

Ancient Monuments Laboratory
Report 34/96

**GUIDELINES FOR CARRYING OUT
ASSESSMENTS IN GEOARCHAEOLOGY**

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Summary

A brief account of the assessment process is given, as well as guidelines on those aspects of particular relevance to geoarchaeology. Strategies for scanning different types of geoarchaeological samples are discussed, and solutions are suggested for areas where difficulty has already been encountered.

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1. Introduction

'Management of Archaeological Projects' (English Heritage, 1991) or 'MAP2' as it is more widely known, sets out the management principles of archaeological projects. The approach is necessarily high-level, and closer detailing has been found to be required in some of the disciplines that go to make up the project as a whole. This document aims to provide the framework for carrying out the geoarchaeological component of the assessment stage, as well as highlighting and suggesting solutions to some areas where difficulty has been encountered.

2. What does Assessment mean?

MAP 2 defines five phases for an archaeological project to follow, namely:-

- Phase 1 - Project planning
- Phase 2 - Fieldwork
- Phase 3 - Assessment of potential for analysis
- Phase 4 - Analysis and report preparation
- Phase 5 - Dissemination

The third of these phases, usually termed simply 'assessment' contains two essential elements:-

- An assessment report stating the academic potential of the data in the site archive.
- An updated project design, which sets out the detailed analysis necessary to fulfil this academic potential.

These two parts of the assessment process are either run together or separated according to the circumstances of the project or the convenience of the reporting body. In this document they are run together, i.e. these guidelines cover both parts.

3. The Purpose of Assessments

During excavation (Phase 2), samples are taken to answer specific questions that have arisen from the newly-exposed stratigraphy, or to provide material for planned research into broader topics of interest. All the necessary on-site sampling to cover the research design has to be done during the excavation phase. This means that it is often carried out under less-than-ideal conditions, or with incomplete stratigraphic knowledge etc. Fuller sampling strategies may be employed than are finally needed for the analytical work and subsequent archaeological interpretations may alter the framework within which a sampling design has been conceived. Under these circumstances, the analytical plan may need to be revised when all the other relevant information has been brought together. Close liaison with the field staff is essential, as is a full appreciation of the preliminary findings of the other specialists on the project. This process forms the backbone of Phase 3 in a MAP2 project.

The purpose of an assessment is to provide a formal review of the existing strategy as well as a plan for its implementation, alteration or rejection. It should, therefore, contain the final proposal for necessary analytical work, based on an understanding gained by adequate preliminary scanning of the material. It must be stressed that **'any work undertaken should be directed towards allowing decisions to be made about the potential of the data and the nature of the future programme'** (English Heritage, 1991:15). This can only be usefully achieved if sufficient site information is available from the excavator before the assessment is started.

4. Practicalities of Soil and Sediment Assessment

The requirements of the MAP2 procedure mean that, ideally, a set of samples would be stored until assessment was due, scanned briefly or subsampled, and then fully examined at a later date if the analysis phase goes ahead. This presents a problem in analytical fields where any aspect of the sample is liable to deterioration. For geoarchaeologists employing bulk sampling methods, the situation is usually not a problem except perhaps in terms of space requirement. Problems do arise, however, with the storage of full Kubiena tins. If they are deliberately retained wet, biological and chemical processes can continue in the sample, potentially destroying the evidence contained. If they are allowed to dry, the chance for using acetone-replacement is gone implying loss (in some cases) of structural information and considerable alteration in organic or shrinking sediments.

Impregnation of all the micromorphology samples before assessment will therefore be needed in situations where the specialist anticipates these types of problems. This implies wastage if assessment shows the samples not to need analysis. Nevertheless, it is minimised because the bulk of the expense of micromorphological preparation is in the slide manufacture and only a sample of the slides need be cut for the assessment (see below under Scanning Strategies). In other cases, the retention of a dry block will provide an acceptable storage procedure. This is going to be the case in most mineral soils with low macrofaunal activity.

A second area where the MAP2 procedure can be difficult to follow occurs when sampling is carried out from deep cores. Coring becomes progressively more expensive with depth and beyond a certain limit, the expense of a larger sampling scheme will necessitate some form of pilot study. Samples from, for example, a series of boreholes to 10 metres depth would then ideally be collected only after a preliminary examination had been carried out on one

or two such boreholes. This would logically imply running a small assessment within Phase 2 to decide if further core sampling is worthwhile, with obvious implications for the timing of the fieldwork. Alternatively, a variation could be programmed into the project, whereby further coring takes place after the assessment phase. This would, of course, only be possible in situations where post-fieldwork access to the stratigraphy is expected to be possible.

The unusual problems associated with coring programmes need case-by-case treatment. With these types of project, therefore, explicit planning will be needed during Phase 1 to deal with the assessment stage.

5. Scanning Strategies

To assess a suite of samples, it is clearly necessary to carry out some analytical work on a subsample. This needs to cover the expected range of methods. For example, in a strategy involving both bulk and undisturbed techniques, scanning needs to comprise some of each of the methods used. Equally, significant differences in the stratigraphy must also be represented so that their potential for yielding information and the possible problems of their preparation/analysis can be anticipated.

The *extent* to which the analysis is taken depends very much on the type of method being employed. For normal micromorphological sampling, a small proportion of the slides may need to be cut to enable decisions to be made about what is worthwhile amongst the rest of the samples. The cost of the manufacture needs to be weighed up against the information gained. Chemical tests or particle-size analyses must obviously be completed for the chosen samples. Here, therefore, scanning will also normally imply doing only a proportion of the samples. If a counting system is being employed, for example heavy minerals or thin-section point-counting, the analysis might best be brought to a point where the broad result is clear without carrying out the full procedure necessary for reproducibility. In this case, the strategy could be to scan a larger proportion of the samples to the chosen level. When considering the question of how much to scan, the rule of thumb is that assessment should report on the minimum number of samples required to provide a reasonable guide to the remainder, both in terms of the information contained and the time needed for the work.

Amongst extremely small sample sets, a situation inevitably arises in which adequate scanning will involve carrying out virtually all the necessary work on the samples. Where this happens, it is clearly sensible to complete the analysis at the assessment stage rather than duplicate the written component at a later date.

6. The Written Assessment

In order to fulfil the requirements set out in 2., the written assessment should contain three basic parts:-

- A description of the reasons for sampling. This should also contain some discussion of relevant existing data or literature if appropriate. What was analysis intended to show or what site problems were the samples going to solve? Bearing the

revised research design in mind, are these still relevant questions?

- A discussion of the existing samples and their associated research design. This should include a table of what they are and where they came from, as well as brief details of results from the scanned percentage and their potential for confirming or changing the suggested approach to the remainder. Problems with possible sample deterioration should also be pointed out.

- A proposal for future work and an account of the time and resources needed to carry it out. This should include a discussion of the academic objectives, methods and costings where appropriate.

Copies of the assessment document should be sent to the relevant AML specialist for discussion and information. They should not be submitted for inclusion in the AML report series unless an AML report is the only vehicle available for the publication of results (as would happen, for instance, if the analysis phase was not funded).

English Heritage (1991) *The Management of Archaeological Projects*. London: Historic Buildings and Monuments Commission for England.