

Excavating Inhumations for Mineral Preserved Organics Guidance 2023

A guidance note on recovering mineral preserved organic remains

This guidance note sets out the approach required by Suffolk County Council Archaeological Service to the excavation, assessment and analysis under the planning system of mineral-preserved organic material (MPOs) associated with metal artefacts in furnished inhumations.

MPOs associated with metal grave goods are a highly significant but fragile component of burials and there is a need for a consistent but flexible approach to optimise their recovery – which will include specialist-led block-lifting of finds and find complexes. The guidance and recommendations below set out the significance and importance of MPOs from burials, principles of data-retrieval, and key points for the planning and implementation of projects. They derive from a review by practitioners, curators and researchers of methods and approaches used on recent excavations in Suffolk and so are informed by experience of current good practice. The guidance will be kept under review and updated in the light of results and developing approaches.

No site is the same as any other, and we recognise that circumstances will vary case-by-case. SCCAS is happy to liaise with clients and their archaeological contractors regarding the specific requirements of individual archaeological projects undertaken as part of the planning system.

1. Significance and potential

Furnished inhumations were more than a body and metal grave goods. Human remains (skeletal remains and body stains) and metal items are just the immediately visible archaeological traces of complex burial deposits which incorporated textiles, clothing, other organic artefacts and organic materials deposited as grave goods as well as used as organic linings, fillings and containers.

Under most burial conditions encountered, the organic components of material culture and burial deposits have usually degraded or decomposed, leaving only their metal components BUT:

Organic materials are preserved on, or in immediate proximity to, metal items – in particular copper-alloys and iron. Preservation is either through mineral-replacement (most common with iron) or through metal corrosion products inhibiting biodeterioration (most common with copper alloys and also with silver).

MPOs associated with metal finds therefore provide samples of the organic components of the burial deposit. These might include:

- organic components of artefacts and costume (e.g., textiles associated with brooches; the organic sheaths and scabbards of knives and swords; the wooden and hide components of shields; wooden or leather containers with metal components such as buckets and tubs);
- bundles of layers of textiles deposited as graves goods or layers of textile laid out as part of the burial tableau,
- mortuary containers or grave structures; and
- vegetation laid in the grave as offerings, linings, coverings or fillings.

As well as providing evidence about the burial and burial practice, MPOs are a major research resource bearing on the resource base, networks of procurement and acquisition, craft skills, the full range of material culture, and the material world of those burying and buried.

Therefore, in order to meet the potential of the archaeology, excavation strategies and techniques must aim to maximise the recovery of evidence for the organic elements of the burial deposit.

2. Principles of Recovery and Recording

MPOs are fragile and fugitive, and may survive not only in immediate contact with metal objects but also in their immediate vicinity. They will be destroyed by cleaning metal objects for in-situ photography, and will degrade if metal objects are left exposed.

The default approach for metal objects must therefore be to lift them as soon as their location has been recorded, without cleaning, for investigation under laboratory conditions. Ideally, objects should be lifted in soil blocks. This may not be necessary for single items, but should be the default approach where possible for complexes of items and items likely to be associated with complex MPOs. Single items not recovered in blocks should always be lifted with the burial matrix adhering.

The lifted objects and soil blocks should be x-rayed, and then excavated and recorded by a conservator under laboratory conditions in the light of this information, with input from the project

specialists on MPOs. This is the only way in which micro-stratigraphy, embodying or comprised of MPOs, can be excavated and recorded effectively.

Metal objects with MPOs provide 3-D sample points of organics within the burial. The exact position, level, orientation and way up must be recorded before lifting both for blocks and for any object not lifted in a block.

The information recovered will allow specialists in mineral-preserved textiles and other organic material to model the layout of the organic components of any burial, as well as to identify the materials and technologies represented.

3. Ways of working

3.1 Project Planning and Management

No excavation should be undertaken without explicit documented research aims that drive the recording and retrieval strategies, and subsequent assessment, analysis and dissemination.

The project team must include the relevant expertise and capacity from the outset: this must include specialists in mineral-preserved textiles and other MPOs, an archaeological conservator with access to the necessary laboratory space and equipment, and the appropriate academic advice, oversight and co-ordination.

These specialists must be consulted before excavation begins on research potential and approaches, and agree appropriate recording and retrieval strategies for the WSI.

The likelihood that material will be block-lifted should inform, and be informed by, other sampling strategies such as those for pollen and plant macrofossils, and by the proximity of human bone when present.

Specialists and conservator should make early site visits to assess conditions and advise on recording and lifting, and should be available for consultation throughout excavation to advise should new circumstances arise.

Excavation and recording in the field, and excavation and recording in the laboratory, should be as integrated and as seamless as possible. This requires active management, close communication, and the use of common protocols and registers (e.g. finds, samples, contexts).

This integrated approach, driven by the research agenda, should be maintained through post-excavation assessment and analysis. This in turn means enabling joint working between specialists and between specialists and conservators.

Digital data-handling, through relational data-bases and digital images accessible to all project team members – whether directly-employed or consultants – greatly facilitates collaborative working.

3.2 Field Excavation and Recording

Site staff should be fully briefed before excavation begins. Excavators need to understand what they might encounter in furnished burials and where in the grave items might be expected, and be confident about when to block-lift, the size of blocks, the optimum distance around an object to be block-lifted, and the amount of soil to retain. Briefings from, and liaison with, conservators and specialists on site will build knowledge and confidence.

Conservator and specialists should be on-site when excavation of burials begins to advise on conditions, potential and approaches. It may be possible to feed back results from the laboratory investigation of soil blocks to inform approaches on site.

Not everything needs to be block-lifted, but objects not block-lifted should be lifted with the burial matrix adhering. Informed professional judgement needs to be exercised on when and when not to block-lift, and on the size of the block. Where there is doubt, advice should be sought from the conservator and specialists.

The exact position, level, orientation and way up must be recorded before lifting both for blocks and for any object not lifted in a block.

Soil blocks need to be precisely located in the field with fixed surveying markers that will also serve as reference points throughout the lab excavation.

Where block-lifting may potentially include or disturb human skeletal remains, decisions should be taken in consultation with the project's human skeletal biologist.

Block-lifts may include soil that would have been sampled for pollen or other environmental material, in which case this should be retained as a sample when the block is excavated in the laboratory.

3.3 Laboratory Investigation and Recording

Excavated blocks should be X-rayed and investigated as soon as possible after lifting. Interim storage should be in a stable and suitable environment.

Care should be taken to ensure that blocks when X-rayed are marked with fixed reference points, scales, and context / sample numbers. Digital X-rays may be preferable for speed of feedback, ease of data handling, and ease of processing to provide images for PXA and publication. Please note, however that any digital X-rays must also be in a format that can be deposited as part of the digital archive to ADS.

Specialists and conservator should together undertake a preliminary assessment of blocks in the laboratory, and for this should have access to the relevant excavation records and photographs.

Laboratory excavation should be integrated with the field record as seamlessly as possible, using common recording protocols and registers (e.g. finds, samples, contexts).

Laboratory excavation offers greater control over investigation and recording than excavation in the field. As a minimum, the record should comprise a gridded composite plan of the excavated block at 1:1 augmented by a full photographic record taken from a single fixed point and with fixed reference points and scales.

Excavated material needs to be packaged appropriately in ways that keep it stable – physically and environmentally – and which allow examination by specialists with a minimum of handling.

When block-lifts include soil that would have been sampled for pollen or other environmental material, the excavated soil should be retained as a sample and passed on for the appropriate processing and specialist examination.

If possible, site staff should have an opportunity to assist with laboratory excavation and recording.

3.4 Post-Excavation Assessment and Analysis

Face-to-face meetings and dialogue between specialists, conservator and excavator are needed throughout assessment and analysis, with opportunities to view the material. For assessment, specialists need to see the material grouped and in context. Assessment is therefore best undertaken at least in part jointly in the laboratory or where the material is stored.

As a general rule, the less objects with MPOs are handled and moved the better and so for preference the specialists undertaking analysis should travel to the material. However, condition and packaging permitting, some may prefer to have it sent to them, depending on the availability of facilities such as good quality microscopes, lighting, and a clear workspace. This will have an impact on programming and joint working; the decision should be made at assessment and documented in the updated project design.

MPO specialists will be aiming to reconstruct the layout of organic components of burial, as well as to identify the materials and technologies represented. This has implications for wider research aims, and requires collaboration and joint working not just with other MPO and material culture specialists but across the wider project team – including, in preparation for publication / dissemination, illustrators and graphic artists. A collaborative approach to analysis, interpretation and the creation of site narrative is required, and so communication and meeting time – including review meetings of the full project team – need to be included in any programme.

3.5 Publication and Dissemination

Throughout excavation and post-excavation thought should be given to how graphic, photographic and X-ray records and images might be utilised and integrated in any final publication and archive.

It is important that specialists' work is archived fully.

3.6 Archive deposition

In Suffolk SCCAS is the repository for the finds archives from the county.

If an archive is to include MPO then SCCAS archives team needs to be consulted at an early stage, before PXA sign off, as there will need to be liaison and agreement about the best way to conserve and especially package MPO to ensure their long-term survival for future research.

Box numbers also need to be estimated at PXA and this early conversation, about how to conserve and package MPO either alone or adhering to metal objects, is also vital to make sure that box estimates and therefore archive charges, are as accurate as they can be.

4. Benefits of the approach

The approach outlined in this guidance will ensure that critical data from burials that might otherwise be lost or compromised is recovered and its potential fully realised, contributing to better understandings of the past. This in turn significantly enhances both the public and the academic benefit from the investment in development-led archaeology.

MPOs and complexes of objects are better investigated and recorded to a higher standard under laboratory conditions than in the field. Lifting material in blocks, or with the matrix adhering, can reduce the time spent dealing with such material on site, and ensures that it is investigated and recorded more cost-effectively under optimum conditions.

Lifting material in soil blocks, or with the matrix adhering, also has further advantages:

- it allows complexes of objects to be investigated and recorded under controlled conditions and potentially with less time pressure, resulting in a better understanding of how they lay in the grave and related to each other.
- X-rays will reveal the form of heavily corroded iron objects and complexes of objects that might only be observed as fragments under field conditions.
- some metal objects disintegrate completely and will not be recognised or recorded under conventional excavation, but they sometimes survive as corrosion products in the soil and will show as “ghost” objects on the x-rays of soil blocks: block lifting will therefore recover evidence for some metal objects that have wholly disintegrated
- block x-rays will more often than not reveal the true form of artefacts, especially iron items, allowing typological characterisation and dating at an early stage in the project

The collaborative and joint working practices that this approach requires foster effective team working and enhanced interpretative outputs, and offer opportunities for CPD.