ masonry used in construction.

XX **Unknown/unspecified**
None of the above.

Basic Process Code

Basic process is a code applied to each context which indicates whether that context represents an act of **Creation/construction**, **Use** or **Disuse** in itself *and also in relation to the contexts it relates to in the stratigraphic sequence*. Normally these related contexts will end up as being in the same Set as the context, or a Set with a direct stratigraphic link to the context.

The code can be applied as a combination of the letters C U and D: for example the construction cut of a stone-lined well would be C as it is a creation or construction event. The stone lining would be CU as it is a construction event but also extends into the use of the feature. A *true* primary fill accumulating within the life and use of the well would be use U, whereas a silting up or backfilling would be D as it represents the disuse and closure of the feature.

Possible combinations of letters are:
C (e.g. construction cut of a wall trench);
CU (wall with superstructure, hearth surface, cut of a quarry pit or ditch, a floor deposit that saw use);
U (the rubbish fill of rubbish pit, true primary fill of ditch, occupation trample on floor);
UD (infilling of ditch over time where the ditch continued to function as it silted); and D (infilling of pit), *in situ* destruction horizon.
CUD may be used as a Basic Process for deposits where it is not clear what the process should be, such as in the case of large, unspecific external dumps, although this coding is best avoided. The codes for any feature or structure do not need to 'add up to' CUD: there does not have to be a disuse of a feature, neither technically does there need to be a creation!

The codes are influenced by the sequence of contexts that they apply to, so different features may have different sequences of basic processes applied to their contexts despite the features appearing similar. Each sequence of contexts needs to be looked at individually -there is no mechanistic short-cut to the application of the codes. The application of the Basic Int and Process is an excellent step in the process of Setting the sequence during analysis as the underlying principles and thought processes complement each other and overlap to a great extent.

The combination of a checked stratigraphic matrix annotated with Basic Int, Basic Process and the 'boxing up' of the contexts into Sets allows (and demands) a detailed understanding of the site sequence.

Parent Context

The Parent Context is the context number by which this context will be identified in CAD/GIS. For all planned contexts the Parent Context is usually the same as the context number, for unplanned fills it is usually the relevant cut number, and for contexts which are only recorded in section a polygon may need to be created from the section drawing. The Parent Context is used primarily within geomatics applications and does not need to be recorded on the context sheet.

5. Excavating and recording Masonry

The recording of masonry on site must establish its stratigraphic position and allow a 3-dimensional reconstruction of the context. Correct recording is essential as it may be possible to date masonry structures based on construction technique and/or architectural form/style.

The Masonry Recording Sheet (CA/FRM/4) must be used for **all** masonry structures, such as stone walls, wall foundations, piers, pillars, and culverts instead of the normal context sheet, unless otherwise instructed by the Project Leader. Use the diagrams to ensure the correct description of masonry coursing and brick bonding. Generally speaking use a masonry sheet where stone elements are bonded together in any way and where the masonry prompts are more relevant than those on the standard context sheet. Masonry sheets may be used for certain types of unbonded grave furniture or lining, for example cists and tile linings, where the use of a coffin sheet is deemed inappropriate.

CA do not use Structure Numbers or any similar system of formal numbering to identify buildings or groups of masonry contexts on site. Instead, feature labels may be used as a spatial identifier for groups of contexts or specific buildings. Feature labels carry no stratigraphic weight and are purely spatial constructs.

Use of Imperial measurements

Until recently Imperial measurements were used for the design and construction of walls and bricks. It may therefore be useful to note that a wall is 3' wide, a brick is 9" by 4" by 2"3/8ths, or that the bay structure in a building is at 9', however all primary measurements **must** be in metric measurements.

Completing the Masonry Sheet

Many parts of the masonry sheet are identical in design and function to the standard context sheet and reference to Section 4 should be made for details on how to complete them.

The parts unique to the masonry sheet are described below:

1. Materials

List all forms of constituent building material in this context (e.g. limestone rubble, sandstone blocks, flint nodules etc). Note if materials are re-used as indicated by old mortar adhering to them.
For bricks and tiles describe the colour (and any variation) and hardness of the bricks, note any inclusions (pebbles, clinker, *'Spanish'*) and the presence, shape and depth of any *frog*. If possible note whether the brick is handmade or machine made.
For masonry constructed of clay or beaten earth blocks (mud-brick and some clay and timber techniques) record as for fired bricks.

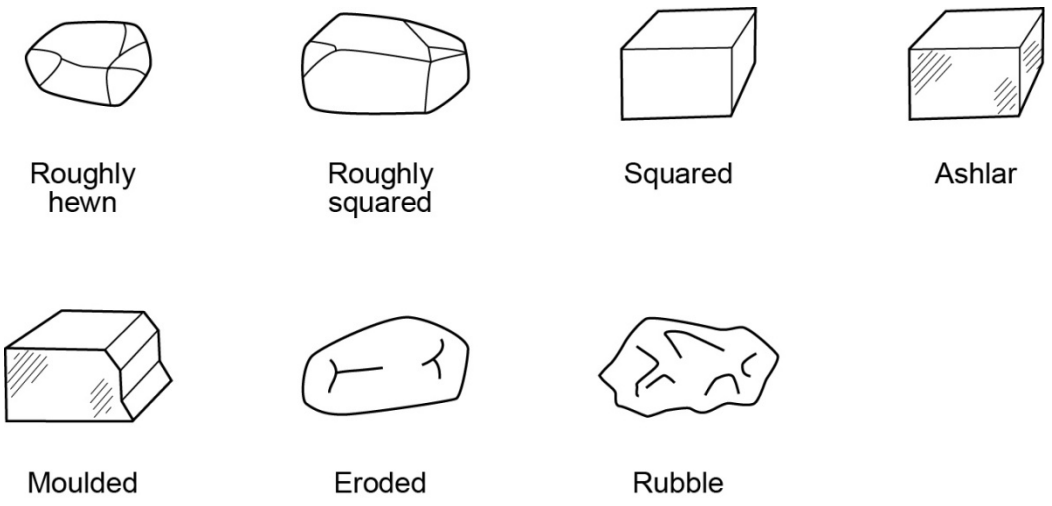
2. Size of materials:

Note the size and range of each of the building materials in the wall in mm.
Record bricks and tiles using **B.T.L.** (Breadth x Thickness x Length) in mm.

3a. Stone finish

Note the finish of each type of stone, note whether stones have rough or smooth dressing, whether they are dressed ashlar, lopped flint, tabular limestone or roughly hewn blocks and how worn or eroded they are. Record the stone as rubble only if they have received minimal finishing treatment. Record the style of working and any toolmarks where possible. Consider the use of a digital photo to record *in situ* toolmarks if a worked stone record is not to be used. For bricks record whether complete bricks (bats) or half bats have been used.

Common examples of stone finish

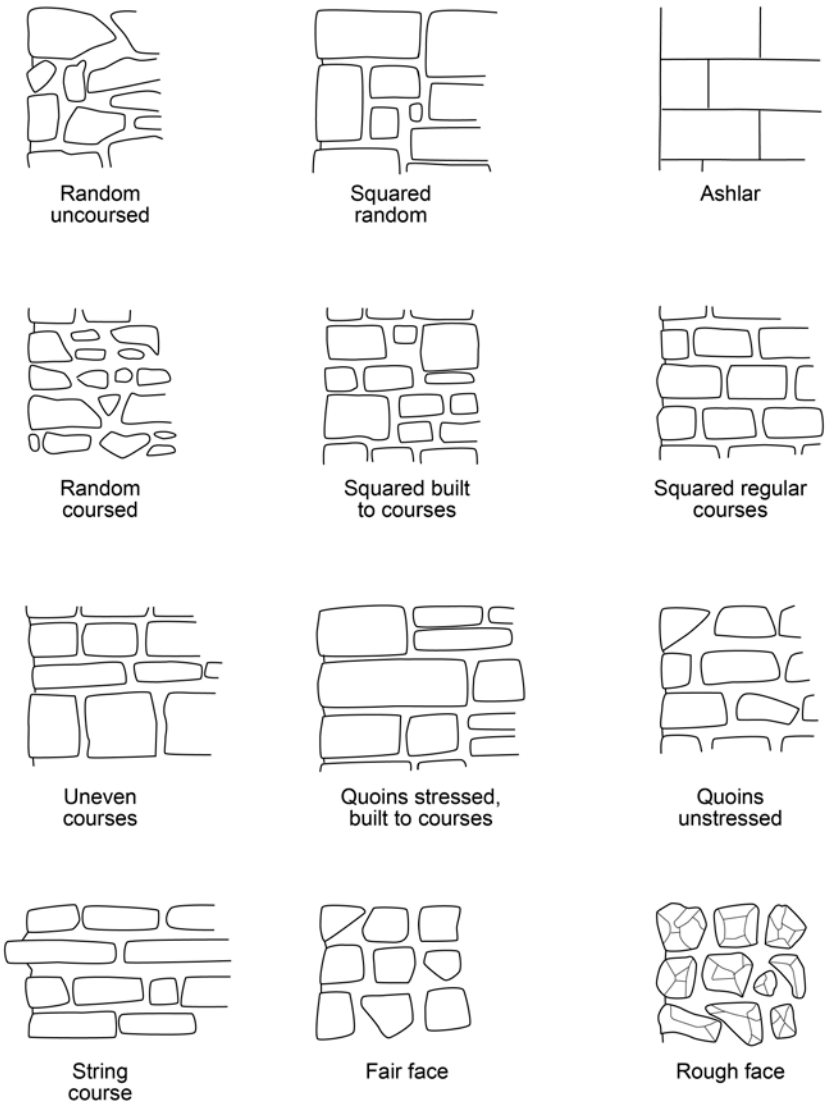


3b. Coursing

Describe the coursing or bonding pattern of the masonry, and add an annotated sketch on the reverse of the sheet. The coursing will often include a combination of the stone *finish* and distribution: random coursed therefore implies randomly sized and shaped blocks (as described in detail after prompts 1-3) set in courses, whilst squared built to courses implies the blocks are squared and in courses. This duplication is often necessary as the coursing is a combination of the type, size and finish of the constituent parts.

Note the finish of the *wall*: is it rough-faced or fair-faced? And any changes in coursing over the height of the wall, or around doors, windows or at corners. Are the courses regular or uneven heights? Note any string courses or decorative effects such as chequerboard or tile courses.

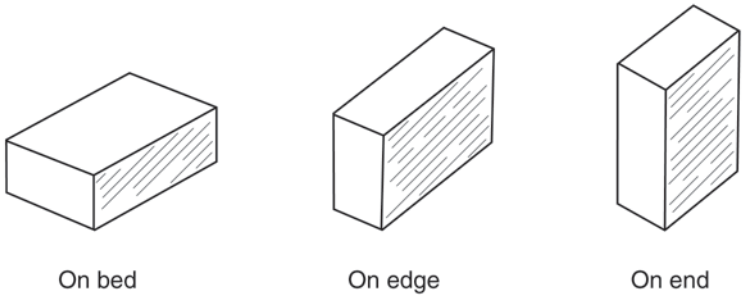
Common types of coursing in stonework (after Museum of London Archaeological Site Manual 1994)

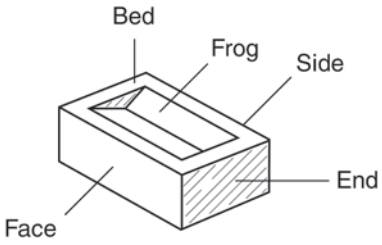


4. Brick bond

Brick bonds are given specific names, use these wherever possible or describe the coursing in detail. Bricks can be lain **on bed**, **on edge** or **on end**. A brick laid on bed along the length of a wall is a **stretcher**, a brick laid perpendicular to the wall line is a **header**. A course of headers on end is known as a **soldier course** and is often used as a first course of lightly mortared brick in foundations.

Terminology for use when describing bricks (after English Heritage Recording Manual)

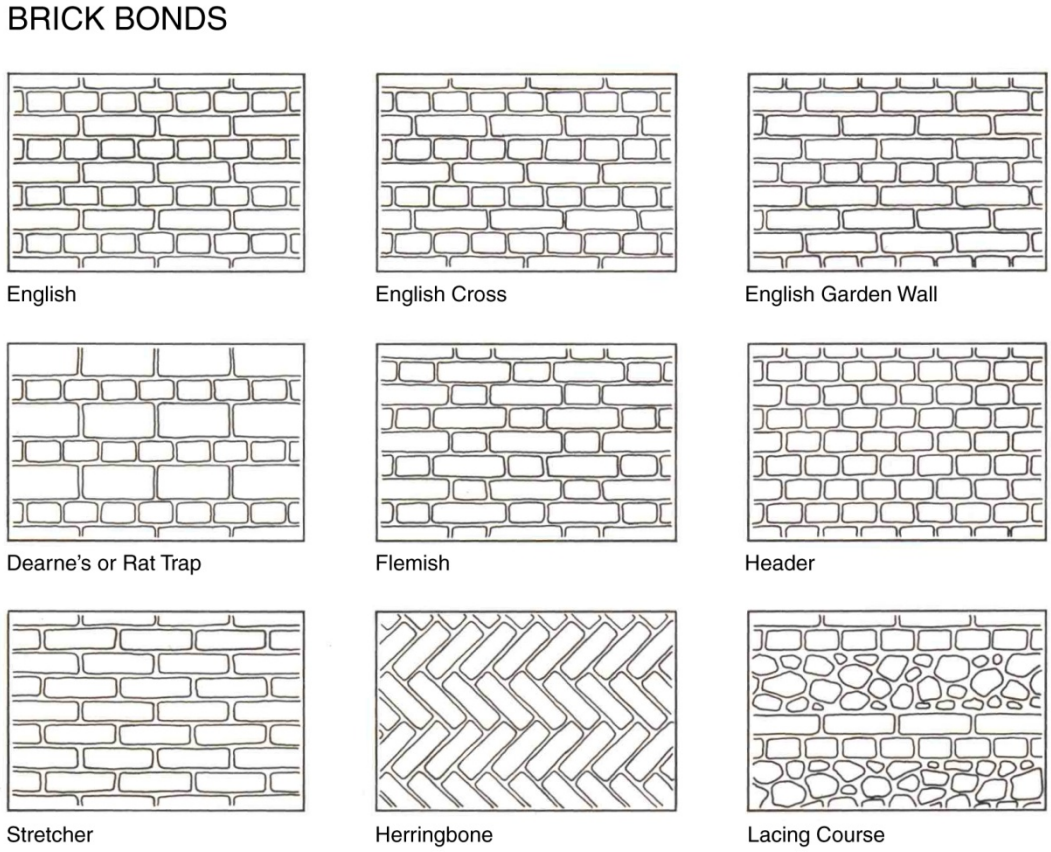




For brick walls give the combined height of four courses of bricks and four beds of mortar in metres; this will aid in establishing average thickness of mortar beds and in any reconstruction of the wall.

Also describe whether the **core** of the wall is different to the face, e.g. core of limestone rubble in mortar; core of flint nodules set in mortar. If there is no coursing –for example if it is a foundation that was poured or thrown into a foundation cut, or poured between shutters such as *bungaroosh*, then describe this.

Common types of bonding in brickwork (after Museum of London Archaeological Site Manual 1994)



5. Form

Describe the *form* of the masonry, do not confuse this with a higher level interpretation and restrict it to the functional class e.g. foundation-arch, wall superstructure, arch, post-pad, floor, repair to wall, rubble foundation, window light etc.

6. Direction of face

If possible identify the main face of the wall, and any interior or exterior faces. Only note finished faces, not truncated faces. Remember any rendering or plaster facing should be recorded as separate context.

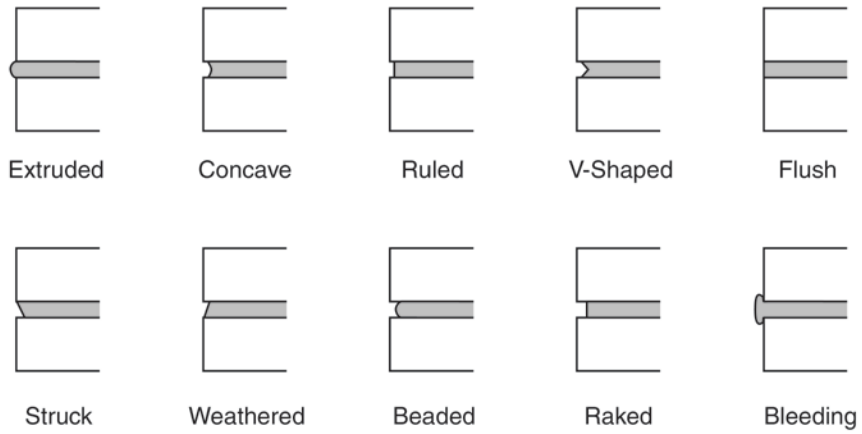
7. Bonding material and pointing

Describe any mortar, including type (e.g. lime or cement) or clay or earth bonding, including colour (as for deposits). Give a detailed description of mortar including compaction/bond, colour, texture, composition, inclusions, and finish (pointing), e.g. light yellow coarse sand lime mortar with 5% lime flecks, 5mm; concave pointing. If there was no bonding material (dry-stone construction) then state this.

.

Pointing can indicate whether a wall was trench built or built free-standing, it can also be used to broadly date masonry and compare builds. Describe the pointing using the terms used in the diagram below.

Common types of pointing used in brickwork (after English Heritage Recording Manual)



Pointing is where a better quality mortar is added to the end of the joint after raking out, either for decoration or weatherproofing. It can indicate external faces, and where absent below a certain point can indicate construction level or contemporary ground level. Pointing can be repeatedly carried out many times after the original construction and can be applied to several builds of different dates.

Extruded the mortar has been deliberately left proud of the brickwork
Concave the mortar has been finished with a curved tool
Ruled/scored an exact line is ruled with a straight edge to give the appearance of a neat finish
V-shaped decorative finish to the mortar using the tip of the trowel
Flush the mortar lies flush with the end of the bricks
Struck the mortar is pushed in towards the base, usually indicating the wall has been built from the other side with the mason leaning over the wall to lay the bricks overhand
Weathered the mortar is pushed in at the top
Beaded the mortar has been pushed in at both the top and bottom
Raked the mortar has been cleared from the end of the joint, to allow keying or the addition of a separate pointing mortar. A raked appearance can also be achieved by the natural erosion of mortar.
Bleeding the mortar has not been cleaned off the side of the bricks, this may indicate the wall was trench built or the face could not be reached to clean the joints for some other reason. It may indicate a lack of care in the finish, possibly the wall will be below ground level or hidden behind plasterwork or panelling.

Note whether mortar has been eroded out of the joints, or whether it is fresh. Any re-pointing should be given a separate context number, especially where it covers more than one build of masonry.

8. Truncation

Note any truncations and what has caused this (including context numbers, e.g. truncated to east by [124]).

9. Other comments

Note any re-used stone, architectural fragments, mason's marks or other unusual features. Note any timberwork or stains/voids including planks or wooden piles. For drains always note the direction of fall. Record the construction level and the floor level of the structure

Dimensions

Record the overall dimensions, and the excavated dimensions if different.

Samples

Number any petrological, mortar or brick samples which are taken and complete a Sample Recording Sheet for each one. Materials such as *opus signinum* should be sampled where found *in situ* to allow analysis and comparison between different builds or contexts. Bricks may need sampling in order to be able to compare materials used in different builds or contexts, to add to regional or local fabric types, or to provide a broad date for a structure. Consult your Project Leader on the level of any sampling on site.

Finds

Note any finds from the masonry, these may include tiles, bricks, coins, bottles and pottery.

Worked Stone

Note if any worked stones have been kept for recording. These should be numbered in the Registered Artefact register.

6. Excavating and recording skeletons

It is a legal requirement to obtain a licence from the Ministry of Justice (or a Faculty from the Church of England for burials in C. of E. cemeteries which are still in use) for the excavation of human bone, either buried or cremated. If you suspect that you have human bone in a context, inform the Project Leader. Do not excavate the human remains until the necessary licence has been obtained by CA. The details and conditions of the Licence or Faculty must be communicated to all staff on site, including contractors. This is best achieved through a specific toolbox talk, with each attendee signing to confirm attendance.

The Ministry of Justice currently stipulates that the excavation of human remains must be screened from public view and treated with respect. This applies to both disarticulated and articulated skeletons, and human remains should not be exposed, lifted, or openly carried in public view. If possible place all human remains directly into skeleton boxes at the point of excavation. If you are not on a hoarded-off site use Heras fencing and netting to screen excavation.

Hazards

In addition to the requirement to screen work from public view, there are a number of hazards associated with cemetery work. These include working in confined spaces such as vaults, crypts and tombs; the presence of lead oxide dust; biohazards such as *body liquor* and soft tissue remains, and the hypothetical survival of viable smallpox spores and other viral and bacterial organisms in sealed lead coffins. Sealed lead coffins should not be opened, but removed for reburial by a specialist contractor if necessary.
There may also be psychological effects from working with human remains for extended periods, especially where soft tissues are preserved, as well as personal religious concerns.

Planning burials

Burials may be planned using either traditional scale drawings on permatrace, recorded using geo-referenced photographs, or recorded via GPS/TST. The appropriate methodology will be either stated in the WSI and/or decided/adapted on site and should be as appropriate for the type and date of burial. On the majority of sites, the default methodology is hand planning – however, if there is any doubt as to the most appropriate methodology then the Project Leader/Project Manager should discuss this with the osteoarchaeologist for the project. GPS recording may be adequate for post-medieval burials, but would not be suitable for a Neolithic inhumation. Hand plans should be at an appropriate scale: adults are planned at 1:10, however juveniles and neonates may require plans at 1:5, complemented by detailed photography.

Where appropriate rectified digital photography can be used on well-preserved burials. Targets should be placed at the base of the grave, adjacent to and at the same level as the skeletal remains wherever possible. A minimum of three targets should be used. They should be located throughout the grave and must not be placed in a single straight line. Photographs should be taken from above, and should overlap where more than one photograph is required.

Photographing burials

Adequate record shots should be taken of each skeleton and grave. Use of a damp sponge can help define bones, however do not repeatedly wet a skeleton and allow it to dry as it

damages the bones. In addition to any overhead photos for record, publication or rectification, take close up shots of specific pathologies and odd body postures, the location of finds and other areas of interest. All photographs should be immediately cross-referenced to the skeleton sheet.

Excavating human remains

On archaeological sites human remains are usually found within graves and often consist of complete skeletons, however disarticulated and partial human skeletons may also be encountered both in and out of formal burial contexts. Partial and truncated skeletons should always be treated in the same way as complete burials, and recorded fully using a skeleton sheet and plans/photos etc as appropriate. Disarticulated human remains should be treated as bulk finds, although they should be bagged separately from other finds and treated with care and respect.

Where human remains are anticipated on a site the osteoarchaeologist should be involved in the development of a suitable excavation and recording strategy and will preferably be available to work on, or visit the site to give advice in conjunction with the Project Leader.

Skeletal remains are often very fragile and vulnerable to damage. This can be from drying out, which causes the bones to crack and split, from mechanical damage from the process of cleaning and exposing the bones, and from lifting and transporting the bones. We need to lift the bones in as near to complete state as possible in order to be able to carry out osteological recording of age, sex, and pathologies. On occasion, it may be necessary to block-lift skeletons (neonates/infants) or individual bones. Where bones are extremely fragile, or only partially preserved, the osteoarchaeologist may have to record osteological data on-site.

It is preferable to expose, record and lift human remains within a single day; this minimises damage to the bones from drying out and cracking, and removes the risk of disturbance. Structure your work around this timetable, where it is not possible to lift an exposed skeleton it should be covered overnight, preferably with a breathable membrane like Terram and partially backfilled with spoil if required.

Not all exposed burials will be lifted, and where burials are being left *in situ* they should not be cleaned any more than is necessary to avoid damage. Often on evaluations it will be sufficient to demonstrate that there are articulated human remains present, without cleaning the whole skeleton.

- If you believe a feature to be a grave excavate it stratigraphically in shallow spits using care not to damage any human remains or grave goods/structures
- Once you have exposed human remains excavate the rest of the overburden down to the level of the burial *before* cleaning up the skeleton.
- Remove all spoil regularly and check it for both artefacts and bones.
- Bag disarticulated human bone separately to other finds.
- Avoid damaging the bones, and work carefully and systematically down the skeleton from the head to the toes (if present).
- Be aware that there may be more than one skeleton, or parts of skeletons present. Also be aware of the potential for coffins and grave goods.
- Use appropriately sized excavation tools such as plasterers' leaves, spoons, wooden or plastic modelling tools. Avoid using sharp dental tools as they damage the bones.
- If the bones are in fragile condition do not overclean them as you will cause more damage.

- Do not run tools down the length of bones as you can break off bony growths and lesions. A poorly cleaned but intact skeleton is better than an overcleaned and damaged skeleton.
- Do not overclean hands and feet, keep soil from these areas with the bones so we can retrieve small hand bones that will otherwise be lost.
- Look out for small bones, ossified soft tissue, neonate and infant remains, and finds.
- Keep bones out of direct sunlight and try to avoid them drying out.
- Consider using a metal detector to locate small metal finds from the grave fill.

Lifting human remains

Fragmentation often occurs when bones are lifted, so be as careful as possible. It is recommended that:

- Unless the soil is very loose, the skull is lifted as a block. The easiest and quickest way to do this is to remove as much soil around the skull as possible, and then use the trowel to 'bend' free the skull by pushing it into the soil underneath the skull (being sure that nothing is underneath). Bag the skull in a large bag immediately, and any smaller fragments separately. Make sure that no loose teeth have been lost.
- Bones are exposed as much as possible before being lifted, and then freed gently from their position with a trowel. A leaf trowel is very useful for lifting smaller bones (ribs, hands/feet etc.) and an ordinary trowel for larger bones (long bones, hip bones etc.).
- Depending on bone preservation and soil compaction, it may be necessary to block lift complete neonatal/infant skeletons, or parts of skeletons – however only to be undertaken in extreme cases. Do this by excavating down around the skeleton/bone, and use a piece of plastic or wooden board to support the block upon with plastic wrapping and occasionally securing it further with plaster.
- Make sure that all epiphyseal bones (non-fused parts of the skeleton in non-adults) are collected!

Bagging and tagging

Make sure that no remains are mixed, and that they are properly labelled and bagged. It is usually necessary to lift several different parts of the skeleton at the same time, so it is essential to be very organised at this stage. It is recommended that:

- The skeleton is bagged in the following subdivision:
    - Skull
    - Mandible
    - Hyoid (three small bones below the mandible comprising two 'arms' and a cup-shaped bone – these are often missed)
    - Vertebrae (N = 24)
    - Sacrum
    - Left shoulder (scapula and clavicle)
    - Right shoulder (scapula and clavicle)
    - Sternum (breast bone, often two parts or more)
    - Left ribs (N = 12)
    - Right ribs (N = 12)
    - Left arm (humerus, radius and ulna)
    - Right arm (humerus, radius and ulna)
    - Left hand (eight carpals, five metacarpals, 14 phalanges)
    - Right hand (eight carpals, five metacarpals, 14 phalanges)

    - Left hip (one bone in adults, three bones in non-adults)
    - Right hip (one bone in adults, three bones in non-adults)
    - Left leg (femur, patella, tibia, fibula)
    - Right leg (femur, patella, tibia, fibula)
    - Left foot (seven tarsals, five metatarsals, 14 phalanges)
    - Right foot (seven tarsals, five metatarsals, 14 phalanges)
    - Other (this could be ossified cartilage, ossified soft tissue, gall stones etc).
    - Misc. (for the odd non-associated fragment etc.)
- The bags have been labelled and prepared before lifting. Include plastic label, with all the numbers, within the bag.
- Appropriate sized bags are used! Don't use too small or too large bags! Larger sample bags may be used to bag long bones and skulls – make sure these are wrapped around the bone so that it will remain within the bag.
- Box the skeleton on site immediately after it has been lifted and bagged: the heavy bones (skull, long bones) at the bottom of the box, and the lighter bones on top.
- Make sure the bags are secure within the box, and not loosely placed within it. You can avoid this by placing all the bagged bones within a larger plastic bag within the box.

Scientific sampling

Samples may be taken for a variety of scientific techniques, including C14 dating, stable isotope analysis, and sampling for aDNA. Specific measures may be taken to avoid contamination of samples for the latter cause, your osteologist will advise if this is necessary, but as a rule do not smoke or eat near exposed human remains.

Samples may be taken from the abdomen and pelvic area to recover parasitic eggs and cysts, seeds and plant remains, coprolites, gall, bladder and kidney stones. Decisions whether to undertake these should be made by the Project Manager in consultation with the osteoarchaeologist prior to the excavation.

Stratigraphic relationships and other recording issues

The stratigraphic relationships for burials can be complex, especially when coffins are present. The following are a series of guidelines to ensure that we record the sequence correctly and consistently.

Simple burials

In a standard discrete burial with no coffin, lining, differential fill or other contexts the stratigraphic relationships will be Fill above Skeleton above Cut.

Coffin burials

Usually the body will have been placed in the coffin, which is then sealed and placed in the grave cut as a single unit, however we need to record the separate components of the coffin burial separately.
Where the coffin survives intact and there is a clear superimposition of the skeleton above the coffin, the stratigraphic sequence is fill above skeleton above coffin above cut.
Where the coffin does not survive as more than a stain or coffin nails and there is no clear superimposition of the skeleton above the coffin, the stratigraphic sequence is fill above skeleton and above coffin, which are both above the cut.

Fills which are within coffins but which accumulated after burial may be stratigraphically later than the coffin.

Multiple burials

Where more than one skeleton is within a single grave the laws of stratigraphic superimposition apply where possible, bearing in mind post-depositional changes. Make sure that you limit cross-contamination between skeletons when lifting them.
If there is a significant layer of backfill between skeletons within a grave then this should be given a separate fill number.
In utero foetal remains (within the pelvis) should be assigned a separate context number and recorded separately to the mother, and are stratigraphically within the parent skeleton but are shown on the matrix to one side. Physically they are recorded as being 'part-of' the mother. Occasionally, so-called coffin-birth burials are found: these are when the foetal remains have been pushed out of the uterus of the mother by gases during decomposition of the body in the grave, and may therefore be found between the femora (thigh bones), usually with the head down.

Redeposited human remains and intercutting burials

All articulated remains are given a separate skeleton number and are fully recorded including a plan record and photographs – there are occasionally parts of a truncated skeleton within the same feature as a complete skeleton. The stratigraphic relationships will be determined by stratigraphic superimposition, and in complex situations it is recommended that the osteoarchaeologist is available on site. Disarticulated bones are recorded as finds within the grave fill but any concentration should be noted on the context sheet and may need a separate context number in some cases (e.g. a large deposit of bones representing a clearance event). On very large sites disarticulated human remains may be retrieved and scanned for pathologies, but not assigned to a context, consult your Project Leader.

Absence of cuts

On many cemetery sites it is not possible to identify specific grave cuts due to the continual reworking of the cemetery soil, the short length of time that any grave is open, and the lack of differentiation between the fill and what it was cut through. Not every skeleton with have an individual cut, on post-medieval sites there are often burial pits and stacks of coffins/burials within graves. If you are not certain that there is no cut (e.g. between two burials in a stack) assign a cut number. The extent of the cut should be recorded as being the area beneath the skeleton. Draw a dotted outline around the skeleton on the plan where you believe the cut is if it is invisible.

Grave goods

Grave goods are assigned to the fill of the grave unless:

- they were specifically worn on, or found in the skeleton (e.g. finger ring, broach, arrowhead), when they are assigned to the skeleton number. Give these Registered Artefact numbers, plan them and photograph them *in situ*.
- If there are a number of finds that are clearly deposited in the grave before it was backfilled. These should be given a context number(s) and recorded on a context sheet, planned, and photographed. If intact pots or containers are present the pot will need one context number, and its fill will need a further context number. The laws of stratigraphic superimposition apply.

- Hobnailed boots are given one Registered Artefact number per shoe/group. See below for coffin nails

Differential fills

Where there is a clear difference in fill within the grave that is not just a product of the order of backfilling, it gets a separate number. This is especially the case for where there is a layer of **chalk** or plaster in Roman graves, layers of **lime** or layers of fill between skeletons in post-medieval graves. Stone or tile placed on the skeleton should also be numbered separately where it is clearly an intentional deposit, not just backfill.

Coffins

Where wood, lead or stone coffins survive they are assigned a context number and recorded on a coffin recording sheet (CA/FRM/6) as lying beneath the skeleton. Even when the coffin only survives as a stain – the shape and dimensions of which should be recorded – useful information can often be recorded and a number should be given.

Where **only** coffin nails survive they should be given a context number and recorded on a context sheet if it is clear that a discernible plan can be reconstructed, otherwise they should be recorded as finds within the grave fill. All *in situ* coffin nails should be planned and their orientation and level recorded. They should not, however, be recorded as individual Registered Artefacts.

Shrouds

If shrouds survive then they will need to be recorded and potentially conserved. The presence of shrouds can also be indicated by the position of the body (the feet are then usually positioned tightly together and the arms placed closely along thorax), and suggested by the presence of shroud pins.

Cists, vaults, tombs and linings

All stone and tile linings are recorded on masonry sheets in order to capture the correct information. The skeleton is shown as being stratigraphically later than the lining only if there is a clear superimposition.

Pillow stones, ear-muffs and other ‘placed’ stones in the grave

These should be given context numbers and recorded on context sheets or masonry sheets as appropriate and noted on the skeleton sheet (a masonry sheet is normally used if the stones are mortared). The skeleton is shown as being stratigraphically later than such features **only** if there is a clear superimposition.

Completing the Skeleton Recording Sheet

For the recording of skeletons only, the Skeleton Recording Sheets (CA/FRM/5a-c) must be used. Select the appropriate sheet for the skeleton to be recorded: adult (5a), juvenile (5b), infant (5c). The context number issued to the skeleton must be recorded on the Context Register as usual. Separate context numbers are given to grave cuts and fills and these should be recorded on normal Context Sheets. For coffins use the Coffin Recording Sheet

(CA/FRM/6). On the Skeleton Recording Sheet, the generic boxes should be completed as for the regular context sheet (e.g. site code, relationships etc). Complete all the other boxes on the sheet as far as possible.

Grave Cut

Note the context number allocated to the grave cut. Often, the grave cut is not visible; in those cases, a cut number must nevertheless be assigned (with the exception of rare discoveries of excarnation burials or similar contexts, in which human remains are discovered within layers).

Grave Fill

Note the context number(s) assigned to the grave fill(s).

Coffin

Note the context number of the coffin, note that coffin numbers are only given if there is physical evidence for the coffin, be this timber, nails or a timber stain.

Grave type

Tick the appropriate box: simple (ordinary earth cut burial), coffin (indicated from preserved wood, stains or coffin nails), stone lined/cist burial, other (e.g. plaster, ear-muff or stone pillow burials etc.).

Skeleton diagram

Shade in the parts of the skeleton which are present.

Position

Use a combination of one or more of the tickboxes to describe whether the skeleton is **supine, prone, extended, crouched, or flexed,** and which **side** it may be lying on. Supine is when the skeleton is lying on the back, and prone when laying face down. Extended is when the body is laid straight out. Crouched describes a ‘foetal position’ with the knees brought up to the chest and with the back and head often curled forward and the arms tucked in. Flexed is the description used when the legs are slightly bent, or at right angles to the torso creating a ‘seated’ position.

Preservation

Tick the appropriate box to give an indication of the general preservation of the skeletal remains.

Orientation

Show the orientation of the skeleton (not the grave) with a with a line illustrating the orientation of the body, and a circle at the end for where the skull is/would have been positioned (in decapitated burials, where the neck is). Orientation of a skeleton is recorded from skull to feet, e.g. W-E is a skeleton with the head to the west and the feet to the east, and E-W a skeleton with the head to the east and feet to the west.

Field diagram

Sketch the arrangement of the skeleton, as a stick figure.

Registered Artefacts

Only those finds directly and specifically associated with the burial should be noted. Those which occur in the general grave fill should be noted on the normal context sheet for that fill.

Levels

Must be taken on the top of the skull, sacrum and feet. If these are absent, levels can be taken on other parts of the skeleton (e.g. the highest and lowest).

Position of skull, left arm, right arm etc.

Describe the position for each part of the skeleton, in the numbered order of the list in the box. When this is not possible for certain elements, note it as ‘n/a’.

Description

Must be completed, including an overall but brief description of the skeleton, including the position of the arms, legs and feet, condition of the bone, relationship to other graves and features on the site. Mention truncations and post-mortem damage. Use a supplementary context sheet if necessary.

Annotated sketch drawing

This section must be recorded, as it is very important and useful for the archaeological and osteoarchaeological interpretation of the burial. Draw an annotated sketch, illustrating the orientation of the burial, cuts, placement/position of the skeleton, location of finds, position of associated skeletons etc. Mark on and annotate any truncations and indicate any areas of potential contamination with other skeletons

For coffins only, use the **Coffin Recording Sheet** (CA/FRM/6) instead of the normal context sheet. The context number issued to the coffin must be recorded on the Context Register as usual.

7. Excavating and recording Coffins

The coffin recording sheet should be used for wooden, lead and stone coffins. Tile-lined graves, stone cists, and lined tombs and shafts should be recorded using masonry sheets. For coffins only, use the **Coffin Recording Sheet** (CA/FRM/6) instead of the normal context sheet. The context number issued to the coffin must be recorded on the Context Register as usual.

Where wood, lead or stone coffins survive they are assigned a context number and are usually recorded on a coffin recording sheet as being stratigraphically beneath the skeleton. Even when the coffin only survives as a stain useful information can often be recorded and a number should be given.

Where **only** coffin nails survive they should be given a context number and recorded on a context sheet if it is clear that a discernible plan can be reconstructed, otherwise they should be recorded as finds within the grave fill. All *in situ* coffin nails should be planned and their orientation and level recorded.

The aim of the coffin recording sheet is to allow the reconstruction of the coffin, record all surviving elements of the coffin, and try and establish the original size, shape, construction technique and surface treatment of the coffin, and the presence, nature and location of any fixtures and fittings.

Coffin size and construction can often be reconstructed even when there is no surviving trace of the wooden structure. Coffin nails can indicate the width and shape of the coffin (parallel sided/tapering/kite-shaped), and mineralised wood adhering to nails may indicate the type of joints used. Coffin shape and size can also be indicated by differential backfill, by impressions in the base of the cut, and by fills within the coffin such as in chalk or plaster burials.

Note that coffins were not always constructed with nails, and may have used simple wooden joints to fix them together. Coffins may be indicated by nails, soil stains, differential fill (e.g. stones that appear to have fallen around the shape of a coffin), or by the attitude of the body. Burials in coffins are not held in place by the grave backfill so the bones can move as the body decomposes. Skulls can roll to one side, or backwards, and the ribs and pelvis can open up – all of which may indicate that the body was probably within a coffin.

Sometimes wooden structures other than coffins are used, especially for Roman infants and neonates where wooden boxes may be used. Burials may also be laid on re-used doors, hurdles, or planks.

Completing the Coffin Recording Sheet

For coffins only, use the **Coffin Recording Sheet** (CA/FRM/6) instead of the normal context sheet. The context number issued to the coffin must be recorded on the Context Register as usual.

The Coffin Recording Sheet differs from the Context Sheet only in the following:

Burial No: fill in the context number of the skeleton with which the coffin is associated

Coffin type: state whether wooden, stone, stone-lined, lead, shroud etc

Grave cut no.: add the context number of the grave cut

Annotate the schematic of the coffin with the shape, dimensions, approximate locations of coffin furniture (and their registered artefact numbers).

Coffin prompts

1. Shape: describe the form of the coffin
2. *Attachments*: any coffin fittings such as handles, plaques etc. Mention any nails. Record the position of all these in sketch form overleaf.
3. *Condition:* – well-preserved, fragmentary, variable etc
4. *Methods and condition*: as per normal context sheet, any conservation input
5. *Other comments:* as per normal context sheet

Finds: assign Registered Artefact numbers only to coffin fittings e.g. handles and name plates. Coffin nails generally do not need to be given a Registered Artefact number, but must be recorded on a plan.

Samples: record samples taken for further analysis e.g. wood for species identification, stone for petrological analysis.

8. Excavating and recording Cremation burials

Cremated human remains are often found on sites. These are generally found as **urned**, or **unurned** deposits. All cremation deposits are described on the standard context recording sheet. All cremations are 100% sampled.

Urned deposits

These are contained within a pot, bag, box or other container which has survived. Where the container has survived it is preferable to lift this intact (giving on-site conservation and support as required) and excavate the contents in the laboratory.
Where an urn is complete it should be assigned a context number, and the fill given a further context number prior to lifting. Additional context numbers may be given during micro-excavation and copies of the records must be added to the matrix and the archive.

Where an urn is damaged it should also be given a number, and its fill numbered and collected, including any surrounding soil that may include cremated remains. 100% of the cremation should be sampled with sample sheets completed for each context.

Unurned deposits

These may have originally been placed within a container, however it has not survived. 100% of the cremation should be sampled with sample sheets completed for each sample. Unurned deposits should be quadranted where size permits, and excavated in spits of 5–10cm with a separate context number for each spit/quadrant. Record Registered Artefacts within the appropriate context. If you have started excavating a feature and discover a deposit of cremated bone, stop excavation and determine how best to continue with your Project Leader; at the very least allocate a new context number to the cremation and plan and record it.

Record cremation deposits on the context sheet following the normal prompts but taking care to record the distribution of the bone within the deposit, how defined the edges of the deposit are (this may indicate that originally it was within a bag or organic container), and any mixing with other contexts. Note any *in situ* burning, or other pyre material such as charcoal or burnt clay.

Photograph cremations *in situ* and plan the deposit, annotating any artefacts or distributions of bone.

Pyre debris and bustum burials

Depending on the amount of burnt bone and other charred material in these features, they may require to be dug in quadrants and spits (10cm). As with cremation burials, they should be 100% sampled. Any articulated remains, or particular concentrations of bone, should be recorded separately from the main fill.

9. Excavating and recording Timber

The recording of timber on site must establish its stratigraphic position and allow a 3-dimensional reconstruction of the context. Correct recording is essential as timbers have interest through not only the constructional aspect of the worked wood, but also via the environmental facets of the wood as part of a tree. Thus, timbers can provide information on not only the structures within a site, but also the contemporary environment and woodland management regimes.

The Timber Recording Sheet (CA/FRM/7) must be used for **all** timbers, whether single pieces or structures, such as wells, pit linings, drains and revetments, instead of the normal context sheet, unless otherwise instructed by the Project Leader. Use the diagram to ensure the correct description of the timber conversion.

CA does not use Structure Numbers or any similar system of formal numbering to identify buildings or groups of timber contexts on site. Instead, feature labels may be used as a spatial identifier for groups of contexts or specific structures. Feature labels carry no stratigraphic weight and are purely spatial constructs.

Completing the Timber Sheet

Many parts of the timber sheet are identical in design and function to the standard context sheet and reference to Section 4 should be made for details on how to complete them.

The parts unique to the timber sheet are described below:

1. Type

Record whether the timber is a post, stake, plank, baseplate, brace, top-plate or simply a fragment of wood.

2. Position

Note whether the timber is vertical, horizontal or diagonal i.e. leaning. If diagonal record the gradient. Also note if the position is as originally intended as part of a structure etc or simply as found.

3. Orientation

If the timber is horizontal or diagonal note the orientation via a compass bearing e.g. N/S, NE/SW.

4. Condition

Record whether the timber is complete or broken. If broken, is it clear if this was in antiquity or as the result of modern activity? Note also if the timber has been burnt, charred, worn, started to decay or been subject to insect attack.

5. Tool marks

Record the style of working and any toolmarks e.g. saw, adze, axe, auger, chisel etc, where possible. Also record any marking-out lines, assembly marks, graffiti etc. Consider the use of a digital photo to record *in situ* toolmarks. Recording should be undertaken as soon as possible, as the markings will starts to disappear when the timber begins to dry out.

6. Joints and fixings

Record any joints, noting the type, number, dimensions and whether they are residual features from a previous use of the timber. Any complex joint should be drawn on the reverse of the sheet. Record any fixings, noting all nails, spikes, pegs and any evidence for attached cloth, leather etc.

7. Surface treatments

Describe any paint, pitch, limewash or charring.

8. Mouldings

Recording any mouldings or carving.

9. Methods and conditions

Note whether the timber was recorded before or after excavation. Also note whether the timber had dried out or been otherwise distorted before recording.

Timber Cross-section

Tick the diagram that best describes the conversion of the timber from its original form. Also tick the relevant boxes to indicate the presence or not of bark and/or sapwood, and whether the timber was particularly knotty or straight-grained.

Species

Record this if known.

Reused

Tick the appropriate box out of no, yes and not known.

Samples

Record the numbers of any samples taken for dendrochronological and/or species identification purposes.

10. Plans and Sections

All cuts and deposits must be recorded on plan, usually when their full extent has been revealed and many will be recorded in section. The advent of digital surveying instruments, such as GPS and Total Stations, has had a massive impact on the way we record our spatial data on archaeological sites. The accuracy of the equipment we use at CA enables us to stake-out evaluation trenches and site grids, install stations for Total Station survey and map sites. This technology directly affects the way you will need to approach and record archaeological features on site. The following paragraphs outline the applications and limitations of the equipment and the methods you will need to adopt to enable on-site survey to be accurate and effective.

Remember that the purpose of plans is to show the full extent and surface of a context and as such it is important to draw the edge of a context carefully and in full. Drawings should also reflect your interpretation as well as what is visible. All drawings should therefore be intelligently compiled and clear as well as representative.

Plans can be used to demonstrate relationships between contexts and as such need to be accurate. In single context excavation the stratigraphic matrix is built from, and checked by, the plans.

The detail to which a deposit or feature should be recorded should be discussed with the Project Leader.

For excavations, different approaches to recording may be used e.g. single-context planning for urban sites or recording by grid square for open-area excavations or full digital survey. The Project Leader will brief the team at the start of the project as to which approach is to be adopted.

Typically, larger sites will have a designated *on-site* surveyor who is responsible for planning. They will undertake a pre-excavation survey of the site to inform the excavation strategy. Following this, they will record the locations of archaeological interventions and drawings. In order for the system to work, context, sample and drawing numbers are entered in to the GPS/Total Station to provide a link between the plan and the records. You will need to make sure this information is correct and accessible (see bullet points below). If you are excavating a complex feature and need the surveyor to be on-hand, discuss this with your Project Leader. They will be available to record spot heights, registered artefacts and points for photographic rectification. Registered artefacts will need to be surveyed immediately and it is your responsibility to seek out the surveyor and make them aware that they need to visit your feature. If you have had to lift the find, or the surveyor is not available, push a nail in to the find spot and attach a white plastic tag with the registered artefact number and relevant fill number written on it. When undertaking rectified photography the surveyor will require at least 3 points clearly labelled with an incremented plan number (e.g. 36.1, 36.2, 36.3 etc).

The Geomatics team will provide regular updated plans to the Project Leaders and surveyors, enabling the data to be checked while the site is active. These plans should be available for you to check; if you realise that something you have excavated is missing, or has been misinterpreted, inform your Project Leader and the surveyor. The Geomatics team are also able to provide ‘quick-turnaround’ plans, within an hour, should you need information fed back to site quickly. Large-scale projects may have an on-site geomatics supervisor who will be able to process the data and edit the plan on-site.

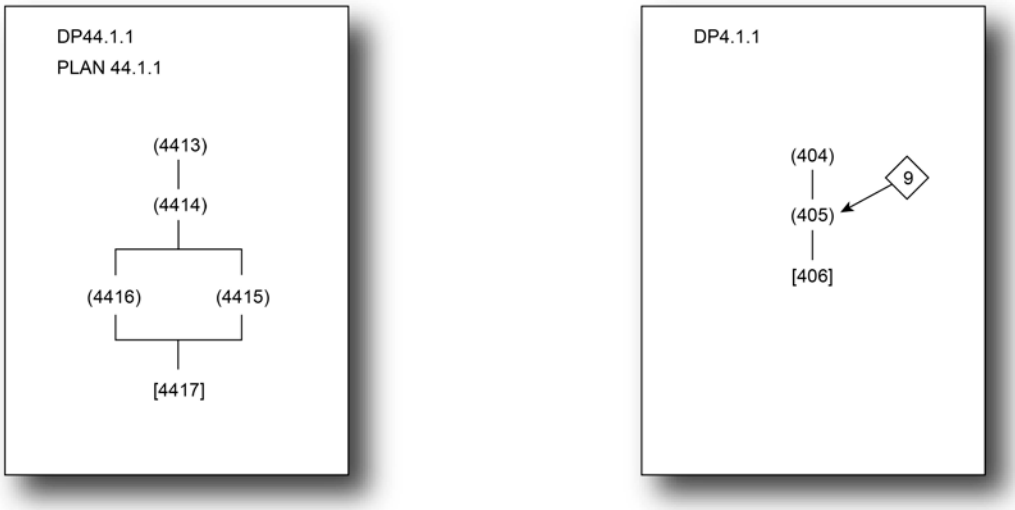
There are instances when GPS/Total Station survey are not the best tool for the task. It may be more appropriate to hand plan complex or intercutting features, or you may need to undertake a sequence of hand-drawn single context plans. These approaches will need to be discussed with your Project Leader and the surveyor. The GPS/Total Station can be used to plot or plan local planning points so that you may work from a baseline close to your feature rather than from a grid.

Preparing your feature for survey

Clean your feature ready for survey. It needs to be well-defined – the site surveyor may not have seen it prior to this so they will need to be able to easily see the extent of it. If you need to, score a line round it in plan. If you have overcut it, please make this obvious by scoring the real extent of the feature in plan with a trowel. If your feature has been redefined during excavation (e.g. it has grown or changed shape from the pre-ex survey), flag this up with the surveyor as they will need to re-survey it.

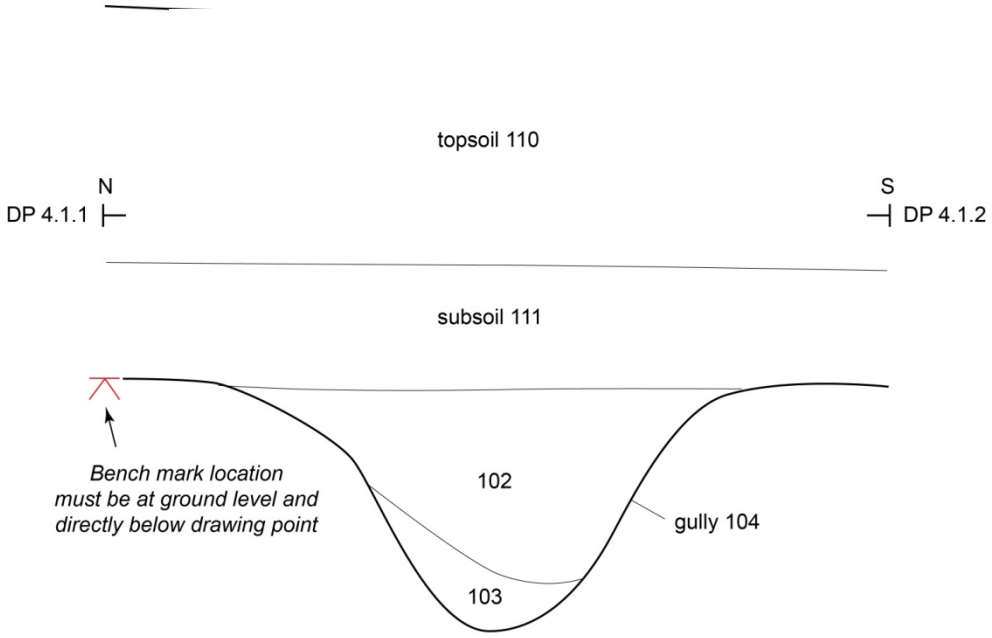
Write your feature information on a plastic white tag in permanent marker pen. This should include your drawing point numbers (e.g. 44.1.1; 44.1.2), plan number (if you have drawn a hand plan of your feature using you section nails as a baseline), a stratigraphic matrix of the cuts and fills and any sample numbers with a line indicating the fill they came from (see below right). All of this information will be entered in to the survey equipment and carried through to post-excavation. Use multiple tags to supply additional information to the surveyor if necessary. If you feel your feature cannot be easily understood let the surveyor know that you will probably need to run them through it.

Diagram showing how to label your feature ready for survey



Replace your sectionline with tack nails flush with ground level. Remember that the level for each nail is taken on the ground and this will need to be reflected in where you position your level symbols on your section drawing (see below). You will therefore need to make sure that you draw the ground level directly beneath your nails. If the weather conditions are bad or there is a chance your feature will not be surveyed for a day or two it may be more appropriate to fix you tags in the ground with 6 inch nails so they don't get blown/washed away.

Diagram showing how to label a section drawing on a site using digital survey



Information on how to use the GPS/Total Station and survey procedures can be found in the **Cotswold Archaeology Survey Manual**

Before starting any drawn plan or section, obtain a unique number from the Drawing Register (CA/FRM/8), completing all details on the sheet. Note that there is only one list of numbers, which includes both plans and sections.

Drawing sheets

Plans and sections will normally be drawn on a pre-printed piece of permatrace, either A4, A3 or single context (5m by 5m grid) sized. On each of these you must enter the Site Code and Site Sub-division. Enter the drawing number in the appropriate box as well as on the Drawing Register.

At the bottom of the sheet any notes you wish to make, such as a list of Registered Artefact numbers must be entered. Fill in the scale box and your initials and date.

The drawing

Plans are normally drawn at 1:20 and sections at 1:10. However larger features or areas can be drawn at scales of 1:50, 1:100, 1:200 or 1:500 etc at the discretion of the Project Leader.

Always use a sharp 6H pencil when drawing on permatrace. Also ensure that all lines are clear and join up e.g. cut features, deposits and stones are complete shapes – remember that the drawing must be intelligible as it will need to be digitised.

CA Drawing Conventions are to be used for all plans and sections (see below). A thicker line should be used for cuts, the edge of walls and the upper surface of the natural substrate and the topsoil.

When walls are of varying types of stone, or if specific inclusions are found in section, each block should be marked with a symbol e.g. L = limestone, T = tile, S = sandstone. The key to these symbols must be recorded; if these are recurring features of the site, the Project Leader should be consulted to agree a consistent key which can be applied to all drawings.

Plans

Plans are used to record the spatial extent of contexts, either individually, or as multi-context plans. They are also used to record the overall intervention e.g. a trench plan. Plans must be drawn accurately and clearly and to scale, usually 1:20. The extent of contexts must be accurate as they are used to both establish and demonstrate stratigraphic relationships between contexts. Plans are by their nature 2-D representations of contexts and require appropriately placed levels to provide the height information.

Plans may be drawn on permatrace, or digitally captured using GPS/TST. Whichever system is used the same details must be recorded, it is merely the recording medium that changes.

Single context (SC) plans may be used for entire excavations, or for specific areas consisting of more complex or intercutting archaeology. Single context plans may be employed using either a 5m grid, or more rarely Drawing Points; check with your Project Leader/supervisor which system is being employed.

Multi-context (MC) plans may be used for both evaluation trenches and sites, but care must be taken when drawing multi-context plans. If digging an intervention through two intercutting features consider drawing each feature on a separate plan to avoid loss of the spatial extents and levels of each feature.

As with SC plans MC plans may either be located on a grid (usually a 5m grid), or by individual Drawing Points. Drawing Points may be reused for several contexts e.g. in the example of the intercutting features above, effectively acting as a temporary baseline. The Drawing Point number is retained for all plans drawn using that point.

Where a 5m grid is used this will normally be aligned on OS grid. The grid will be laid out so that it is in the best location for the areas that need excavation and the grid pegs may well not be at 5m intervals. Bring in additional temporary grid points to allow you to accurately plan each context.

Consult with your Project/Leader/supervisor as to the specific planning regime for your site/area.

Methodology

- A plan number is taken from the site **Drawing Register** (or the Trench Recording Form on most evaluations). For SC plans the context number is used.

- The plan number relates to the whole plan **not** the individual sheet of permatrace: if a plan extends onto additional sheets of permatrace label each sheet with the plan number and '1 of 2', '2 of 2' etc (or the South west grid co-ord if using 5m grid) and indicate how the plans relate to each other on a 'noughts and crosses' grid. Do not use Plan A, Plan B etc, or other systems.

- Use an appropriately sized sheet of permatrace for your drawing. Use A4 sheets if possible as they are easier to file, but ensure 5 by 5 gridded permatrace is used for SC plans.

- More than one plan may **only** be drawn on the same sheet of permatrace if they have **consecutive** drawing numbers. Where more than one plan is drawn on a sheet of permatrace, annotate each plan with the co-ordinates/Drawing Points, plan number, scale, north arrow, description, initials and date. Do **not** draw plans and sections on the same sheet as this makes separating them for digitising and archiving harder.

- Confirm with the Project Leader which direction is north and include a north arrow on every plan. Wherever possible align plan sheets with north to the top of the page. If using a 5m grid north should always be at the top of the page.

- Each plan must be related to either a site grid, or to specific Drawing Points. The Drawing Points may be reused for several plans (e.g. as a baseline) but their numbering is retained and must be indicated on each plan. Always locate at least two Drawing Points on each sheet of permatrace. If using a 5m grid always label the south-west co-ordinate of the plan square.

- On evaluations or when digging slots it is usual to plan using the Section Point IDs as the Drawing Points. These are marked on the plan and annotated, no additional Drawing Point number is needed.

- Drawing Points are numbered from left to right as you face the section, or looking north, with the individual Drawing Point number derived from the Plan Number (e.g. for Plan 2 the Drawing Points are 2.1, 2.2, 2.3; for Plan 13.1 the Drawing Points are 13.1.2, 13.1.2). A separate Drawing Point is given to **each** grid pin.

- The correct line-type must be used to represent the context on the plan. Use a solid line for the edge of a context. Use dash-dot-dash for limit of excavation/intervention. Use dash-dot-dot for truncation. Where an edge is uncertain use a -?- line. Use a dotted line where you are conjecturing a context boundary beyond the limit of excavation. See the figure below for details of all plan conventions.

- The context number of any later intrusive cuts should also be added. In addition, annotation of the drawing may be appropriate if it will clarify any potentially ambiguous details. As much annotation should be added as is necessary to clarify such details, however be careful not to obscure the detail of the drawing.

- Every significant context drawn in plan should have at least one spot height with many more potentially required if the context surface slopes or if the deposit has a

wide extent. Levels should be taken at regular intervals along walls, on both the top and underside of the masonry. All levels should be reduced and wherever possible be transferred onto the drawing. If it is not possible to transfer reduced levels to the drawing the level number must still be added.

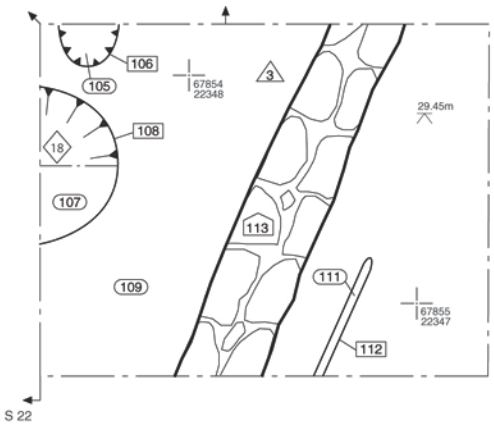
- Breaks of slopes must be clearly marked on the plan using dashed lines where there is a clear break of slope. Levels should usually be taken on breaks of slope to allow sections to be reconstructed. Use hachures to show direction of slope, do not use excessive numbers of hachures.

- Only draw stone-by-stone plans if specifically required, there are alternative methods for recording such detail e.g. rectified photography, which are more efficient on site. If required use a planning frame to ensure accuracy and efficiency.

- Each plan must be labelled with its context numbers. Context numbers for cuts should be placed in a rectangular box ▭ . Deposit numbers should be recorded in ovals ⬭ . Context numbers for masonry features such as walls should be placed in a rectangular box with a pointed top e.g. ⌂ . Sample numbers are recorded in diamonds ◇ and Registered Artefact numbers in triangles △ . Square, diamond and curved brackets may be used instead of boxes.

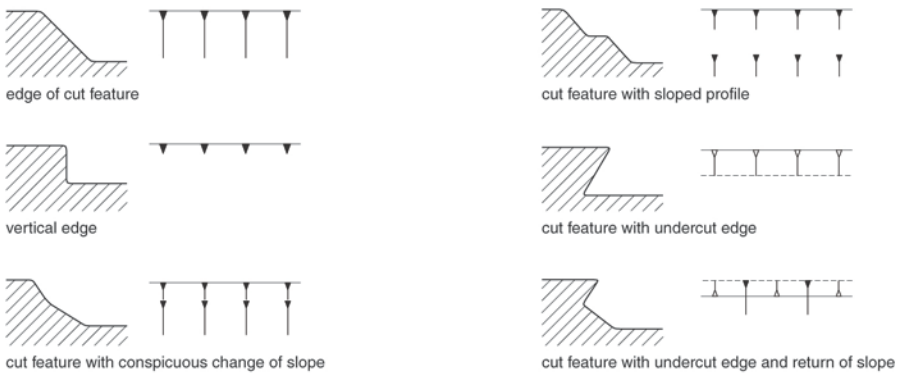
- Clearly mark the position of all sections, elevations, registered artefacts, samples and levels on the plan and label them with the relevant identifying number.

Drawing Conventions for plans



edge of excavation		
extent of context		
step in excavation or sondage		
later intrusion		
cut	108	
fill/layer	109	
masonry feature	113	
registered artefact	12	
sample	18	
level	29.45m	Note: although levels are often indicated on plans with a level number, the reduced level must always be calculated and added asap
grid point	67855 22347	
section arrows		Note: section arrows always show the direction of viewing
section arrow for change in section angle		

hachures



Sections

Sections can be used to record three main aspects of the site: the overall stratigraphic sequence (the Wheeler box or baulk sections), to solve specific stratigraphic problems (such as determining the sequence of two intercutting pits), and to gain additional information on the internal nature of the deposits that are not apparent in plan such as formation and transformation processes. The use of sections to record the overall site sequence is not actually possible on most sites as the full sequence never appears in one transect, however maintaining and recording sections is still a very useful technique, especially for the second and third functions.

Section drawings remain one of the principal means of recording contexts on site, they are particularly useful on evaluations where they can be used to both record and illustrate archaeological deposits. Sections should always be carefully positioned so that they record the sequence in the best way, and it is the difficulty in positioning sections to accurately demonstrate the site sequence that is one of their biggest drawbacks on more complex sequences: section drawings are not a substitute for recording each context's spatial extent on a plan or sketch plan but rather an additional means of recording vertical aspects of the contexts and their relationships to each other.

The drawback of sections is that their line must usually be determined in advance and it is not always up to the archaeologist to decide where to locate sections, especially on watching briefs and urban sites. Sections location is therefore critical whether the section is intended to demonstrate the relationship between particular contexts, or where the section is to give an insight into the internal formation and transformation processes of the deposits. Where possible sections should be placed so that they are perpendicular to the alignment of the strata that are being investigated in order to produce a true cross-section across the feature. Where it is not clear what the orientation is, be prepared to change the alignment of the section rather than continuing with a section that is clearly skewed to the grain of the feature.

'…with proper problem orientation, area excavations can make fuller use of sections by focussing them on those aspects which they are best qualified to tackle, as opposed to just hoping that they hit the right spot by luck rather than judgement' Roskams 2001, 147

Sections can be either continuous, or cumulative. Where using cumulative sections try and step the section at a 'bulk' deposit that appears in the upper and lower sections to allow them to be easily joined up. Cumulative or running sections can be effective where the excavation approach, such as single context recording, does not automatically create opportunities for sections but they are still required for illustrative purposes.

Sections can also be reconstructed in post-excavation from single context plans: providing sufficient detail is recorded, a section can be reconstructed between any two points on a site using the planned extent and breaks of slope of contexts, the levels of these points, and the descriptions of breaks of slopes, sides and bases on cut sheets, and sketches of fills on fill sheets.

Even when an area or feature is carefully dug and recorded in plan, there may be additional details or even contexts that are only apparent in section, these should be recorded and if necessary new context numbers taken out. Note on existing context descriptions if characteristics were only noted in section, and consider the effect of any new information on your understanding of formation and transformation processes, and on the site sequence. Whilst any obvious errors should be fixed (and noted on the records), do not force the

section and plans to marry up perfectly, they represent two different records of the site and as such will not always match.

In addition to the section drawing, photographs are usually taken of sections, especially where they are particularly informative or illustrative, and the level of photographic recording should be borne in mind when considering the level of detail of the section drawing.

Methodology

- Sections should always be made as near **vertical** as possible, and should be cleaned carefully from top to bottom noting any changes in the deposits or structures as you go.

- Section pins must be securely fixed in the ground - either vertically, beyond the end of the required section, or horizontally into the section, and peg covers placed on the pins if necessary. A taut, horizontal, stringline should be set up between the pins; use a dumpy level for any string line over 1m in length as line levels are insufficiently accurate. Fix the stringline at the top of or in the centre of the section if possible rather than a foot above the top of the section. For large or complex sections a drawing frame can be fixed to the section, although care must be taken to view the section straight on and not skewed to the perpendicular.

- A section number is taken from the site **Drawing Register** (or the Trench Recording Form on most evaluations), a specific Section Register is available for use on sites dug by Single Context Recording where GPS/TST cannot be used to locate sections.

- The section number relates to the section drawing **not** the sheet of permatrace: if a drawing extends onto a separate sheet of permatrace label each with the section number and '1 of 2', '2 of 2' etc and indicate how the sections relate on a 'noughts and crosses' grid.

- Use an appropriate sized sheet of permatrace for your section drawing, if possible use A4 sheets.

- More than one section may **only** be recorded on the same sheet if they have **consecutive** drawing numbers. Where more than one section is drawn on a sheet of permatrace, annotate each section with the section number, scale, description, initials and date. Do **not** draw plans and sections on the same sheet as this makes separating them for digitising and archiving harder.

- Section pins are numbered from left to right as you face the section, with the individual Section Point ID number derived from the Section Number (e.g. for Section 2 the Section Point IDs are 2.1, 2.2, 2.3; for Section 13.1 the Section Point IDs are 13.1.2, 13.1.2). A separate Section Point ID is given to **each** section pin so there may be more than 2 Section Point IDs if there is a change in orientation in the section.

- Start by drawing the baseline, marking on the section pins and annotating their Section Point ID and their compass orientation, mark the stringline, and a horizontal scale if needed. Note that CA use a different symbol for section point to many other organisations. If the section includes a change of angle then the compass point orientation should be given either side of the angle change. Measure and draw in the top, bottom and sides of the section, and any clear context limits to create a framework into which you can then add detail.

- A **double weight** line is used for all **cuts**, top of **natural** and top of **topsoil/modern ground surface**. Where an edge is uncertain use a -?- line. Use a dotted line where you are conjecturing a context boundary beyond the limit of excavation. See figure above for details of all section drawing conventions.

- The location of soil columns and monolith or Kubiena tins should be accurately drawn on the section drawing with a dashed outline and annotated with sample numbers.

- Next to the section drawing draw out a matrix showing all the contexts illustrated on your section drawing. Do not indicate any contexts which do not appear on the section drawing.

Representation of detail

- Section drawings should be aim to be as accurate as possible in representing the archaeological deposits, structures and cuts and the detail within these. The section should clearly and neatly show the boundaries of contexts and the main features such as large inclusions or lenses within contexts. Whether an individual section should be drawn 'stone by stone' is a question that must be answered on a site-by-site and case-by-case basis in consultation with the Project Leader. Stone by stone recording can pick up subtle nuances and aid interpretation in many circumstances, whilst it is unnecessary in others. For example, the post-packing in a posthole, or the differential nature of stone fills in a ditch should be recorded as they will aid reconstruction and/or interpretation, whilst the presence of well sorted stones within the single fill of a gully may not be required. When making a judgement about the level of recording consider the level of photographic recording, and the level of detail on the context sheets and sketches, as well as the nature of the deposits.
- Lenses within contexts should be indicated using a dashed line and annotated as necessary on the section drawing, and noted on the context sheet.
- Where stones and other inclusions should be marked on the section a key should be included and standard CA symbols and abbreviations used:

B	Bone
BF	Burnt flint
BC	Burnt clay
BK	Brick
CBM	Ceramic building material
Ch	Chalk
Cu	Copper alloy
Db	Daub
Fl	Flint
Fe	Ferrous
Gl	Glass
J	Jet
L	Limestone
Nat	Natural
P	Pottery
Pl	Plaster
Mo	Mortar
S	Sandstone
Sh	Shell
T	Tile
W	Wood

Datum height

- The section should be levelled as soon as possible after the drawing is completed, the datum must be marked on the section drawing in the correct position and the reduced level added to the drawing, include the level number where appropriate. Where possible use a dumpy level or TST to take the height of the datum, rather than a GPS which is less accurate.

- If GPS or TST is being used to record the datum height and drawing point locations then the section must be tagged with the appropriate information:

- Each Section Point ID must be tagged with both the section number and the drawing point number written in permanent marker on a plastic tag (e.g. S.12, 12.1), and details of any contexts present in the section.

- Where using GPS or TST to establish the datum height the level is usually taken at **ground level** at the leftmost drawing point using the SL code (see figure above). Transfer the datum level to the permatrace drawing wherever possible, or add the survey point I.D. so it can be added later or referenced from a print out of the survey data.

Section Point ID location

- The location of all Section Point IDs must be recorded. This is either done using GPS or Total Station, or by hand if using a grid system. When using a grid system write the co-ordinates of each Section Point ID above the drawing point on the section to an accuracy of 1cm (e.g. 206.57/109.23), and add them to the **section register**. If using GPS or TST record the section line using the Section Line code, attributing the Section Point ID numbers.

- Plan the section location onto relevant plans using the correct conventions and annotating the Section Point ID and section number.

- After completion of your drawing you can then dig out any finds from the section, allocating them to the correct context, and take any soil columns.

Elevations

Elevations are used to record the vertical faces of masonry elements and follow the same procedures as section drawings, and are often combined with section drawings of soft deposits. Use the same techniques and approaches as for section drawings but use a key to indicate different stone types or mortars/renders.

11. Photographic recording

Site photography is an essential part of the site record. Nearly every single site will have some form of photographic record. Currently, CA uses digital and digital SLR (DSLR), supplemented by manual SLR and automatic SLR when required by the Written Schemes of Investigation (WSI). This section is intended to help you make sure that the record is as good as possible and that photographs are taken in line with CA protocols.

Why do we take photographs?

- Photographs provide a visual record of the site and progress, the conditions and setting
- Photographs are a quick and accurate way of recording sites
- Photographs can show certain aspects of the site better than other methods
- Photographs are an essential part of the archive and of preservation by record
- Photographs are very useful in writing up, assessing and analysing the site
- Photographs can illustrate reports, publications and publicity material

Archive requirements and general consideration
There is now no general requirement within CA WSIs to undertake monochrome (B&W) photography as standard. For ongoing projects where we have already agreed to take B&W photographs in the WSI you should continue to do so as per the terms of that WSI, unless your Project Manager specifically informs you that a variation to the WSI has been agreed to allow digital photography to be used as the sole archival photographic record for the project. Similarly, there is no requirement to take two digital photographs of each subject, or to photograph every single feature, and the emphasis should instead be on obtaining fewer, good quality images. Therefore please ensure images are checked by the photographer on the camera screen as a matter of course, and also following download by the Project Leader to ensure quality is being maintained.

Digital photography strategy
DSLR cameras should be used as appropriate for important site photographs and features of intrinsic interest, as well as for relevant shots showing work in progress, site and landscape context etc. Consideration should always be given to high level photography (use of aerial camera mast/drone) in conjunction with your Project Manager. It is intended that one DSLR camera will be available for each major fieldwork project (essentially our excavation projects, though some evaluations and watching briefs that turn up interesting and photogenic features would also merit discretionary use of the DSLR).

For evaluations and watching briefs the current standard compact digital cameras will suffice unless the brief/specification/WSI requires otherwise. File size and data storage on the server is increasingly an issue, and some of these cameras generate enormous file sizes if the default settings are not changed. Therefore please:

- check your camera's setting and the file sizes it is producing. Generally, you should have it set to: Image Quality = Normal, Image Size = Medium, i.e. a picture size of *c*. 2990 x 1950 pixels (*c*. 5.5 mega pixels).
- be disciplined about what you photograph and about discarding unacceptable shots

either on the camera or once you have downloaded and reviewed a batch

Photo numbering

Individual films must **not** be transferred from one project to another. An ID shot should be taken at the start of each film/series of digital photos, recording site code and name, Project Leader, date and film number (for 35mm films only). Each camera set should have a wipe clean laminated sheet for this. Photographic registers comprising *pro forma* record sheets must be kept for each project.

On most sites all colour and B&W 35mm films should be numbered consecutively from a single sequence starting with Film 1, unless specified otherwise by the Project Leader. Use a CA film register to keep track of film allocation on larger sites. On sites with more than one camera set a numbering system (e.g. Set 1 has even film numbers, Set 2 has odd film numbers) may be used, or groups of film numbers may be allocated to each set. In such cases this should be made clear to all staff, preferably with a printed copy of the numbering system in each camera case.

All photographs must be recorded on the photographic register immediately and cross-referenced to all relevant context sheets.

The photographic register will have the site code and project number, and the register sheet number. Each photograph MUST have the following recorded in the appropriate box:

- Image number
- Subject e.g. ‘ditch 3124, post-ex’, ‘Trench 14 pre-ex’
- Direction of view e.g. facing west
- Scales used e.g. 2x1m, 0.4m
- Initials of photographer
- Date taken

If working shots contain staff or known visitors then ensure their names are recorded.

The images should be recorded on the context sheet as film number/exposure number (e.g. 2/34, 5/11-16) or as the digital image number shown on the digital camera (eg 101-0292, 101-0311–320). Digital image numbers on the registers need to be cross referenced with the actual digital photo file number once the images have been downloaded as this may change (see below).

Any exposed SLR films should be labelled with the site name and project number, the name of the Project Leader and the film number and deposited with the Post-Excavation Supervisor/Archives Officer.

At the end of each phase of fieldwork the last SLR film number used should be recorded so that there is no confusion or repetition during any subsequent phase.

Digital cameras

The digital cameras are 'loaded' by inserting an empty memory card. Normally each digital camera will already contain a memory card. The memory cards fits into a slot that can be accessed by opening the flap on the side/base of the camera body.

Make sure that the camera has a good level of battery. Tell the Project Leader as soon as you notice the camera may need recharging. Don't wait until the battery is flat!

Checking digital images

If your digital photo didn't look good on the camera screen then chances are your film photo won't either. ALWAYS make a point of reviewing your own photos, and Project Leaders should also regularly review those of their team. If necessary delete them and take them again, remembering to amend any records and the photographic register accordingly.

Check you have the correct image number. If it is out of sync with the register flag this up with the Project Leader so it can be fixed. Check each image for clarity, focus, camera shake, extraneous objects etc. and retake as necessary. If possible check the images at large size on the laptop to check they are really ok. Images often look fine on a 2" screen but look terrible at larger size. **Only Project Leaders** should delete photos from the server. If you delete a photo, cross it out on the register.

Downloading digital photographs

Digital photos should be downloaded at regular intervals (ideally weekly) on larger projects and at the end of a short project. The memory card should be removed from the camera and either inserted into the SD card slot if there is one on the laptop/PC, or via a card reader connected to a USB port. Prior to downloading, you should:

- Navigate to and open the 'Photos' folder within the relevant project folder for your job
- Create a new folder and name it accordingly, including the project number, project name, camera type and date of download, e.g. '5390 roman way bourton digi photos downloaded 150716', or '660107 moat lane towcester dslr photos downloaded 141215' etc.

There are normally two main options available for downloading digital images; either via the AutoPlay dialogue box which appears automatically on inserting the memory card, or via the 'Computer' icon on your laptop/PC. Both procedures are detailed below:

Downloading images via AutoPlay dialogue box

- Click on 'Open folder to view files'
- Open 'DCIM' folder
- Select file folder(s) containing photos and cut and paste these into the new folder you created within the project folder
- You can now remove the SD card/USB card reader, using the 'Safely Remove Hardware' icon from the pop-up menu on the bottom right hand task bar of the desktop.

- When you re-insert the card into your camera and press the ‘Play’ button, there should be a message reading ‘No image/sound’ or similar.

Downloading images via ‘Computer’ icon

- Click on ‘Computer’ icon on desktop/via ‘Start’ button
- Select ‘SD Card’ option from ‘Devices with Removable Storage’ (Drive ‘H’ etc.)
- Continue with steps 2-5 as above.

Renaming digital photographs

The preferred procedure for renaming a batch of photographs requires the installation of the IrfanView programme, which should be undertaken by the ICT department. Once this is done, you should follow the procedure below:

- Open IrfanView and select **Batch Conversion/Rename** in the file menu
- In the “Look in” dropdown menu navigate to the SD card drive (e.g. ‘K’), highlight the photos to be downloaded and click the **Add** button. The filenames will appear in the “Input files” box at the bottom right.

*When adding multiple files at the same time there appears to be a bug that causes the last file to come through at the top of the list. It is worth checking that the file numbers are in the correct order at this point. If a file is out of place, simply highlight it in the “Input files” box by clicking on it and then move it to the desired place on the list using the **Move up** and **Move down** buttons.*

- In the “Work as” box on the left side select **Batch rename**
- In “Batch rename settings” name the batch of photographs in the format described in ‘**Downloading digital photographs**’ above

*If photographs have already been downloaded for a job and you want to continue the sequence click on the **Options** button in this box. In the pop-up box change the number in the starting counter box to the desired number and click **Ok**.*

- In “Output directory” use the browse button to select the photograph folder for the job
- Click **Run test rename** at the bottom left and a pop-up box will appear detailing the old and new filenames along with any errors or warnings. Click **Return to Batch**
- If there were errors or warnings, make the necessary adjustments and rerun the test. If not, select **Start batch**. The renamed photos will appear in the photograph folder.

Photographs that have already been downloaded can be renamed in the same way. In the rename settings option box click the rename original/input files option to avoid duplicating all of your photographs.

N.B. Rotating images is much easier in Windows Photo Viewer than in IrfanView, which does not automatically save changes.

Once the renaming is complete the resulting Archive Frame Number should be cross-referenced back to the Film Register and the film register then scanned and stored alongside the digital photographs in the same folder.

Project Leader tasks

- Ensure site/working shots are taken as appropriate – brief your team
- Communicate what photos you want from your team
- Review all photos before backfilling, get poor photos retaken
- Delete unnecessary images immediately from digital cameras and amend register accordingly
- Check the cross-referencing is done
- Put films in for processing
- Download digital images onto the server and delete from the camera
- Archive the contact sheets and digital photographs

What photos should we take?

The WSI should state what formats of photo we will be taking and it may state particular requirements of the curator such as photos of each context pre-ex. It is normal CA policy to only take digital shots, but this section retains references/guidance to 35mm techniques for those occasions when this format is still required. The Project Leader will brief staff on specific requirements.

Responsibilities

The excavator of a deposit or feature must ensure that if photographic recording is required the appropriate photographs have been taken, even if they themselves do not take the shots. If the excavator is in any doubt as to the merit of taking a particular photograph they should discuss the matter with their Project Leader.

As a general rule on all but the smallest projects you need to consider the following types of photograph:

Context shots

Images should be carefully composed with appropriate scales and north arrow. Focus on the context in question. You will need to photograph:

- All crucial stratigraphic relationships
- All important features and deposits, or groups of features and deposits
- Every ‘phase’ within a building or a room
- All *in situ* significant Registered Artefacts

Site shots

Wider images of the site as a whole and in its context. Images of completed trenches or shots of the site from e.g. a church tower or adjacent tall building are particularly effective. Take some images with scales and some with staff in them.

Working shots
Include photos of work in progress such as machining or cleaning back, digging of features and recording. Take photos of any interesting or unusual jobs e.g. power-augering or taking monoliths that may be useful for lectures, training or leaflets.

If there is a particularly important or interesting feature take a range of photographs of it with the excavator in shot. Try and compose images that are not too 'wooden', and think about the potential end use of the image.

Try and include CA logos, **but** also include faces and compose the image so it can be used in reports. **Check people have the correct CA PPE on and that it is clean!**

Rectified photography
CA standard practice is now to take geo-referenced photographs for burials and any other complex features which would benefit from the additional record. Surfaces, structures, walls and elevations can also be recorded in this method to save time on hand planning. The images should be rectified by the geomatics team during fieldwork so please inform them that this is going ahead.

If it has become necessary to take geo-referenced photographs on site please follow these steps:

- The context/feature must be clean and the extent clearly visible.
- Place markers within the boundaries of your photograph, preferably use the holographic targets as they can be more easily surveyed using the total station and are less intrusive onto a photo than a large black and white piece of card. The targets do not need to be set out in a measured grid, this is no longer necessary due to the quality of instruments and software we have. Place them so that they are visible, well-spaced and can be accessed by the survey detail pole.
- Give each target a reference id e.g. a1, a2, a3, a4 and annotate onto your plan and Geo-rectification field sheet.
- Create a sketch plan of the feature on the field sheet adding in the location of the holograms.
- The photos must be taken directly above the feature by using the aerial cam, bipod or step ladder, whichever is the most appropriate.
- When taking photos make sure that each image contains a minimum of 6 targets per photograph. Record the photo numbers on the field sheet as well as the photo register.
- Survey the holograms using the Georef code, taking care not to disturb the position of the hologram. If possible use a Total Station on either reflectorless or using a mini prism set. The Georef code requires the target ID as an attribute for each point. Please do not forget to add this information so that we can identify each point when we download it into AutoCAD.
- The context/feature must be accurately surveyed with a GPS or total station so an accurate photo plan can be created.

Artefact shots
Photographs of artefacts or cremations *in situ* or immediately after lifting

Record shots of fragile artefacts
Shots of artefacts that will be discarded, e.g. worked stones

Progress shots/H&S/record shots
Take digital photos to record progress or reinstatement works for curators, clients and contractors.

Sometimes we need to take photos of issues on site such as existing damage to property, near misses, or potentially dangerous conditions. Digital photographs sufficient to record the issue should be taken.

Take enough digital photographs to record the situation in detail. Don't delete them until this is approved by your Project Manager.

Lecture/publicity shots
In addition to images for use in CA reports we also need to take photos for use in public lectures and publicity material, these may include photos of staff with finds, or photos specifically taken to include background features such as landmarks or contractor logos.

If there are open days of visitors take photographs recording the event. Think of images that can be used to accompany press releases or leaflets/talks.

Aerial shots
Increasingly, an aerial camera mast is used to take overhead photos of the site from elevated positions. As an alternative, your Project Manager may sanction the hire of a drone which will be used by specialist contractors to capture multiple aerial images of the site, which can be used for illustrative purposes or 3D modelling. Think about what aspects of the site you would want to bring out in such photos.

Use scales to focus attention on specific features.

Make sure a record is kept of each image so they can be identified and cross referenced later. Don't just take shots of the site! Get photos of the site in its context, or looking towards the site from beyond the site perimeter. If the site is adjacent to a landmark try and include that in some of the photos. When using specialist contractors, talk to the photographer – use his skills as a professional but make sure you get the photos you need.

Team photos
The traditional end of site photo, either taken formally or informally. These are often used for publicity purposes, the CA calendar etc.

Structure in motion and multi-image photogrammetric recording
This technique is now becoming routinely used to create 3D models of sites and in particular structures. The technique requires the capturing of overlapping images which are then processed by the geomatics team. The output from this can be 2d ortho-rectified images, digital elevation models and 3d visualisations.

You should consider whether the site is suitable for this methodology and discuss this with your Project Manager and the Principal Geomatics Officer, who will advise you of the available options. Full details of the methodologies can be found in the **Cotswold Archaeology Survey Manual**.

Taking the photos

We need to consider before we take every single photograph:

- Why are we taking this image? Do we need to?
- What should/should not in the image? Is the area clean enough? Is there any clutter or tools in shot
- Does the image show the context(s) in the best way?
- Are the scales/north arrow appropriate to the subject, correctly placed and clean?
- Do we need to take more than one photograph?

Technique for taking a good shot

- Get in a stable position: stand with your legs apart and elbows by your side
- Check for mess, clutter and tags
- Check for shadows
- Frame your image and adjust the scales
- If possible, on manual SLR cameras adjust aperture to get a good depth of field: for sections use a large aperture and fast shutter speed e.g. f2.8 at 1/500
- For features use a smaller aperture and a slower shutter speed e.g. f8 at 1/250 on manual SLR cameras
- For site shots use a small aperture at a slow speed e.g. f16 at 1/125 on manual SLR cameras
- Bracket shots if necessary on manual SLR cameras
- Consider using a tripod

Scales and north arrows

All record shots of contexts should contain photographic scales and a north arrow; even working shots may benefit from the occasional scale.

Scales should be clean and placed so that they are parallel and/or perpendicular to the frame of the photograph and to each other. Do not overly clutter the subject with scales and think about their position so that they are visible and do not obscure the subject. Make sure scales are set vertical if they are upright. Record the size of the scales on the register.

Use scales and a north arrow appropriate in size to the feature/area you are photographing.

Common problems with photos

Image is out of focus

- Make sure the image is properly focused. With auto-focus take care the camera is not focusing in the wrong place e.g. on a scaffold pole
- Check the exposure is reasonable to avoid camera shake on manual SLR cameras.

- Do not use exposures less than 1/125 seconds without a tripod.

Image is over or under-exposed

- On manual SLR cameras use the inbuilt meter to ensure the image is properly exposed.

Shadows obscure the image

- Wait for clouds/better light conditions before taking photos
- If there are no clouds can you use a sheet/board/several colleagues/the machine to create shade?
- If appropriate, think about which section would be in shadow shade before selecting where to dig.

Scales

- Inappropriate, dirty or missing scales
- Make sure scales don't obscure the subject
- Frame the subject with the scales, make them parallel with the camera frame, the context or the subject.
- Don't use too many scales.

Cleanliness, clutter and mess

- Topsoil not cut back and grass/vegetation hanging down
- Area around subject not cleaned up properly, mud, puddles and footprints
- Tools, tags, string lines, clothing and boots in the shot
- Even if it is a working shot, make it look tidy!
- Don't scribe lines with trowels or use spray paint.

Objects obscuring the shot

- Fingers, hair, lens caps, camera straps and boots can get in the image and ruin an otherwise great shot.

Poor composition

- Poorly composed photographs, often too tightly focussed in on the subject
- Can you take a better photograph of a group of contexts/features?
- Which angle is best to get a good record? Generally should be as near to perpendicular to sections.

Dirty lenses and maintenance

- Make sure your lenses are clean –only use a proper lens cleaning tissue and blower.
- Don't use your hi-vis to try and get mud off the lens!
- Check the battery before each site – get it recharged if necessary or get a new one for SLRs.
- If your SLR camera action is sticking or your lens is grinding, or you suspect any kind of fault report it and get another camera, don't carry blindly on. If you think there is a problem there probably is!

10 steps to perfect photography

- Make sure film is loaded correctly in SLR's and is winding on
- Take an ID shot for each film/set of digital photos
- Choose what to photograph, what you want to show in the photograph and what the photo is for
- Clean the area –remove all tools and spoil
- Use appropriate scales and a north arrow
- Compose your photos and execute them with care
- Review photos after taking them
- Make sure all indexing and cross-referencing is done
- Take care of your cameras, scales and films; keep equipment clean and dry.
- Report faulty equipment and low batteries immediately

SLR cameras

CA occasionally uses manual SLR's, mostly Pentax K1000s, and a range of semi-automatic SLR cameras. You should make sure you are familiar with the cameras on site and ask if you are uncertain about any aspect of the camera. The manual has detailed instructions on loading and use of the cameras.

To load the SLR cameras (K1000s)

Before loading the film check that the film speed (ASA number) has been set correctly using the dial on the top right hand side of the camera.

Open the back of the camera by pulling up the rewinding lever, which is located on the top left hand side of the camera. Place the roll of film in the left hand recess in the back of the camera and push the rewinding lever back down to fully engage the film. Now push the film leader as far as it will go into one of the slots on the sprocket on the right hand side of the camera.

Wind on the film using the lever on the top right hand side of the camera. If you do this with the back of the camera open you will be able to check that the film has engaged. Now close the back of the camera and wind on until the dial on the top of the camera points to 1. The camera is now ready to use.

To unload the K1000s

When the end of the film is reached depress the small circular button on the base of the camera and rewind the film using the rewinding lever. Open the camera only when the film is fully rewound by lifting this lever and remove the film.

Faulty cameras

If any aspect of the camera appears faulty or problematic report it at once so it can get serviced and a replacement brought out. We also need to find out as soon as possible so we can retake any photos and establish which images may be affected. Common problems to look out for are with the light meter – does the battery need changing? Or with the focus due

to grit in the mechanism, shutters may get stuck. If you think there may be a problem, there probably is, so let the Project Leader know ASAP.

Keep cameras clean and in their bags/or hard-cases whenever they are not in use. Periodically these should be cleaned out. Cameras should be cleaned and dried if they get muddy or wet using a soft cloth, an air blower and lens tissues. If in doubt ask!

12. Finds on site

The artefactual record is very important to the understanding of the site, and records relating to finds must be treated as equivalent to the context record. Records relating to finds must be maintained and not completed retrospectively.

For full and detailed procedures regarding the recording and handling of finds on site, see the CA Technical Manual 3: *Treatment of Finds Immediately after Excavation*.

On-site

At the end of the day the Project Leader will be responsible for ensuring that all finds are bagged and correctly labelled. All finds must be returned to the CA offices for processing and analysis as soon as possible.

1) All finds will be retrieved unless specifically stated otherwise by the Project Leader.
2) All finds should be immediately placed in a finds bag labelled with the **site code** and **context number**. Finds are not to be kept in piles by the side of features, or in pockets or unlabelled bags. Keep a supply of bags with you!
3) If a plastic finds/seed tray is used a tag showing the site code and context number MUST be immediately attached to the tray with a treasury tag or string and the tray weighed down.
4) Use an appropriately sized bag for the quantity of finds you have, don't force finds into a bag which is too small or use a bag which is too large.
5) If there are any small or fragile finds, or the finds are particularly muddy then bag these separately, or use a suitably sized crystal box.
6) Normally bag all types of robust finds together unless you have a large quantity of finds in which case bag by type. You may occasionally be asked to bag pottery separately if it needs fast-tracking through Finds to get spot-dates
7) Some finds may be considered significant enough to warrant further recording. These finds are known as **Registered Artefacts** and are issued unique identifying 'RA' numbers from a register and are located in 3-dimensions by GPS/Total Station/hand planning and levelling. Ask your Project Leader if you think a find may need to be recorded in this way.
8) After each context is excavated, or at the latest before the end of each day, a plastic tag (not tyvek) labelled with the **Sitecode**, **Area/Trench**, **Context number** (and a **registered artefact number** where applicable) must be placed inside each bag. The panel on the front of each bag must be labelled with these details and also with the **excavator's initials**. Label using a waterproof marker not biro.
9) Try and keep damp finds in a damp environment and dry finds dry. Do create air-holes in bags. Take any particularly fragile finds back to the Finds lab where they can be treated as soon as possible.
10) All finds must be collected in a specified location at the end of each day at the latest, and their details added to the Bulk Finds Sheet kept with the finds.

If you are in **any** doubt over the best method of recovering and handling finds talk to your Project Leader who can contact the Finds and Environmental Supervisor. If there are any finds that need on-site conservation or block-lifting we will arrange for this.

Registered Artefacts

Registered Artefact numbers should be given for any finds which are deemed significant, either because they are particularly fine objects, they will need conservation, or because an accurate location and record will be required in Post-excavation.

Take a number from the relevant RA index for your area and fill out the register. The location and height will be recorded by GPS/TST, record which on the register.

Conservation

Finds are best kept in the type of environment from which they have been excavated. Damp finds must be maintained in a damp environment and vice versa for dry finds. They must be taken to the CA offices as soon as possible to prevent any further decay.

13. Environmental samples

The overall palaeo-environmental sampling strategy will be determined prior to the start of the project but may develop according to discoveries during the course of the fieldwork. The Project Leader will provide guidance on what is to be sampled and how. All sampling is to be carried out in full compliance with the CA Technical Manual 2: *The Taking and Recording of Environmental and Other Samples from Archaeological Sites*

It is the responsibility of the archaeologist taking the sample to ensure that the **Sample Recording Sheet** is completed as fully as possible for each sample taken and that all samples are correctly labelled.

The number and type of any samples must be cross-referenced to the Context Sheet for the deposit from which they are taken. When assigning samples numbers the standard protocol is to use whole numbers (i.e. 1, 2, 3) rather than prefixing with a trench or area number (e.g. 40.1, 40.2, 40.3). This should also be done with monolith tins i.e. each tin should be given a separate sample number. There may be cases where 'points' are used (generally on road schemes/pipelines/other big infrastructure projects) and you will be warned in advance about this.

On the sample sheet draw a sketch showing the sample location within the context noting any significant features of the context, the size of the sample area, and any relevant adjacent contexts –e.g. location of sample relative to other sampled contexts. The location of all samples must also be accurately recorded in plan. Where GPS or Total Stations are being used a single Point should be taken at the centre of the sampled area, if the sample is very large, or there are many samples from a single context then you may need to survey a polygon around the sample area. Mark the sample area on any permatrace plan or section.

Monolith and Kubiena tins must also be accurately located using GPS/Total Station or planned on permatrace; the level of the top of the the tin should also be recorded on the Monolith Recording Sheet. If a section is being sampled using multiple tins, each tin must be located, and the top of each tin levelled. The position of each Monolith/Kubiena tins must be accurately drawn on the relevant section drawing. On sites where planning is being done on permatrace you will need to mark the location of the sample so it can be digitised later, this may mean making a separate plan of the sample location.

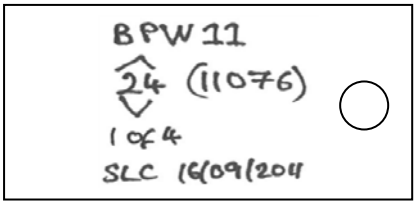
Sample and Monolith Recording Sheets MUST be returned to CA with the samples to allow the sample to be processed promptly.

Consult your Project Leader if you are in doubt about your specific sample.

Bulk Samples Tubs and Labels

1) Ensure plastic white sample tubs being used are clean and fill with the sample being taken. Do not fill sample completely to the top, leave a small space.

2) Fill out two **tyvec** sample labels using a black **permanent marker** pen to include the site code, sample number, context number, number of tubs and initials/date. **Under no circumstances should plastic tags be used.**



DO NOT <u>KNOWINGLY</u> PUT FINDS INTO SAMPLE TUBS. THEY <u>MUST</u> BE BAGGED UP SEPARATELY.

3) One tag should be placed **inside** the sample tub. The other tag should be tied to the **outside** of the tub using a cable tie.

4) Sample Sheet **must** be handed in to the finds dept when samples are dropped off

Filling in Sample Sheets

Please follow the questions on the sample sheet, however a couple of notes to bear in mind

1) When asked for context sampled please specify the feature type as well e.g. <u>pit</u> fill, <u>floor</u> deposit, <u>grave</u> fill.

2) Ensure sample volume and numbers of tubs are written clearly on the sheet.

3) Reason for taking
   - Specify whether sample is for finds retrieval or environmental ecofacts retrieval (or both)
   - Charred plant remains/charcoal recovery
   - C14 dating etc

4) Sketch plan
   - Include where the sample was taken from inside the feature
   - AND in plan the relationship between this feature and any relevant features nearby (a pit near a hearth, posthole alignment, pits near a structure).

5) GPS/Total station
   - If a GPS/total station is being used on the site, please ensure the centre of the sample location is recorded (or a polygon if the sample area is large).
   - If the site is being hand planned, this will need to be done on the permatrace plan.

Guide to taking palaeo-environmental soil samples on site

- Fills that result from the abandonment of a feature (silting in or deliberate backfill of ditches, pits, postholes, slot trenches etc) should not normally be sampled. Charred inclusions are likely to be residual from nearby older activity whose source may not be verifiable.
- The older the feature the more samples are likely to yield useful information. The local and regional environment and range of plants used are more important in the earlier prehistoric than later periods.
- Bulk soil samples may also be taken for the identification of suitable material (normally charred plant remains) for radiocarbon dating

Type of Feature	Material to be sampled	Questions to answer	Type of sample	Additional information
PITS				
Generic Pits	Charred cereals & cultivated plants Charred seeds (weeds/natural) Charcoal Bone Shell Molluscs	Types of crops, diet Cereal processing on site /clean grain imported? Local vegetation Fuel Diet (eg. domestic, wild animals, fish) Local environment (open or wooded)	Bulk sample - 40L or 100% of context (whichever is smaller)	Sample well-sealed deposits, particularly dark soils and soils with visible finds. Avoid upper fills, deliberate backfills, and natural silting.
Waterlogged pits/wells	Cultivated plants (coriander, flax) Wood Insects/parasites Natural vegetation (macro remains) Pollen	Agriculture, diet Industrial processes (flax retting, dying, tanning) Selected wood, construction timber Local vegetation Wider environment	Bulk sample – 10L Incremental bulk samples through profile Monolith	Usually the best source of environmental sample. Will give a different range of evidence to dry samples, so <u>some</u> dry samples should also be taken Semi-waterlogged samples will have better preservation than dry samples
Food Storage Pits	Charred cereals & seeds	Type of food being stored	Bulk sample – 40L or 100% (whichever	If the pit is used for storing crops and was fired to sterilise it, carbonised grains

Type of Feature	Material to be sampled	Questions to answer	Type of sample	Additional information
			is smaller)	may be present *in situ*
Cess/latrine pits	Mineralised plants Waterlogged plant remains Charred seeds and grain Wood	Diet Function of feature	Bulk sample – 40L or 100% If waterlogged 10L is sufficient	As for Pits (above) Mineralised seeds may give good indication of the function of the pit
BURNT FEATURES				
Hearths	Charred cereals (inc. chaff) Burnt bone Charred seeds Charcoal	Cereal processing Food waste Fuel Local vegetation	Bulk sample – 40L or 100% (whichever is smaller)	
Corn dryers	Charred cereals & chaff Charcoal	Cereal processing Malting wheat/barley Fuel	Bulk sample – 40L or 100% of context	Different areas of burning should be sampled individually to identify the spatial distribution of processes
Furnaces	Charcoal Metal working residues	Fuel Metal working processes	Bulk sample – 40L or 100% (whichever is smaller)	Location of sample should be recorded in 3-D
Burnt *in-situ* postholes	Charcoal	Type of timber the building was constructed from	Bulk sample - 40L or 100% (whichever is smaller)	Sample only postholes/stakeholes that are visibly burnt *in-situ* . Avoid postholes/stakeholes that have been naturally or deliberately filled.
Burnt stone mounds, troughs and spreads	Charcoal Bone Artefacts	Fuel Function of feature	Bulk sample – 40L or 100% of context	Remove large stones from samples; results are disappointing where stones have been

Type of Feature	Material to be sampled	Questions to answer	Type of sample	Additional information
	Carbonised plant remains			sampled rather than the fill in between. With deep deposits, divide context into spits and sample individually
DITCHES				
Big Ditches	Charred cereal remains Charred seeds Charcoal Bone Molluscs Pollen	Waste dumps (domestic/industrial activities) Local and regional environment	Bulk sample – 40L or 100% (whichever is smaller) Monolith	As for pits (above) Deliberate deposits of material may be present Avoid bulk sampling basal fills unless material for a radiocarbon date is required. Basal layers rarely provide any useful palaeoenvironmental information. Any naturally silted in or deliberately backfilled ditch fills should not be sampled For very deep ditches with a long sequence of fills a monolith may be required. Contact the Environmental Officer.
Drip gullies/ slot trenches	Charred cereal remains Charred seeds Charcoal Bone	Domestic waste Activities on site Fuel	Bulk sample – 40L or 100% (whichever is smaller)	Shallow features normally provide less useful material for samples and they may be contaminated. Where possible, sample sealed deposits Ring-gully terminals normally provide the most material Avoid sterile deposits and

Type of Feature	Material to be sampled	Questions to answer	Type of sample	Additional information
				features less than 0.15 m deep.
LAYERS				
Middens	Charred cereals & seeds Charcoal Bone Molluscs Shell	Types of crops, domestic animals & other food debris	Bulk sample - 40L or 100% (whichever is smaller)	A large, deep midden may require sampling to examine chronological and spatial variations
Floor surfaces	Charred cereals & seeds Chemical analyses	Function of structure	Bulk sample - 40L or 100%	On well-preserved sites a spatial sampling strategy may be required for the floor itself and overlying layers For phosphate analysis contact Environmental Officer
Buried soils	Sediment Molluscs	Soil type/formation Land use Local environment	Monolith core Bulk sample – 40L or 100%	Contact Environmental Officer before sampling buried soil layers.
BURIALS				
Inhumations	Human/animal bone	Identification of skeleton Burial rite Number of individuals	Bulk samples – 100% from base of grave	Three samples should be taken from the base of the grave after lifting the skeleton: (1) head area (2) hands/pelvis area (3) feet area Do not sample grave backfill (upper fill) unless there is evidence of bone within it. For unusual burials, take advice from Environmental

Type of Feature	Material to be sampled	Questions to answer	Type of sample	Additional information
				Officer.
Cremations	Cremated bone Charcoal Carbonised seeds and grain Finds	Human/Animal bone retrieval Fuel	Bulk sample – 100%	Cremations should be half sectioned in 5cm spits and 100% recovered. Treat animal cremations the same as human ones
NATURAL DEPOSITS				
Peat	Waterlogged seeds Pollen Insects/Beetles	Local and regional environment	Russian core samples Bulk sample – 20L	Take samples under advice from Environmental Officer. A shallow peat deposit may require a bulk sample, but deep deposits may need a different strategy
Palaeochannels	Waterlogged plant remains Molluscs	Site formation processes Local and regional environment	Monolith core Column samples	Please contact Environmental Officer before sampling palaeochannels
Ponds/waterholes	See PALAEOCHANNELS			

14. The Trench Recording Form (TRF)

The **Trench Recording Form** (CA/FRM/16) is designed to allow the rapid recording of trenches during evaluations. For most evaluations the TRF is the main register and over-arching record for each trench. For trenches which contain no archaeological remains, it may represent the only record of that trench, or where archaeological remains are encountered, it may act instead as a handy index to the recorded contexts within each trench. Note that if archaeological features or deposits are encountered, a Context Sheet **must** be completed for these in accordance with normal procedures.

The TRF should only be used for simple trenches, if there is complex archaeology, or large numbers of contexts, use a context register and drawing register in addition.

Ideally the TRF should be started immediately before each trench is excavated and should be checked after the trench is completed, before backfilling starts.

Trench type

Most evaluation trenches are machine dug evaluation trenches, in which case ring 'standard', however where we hand-dig trenches or test pits, or are recording contractor's trenches such as geo-tech pits or underpinning trenches, please record any contractor's numbering of the trench, the nature of the trench, how and why it was dug, and how it was recorded, along with any access issues or other limitations on what you could do (e.g. machine dug underpinning pit: no safe access, sections obscured by shoring, finds picked off spoil heap).
In general a test pit is any intervention up to 2m by 2m and a trench is any intervention larger than this.
All evaluation results are written up into the Appendix A: Context descriptions. To make this as efficient a task as possible ensure that all contexts have an appropriate description and dimensions. Wherever possible write this out clearly on the TRF so it can be quickly and accurately entered into the appendix.

Length

The total length of the trench, test pit or intervention at ground level. If the trench is stepped add the length at the base of the trench in parentheses, e.g. 15.45m (10.05m).

Width

The width of the trench, test pit or intervention at ground level. . If the trench is stepped add the width at the base of the trench in parentheses, e.g. 8.67m (4.35m).

Ground level (AOD)

Write the height of the ground level and indicate which end of the trench this is taken at e.g. 23.23m AOD (N). For trenches on a slope give two levels. These heights will usually be taken from the CAD drawing.

Maximum depth

Record the maximum depth below present ground level of the trench, include the depth of excavated features. Add auger or borehole depths below present ground level in parentheses, e.g. 1.2m (auger: 2.8m)

Plan and Section Nos

Record the plan and section numbers in the relevant box. There is a single sequence for all drawings which are numbered using the trench number, e.g. for Trench 12 use 12.1, 12.2 etc. For complex evaluations use a standard drawing register.

Context No

The first context number in a trench is numbered using the trench number suffixed with 00, e.g. Trench 12 starts at context 1200 NOT 1201.

Context Type

As for standard context sheet: Cut, deposit, layer, fill, masonry. Timber, skeleton, coffin

Interpretation

Add a short, basic definition of the interpretation of the context, e.g. ditch, fill of ditch, make-up layer, topsoil etc.

Description

Use the register on the TRF to record simple deposits such as topsoil, subsoil, natural substrate, service trenches, stone land drains and furrows with relationships to other features. Give an interpretation, followed by a description, e.g. topsoil: friable mid grey brown sandy clay, occasional stones. For contexts which are only recorded on the TRF the description must be accurate and include all relevant information as there will be no other record. This will be entered into Appendix A so ensure it is correct and in the right format. All **archaeological** contexts must be fully recorded on a context sheet in addition to the TRF register.

Dimensions

Give the dimensions for all contexts in the format: length x width x depth/thickness. Give depth for cuts and thickness for deposits, do not use depths below ground level or cumulative depths. Use height for walls/structures only. For contexts that were sample-excavated or extend beyond the trench, record the overall dimensions observed, not just the excavated area. This data will be entered onto Appendix A so make sure all measurements are accurate, checked and present.

Context sheet

Tick if a context sheet has been taken out for this context

Finds

Record the type, and number of bags of finds from this context

Checked by

Initial and date when the context has been fully checked

Registered Artefact no

Record the number and type of Registered Artefacts from this trench, a Registered Artefact register must be filled out.

Sample No.

Record the sample numbers and their context numbers from this trench, a sample register and sheets must also be filled out.

Trench checked by

Initial and date when checking of the trench is completed and it is ready to backfill. Checking should include all cross-referencing, checking context sheets, digital photos, finds drawings, and GPS/TST survey.

Sketch

Add one if it enhances the record.

15. Checking and archiving your paperwork

All paperwork, drawings and registers produced on site need to go through a systematic process of checking to ensure that the records are accurate and complete. It should be initially checked by the excavator, and subsequently checked by the supervisor or Project Leader. Where sheets have a box for 'checked by' this should be filled in by the supervisor, not the excavator.

For context record sheets you must check that:

- All relevant boxes are filled in,
- That there is a coherent description, discussion and reasoned interpretation,
- Any finds are indicated in the relevant box,
- All cross-referencing is completed, including to/from photo registers, enviro sample sheets and registers, drawing registers and level registers,
- You have initialled and dated your sheets,
- The sheets are all filed away in the correct 'To Be Checked file'

For sections check that:

- The correct conventions are used for the section
- The compass point of each section pin is indicated on the section
- The scale, date, initials and site code are written on each section,
- The Drawing Register is correctly filled out,
- The section datum has been captured, recorded and its location accurately indicated on the drawing,
- The limit of each context is indicated using the appropriate line-type and with annotation to indicate which context it refers to,
- The Section Point IDs are located (by hand or GPS/TST) and annotated with their identifier,
- The section number is cross-referenced to each context sheet,
- The section is filed away in the correct file

For plans check that:

- North is indicated on each plan (if not using Single-Context grid),
- The scale, date, initials and site code are written on each plan,
- The Drawing register is correctly filled out,
- Levels are appropriately placed and reduced levels have been transferred to the plan,
- The limit of each context is indicated using the appropriate line-type and with annotation to indicate which context it refers to,
- The grid points or drawing points are located (by hand or GPS/TST) and annotated with their identifier,
- The plan number is cross-referenced to each context sheet.
- The plan is filed away in the correct file

For single context plans check:

- The south-west co-ordinate is annotated,
- Truncations are annotated on the plan,
- No extraneous detail is on the plan (e.g. other contexts, unrelated truncations or limit of excavation),
- Sufficient levels have been taken and all levels are reduced and transferred to the relevant plan,
- The section is filed away in the correct grid square file
- The plan matrix is completed and correct for each plan,
- The master plan matrix for the grid square is updated,

When the project has been completed:

- Complete the **End of Fieldwork Checklist**,
- Complete the **Site Record Quantification**,
- Transfer the paperwork to the Archive Team, using the CA document **Procedures for the safe storage of site records during and after fieldwork** (located in G:\Manuals\Project Leader guidance) as a guide

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Cotswold Archaeology

The taking and processing of environmental and other samples from archaeological sites

Technical Manual No. 2

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THE TAKING AND PROCESSING OF ENVIRONMENTAL AND OTHER SAMPLES FROM ARCHAEOLOGICAL SITES

COTSWOLD ARCHAEOLOGY
TECHNICAL MANUAL NO. 2

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CONTENTS

Section 1: Background and Principles

1.1 Introduction

This manual is intended to guide Cotswold Archaeology (CA) fieldwork teams in developing and carrying out programmes of sampling on archaeological sites. Although most archaeologists have at least some knowledge and experience of sampling, and the sort of information biological (and other) remains can provide, few have a common approach to sampling and interpretation. There is also some variation in methodologies adopted and advice given between different environmental specialists. This document outlines general principles and details sampling procedures to ensure a common approach, enabling site sampling to be more comprehensive and understandable to those carrying it out, and post-excavation processing and analysis to be more efficient and the results more useful.

It is important to understand that bulk samples (commonly, and inaccurately, called 'soil samples') are not only taken with the aim of recovering biological remains for palaeoenvironmental or palaeoeconomic reconstructions. Bulk samples are also taken from deposits where the aim is the recovery of small artefacts or bone fragments (commonly burials), which require considerably less in the way of processing than the 'environmental' samples.

The sampling principles and procedures put forward in this manual are not definitive, and occasionally situations may arise where for logistical reasons sample sizes may have to be reduced (or increased), or where alternative sampling strategies are adopted following instructions from a client or curator such as English Heritage.

English Heritage produced their updated Environmental Archaeology Guidelines in 2011 and these have been incorporated into this revised version of Technical Manual 2. The strategy and methodology outlined here is intended to be simple, yet able to cover most archaeological situations. The basic premise is that excavation staff ***must*** know the following ***before*** they take any sample:

i) **why they are taking a sample**;
ii) **what types of remains are likely to survive**; and
iii) **what kind of information analysis is likely to yield**.

Samples should never be taken by excavation staff in circumstances where they do not know why they are sampling.

All samples taken should be done so as part of a **coherent sampling strategy** appropriate to the site, which has been devised in consultation with your Project Manager and specialist advisors as appropriate. The sampling strategy may form part of the *Written Scheme of Investigation* for the site, and thus may require approval from the Local Planning Authority before implementation.

It is useful for site staff to understand the processing methods that will be used, and logistical difficulties that are likely to be experienced. This manual will attempt to explain these processes and help formulate site sampling strategies.

1.2 The purpose of taking environmental samples

The purpose of taking environmental samples is to collect biological remains from a deposit that would not be retrieved by hand excavation alone. These may augment larger biological remains that have been hand-collected during excavation. Samples for geoarchaeological study are intended to study the geological properties of the site matrix at a higher resolution than is possible in the field. Environmental samples may be collected as **bulk environmental samples** (usually 40 litres), as **column samples** or as **monolith samples**. Biological remains are important as they can provide information about two general aspects of past situations: economy (including diet, crop husbandry practice, stock maintenance, butchery practices, etc.) and environment (both local and regional).

The types of biological material used to reconstruct economy include plant macro remains, vertebrate bones and marine molluscs, typically sampled from pits or 'floor' deposits. Insect data can provide surrogate economic information as many insect species only live on certain species of plants.

Information on past environments can be obtained from palynological analyses (pollen) for regional reconstructions and plant macro remains, land/freshwater molluscs and insects for local reconstructions. Insect data can also provide information regarding different activities and landuse within a feature, structure or site, again because of the habitat-specific nature of many species, e.g. some beetles will only live in the dung of specific animals.

On sites of Neolithic date or earlier, the presence of mollusc and pollen data may occasionally help in dating deposits, although dates obtained using such biostratigraphic methods are often viewed with scepticism and are no substitute for absolute dates obtained by radiocarbon (^{14}C), luminescence or other **absolute** techniques. Pollen and insect data (and to a certain degree land molluscan data) can also be used from before the Neolithic to aid in reconstruction of climate. Insects are particularly useful for this as many species will only live in very restricted thermal regimes.

On coastal alluvial, estuarine or lacustrine (lake) sites a further suite of environmental analyses can be employed to reconstruct past levels of water salinity and speed of movement by considering biological remains such as Ostracods, Foraminifera, and Diatoms. Analysis of these biological types is very specialised and guidance should be sought prior to sampling.

1.3 The purpose of taking non-environmental bulk samples

The purpose of taking bulk samples other than those for palaeoenvironmental or palaeoeconomic reconstructions is usually to maximise the recovery of artefacts or larger biological remains such as charcoal and bone, or for the purposes of gathering material suitable for scientific dating techniques. These are known as **bulk recovery samples.**

Bulk recovery samples may be taken from a variety of deposits, and may be 100 litres or more in size. Bulk recovery samples are commonly taken from cremations and

inhumation burials, where small bones, fragments of charcoal and grave goods such as beads could otherwise easily be overlooked. This technique is particularly appropriate for *in situ* burial remains such as *busta*, where the controlled recovery of such material from different parts of the feature can enable reconstructions of pyre technologies and cremation rites.

Samples for the purposes of scientific dating (usually radiocarbon dating) are often taken from deposits that are important in understanding the development or dating of a site, but which cannot be dated by conventional (artefactual) means. Material suitable for radiocarbon dating can often be obtained from environmental or other samples, and so may not need to be sampled for specifically.

1.4 General principles when sampling

The purist may argue that a sample should be entirely representative of the deposit from which it was taken, and that no finds, large stones, etc. should be removed from the sample, and that no material should be specifically added to the sample, as this would bias the sample either negatively or positively. Such an approach leaves no room for pragmatism and therefore should not be adopted *in toto*. There is no point in filling up sample buckets with large stones when sampling: the presence of such stones will already have been noted on the context sheet. Likewise, if one is sampling for a specific type of ecofact such as charred grain, it is perverse to ignore an area of visibly high ecofact density (provided it is within the same context) just because it lies beyond your 'sample area'. As environmental remains are not distributed evenly throughout a context, it is advisable to retrieve the material from several different areas within the context you are sampling.

Most importantly, CA sampling procedures do not automatically allow for all samples to be processed, so any artefacts observed during sampling should be retrieved and bagged as finds for that context, and not left in the sample bucket. In general, all samples taken for the recovery of artefacts and larger biological remains will be processed. The size of these samples will vary depending upon the size of the deposit, but it is not unusual to retrieve a '100% sample' in these instances. For bulk environmental samples, a 20-litre sample (two buckets) of each deposit under consideration will be processed *ideally* **on site** to establish presence or absence of biological remains, with a further 20 litres taken if the 20-litre sample proves to be positive. In the absence of on-site sieving facilities, 40 litres (or four buckets) should be taken where possible, but only 20 litres of each sample will usually be processed for the purposes of assessment. Should the result be negative, the remaining 20 litres will usually not be processed, but simply discarded.

Samples are expensive to process and analyse, bulky to store and often deteriorate with time. Given the resource and storage implications, it is vital that all samples taken are thoroughly thought out, and that time and resources are not wasted on samples taken just because the excavator was unsure if a context should be sampled or not. It is vital that site staff **document why they are taking each and every sample**, as this will affect the way in which the sample is processed and treated. This information is recorded on the **sample sheet**, which has space allocated for explaining why the sample has been taken and for noting questions that the biological remains may be able to address. It is therefore essential that a sample sheet is completed for each sample (or suite of samples in the case of column or monolith samples) taken.

Just because many examples of a particular class of biological remain survive in a deposit there should be no compulsion to sample it, as it may be that analysis would not provide useful information. For example, a pit should not be automatically sampled if it contains many mollusc shells, as there are many problems associated with interpreting mollusc data derived from pit fills (i.e. what is their source? Did they live in the pit, or fall into it after dying?). It may be appropriate to sample the pit, however, if it also contains plant macro remains. Likewise, just because a deposit appears 'wet' it does not mean that it will contain large quantities of biological remains. For example silt-rich alluvium rarely contains organic remains, and takes a long time to process because of its fine nature.

Environmental samples should only be taken from deposits that are not obviously contaminated by recent activity. It is pointless analysing contaminated deposits as it is never certain which remains were originally incorporated in the deposits and which are later additions. Similarly, undateable deposits may contain well-preserved biological remains, but any environmental or economic reconstruction would sit in a time vacuum and hence be of little value unless the samples themselves could be used for scientific (radiocarbon) dating, or are taken for molluscan or palynological analysis from deposits dating to the Neolithic (see above).

1.5 Sampling on evaluations

Samples are usually only taken during excavation or a watching brief, to maximise the information that can be retrieved from a resource that is about to be destroyed. **For evaluations, bulk environmental or recovery samples are only to be taken where the presence/absence, quality and significance of suspected artefacts or ecofacts will have a direct impact on the assessment of significance of the entire site.** In most situations, a 20-litre bulk sample is sufficient to establish such presence or absence. Monolith/Kubiena samples may also be taken during evaluations, but only in exceptional circumstances and when directed by a specialist or Project Manager.

Samples should only be taken on evaluations in consultation with the Project Manager, as additional time and/or funding may be required on site or for the production of the report, and this will invariably involve liaison with the client. If samples are to be taken, it is important to specify what questions we are looking answer. For example evidence of seeds, cereals, charcoal, bone or other artefacts may allow an interpretation of socio-economic or industrial activates being undertaken on site. This type of information is most likely to be obtained from deliberate waste deposits in pits, ditches, hearths/furnaces or deposits such as middens. Using structured questions when sampling on evaluations will inform Project Managers of the significance of the site and possible extent of further works.

Occasionally, evaluation may reveal features or deposits that are sufficiently fragile or rare to warrant full excavation immediately. Again, the Project Manager must be consulted as this will inevitably require additional time and funding to excavate, process, analysis and report on. Once agreed, that part of the evaluation should be treated as an excavation and sampled accordingly.

1.6 Types of biological remains and likely modes of survival

The table below details the types of biological remains which may be encountered on archaeological sites, where preservation is likely to occur, and the type of sample that should be used to sample it (see section 2.1):

Environmental Remains	**Preservation State**						**Sample Type**
	1	**2**	**3**	**4**	**5**	**6**	
Charred plant macrofossils	*	*	*	*	*	*	B
Animal Bones	*	*	*	*		*	B / H
Human Remains	*	*	*	*		*	B / H
Egg shell	*		*	*			B
Fish Scales			*	*			B
Insects			*	*			B / C
Ostracods	*#			*			C
Foraminifera	*#			*			M
Marine Molluscs	*		*	*			B / H
Non-marine Molluscs	*		*	*			C
Parasite eggs and cysts			*	*			B / C
Waterlogged plant macrofossils				*			B / C
Mineralised plant macrofossils			*				B
Charcoal	*	*	*	*	*	*	B
Wood				*			B / H
Pollen and Spores			*	*	*		M
Phytoliths		*	*	*	*	*	M
Diatoms				*			M

KEY

in aquatic environments only

Preservation state
1 Carbonate-rich deposits (land and aquatic)
2 Charred deposits
3 Mineralised deposits (e.g. cess, tufa)
4 Waterlogged deposits
5 Acidic but not waterlogged deposits
6 Neutral non-waterlogged deposits

Sample Type
B Bulk sample
C Column Sample
M Monolith sample
H Hand-collected during excavation

Section 2: Methodology

2.1 Sample documentation and transfer to the office

It is essential that all samples taken are properly labelled, documented and transferred to the office appropriately. At the beginning of an excavation, make sure that someone is responsible for ensuring that this is carried out correctly.

All samples must be labelled. Place one tyvec label inside the bucket and, using cable ties, securely fasten one to the outside as well. Labels should be written in permanent black ink.

All samples taken MUST be entered onto the **Sample Register** for that site.

All samples other than monoliths MUST have a **Sample Recording Sheet** completed for it. Column samples require just a single sample recording sheet for the entire column. Such documentation must be carried out for ALL SAMPLES TAKEN, including those taken speculatively and processed on site, and discarded without further study. Monolith samples should be recorded on the **Monolith Recording Sheet** (see Appendix for examples of these forms).

Samples and/or residues returned to the office must only be left in areas designated by the CA Environmental Officer for incoming samples, and MUST be accompanied by a copy of the appropriate Sample Recording Sheet or Monolith Recording Sheet. In order to alert the Environmental Officer to the presence of incoming samples, the Sample/Monolith Recording Sheets should be placed in the **'In tray'** in the located in the finds room. At the end of fieldwork, the Environmental Officer must also be given a copy of the Sample Register.

It is imperative that Sample Recording Sheets are filled in for samples taken from **evaluations** as well as excavations.

2.2 Taking and storing samples

The **sampling strategy** for a site will be decided in consultation with the Project Manager and the CA Environmental Officer (or environmental specialists who will work on the material). Samples to be collected will be bulk environmental, bulk recovery, column and/or monoliths, all in addition to any material collected by hand during excavation.

Bulk recovery samples may, if necessary, be collected and stored in large, double-bagged sample sacks. However, all bulk environmental and column samples MUST be collected and stored in 10-litre buckets. If for logistical reasons this cannot be achieved on site, **it is the project leader's responsibility to ensure that these are transferred to sample buckets as soon as possible after arriving back in the office**.

2.2.1 Bulk environmental samples (samples for flotation or retrieval of larger (macro-) biological remains such as bones, molluscs, mineralised plant remains, etc.)

This is the most common type of environmental sample taken from a site. Bulk environmental sampling consists of the extraction of a quantity of sediment from a single context with the intention of reconstructing past economy or environment.

Ideally, an initial 20-litre sample will be processed on site to establish the presence or absence of biological remains within the deposit. If negative, no further sampling is required. If positive, a further 20 litres of the deposit should be collected, usually for processing during the analysis stage, although it may be expedient to process all of the sample on site if possible. If there are no facilities for processing on site, 40 litres of the deposit should be collected, of which 20 litres will be processed at the office for the purposes of assessment. **It is essential that all bulk environmental samples are stored in 10-litre sample buckets.** If the context is too small to provide 40 litres, as much as possible should be collected. It is very useful to have an idea of the percentage of material in the context taken away in each bulk sample. In the case of smaller features this may be 100%.

Waterlogged contexts are in general richer than dry samples. As a result a 20-litre sample is usually sufficient. If you have waterlogged contexts on site, contact the Environmental Officer as a more detailed sampling strategy may need to be put in place.

Bulk environmental samples should be taken from fills of cut features (pits, ditches, wells, etc.), from floors (where the spatial dimensions of the sample should be accurately recorded) and from bone-rich layers where the sole aim of the sample is to provide an idea of the quantity of smaller bones that are being missed (see below), but only exceptionally from other context types. Generally speaking the sample can be taken quickly with no attempt to control dimensions on the ground surface (providing it does not stray from the context being sampled). There is no point in taking multiple samples from the same deposit except where directed otherwise by a specialist (for example to examine spatial segregation of tasks across a floor).

2.2.2 Bulk samples for artefact/bone recovery (samples intended for the purpose of recovery of bone fragments and/or small artefacts)

Bulk recovery samples will vary hugely in size (up to 100 litres +), often depending on the extent of the deposit, and are usually coarse sieved to between 10mm to 2mm depending on material to be recovered. The primary motive for bulk recovery samples is the retrieval of small finds, but they may also produce small bones, bone fragments, larger (mainly marine) molluscs, charcoal, large plant remains (charred, waterlogged and mineralised) and waterlogged wood. All bulk recovery samples will be processed, and this should be undertaken on site whenever possible. If no processing facilities are available on site, bulk recovery samples may be brought back to the office in double-bagged plastic sample sacks, although buckets are preferable.

The initial stages of processing will be identical to environmental samples, but residues are usually only sieved down to 2mm and there is no requirement for flotation (see section 2.3.1). For cremation burials, the entire contents of the cremation pit are usually sampled.

In **exceptional** circumstances, where the survival of other biological remains may be good, it may be appropriate to take larger samples for bulk environmental processing, including targeting the stomach area where appropriate. Obviously these cases need to be clearly identified on the sample sheet.

2.2.3 Column samples

Column samples are a derivation of bulk samples and consist of a series of carefully controlled samples through a deposit or series of deposits. Typically column samples are taken through deposits in order to reconstruct temporal variation of past environments and in exceptional circumstances, changes in economy (see 1.5, above). Molluscs should always be sampled for in columns. Column samples consist of a series of accurately measured blocks of sediment, each measuring 250mm x 250mm x 60mm. Each sample must be context-specific, so the last figure (sample thickness) should be varied to ensure that contextual boundaries are not crossed. The net result of taking a column of samples is therefore to remove an entire block of sediment measuring 250mm x 250mm as a series of discrete samples. In some cases, widths of samples may also be varied, but should this variation be used it is essential that sample dimensions are recorded on the sample sheet. Typical contexts to be sampled by use of column include ditch fills (for molluscan analyses etc), palaeosols (i.e. soils buried by later sedimentation or deposition, for example below a bank or building), or other layer type contexts determined as being of special interest. Each column requires just one Sample Recording Sheet, but **the location of each sample MUST be recorded on section**, even if the sampling is being carried out by a subcontractor.

2.2.4 Monolith samples

Monolith samples are vertical columns of sediment or soil collected from exposed sections in prefabricated metal tins (of 0.5m length) or squared plastic guttering (cut to an appropriate length). They are used to sample areas of particularly interesting stratigraphy for the analysis of sedimentological properties, pollen, diatoms, etc. If more than one monolith sample is to be taken from a single section there should be an overlap of at least 100mm between individual samples. *Only layers of particularly interesting stratigraphy, or deposits for pollen analysis should be sampled in monolith tins*.

Metal tins have the advantage of greater rigidity and may be hammered into the section, whereas guttering is more labour intensive as this requires the cutting of appropriately sized slots to either side of the column before capture in the guttering section. The surrounding sediment/soil is then excavated to allow removal of the column of soil within. Both tins and guttering column samples should be securely polythene wrapped to retain moisture and exclude light and air. **Each monolith tin will require its own sample recording sheet**, and **the location of each tin MUST be recorded on section**, even if the sampling is being carried out by a subcontractor. Samples should be clearly labelled with top and bottom marked.

Analysis of monolith samples for pollen, spores, diatoms, foraminifera, etc. is undertaken in the laboratory by a specialist subcontractor.

2.2.5 Kubiena samples

This form of sample is for soil micromorphological analysis. Decisions on the use and the collection of this type of sample is undertaken by specialist subcontractor. Micromorphology can provide information on how a particular deposit formed, what its micro inclusions are, and if the deposit has been subjected to mixing processes. Samples are normally taken in Kubiena tins which are of variable size, and are commonly taken across stratigraphic boundaries.

Kubiena samples should be recorded using the **Monolith Recording Sheet. Each Kubiena sample will require its own sheet** and **the location of each sample MUST be recorded on section**, even if the sampling is being carried out by a subcontractor.

2.3 Sample processing methods

This section will only deal with the processing of bulk samples and column samples. Monolith and Kubiena samples will be analysed by specialists. Sample processing methods should be decided by the specialists who will work on the material and should be carried out under the supervision of an environmental archaeologist.

2.3.1 Wet sieving

This technique is used to process column samples and for waterlogged bulk environmental samples. In the case of the former a mesh of 500μm is used for the recovery of molluscs and 250μm for other macrofossils (e.g. waterlogged plant remains). For bulk environmental samples, this consists of washing a sample through a series of mesh sizes, usually 10mm, 5mm, 2mm, 1mm, 500µm and 250µm, under a constant flow of water. Bulk recovery samples are washed through a mesh size of 2mm only. Samples rich in silt/clay can be soaked prior to sieving in a solution of calgon and water to break down sediment bonding providing that the sample is not waterlogged. Wet-sieved residues should always be dried unless sieving for insect remains or waterlogged plant remains when the complete residue should be placed in a jar and covered with water.

2.3.2 Flotation

This should be carried out on site wherever possible (water, adequate drainage, silt dispersal and drying space should be available) using the mobile flotation tank. Flotation is used for bulk environmental samples for the recovery of plant macro remains (waterlogged plant remains are better recovered by wet sieving as outlined above), which float and therefore pass over the weir to be collected in the 250µm sieve.

The table below details which technique should be used for the type of biological or artefact type to be recovered (from observation of the deposit). *If in doubt use the flotation method and sieve the sediment retained in the bucket to 250µm*.

Type	Procedure	Residue Sieve Size	Flot sieve sizes (Flotation only)
Most human burials/pyre deposits (unless early prehistoric or exceptionally well preserved)	Wet sieving	2mm	N/A
Fish scale, eggshell, marine mollusc, bone only	Wet sieving	1mm	N/A
Insects only	Wet sieving	250µm	N/A
Wood charcoal only	Wet sieving	2mm	N/A
Human remains	Wet sieving	5mm	N/A
Waterlogged plant macros	Wet sieving	10mm-250µm	N/A
Artefacts (depending on type)	Wet sieving	10mm – 2mm	N/A
Plant macro only	Flotation	1mm	1mm and 250µm
Plant macros and bone	Flotation	1mm	1mm and 250µm
Plant macros and non-marine mollusc	Flotation	500 µm	1mm and 250µm
Plant macros and insects	Flotation	250µm	1mm and 250µm
Plant macros and charcoal	Flotation	1mm	1mm and 250µm
Metallurgical deposits	Flotation	500 µm	1mm and 250µm
All evaluation samples	Flotation	1mm	1mm and 250µm
Uncertain remains	Flotation	500 µm	1mm and 250µm

This table can be used with mixtures of biological remains, other than those indicated above, by simply using the mesh size needed to retain the finest remain type. For example a deposit containing plant macro remains, charcoal, and bone should be put through the flotation procedure, with residue sieved to 500µm.

Section 3: Research Priorities

3.1 Types of deposit to be sampled for environmental analysis

GENERAL NOTES:
Fills that result from the abandonment of a feature (silting in or deliberate backfill of ditches, pits, postholes, slot trenches etc) should not normally be sampled.

Charred inclusions are likely to be residual from nearby older activity whose source may not be verifiable. However, if you think a radiocarbon date is required do take a sample.

The older the feature the more samples are likely to yield useful information. The local and regional environment and range of plants used are more important in the earlier prehistoric than later periods.

Type of Feature	Material to be sampled	Questions to answer	Type of sample	Additional information
PITS				
Generic Pits	Charred cereals & cultivated plants Charred seeds (herbaceous taxa) Charcoal Bone Shell Molluscs	Types of crops, diet Cereal processing on site /clean grain imported? Local vegetation Fuel Diet (eg. domestic, wild animals, fish) Local environment (open or wooded)	Bulk sample - 40L or 100% of context (whichever is smaller)	Sample well-sealed deposits, particularly dark soils and soils with visible finds. Avoid deliberate backfills and natural silting.
Waterlogged pits/wells	Cultivated plants (coriander, flax) Wood Insects/parasites Herbaceous taxa Pollen	Agriculture, diet Industrial processes (flax retting, dying, tanning) Selected wood, construction timber Local vegetation Wider environment	Bulk sample – 20L Incremental bulk samples through profile Monolith	Usually the best source of environmental sample. Will give a different range of evidence to dry samples, so some dry samples should also be taken
Food Storage Pits	Charred cereals & seeds	Type of food being stored	Bulk sample – 40L or 100% (whichever is smaller)	If the pit is used for storing crops and was fired to sterilise it, carbonised grains may be present in-situ
Cess/latrine pits	Mineralised plants Waterlogged plant remains Charred seeds and grain Wood	Diet Function of feature	Bulk sample – 40L or 100% If waterlogged 20L is sufficient	As for Pits (above) Mineralised seeds may give good indication of the function of the pit
BURNT FEATURES				
Hearths	Charred cereals (inc. chaff) Burnt bone Charred seeds Charcoal	Cereal processing Food waste Fuel Local vegetation	Bulk sample – 40L or 100% (whichever is smaller)	
Corn dryers	Charred cereals & chaff	Cereal processing Malting wheat/barley	Bulk sample – 40L or	Different areas of burning should be sampled

Type of Feature	Material to be sampled	Questions to answer	Type of sample	Additional information
	Charcoal	Fuel	100% of context	individually to identify the spatial distribution of processes
Furnaces	Charcoal Metal working residues	Fuel Metal working processes	Bulk sample – 40L or 100% (whichever is smaller)	Location of sample should be recorded in 3-D
Burnt in-situ postholes	Charcoal	Type of timber the building was constructed from	Bulk sample - 40L or 100% (whichever is smaller)	Sample only postholes/stakeholes that are visibly burnt in-situ . Avoid postholes/stakeholes that have been naturally or deliberately filled.
Burnt stone mounds, troughs and spreads	Charcoal Bone Artefacts Carbonised plant remains	Fuel Function of feature	Bulk sample – 40L or 100% of context	Remove large stones from samples; results are disappointing where stones have been sampled rather than the fill in between. With deep deposits, divide context into spits and sample individually
DITCHES				
Big Ditches	Charred cereal remains Charred seeds Charcoal Bone Molluscs Pollen	Waste dumps (domestic/industrial activities) Local and regional environment	Bulk sample – 40L or 100% (whichever is smaller) Monolith	As for pits (above) Deliberate deposits of material may be present Avoid bulk sampling basal fills unless material for a radiocarbon date is required. Basal layers rarely provide any useful palaeoenvironmental information. Any naturally silted in or deliberately backfilled ditch fills should not be sampled For very deep ditches with a long sequence of fills a monolith may be required. Contact the Environmental Officer.
Drip gullies/ slot trenches	Charred cereal remains Charred seeds Charcoal Bone	Domestic waste Activities on site Fuel	Bulk sample – 40L or 100% (whichever is smaller)	Shallow features normally provide less useful material for samples and they may be contaminated. Where possible, sample sealed deposits Ring-gully terminals normally provide the most material Avoid sterile deposits and features less than 0.15 m deep.

Type of Feature	Material to be sampled	Questions to answer	Type of sample	Additional information
LAYERS				
Middens	Charred cereals & seeds Charcoal Bone Molluscs Shell	Types of crops, domestic animals & other food debris	Bulk sample - 40L or 100% (whichever is smaller)	A large, deep midden may require sampling to examine chronological and spatial variations
Floor surfaces	Charred cereals & seeds Chemical analyses	Function of structure	Bulk sample - 40L or 100%	On well-preserved sites a spatial sampling strategy may be required for the floor itself and overlying layers For phosphate analysis contact the Environmental Officer
Buried soils	Sediment Molluscs	Soil type/formation Land use Local environment	Monolith core Bulk sample – 40L or 100%	Contact the Environmental Officer before sampling buried soil layers.
BURIALS				
Inhumations	Human/animal bone	Chemical analyses Kidney stones Small finds Charcoal burials Deposits of seeds/charcoal visible next to the skeleton	Bulk samples – 100% from base of grave	Samples should only be taken to answer specific questions. Do not sample head/hands/feet – please retrieve this bone by hand. Do not sample grave backfill (upper fill) unless there is evidence of bone within it. For unusual burials, take advice from the Environmental Officer.
Cremations	Cremated bone Charcoal Carbonised seeds and grain Finds	Human/Animal bone retrieval Fuel	Bulk sample – 100%	Cremations should be half sectioned in 5cm spits and 100% recovered. Treat animal cremations the same as human cremations
NATURAL DEPOSITS				
Peat	Waterlogged seeds Pollen Insects/Beetles	Local and regional environment	Russian core samples/ Monolith samples Bulk sample – 20L	Take samples under advice from the Environmental Officer. A shallow peat deposit may require a bulk sample, but deep deposits may need a different strategy
Palaeochannels, ponds, waterholes	Waterlogged plant remains Molluscs	Site formation processes Local and regional environment	Monolith core Column samples	Please contact the Environmental Officer before sampling palaeochannels, ponds or waterholes

3.2 Archaeological periods and palaeoenvironmental importance

Generally speaking the older the site, the more samples are needed, but a flexible approach is required. There will always be a greater need for sampling on wet sites than dry as the potential of biological remains surviving is so much higher.

Neolithic and older: intensive sampling strategies should be established prior to excavation, and every possible feature likely to contain biological remains sampled. It will also be useful to consult with specialists to consider possibilities for both regional and local environmental reconstruction. Bulk recovery samples should also be considered as part of the on-site sieving programmes, e.g. for flint debitage.

Bronze and Iron Age: can be sampled less intensively and with less attention concentrated on environmental reconstruction at levels above the local. Analysis of biological remains for environmental reconstruction should be targeted at answering site specific questions, e.g. what was the nature of water in the stream running through the site? A high percentage of features *where biological remains are likely to survive* should be sampled, particularly if fills of negative features.

Roman: as for Iron/Bronze Age, but only target the features with the highest potential, and which are more closely dated than just 'Roman'.

Saxon: should be intensively sampled for economic remains to the same degree as Neolithic sites. However, less emphasis can be placed on environment.

Medieval: as for Roman, but no need to reconstruct environments except at the single feature level, i.e. from bulk samples taken primarily for economic analysis.

Post-medieval: Only sample in exceptional cases and then only if extremely rich deposits are encountered.

3.3 Types of deposit to be sampled for bulk recovery

The strategy for taking of bulk recovery samples depends as much on the date of the site as the type and frequency of the artefact/biological remain that you wish to maximise the recovery of, although it is usual to collect bulk recovery samples from burials and cremations of all periods.

Human remains: Samples should only be taken to answer specific questions. For example chemical analyses, retrieval of kidney stones, deposits of plant/charcoal material next to the skeleton and charcoal burials. Further samples may be taken if small grave goods such as beads are apparent. It is also usual to collect the entire contents of pits which contain cremated human remains, including *busta*, again to maximise the recovery of small bones and also evidence of pyre technologies and possible ritual inferences.

Other remains: generally, the older the site is, the more samples are likely to be required. For sites dating to the Bronze Age or earlier, an intensive collection strategy may be appropriate to maximise the recovery of all artefacts to help date the site and

identify its function or functions. On all sites, bulk samples may be taken to maximise the recovery of a specific artefact/ecofact type, such as pottery or animal bone, if such sampling is likely yield quantities where statistical analysis becomes meaningful and instructive. Bulk recovery samples may also be taken to establish the presence (or absence) of microscopic artefacts, for example hammerscale, which otherwise could easily go undetected (such cases require finer sieving than the standard 1mm mesh). Such information, along with other classes of artefact and ecofact, may be used to identify areas of differential (and possibly changing) landuse within a particular site or area.

As with all types of sample, bulk recovery samples should be collected as part of an agreed sampling strategy, and should ***never be taken by excavation staff in circumstances where they do not know why they are sampling***.

Section 4: Radiocarbon and other scientific dating

Radiocarbon and other scientific dating techniques are used to provide absolute dating independent of (and sometimes to test) more traditional dating systems such as pottery or metalwork typologies. For the prehistoric period, scientific dating techniques (usually radiocarbon dating) often provide the most reliable and high resolution means of chronological control. For all periods prior to the Bronze Age it is very important that a radiocarbon chronology is obtained as artefact typologies extend many hundreds and even thousands of years.

The downside to scientific dating techniques is that that many of them (including radiocarbon dating) often rely on a single item such as a piece of charcoal, a charred grain or a single potsherd, to date a deposit or feature. Items for radiocarbon dating must therefore be selected very carefully to avoid using any intrusive or residual material that would render the results invalid. The other main limiting factor is cost.

Samples for scientific dating are chosen in consultation with the Project Manager and the Finds Officer, who will also collate the scientific dating report. All other scientific dating techniques require the presence of a specialist on site, and so cannot be considered once excavation has been completed.

4.1 Radiocarbon Dating

There are two stages to determining a radiocarbon date from a sample. Firstly, the amount of ^{14}C present in the sample is measured, which provides a date expressed as years BP (before present, which is taken as 1950), usually ± a number of years. This is undertaken by the radiocarbon dating laboratory. Secondly, the date is calibrated to take account of past fluctuations of atmospheric ^{14}C. This is currently (July 2003) undertaken using the Oxcal 3.5 programme (Bronk Ramsey 2000), which utilises the internationally recognised Intcal 98 Calibration Curve (Stuiver *et al.* 1998), which is the accepted standard advised by English Heritage. The result of calibration is a statistical probability that the material originated within a specified date range, usually expressed at 'two sigma', which provides a 95.4% confidence rating. This provides a date range (or ranges) expressed as cal BC (or cal AD), e.g. 1880-1520 cal BC.

Radiocarbon dating is relatively expensive and any dating proposals must be properly considered. It must be remembered that radiocarbon dating is not consistently precise through time: plateaux and other fluctuations in the calibration curve mean that for certain periods (e.g. the Early to Middle Iron Age, the Late Roman/post-Roman periods) determinations will always be very broad. In such circumstances there may be very little point in spending money on determinations which will only give equivalent levels of precision to traditional dating methods.

4.1.1 Types of radiocarbon dating

Radiocarbon dates can be obtained using either standard dating or AMS dating. They can be obtained from material containing carbon, usually wood, charcoal or other charred material, and bone. Samples are selected in the same way for both techniques, although the quantity of material require differs greatly.

Standard dating is cheaper but requires larger samples (see table below), which may be difficult to obtain or select. It also has the advantage of 'express rate' determinations being available, meaning that results can be obtained in ten working days rather than the average six to eight weeks.

Accelerator Mass Spectroscopy (AMS) dating is more expensive but requires far smaller samples (see below): 10mg equates to one carbonised cereal grain. However, it usually requires consultation with at least one specialist (see below), and no express service is available. The average turnaround for AMS results is about 8-12 weeks.

Material	**Radiometric dating (minimum weight)**	**AMS dating (minimum weight)**
Wood	**50g**	20-50mg
Charcoal	**20g**	10-50mg
Seeds	**20g**	10-20mg
Bone	**N/A**	2-10g
Burnt bone	**N/A**	4-40g
Shell	**50-100g**	20-50mg
Peat	**50-100g**	1-2g

4.1.2 Sample selection

The recommended procedure is for paired samples per context to be dated. Exceptions are homogeneous/duplicated type samples such as same context sediment samples or same vessel pottery residues, where results will more than likely be duplicated. Pottery residues are excellent for AMS dating, but will date the use of the pot and not, if residual or intrusive, necessarily the context from which it was retrieved.

Deposits selected for radiocarbon dating must be demonstrably uncontaminated, such as the primary fill of a feature recorded as having secondary fills and that has not been subjected to subsequent truncation. Features sampled should also be of one phase only, and not recut.

If charcoal is to be used, the species must be determined by a recognised specialist first to avoid the heartwood from long-lived species such as oak, which cannot provide a reliable date. This is usually done at assessment stage.

Similarly, if charred plant remains are to be used, the species should be determined beforehand by a recognised specialist. To reduce risk of modern contamination, it is preferable to use ancient/relict species, such as emmer or spelt wheat. Hazelnut shell is also considered as particularly suitable, as of inherently low risk of recent intrusion and low 'mobility'.

Bone is probably the least desirable material for sampling as there is a high risk of residuality or intrusion, and often it has insufficient collagen remaining for dating to be successful. However, articulated bone is very useful for dating, if well preserved.

4.2 Thermoluminescence and Optical Luminescence Dating

Both of these techniques (abbreviated to TL and OSL) are undertaken by specialists who need to take readings on site to provide viable data, therefore their use has to be considered either prior to or early on in the course of an excavation.

Both techniques measure the luminescence (light) emitted on either heating (TL) or illuminating (OSL) crystalline materials, through ionising radiation from natural radioactivity. When fired clay or flint is heated, or when sediments are exposed to sunlight prior to deposition, the luminescence 'clock' is set to zero. TL/OSL then measures the amount of radiation absorbed against a calculation of the dose received per year.

The advantage over radiocarbon dating is that these techniques can be applied directly to artefacts rather than organic material in assumed association. Both can be used successfully to date deposits where no organic material is present, or where radiocarbon dates are rendered ineffectual by anomalies in the calibration curve. However, both TL and OSL dating are significantly more expensive than radiocarbon dating.

OSL dating has also been used to successfully date sediments. Recent advances mean that OSL dating can be more accurate than radiocarbon dating in certain circumstances, largely depending on the stringency of the sampling procedure.

FURTHER READING

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Stuiver, M., Reiner, P.J., Bard, E., Beck, J.W., Burr, G.S., Hughen, K.A., Kromer, B., McCormac, G., van der Plich, J. and Spark, M. 1998 'INTCAL 98 Radiocarbon Age Calibration, 24000-0 cal BP', *Radiocarbon* **40**(3), 1041–83.

Wilkinson, K. and Stevens, C. 2003 *Environmental archaeology: : approaches, techniques and applications*. Stroud, Tempus.

Cotswold Archaeology

Treatment of finds immediately after excavation

Technical Manual No. 3

1995

ADDENDUM FOR CA MANUALS:

Guidance for the treatment of finds and the preparation of archives (1998)

Treatment of finds immediately after excavation (1995)

Both of these manuals are currently under revision. Until new revisions are issued, all staff should be aware that the following guidance notes have since been published.

Finds

IFA 2001 *Standards and Guidance for the collection, documentation, conservation and research of archaeological materials*
(http://www.archaeologists.net/modules/icontent/inPages/docs/codes/finds_standard.pdf)

Brunning, R. (no date) *Guidelines on the recording, sampling, conservation and curation of Waterlogged Wood* English Heritage

Goodburn-Brown, D. 2001 *Conservation Guidelines No. 1 Excavated artefacts and conservation* UKIC Archaeology Section

Conservation Guidelines No. 2: *Packaging and storage of freshly excavated artefacts from archaeological sites* UKIC Archaeology Section

Archives

Ferguson, L.M. and Murray, D.M. 1997 *Archaeological documentary archives: preparation, curation and storage* IFA Paper No. 1

Handley, M. 1999 *Microfilming archaeological archives* IFA Paper No. 2

Human remains

Cox, M. 2001 *Crypt archaeology: an approach* IFA Paper No. 3
(http://www.archaeologists.net/modules/icontent/inPages/docs/pubs/cryptarchaeology.pdf)

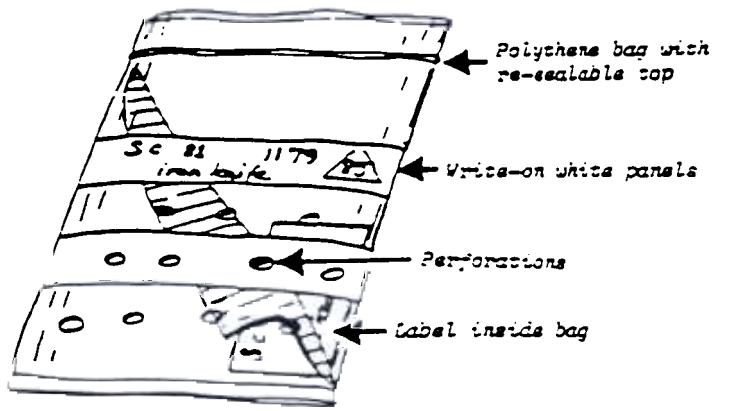
Brickley, M. and McKinley, J.I. 2004 *Guidelines to the Standards for Recording Human Remains* IFA Paper No 7
(http://www.archaeologists.net/modules/icontent/inPages/docs/pubs/humanremains.pdf)

Mays, S. 2005 *Guidance for best practice for treatment of human remains excavated from Christian burial grounds in England* English Heritage & Church of England.
(http://www.english-heritage.org.uk/upload/pdf/16602_HumanRemains1.pdf)

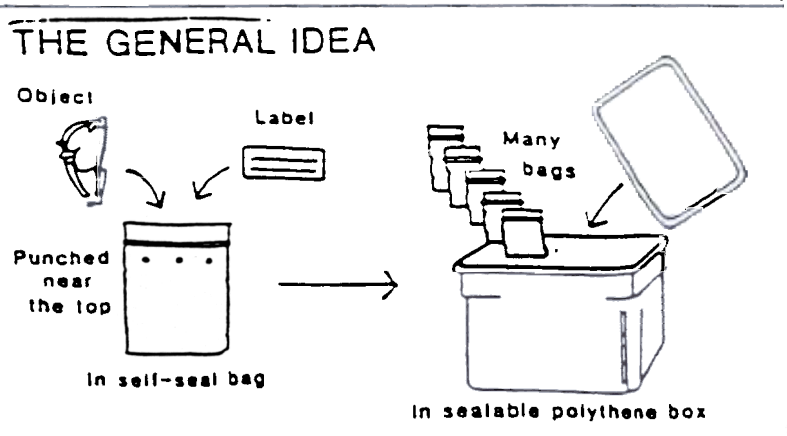
Introduction and Basic Principles.

Upon excavation, archaeological finds undergo a dramatic change in their environment. They are extracted out of surroundings in which they have taken many years to become stabilised. Suddenly the oxygen (and pollution) level increases to 100%. Deterioration starts immediately. This is then followed by physical handling which worsens the problem. Therefore, the primary purpose of the treatment of finds immediately after excavation should be to reduce this sudden change in the environmental conditions and to ensure that vulnerable objects are handled in a suitable manner. Please remember: ALL FINDS CAN BE DAMAGED IF NOT TREATED PROPERLY. However, with minimal handling and good storage deterioration can be reduced. Bulk finds such as pottery, stone, tile, brick and bone are generally fairly robust and will only require bagging, labelling and storage in strong boxes for transport to the Trust. It is important to keep bulk finds seperate from Small Finds which are more fragile and easily damaged. Please note the following:

1) Do not attempt to clean objects on site e.g. rubbing coins between fingers. This disturbs the patina, revealing less stable metal below, promoting active corrosion and often leading to loss of important detail.

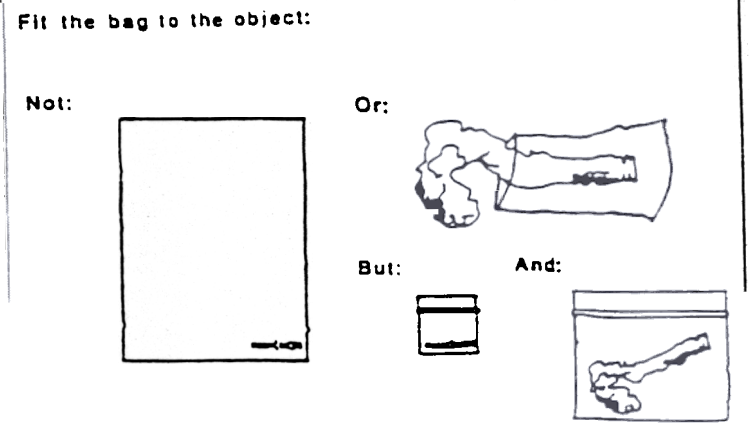


2) As far as is possible, bag materials separately e.g nails together, pot sherds together. This will enable them to be stored properly. Remember that metals need to be kept in a dry environment.

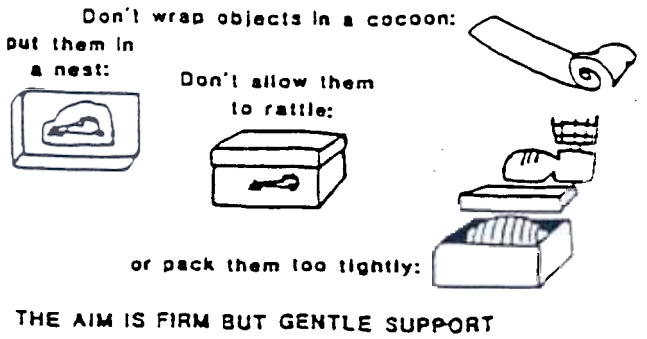


3) Reasonably strong finds can be placed in resealable bags that have been perforated at the top. (Four neat holes will do.) Use a bag that relates to the size of the object.

4) MARK bags clearly (site and context) and immediately. DO NOT leave it until "later", as it may not get done. As you are aware, without a context finds are virtually useless.

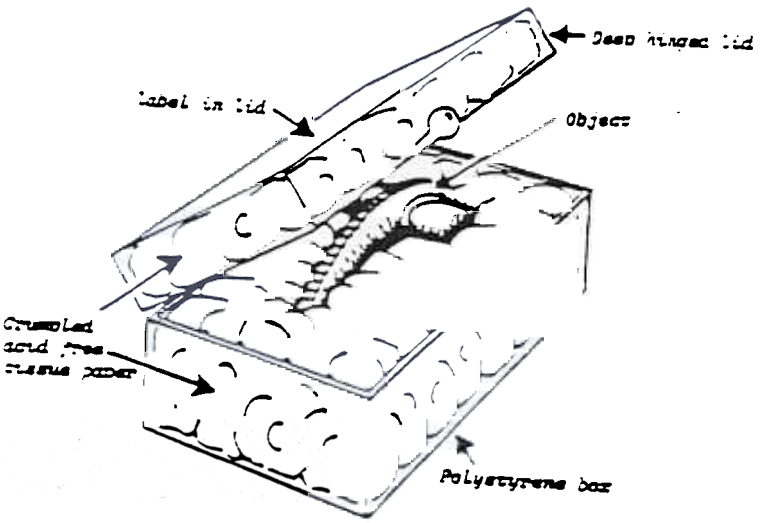


5) Colour fastness and lightfastedness are important when choosing a pen for marking. Use a black Bic or a waterproof permanent marker.

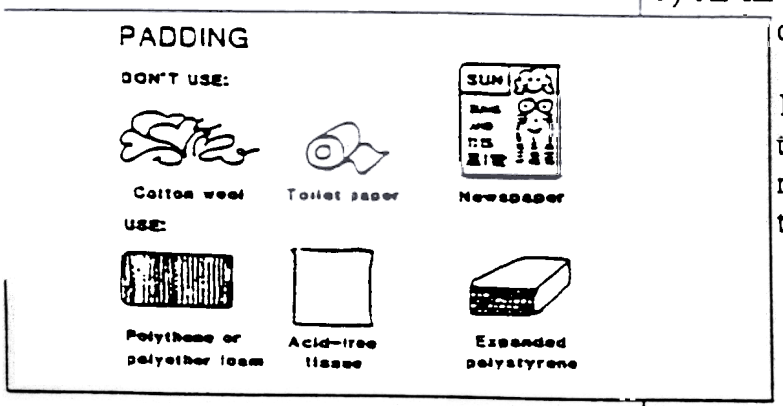


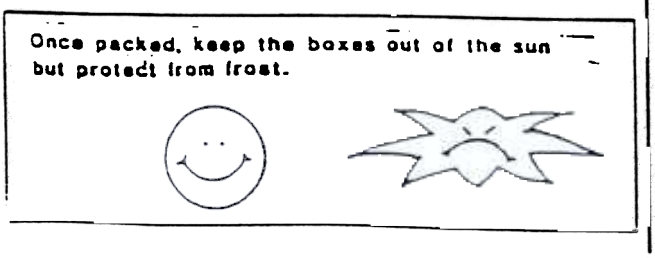
6) Delicate finds should be placed in "crystal" (rigid plastic) boxes, supported by acid-free tissue, or if wet by foam. The boxes can then be placed in a resealable plastic bag or Stewart boxes. See diagram.

7) *Cushion and support* fragile finds with acid-free tissue rather than wrapping them - they can fall out off the tissue when unwrapped.



8) Use a common-sense approach and do not pack heavy finds on top of fragile ones like putting a bag of tile on one of shell.





9) As far as is possible, keep bagged finds out of the sun or they will "sweat".

10) At the start of each excavation take out the red box to site, and make sure that it is kept filled with the following:

- bubblewrap,
- acid-free tissue
- finds bags,
- black marker pens,
- distilled water,
- crepe bandages for supporting fragile pots,
- two polythene boxes, one with silica gel for a dry environment for metals, one for wet materials.

11) Place bags of finds in the plastic boxes provided and take them back to the office at the end of each working day - red boxes for bulk finds and yellow for the Small Finds. If working away, store finds away from sunlight and protect from physical danger- bring them back at the end of each week.

12) FINALLY, FILL IN THE BULK FINDS FORM (OR SMALL FINDS FORM AS APPROPRIATE) TO ACCOMPANY THE FINDS BACK TO THE OFFICE, one form per day. Otherwise finds can go astray. Put the form in the box with the finds.

13) Place bulk finds on the table under the stairs. Small Finds should also be left on the Finds Officer's desk with a note stating the site, small finds number and context.

14) If there are no finds from the site please infrom the Finds Officer.

VULNERABLE MATERIALS.

On British sites most objects excavated are found damp unless from a waterlogged context.

MATERIALS WHICH MUST BE ALLOWED TO DRY OUT AFTER EXCAVATION.

METALS - IRON, COPPER ALLOY, SILVER, GOLD, LEAD, TIN, PEWTER ETC.

Iron (Fe) is the most vulnerable metal. Iron must be dried out after excavation unless there are preserved organic remains attached.

1) Ideally, metals should be allowed to air-dry for 24 hours, but only do this if there is no danger of the finds being moved & lost. **Always** keep a label or labelled bag with the object.

2) Place finds into a **perforated** resealable bag to enable them to "breathe" after air drying or straight away if there are no facilities for this.

3) Pack bagged metal into a Stewart box with silica gel to keep the relative humidity low.

ALWAYS MAKE SURE THE LID OF THE BOX IS TIGHTLY SHUT.

Open the box as little as possible to maintain an even environment. Never leave the lid off else the silica gel's properties will be ruined.

Composite Objects.

These can be either an object with an organic part, such as a knife with a bone or wood handle, or metal objects with preserved organic remains attached e.g. textiles, leather or wood fragments. Keep these damp, as found, stored in a sealed plastic box to slow down the corrosion. Take the objects to a conservator immediately.

Extra Information For Finds Staff.

Copper Alloy.

Store dry. Enamelled copper alloy or finds with organic remains adhered to them should be packed damp and taken to a conservator.

Silver and Gold.

Can be extremely fragile, particularly if gilded. Store in padded boxes, and do not excert pressure on the objects - the surface can look complete yet the core can be totally corroded.

Lead, pewter and tin.

These finds can be large but brittle. If so, they should be individually boxed and supported by acid-free tissue or foam. Never use ordinary paper.

Materials to be kept damp if found damp.

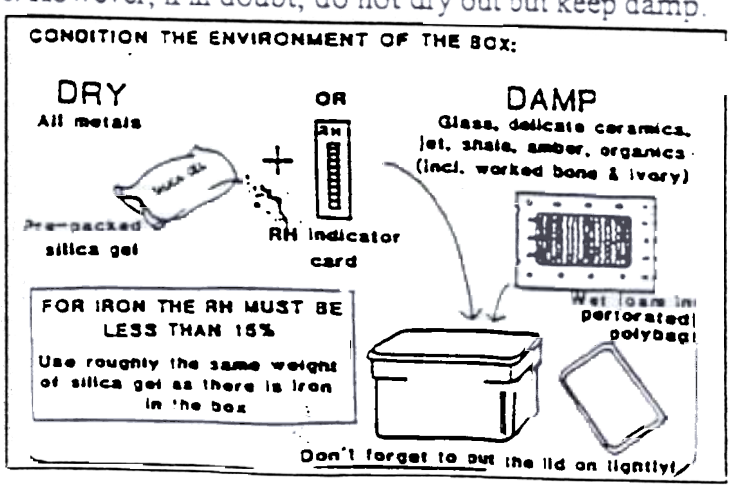
Glass (as far as it is worthwhile i.e. not modern)
Painted wall plaster
Painted stone
Worked Bone
Ivory
Amber
Jet
Shale

1) Pack either in unperforated resealable plastic bags or Stewart boxes with damp foam as object size and/or condition dictates. Fragile finds such as plaster must be supported by being boxed.

Damp low-fired pottery should also be placed in an unperforated bag and not be allowed to dry out.

Roman glass is usually stable and, if clean, can be kept dry - except for thin glass vessels, especially those with an iridescent surface. However, if in doubt, do not dry out but keep damp.

2) Important glass should be packed between layers of damp foam in a Stewart box, and should be referred to a conservator.



Materials to be kept wet if found waterlogged.

Waterlogged wood
Waterlogged leather
Wet worked bone/ivory/horn
Wet jet
Wet shale
Wet glass
Wet amber
Textiles.

1) Store small items in a resealable bag or Stewart box full of distilled water to exclude oxygen. (Do not perforate)

2) Store larger pieces of glass between layers of damp foam in a sealed plastic box and refer to a conservator.

3) Never rewet dried out waterlogged organics.

4) If necessary, textiles should be lifted with an earth matrix and stored in a Stewart box.

5) Keep wet and damp items out of the sun and, if possible, cool. This will prevent mould growth.

These are basic guidelines only, intended for use on the average site excavated by the Cotswold Archaeological Trust. Periodically, more complicated finds may be discovered such as hoards, assemblages and complete vessels, in which case consult the Finds Officer and/or a conservator. Always keep the Finds Officer informed of the type of finds encountered and of any problems relating to this area of post-excavation work.

Thanks are due to Mrs. Marilee Parrot, conservator, Corinium Museum, for her advice.

Procedure For Finds Staff In The Office.

1) Collect finds from the area under the stairs and bring into the Finds Room. Tick the bags off against the Bulk Finds list that should accompany them.

2) The Project Officer will require a list of finds straight away. Empty the bags into seedtrays, one tray per bag. Take a "catalogue" form, write down the site name and context numbers from the bags. Itemise the finds per context: e.g. (4561) 6 pot 5 stone 3 tile 2 Fe. This provides a basic list which will be supplemented by finds specialists, and the list should be included in the archive when placed with the respective museum.

3) Wash the Roman to modern pottery, tile, stone, bone and if stable, the glass. Use cold or tepid water, a knitting needle to prise mud out of crannies, and a toothbrush. Do not saturate the object by placing it in the bowl - bone especially takes a long time to dry out. Do not wash: metalwork, charcoal, oyster shells, slag, mortar and plaster, and prehistoric or fragile pottery. Leave these to air dry in the tray for c.24 hours. Once dry, the can be brushed clean. If in doubt, consult the Finds Officer immediately.

4) Always make sure that drying finds are labelled. It is too easy for finds to become "unstratified" at this stage. If a bag of finds is spread over a couple of trays, put a label in each one.

5) Place seedtrays on the Dexion racking to dry. Try to avoid placing finds under a heater- this can be harmful, especially for bone.

6) At this stage, if different types of material are still bagged together, e.g. tile and pottery, separate them, marking each new bag with the site and context in black permanent marker or black Bic. Any other colour fades. Pierce the bags at the top to let the finds "breathe". Place metalwork in a Stewart box with silica gel. (See First Aid for Finds for ratio of gel per box.)

7) Marking. The key to this is: legible but small, neat and unobtrusive. Do not mark: metalwork, charcoal, oyster shell, slag, mortar (unless it has a flat surface) or painted plaster. Avoid marking Small Finds as it may obscure detail and show in photographs.

Pottery: mark sherds on what would be the inside if the vessel were complete. This means that if it is reconstructed the marking will not detract form its appearance. Mark neatly (site code and context) on an edge of the sherd, i.e. not right across the middle and definitely not on the section. If marking will obscure any detail, or if there are any other problems, consult the Finds Officer.

Bone: mark neatly on a flat edge but not on the end of what was an articulated joint - you could obscure important information.

All other materials: mark neatly and unobtrusively. If necessary, apply a layer of varnish using Paraloid B72 in an acetone solution before marking. Do not use nail varnish - it is chemically unstable.

8) If the site has produced large quantities of material, box them separate e.g. bone, tile,

pottery etc. Material from smaller sites can be boxed together provided that all metalwork has been placed in a Stewart box with silica gel. If necessary, cushion material within the box with bubblewrap.

9) Fix a label on the front of the box having written on it the context numbers of the bags contained within.

APPENDIX - Record Sheets

1. Overleaf. Site Record - Bulk Finds - to be filled in to accompany finds back from the site to the office every day, and to be checked by finds staff.

2. Overleaf. Small finds sheet - to be filled in on site.

REGISTERED ARTEFACT INDEX

Site Code: ________ Project No: ________ Acc. No: ________

△ No.	Trench	Context	Easting	Northing	Red. level	Date	Description and comments

COTSWOLD ARCHAEOLOGY

Sheet ___ of ___

BULK FINDS RECORD

Date	Site Name	Site Code	Project No.
		Accession No.	

Context No.	No. of Bags

COTSWOLD ARCHAEOLOGY

4. Overleaf. Small Finds Record Sheet - to be filled in by Finds Officer or Finds staff in the office.

REGISTERED ARTEFACT RECORD SHEET

Site Code:	**Project No:**	
Registered Artefact No.	Context No.	Context type (eg. Pit, ditch)
Type of object	Period/phase	Material
X-ray	Co-ordinates	
Plan/drawing No.	Photo No.	Illustration
Conservation		
Descriptive text, sketch, digital photo		
Dimensions		
Date	Name	

COTSWOLD ARCHAEOLOGY

5. Finds Box Index - to accompany boxes to the museum when deposited.

FINDS BOX INDEX

Site Code: Project No: Acc. No:

Box No.	Box Size / Type	Material	Context/Registered Artefact Numbers

COTSWOLD ARCHAEOLOGY

Cotswold Archaeology

Andover Office

Stanley House
Walworth Road
Andover
Hampshire
SP10 5LH

t: 01264 347630

Cirencester Office

Building 11
Kemble Enterprise Park
Cirencester
Gloucestershire
GL7 6BQ

t: 01285 771022

Exeter Office

Unit 1, Clyst Units
Cofton Road
Marsh Barton
Exeter
EX2 8QW

t: 01392 573970

Milton Keynes Office

Unit 8 - The IO Centre
Fingle Drive, Stonebridge
Milton Keynes
Buckinghamshire
MK13 0AT

t: 01908 564660

Suffolk Office

Unit 5, Plot 11, Maitland Road
Lion Barn Industrial Estate
Needham Market
Suffolk
IP6 8NZ

t: 01449 900120

e: enquiries@cotswoldarchaeology.co.uk

APPENDIX D - WATCHING BRIEF REPORTING PROTOCOL

This protocol is reproduced from the CEMP Appendix 3 WSI (Inset 8.1)