

Ancient Monuments Laboratory
Report 28/92

ASSESSMENT OF SOILS AND SEDIMENTS
IN "MANAGEMENT OF ARCHAEOLOGICAL
PROJECTS"

R I Macphail, M Canti and M McHugh

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Summary

The realities of applying soil and sediment analytical techniques to archaeological projects, within MAP, are outlined. Reasons for flexibility to be built into project funding and timescales for these analyses, are given.

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1. For workers in the field of geoarchaeology and soil and sediment analysis in archaeological projects, there is a potential problem with PHASE 3 "Assessment of potential for analysis" if English Heritage and heads of projects do not fully understand the realities of applying these disciplines to archaeology, as outlined below.

2. Project Planning: Some assessment of potential for analysis can be, and should be, discussed at the "Project Planning" phase, proposals for soil and sediment studies can then be added to the Research Design, as necessary. Archaeologists should also be aware that like some other disciplines, soil and sediment input should not be relegated just to the "environmental background", because it may also provide important cultural information. Team leaders should also be made aware that fieldwork also includes field analysis and is not just a sampling exercise.

3. Fieldwork: During fieldwork much assessment is carried out. These assessments are made during and through field analysis, which may include section descriptions with minor on-site tests. It also may involve major field analysis through an auger survey for example. It is on this basis that sampling is targeted. Material that looks reworked or is otherwise of little potential value is generally not sampled. Through these value judgements the site is in fact "sub-sampled". (If the fieldwork continues over a number of seasons sampling can become more focused because of laboratory assessments). At this stage it is better to over-sample than under-sample.

During fieldwork, the potential information an undisturbed sample for soil micromorphology contains can be judged adequately. The value of bulk samples for standard analysis can be similarly judged, as the results are predictable, and a result can be guaranteed. The full detail of the likely information from an undisturbed sample, however, cannot be fully appreciated before thin section manufacture and detailed microscopic observations are carried out. Similarly, the full value of a bulk sample for sophisticated soil chemical or other analyses cannot be judged until this work has been undertaken. It is therefore up to the specialist in the field to assess the worth of sampling, based on his own experience, and the requirements of the site.

(As fieldwork analysis is essential for first assessments and sub-sampling stages, proper time and funding allowances will have to be made. One or two field sections can be described, tested and sampled in a day, but full field studies may take much longer, but the latter should have been discussed at the planning stage.)

4. Assessment of Potential for Analysis: During the assessment phase the fieldwork results can help improve the experimental design and suggest possible preliminary interpretations that can help focus the analytical stage. At this time, some samples may be put to one side as not immediately necessary for analysis. (Later these may possibly be brought into the analytical programme, or discarded.) Again, as the full potential of samples for analysis cannot be judged at this stage, it may be necessary to carry out basic preparation (eg. conservation of undisturbed samples by resin impregnation) on a larger number of samples than is immediately necessary. This is for both sample conservation and to save time later on, so that PHASE 4 deadlines are not missed. During this assessment stage, time and costs for the study of both samples and potential samples can be itemised, so that these needs can be built into a flexible funding/time programme.

(Thin section preparation [bought from commercial laboratories]; 3-6 months, up to 1 year at £50-60 per sample (last few years rate, therefore likely to increase). Assessment per thin section; 1 day.

Grain size analysis; depends on set-up and methodology.

Chemical analysis; depends on techniques, set-up etc.

Grain size and chemical analysis [bought in from commercial laboratories] 3-6 months.

5. During the analytical phase, and as the full potential of the data becomes available, team leaders should be prepared for workers wishing to study more of the samples taken, and even for requests to revisit the site. If the last is impossible, then there may be a requirement for off-site studies to look at local soils etc, to provenance archaeological materials, for example. All this requires further flexibility to be built into the work plan.

6. Project team leaders and English Heritage monitors must therefore take into consideration the potential need of extra funding and time allowances at stages 2, 3 and 4.