

# Phase III: Data Recovery and Mitigation

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## Introduction

Data recovery may be undertaken as a form of mitigation at an archeological site determined eligible for listing on the National Register of Historic Places and that will be impacted by a proposed federal undertaking. Data recovery is undertaken when neither preservation in place nor avoidance through project redesign is feasible. The purpose of data recovery is to recover the significant information the site contains by collecting the relevant data, analyzing and reporting the results of the investigations, and curating the recovered materials and records.

Under Section 106, the federal agency, in consultation with the SHPO and the Advisory Council, should determine how a project may affect significant archeological site(s). Interested parties, such as local historical societies and Native American tribes, are afforded an opportunity to comment. If there is consensus that adverse impacts cannot be avoided, the data recovery option may be selected. The federal agency is responsible for preparing the Documentation for Consultation, which details the project's history, describes significant archeological site(s), details the finding of effect, and describes how any adverse effects of the project will be mitigated. A Data Recovery Plan should be developed that details the research questions, excavation strategy, laboratory analysis, schedule, and budget. This Data Recovery Plan is subject to SHPO and Advisory Council review. In certain situations a Memorandum of Agreement

(MOA) may be developed and executed by representatives of the federal agency, the SHPO, and the Advisory Council.

## Developing a Data Recovery Plan

The Advisory Council's (1980) publication, *Treatment of Archeological Properties: A Handbook*, provides recommendations for developing a data recovery plan. The Secretary of the Interior's Standards and Guidelines also provide guidance on what should be included in a Data Recovery Plan. A key element in the plan is a research design that facilitates an orderly, goal-directed, and economical project. However, the research design should be flexible enough to allow for modification to take advantage of unanticipated but important research opportunities that arise during the investigation. The following general topics have been recommended for inclusion in the Data Recovery Plan:

1. A project introduction should provide background on the proposed undertaking, the recommendations of the agencies involved, and other administrative details related to the treatment of the site.
2. A description of the site or district, the environmental setting, and a summary of the results of previous research should be provided. This information should include

a discussion of site size, chronology, type, and structure.

3. An explicit discussion of the justification for data recovery may be needed, unless this information has been provided elsewhere. The Data Recovery Plan should provide a rationale for carrying out data recovery. Two issues should be addressed: (1) that the information contained in the site is sufficiently important to warrant recovery; and (2) that the nature of the site or the conditions of the undertaking do not suggest an alternative treatment, such as preservation in place.
4. Specific research questions to be considered should be discussed. This requires the development of a detailed research design. The main research questions and the significance of the data that can be generated should also be detailed in the National Register nomination form that should be completed to reach a formal determination of eligibility under Section 106. The research questions should build on the results of previous investigations and reference state resource plans, regional cultural overviews, thematic contexts, and other relevant planning documents.

Previous investigations of similar property types in the property's geographic area (or comparable geographic areas) should be summarized and their effectiveness evaluated. The research design may work "backwards" by stating objectives in terms of desired results. The desired results should be based on a good understanding of an archeological site's property type (as specified in the State Plan) in relation to other examples of the type, as well as the potential contribution of the new data for refining the property type, the historic context, and the research questions identified.

5. Data recovery should generate information on a broad range of research questions based on the historic context. Research questions should not be site specific only, but should also explore cultural and/or regional interpretations

that further develop or clarify the cultural context and property types defined. Not all contexts will be equally detailed, due to the variable extent of past archeological research in different regions of the state.

6. Research priorities should be established, as it may not be necessary to address each research question at the same level of detail. For example, if the chronology of a particular site type is well understood, but subsistence activities are less thoroughly known, it may be justifiable to focus the research effort on the subsistence data. An archeological site may include several components of varying research value; it may be advisable to target a particular component and give less attention to the others.
7. The field and laboratory methods best suited to recovering the important data need to be specified and explained. The field and laboratory methods proposed should be related to the research problems identified in the research design. Experts in related subareas such as geomorphology, ethnobotany, faunal analysis, and lithics studies should be consulted if their expertise is relevant to the proposed research questions. All data recovery efforts require the development of a sampling strategy. As complete recovery is rarely feasible, the sampling procedures should be described and justified.
8. The supervisory personnel should be identified; *vitae* documenting their qualifications should be appended if the personnel are not known to the agency or the SHPO. Key personnel include the principal investigator, the field director, the laboratory director, and any specialists (e.g., geomorphologists, paleoethnobotanists) whose skills may be needed. If the principal investigator delegates primary supervisory responsibility for field or laboratory work to other persons, these individuals should also meet the minimum NPS standards.

## Methods and Techniques of Data Recovery

Data recovery field techniques will vary depending on the specific site conditions and the research problems to be investigated. In selecting data recovery methods, it is useful to consider the following information, which should be established during the Phase I and Phase II investigations: (1) the extent of the site; (2) the site's stratigraphy; (3) the kinds of features the site contains; and (4) the density of features and their distribution across the site. Some of this information may be established by previous investigations in the region or at other sites included in the property type.

In many cases it may be advantageous to carry out data recovery as a two-step process. The first stage would involve the investigation of a portion or a sample of the site. After the first stage is completed, a preliminary evaluation of the results may be undertaken. Consultation with agency officials and the SHPO about the results may also occur. If all parties agree that it is appropriate, more extensive data recovery could be undertaken as a second stage. This two-step approach also may allow for more efficient modification of the research design if unanticipated discoveries are made.

Controlled surface collection of sites on cultivated lands is an important source of information for data recovery planning. These studies should be undertaken during the Phase I and Phase II investigations. Frequently, the distribution of various kinds of cultural materials on the surface reflects the nature and distribution of subsurface features. Thus, analysis of the controlled surface collection data can be used to develop predictions about the results of data recovery. The excavation results, in turn, can be used to refine the interpretation of controlled surface collection data on future projects. Controlled surface collections that cover the entire site area, as opposed to limited samples, are the most useful for the interpretation of intrasite patterning.

Machine excavation is often used to uncover a substantial percentage of site plan and to reduce labor costs on data recovery projects. For sites

that have been cultivated, a common excavation method is to strip off the plow zone using a belly scraper or other suitable piece of equipment. Features exposed during stripping are then mapped and excavated. When driven by experienced operators, belly scrapers can clear large areas in a fairly short time.

Feature excavation is usually the most costly and time-consuming aspect of the project, while the cost of renting earth-moving machinery (if it should be billed to the project), is likely to be a minor item in the budget. Analysis of controlled surface collection data may be used to select areas for stripping. If feasible, plow zone removal from 100% of the site area should be attempted.

Total excavation is particularly useful if limited information is available on intrasite feature distribution patterns; it allows for the testing of proposed relationships between artifact concentrations on the surface and subsurface feature distributions. For example, at some extensively excavated sites, structures have been found in areas that had relatively low surface artifact densities. For many projects, however, the extent of plow zone removal is constrained by construction limits. Machine excavation should not be attempted on formerly cultivated sites that have been reforested.

Commonly, one of the major goals of extensive excavation projects is to define a village plan. This is accomplished by systematically mapping the exposed features and activity areas and looking for patterns in the distributions of various feature types. Information on internal site organization and patterning can be incorporated into planning documents and used in future research. This approach has been used on some Wisconsin projects. Ideally, the potential for intact features should be realized during the Phase II evaluation, and a sampling plan for defining site structure developed in the Data Recovery Plan.

Excavation of features uncovered through extensive excavation may provide data relating to a variety of research problems, including chronology, subsistence, and settlement organization. If very large numbers of features are exposed, it may be necessary to sample them rather than completely excavate every one. Sampling can take various forms, including

screening only selected features or cross-sectioning some features but not removing the second half. Any sampling procedures used should be explained and justified.

If the site to be excavated has never been plowed, it will require hand excavation. Typically, block excavation consists of 2 x 2 meter squares or other suitably sized units. This data recovery method tends to be the most labor intensive and expensive. Site definition in unplowed areas is commonly established by close-interval shovel testing (probing). Sometimes close-interval shovel testing along a grid of transects that covers the entire site area is used to make inferences about the distribution of cultural materials and features. Thus systematic shovel testing is used as a substitute for controlled surface collection. However, the usefulness of close-interval shovel testing for this purpose has not been demonstrated (Bruhy and Wackman 1980). A detailed topographic map of the site should be prepared and an excavation grid established. At sites that cannot be machine stripped, at least 25% of the site area that will be impacted should be excavated. At small or special-purpose sites less than 500 square meters in area, a 60 to 70% sample is recommended. For plowed sites, mechanical removal of the plow zone should be completed for a minimum of 75% of the area to be impacted.

A variety of specialized studies are appropriate for data recovery projects. Radiometric dating should be conducted for materials from good contexts. Provision should be made for recovering and analyzing a sample of floral and faunal remains. The use of flotation to process archeological deposits for subsistence remains has been standard practice for many years. A sample of midden deposits and feature fills should be processed by flotation during data recovery projects.

Soil samples collected for flotation should be large enough to yield useful results; 18 liters is the recommended minimum size. If the feature is smaller than that, the entire feature should be removed for flotation. If the feature fill is stratified, each zone should be sampled. Specialists in archeobotany and faunal analysis should be consulted in developing sampling designs for the recovery of these remains.

Buried sites present many problems for data recovery. Site definition may be difficult for deeply buried sites, and close coordination with geomorphologists is critical. If the archeological remains can be associated with particular natural strata, it may be possible to define the extent of these strata by systematic coring at regular intervals. It is common to use a backhoe or other earth-moving machinery to remove sterile overburden or disturbed fill overlying the cultural deposits. Hand excavation is then confined to the buried deposit.

This could still be costly if the site is stratified or if there are problems with water seepage. Side walls in buried sites may need to be braced to prevent cave-ins. Excavations of deeply buried sites and excavations using heavy machinery present a variety of potential hazards to field personnel. Special safety measures may be needed; archeologists should review OSHA guidelines prior to initiating field investigations. (See, for example, Jack L. Mickle (1995), Occupational Safety and Health Administration Regulations on Excavation Safety, *Journal of the Iowa Archeological Society* 42:1-4.

## Reporting the Results of Data Recovery Projects

A technical report should be prepared that presents the results of excavations, subsequent analyses, and summaries of all archeological investigations at the site and provides an interpretive framework by further development of the historic context. The section of SISGAHP entitled "Reporting Results" may be used as a checklist for Phase III report content and organization. Usually, the result will be a monograph-length report that describes the excavations and provides a typological analysis of the artifacts recovered.

If plow zone removal was the primary excavation method, the final report will describe the feature excavations and contents. Patterning in feature or activity area distributions will be an important topic for analysis. If subsistence studies were a focus of the research, there will be sections authored by specialists describing

the flora and fauna. Geomorphologists may conduct studies if the site is buried or in a river valley. Historic sites may require detailed archival research.

The dissemination of the results of data recovery projects is a continuing problem. Many agencies will expect a data recovery report to be published, and the associated costs should be included in the project budget. Alternatively, a condensed article could be published in a regional journal such as *The Wisconsin Archeologist*. Copies of the technical report should also be provided to the federal agency, Office of the State Archaeologist, Regional Archaeology Office, local historical societies, and any interested parties.

## Interested Parties

The Section 106 process provides opportunities for comment by interested parties on the effects of a project (undertaking) on cultural properties. Professional consultants (archeologists) can be directly involved in obtaining and addressing comments and concerns raised by interested parties. It is important to understand when comment from interested parties is appropriate and to consider how these concerns may be resolved in the mitigation plan for archeological properties.

## Public Benefit

Efforts should be made to inform the public about the results of large-scale data recovery projects. Archeologists are frequently accused of generating a great deal of community interest and then leaving without providing information on the findings and accomplishments of their investigations. Each data recovery project should include some public benefit at the local level, and associated costs should be included in the project budget. Brochures or information flyers should be available to visitors on-site to explain the significance of the discovery and the importance of archeology.

Alternatively, one or more general brochures on archeology could be distributed. Examples include *Past Cultures of the Upper Mississippi River*, published by the U.S. Army

Corps of Engineers, St. Paul District, for projects in the Mississippi River trench; or *Archeology Along Wisconsin Highways*, prepared by the State Historical Society's Museum Archaeology Program for general Wisconsin Archaeology. News releases disseminate information to a wider audience and are generally well received by the media. Alternative ways of disseminating information to the public include public lectures and temporary displays at libraries, visitor centers, or other public facilities. Documentary video tapes of archeological projects also may be used to inform the public and provide a long-term record of the project.

## Additional Sources for Phase III

*Preparing Agreement Documents: How to Write Determinations of No Adverse Effect, Memoranda of Agreement, and Programmatic Agreements Under 36 CFR Part 800.* Publication of the Advisory Council on Historic Preservation. September 1989.

*Treatment of Archaeological Properties: A Handbook.* Publication of the Advisory Council on Historic Preservation. November 1980.