GUIDE FOR PUBLIC ARCHAEOLOGY IN WISCONSIN

THE WISCONSIN ARCHEOLOGICAL SURVEY

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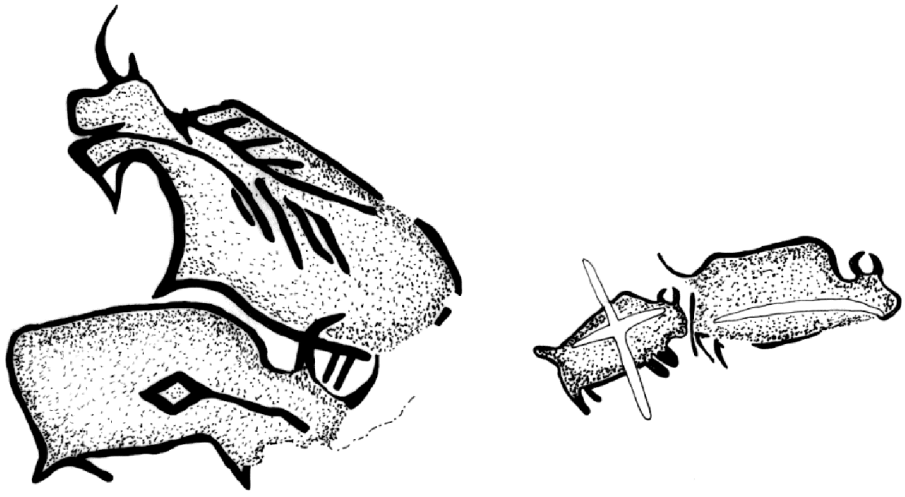

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PREFACE

In 1980, the Wisconsin Archeological Survey wrote and distributed *Guidelines for Conservation Archeology in Wisconsin*, which provided a standard for reviewing archeological investigations until it was replaced in 1997 by *Guidelines for Public Archeology in Wisconsin*.

Since 1997, much has remained old and familiar, but much has changed as well: reporting requirements, processes, and forms; the proliferation of new and more matured technologies; legislation and rules; and the range and character of collaborative partnerships—just to name a few.

Much of the emphasis in the former guidelines was on "how-to's," often with detailed descriptions of the field techniques to use, the forms to use, and the analyses to be done. The current document, *Guide for Public Archaeology in Wisconsin*, differs from its predecessors somewhat and assumes that, by and large, professional archaeologists, wherever they hail from, have a reasonably well-shared understanding of how to conduct archaeological research and analysis, whether it be CRM or academic. The *Guide*—rather than "guidelines"—focuses more on what to do rather than how to do it.

Processes, laws, technologies, websites, forms and all the rest will continue to evolve. Nothing in this document is written in stone. For the most current information on applicable processes, forms, and the like, archaeologists are advised to contact the various review, permitting, funding, and other agencies that impact heavily or lightly on archaeological practices in Wisconsin. At day's end, it is the responsibility of the professional archaeologist to conduct research in a manner that is ethical, thorough, and accountable.

All archaeology is public archaeology. While we may study "the past," we do it for the living—for the people who live in the present and the future, for the people who support it directly or indirectly, for the people on whose behalf we are privileged to pursue our craft.

It is our hope that this *Guide* facilitates that effort.

—Mark, Joe, and Kathy [2012]

2024 Editorial Note

In spring of 2023, the Wisconsin Archeological Survey began a new round of updates to continue to match the *Guide* to current practices in Wisconsin. Our efforts focus on making this *Guide* a living document that may be updated or modified more frequently, drawing on member input and consensus-building. As before, this 2024 revised version of the *Guide* is not final. Notably, the content of Chapter 11, Investigation of Human Burial Sites, has not yet been substantively updated since the 2012 version of the *Guide.* Additional updates to that chapter incorporating the 2018 changes to WI Statute § 157.70, and continued discussion of how to do archaeology in Wisconsin today will be forthcoming in 2024 and beyond.

—Heather, Randy, and Liz [2024]

PARTICIPANTS

In the early stages of the 2012 revisions, a number of WAS members and colleagues provided comments and suggestions for revising the 1997 *Guidelines*. Their recommendations have been incorporated into this current version, with some sections also reviewed by specialists for additional input. Participants include Constance Arzigian, Sherman Banker, Robert “Ernie” Boszhardt, John Broihahn, Chip Brown, Randy Dickson, Leslie Eisenberg, Kelly Hamilton, Kira Kaufman, Jennifer Kolb, Michael Kolb, Rosanne Meer, Keith Meverden, Cynthia Stiles, Tamara Thomsen, Vicki Twinde-Javner, and Stephen Wagner.

Participants comprising the Guidelines and Curation Committee (GCC) leading the 2023-2024 revisions include Heather Walder, Randy Dickson, and Elizabeth Leith. The *Guide* was made accessible to the Survey membership as a “living document” in the form of a shared Google Document that members commented upon prior to discussion during Survey meetings. The GCC is grateful to the Survey members who took time to provide their comments in all of these formats, and will continue to solicit input for future revisions.

Chapter 1

INTRODUCTION

The Wisconsin Archeological Survey (WAS) *Guide for Public Archaeology in Wisconsin* is designed to assist qualified archaeologists— especially "new" or out-of-state archaeologists— to conduct Wisconsin-based research that complies with federal and state historic preservation legislation and related standards. By "qualified archeologist" we mean those individuals who meet the *Secretary of the Interior's Professional Qualification Standards* (or subsequent revisions), which state the following:

> *The minimum professional qualifications in archeology are a graduate degree in archeology, anthropology, or closely related field plus:*
>
> 1. *At least one year of full-time professional experience or equivalent specialized training in archeological research, administration or management;*
> 2. *At least four months of supervised field and analytic experience in general North American archeology; and*
> 3. *Demonstrated ability to carry research to completion.*
>
> *In addition to these minimum qualifications, a professional in prehistoric archeology shall have at least one year of full-time professional experience at a supervisory level in the study of archeological resources of the prehistoric period. A professional in historic archeology shall have at least one year of full-time professional experience at a supervisory level in the study of archeological resources of the historic period.*

Note that this is the minimum qualification standard for all state and federally funded archaeological projects conducted in Wisconsin. Burial studies conducted in Wisconsin have additional professional standards, as discussed in Chapter 11, "Investigation of Human Burial Sites." Additional requirements may apply when working with local governments or on tribal lands.

Enabling legislation for this *Guide* includes Sections 106 and 110 of the National Historic Preservation Act and Chapters 44.40 and 157.70 of the Wisconsin Statutes. The *Guide for Archaeology in Wisconsin* (*Guide*) is intended to ensure that archaeological investigations are conducted in accordance with the current state of the discipline following *The Secretary of the Interior's Standards for Guidelines in Archeology and Historic Preservation*.

The Wisconsin Historical Society (WHS) and State Historic Preservation Officer (SHPO) use the WAS *Guide* in the review process as the State's standard of implementation of federal and state reporting and documentation requirements.

The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (36 CFR Part 61 or subsequent revisions) discuss the importance of preservation planning and outline archaeological activities into a logical sequence of (1) site identification, (2) site evaluation, and (3) treatment of archaeological sites. Key to these activities is the development of contexts within which to evaluate the significance of archaeological sites. Archaeological sites should be evaluated within a cultural, chronological, and/or regional framework.

The WAS *Guide* parallels the *Secretary of the Interior's Guidelines* on preservation planning, the development of historic contexts and research designs, archival research, Phase I (site identification) studies, Phase II (site evaluation) studies, and Phase III (site treatment, or data

recovery) investigations, and the curation of archaeological materials and documentation generated by public archaeology projects.

Also included are somewhat specific recommendations for the preparation of archaeological reports, the excavation of human remains, geomorphological research, underwater archaeological research, documentation of historic archaeological sites, and rock art documentation.

PRESERVATION PLANNING

Planning is crucial to the preservation of Wisconsin's archaeological resources. As archaeological research proceeds in Wisconsin, the state plan objectives are: (1) to establish interpretive frameworks, i.e., "historic contexts"; (2) to use these contexts to develop goals and priorities for the identification, evaluation, and treatment of archaeological sites; and (3) to ensure that the results of all of these activities are integrated into broader planning processes.

Many people and agencies participate in preservation planning in Wisconsin. They include:

- consulting archaeologists conducting research through the Section 106 process
- federal agencies under Section 106 and Section 110
- state agencies under Wisconsin's historic preservation statute, § 44.40
- the Wisconsin Historical Society, specifically the:
    - State Historic Preservation Officer/State Historic Preservation Office (SHPO) and
    - State Archaeologist (SA)/State Archaeology and Maritime Preservation Program (SAMPP)
- Tribal Historic Preservation Officers (THPO) and other tribal representatives
- academic institutions or organizations
- Certified Local Governments
- interested members of the public
- the Wisconsin Archeological Survey (WAS)

In Wisconsin, the SHPO and the State Archaeologist are key participants in the preservation planning process. The SHPO/SAMPP works with federal and state agencies and other entities to identify sites, assess effects, and consider alternatives to avoid, minimize, or mitigate adverse impacts to archaeological sites. Decisions regarding which areas to survey and subsequent recommendations concerning the evaluation, nomination, and treatment of archaeological sites have major impacts on both the archaeological properties themselves and archaeological research in the state.

FEDERAL AND STATE HISTORIC PRESERVATION LEGISLATION

Most archaeological research in Wisconsin is conducted under compliance with various federal and state preservation statutes, including the following.

Section 106 of the National Historic Preservation Act requires that every federal agency take into account how its "undertakings" could affect archaeological sites (as well as other historic properties). Undertakings include a broad range of activities, such as: construction or repair projects, licenses, permits, grants, and property transfers. It is the federal agency's responsibility to identify archaeological sites that might be affected by its proposed action. To do this, the

federal agency typically works through a variety of state and local agencies, planning firms, THPOs, and the like who hire archaeological consultants to conduct the necessary work in the project area (i.e., Area of Potential Effect [APE] for purposes of Section 106) and report their findings to the SHPO.

If a site is found, its significance is evaluated against one or more of the criteria for listing on the National Register of Historic Places (NRHP). Generally, most archaeological sites are evaluated against Criterion D, information potential. Simply put, does the site contain information important in “prehistory or history”? Information is considered “important” if, for example, it can address current data gaps in the archaeological record as identified by study units and past surveys.

If an important archaeological site (either listed on the National Register or considered eligible for the National Register) will be affected by a federal undertaking, the federal agency consults, as needed, with the SHPO/THPO, the Advisory Council on Historic Preservation, and other interested parties. These parties might include Indian tribes, local governments, and property owners. The federal agency attempts to come to an agreement with the stakeholders on how the federal agency will avoid, minimize, or mitigate the adverse effect.

Section 110 of the National Historic Preservation Act is an extremely important document for preservation planning. This measure calls for each federal agency to assume responsibility for the preservation of the archaeological sites it owns. Specifically, it requires federal agencies to establish preservation programs (Federal Preservation Officer, or FPO) with the goals of identifying, evaluating, nominating, and protecting archaeological sites.

The Native American Graves Protection and Repatriation Act (NAGPRA) provides a process for museums and federal agencies to return Native American human remains, funerary objects, sacred objects, or objects of cultural patrimony. It also includes provisions related to intentional excavation and inadvertent discovery of Native American human remains or cultural items on federal or tribal land.

Wisconsin statutes also protect many archaeological sites and all burial sites. Wisconsin law requires state agencies to determine whether any proposed action will affect archaeological sites listed on the National Register or State Register of Historic Places, on the WHS state inventory of archaeological sites (the Wisconsin Historic Preservation Database, or WHPD), or on lists of locally designated historic places. Again, it is the state agency’s responsibility to contact the SHPO to determine whether an action will affect an archaeological site.

If there is an adverse effect, the lead agency negotiates with the SHPO to mitigate these effects.

Wisconsin state law, Wis. Stat. § 44.42, also requires consideration of archaeological sites potentially affected by the actions of local governments. At this level, however, the only sites that require such consideration are those already listed on the National Register or State Register of Historic Places or those already placed on a list of locally designated historic places.

Chapter 2

ESTABLISHING HISTORIC CONTEXTS AND RESEARCH DESIGNS

Decisions about the identification, evaluation, NRHP registration, and treatment of historic properties are most reliably made when the relationship of individual properties to other similar properties is well understood. Information about historic properties representing aspects of archaeology and culture is collected and organized to define these relationships, using an organizational framework known as a "historic context." The historic context organizes information based on a cultural theme bounded by geographic and chronological limits. A context describes the significant patterns of development in a particular area or region. The development of historic contexts is thus the foundation for decisions about identification, evaluation, registration, and treatment of historic properties.

The development of historic contexts is an objective of the State Archaeologist (SA) and has been endorsed by the WAS. The SA formerly funded production of regional archaeological overviews as well as specific archaeological cultural contexts. Archaeological contexts are also developed through research conducted under the Section 106 compliance process. According to the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* (SISGAHP), the historic context concept is basically an organizational tool to facilitate comparative assessments of historic properties. SISGAHP guidelines state that:

> *Available information about historic properties must be divided into manageable units before it can be useful for planning purposes. Major decisions about identifying, evaluating, registering and treating historic properties are most reliably made in the context of other related properties. A historic context is an organizational format that groups information about related historic properties, based on a theme, geographic limits and chronological period. A single historic context describes one or more aspects of the historic development of an area … and identifies the significant patterns that individual historic properties represent …. A set of historic contexts is a comprehensive summary of all aspects of the history of the area.*
>
> *Historic contexts, as theoretical constructs, are linked to actual historic properties through the concept of property type. Property types permit the development of plans for identification, evaluation and treatment even in the absence of complete knowledge of individual properties. Like the historic context, property types are artificial constructs which may be revised as necessary.*
>
> *Historic contexts can be developed at a variety of scales appropriate for local, State and regional planning. Given the probability of historic contexts overlapping in an area, it is important to coordinate the development and use of contexts at all levels. Generally, the SHPO possesses the most complete body of information about historic properties and, in practice, is in the best position to perform this function.*
>
> *The development of historic contexts generally results in documents that describe the prehistoric processes or patterns that define the context. Each of the contexts selected should be developed to the point of identifying important property types to be useful in later preservation decision-making. The amount of detail included in these summaries will vary depending on the level (local, state, regional, or national) at which the contexts are developed and on their intended uses. For most planning purposes, a synopsis of the written description of the historic context is sufficient.*

DEVELOPING HISTORIC CONTEXTS

The SISGAHP guidelines identify five steps essential to the process of developing a historic context:

1. identify the concept, time period, and geographic limits for the historic context
2. assemble the existing information about the historic context
3. synthesize the assembled information
4. define property types
5. identify information needs

The following discussion is abstracted from the SISGAHP guidelines and provides a brief overview of each step in the process. The full text of the SISGAHP guidelines should be consulted prior to development of any historic context.

1. Identify the concept, time period, and geographical limits for the historic context.

Historic contexts are based on existing information, concepts, theories, models, and descriptions. Biases in primary and secondary sources need to be identified and taken into account when using existing information in defining historic contexts.

The identification and description of historic contexts should incorporate contributions from all disciplines involved in historic preservation. The chronological period and geographic areas of each historic context should be defined after the conceptual basis is established; however, there may be exceptions, especially in defining precontact contexts where drainage systems or physiographic regions are outlined first. Geographic boundaries for historic contexts should not be based on contemporary political, project, or other boundaries if those modern boundaries do not coincide with historical boundaries. For example, boundaries for precontact contexts have little relationship to contemporary city, county, or state boundaries.

2. Assemble the existing information about the historic context.

Collect information. Several kinds of information are needed to construct a preservation plan. Information about the history of the area encompassed by the historic context must be collected, including any information about historic properties that have already been identified. Existing survey or inventory entries are an important source of information about historic properties.

Other sources might include literature on prehistory, history, architecture, and the environment; social and environmental impact assessments; county and state land use plans; architectural and folklife studies and oral histories; ethnographic research; state historic inventories and registers; technical reports prepared for Section 106 or other assessments of historic properties; and direct consultation with individuals and organized groups.

In many cases, organizations and groups within the preservation, planning, academic, and tribal communities can play important roles in defining historic contexts and values, assisting with defining contexts, and identifying sources of information. In developing historic contexts for areas whose history or prehistory has not been extensively studied, broad general historic contexts should be initially identified using available literature and expertise, with the expectation that the contexts will be revised and subdivided in the future as primary source research and field survey are conducted. It is also important to identify sources of information such as existing planning data needed to establish goals for identification, evaluation, and treatment, and to identify factors that will affect attainment of those goals.

The same approach for obtaining information might not be suitable for all historic contexts. Information should not be gathered without first considering its relative importance to the historic context, the cost and time involved, and the expertise required to obtain it. In many cases, published sources may be used in writing initial definitions of historic contexts; archival research or fieldwork may be needed for subsequent activities.

Assess information. All information should be reviewed to identify bias in historic perspective, methodological approach, or area of coverage. For example, field surveys for precontact archaeological sites might have ignored historic archaeological sites, or county land use plans might have emphasized only development goals. Older site excavations might not have screened or taken flotation samples, affecting recovery of certain artifact classes and ecofacts.

3. Synthesize the information.

Collection and analysis of the information results in a written narrative of the historic context. This narrative provides a detailed synthesis of the data collected and analyzed. The narrative covers the history of the area from the chosen perspective and identifies important patterns, events, persons, or cultural values. The process of identifying the important patterns includes consideration of:

1. trends in area settlement and development, if relevant
2. aesthetic and artistic values embodied in architecture, construction technology, or craftsmanship
3. research values or problems relevant to the historic context, social and physical sciences and humanities, and cultural interests of local communities
4. intangible cultural values of ethnic groups and Native American peoples

4. Define property types.

A property type is a grouping of individual properties based on shared physical or associative characteristics. Property types link the ideas incorporated in the theoretical historic context with actual historic properties that illustrate those ideas. Property types defined for each historic context should be directly related to the conceptual basis of the historic context. For example, “Lead Mining in Southwest Wisconsin, Northwest Illinois, and Northeast Iowa, 1700–1860” might include lead extraction methods and processing complexes; transportation systems; commercial districts and already documented historic properties (e.g., The Mines of Spain in Iowa, and Shake Rag Street and Mineral Point in Wisconsin); mine worker communities (Native American and immigrant); housing, churches, social clubs and other facilities reflecting the ethnic origins of workers; and residences and other properties associated with mine owners and other industrialists.

Identify property types. The narrative should discuss the kinds of properties expected within the geographical limits of the context and group them into those property types most useful in representing important historic trends. Generally, property types should be defined after the historic context has been established. Property types in common usage (e.g., “mill ruins” or “stratified sites”) should not be adopted without first verifying their relevance to the historic contexts being used.

Characterize the locational patterns of property types. Generalizations about where particular types of properties are likely to be found can serve as a guide for identification. Generalizations about the distribution of archaeological properties are frequently used. The distribution of other historic properties often can be estimated based on recognizable historical,

environmental, or cultural factors that determined their location. Locational patterns of property types should be based on models that have an explicit theoretical or historical basis and that can be tested in the field. The model is frequently the product of historical research and analysis (for example, “Prior to widespread use of steam power, mills were located on rivers and streams able to produce water power”), or it may result from sampling techniques.

Often, the results of statistically valid sample surveys can be used to describe the locational patterns of a particular property type. Other surveys can also provide a basis for suggesting locational patterns if they recorded a diversity of historic properties and inspected a variety of environmental zones. The identification of locational patterns will probably come from a combination of these sources. Expected or predicted locational patterns of property types should be developed with a provision made for their verification.

Characterize the condition of property types. Evaluating the expected condition of property types assists in the development of identification, evaluation, and treatment strategies and aids in the definition of physical integrity thresholds for various property types. For each property type, the following should be assessed: (1) inherent characteristics of the property type that either contribute to or detract from its physical preservation (for example, unique preservation concerns related to rock art sites); and (2) aspects of the social and natural environment that may affect the preservation or visibility of the property type (for example, Native American beliefs related to mound sites).

5. Identify information needs.

Filling in information gaps is an important element of the preservation plan designed for each historic context. Statements of the information needed should be as specific as possible, focusing on the type of information needed, the historic context and property types to which it applies, and why the information is needed to perform identification, evaluation, or treatment activities.

HISTORIC CONTEXTS IN WISCONSIN

There are relatively few examples of historic contexts that are written for Wisconsin cultural resources and adhere closely to the above guidelines. Typically, such studies are most accurately termed “Cultural Overviews” or “Cultural Study Units.” Development of these studies began with the production of the Resource Protection Planning Process (RP3) and the Draft Plan for the Protection of Prehistoric Archeological Sites in Wisconsin. These efforts were initiated by the SHPO in the late 1980s.

Members of the WAS contributed to the development of the plan by producing “Introduction to Wisconsin Archaeology: Background to Cultural Resource Planning” (Green et al. 1986) and, later, “Wisconsin Archeology” (Birmingham et al. 1997).

A variety of problems limit the usefulness of some of these existing historic contexts. For example, some of the archaeological contexts are not developed to the degree needed for integration with ongoing research. Many regional contexts are simply a reiteration of the culture history of an area. To be truly useful for preservation planning and the management of significant cultural properties, the existing data on properties, their types, and their distributions should be adequately detailed, quantified, and described.

An additional problem with existing historic contexts is that their structures and formats tend to be highly idiosyncratic, reflecting the particular interests of each context’s developer. A further

limitation on the usefulness of many studies is that geographic limits are generally defined by administrative regions that crosscut natural and precontact and postcontact human territories.

Finally, some of the study units were written decades ago and need to be updated to incorporate new data and interpretations. To be truly useful, regional or cultural historic contexts should be revised and updated regularly to incorporate new information. The WAS recommends that the SHPO and SA work together to ensure that regional and cultural historic contexts (1) follow a basic outline more closely modeled on the SISGAHP guidelines; (2) are updated regularly; and (3) are routinely considered in the planning process.

SELECTED ADDITIONAL INFORMATION/REFERENCES

Birmingham, Robert, C. I. Mason, and J. B. Stoltman (editors)
1997 Wisconsin Archeology. *The Wisconsin Archeologist* 78(1–2).

Green, William, J. B. Stoltman, and A. B. Kehoe (editors)
1986 Introduction to Wisconsin Archaeology: Background to Cultural Resource Planning. *The Wisconsin Archeologist* 67(3–4).

Walder, Heather (editor)
2021 Historical Archaeology in Wisconsin. *The Wisconsin Archeologist* 102(1).

Chapter 3

ARCHIVAL RESEARCH

Archival or background research conducted in association with archaeological investigations involves compiling a project-specific summary of known archaeological properties, known archaeological contexts, previous investigations, and relevant environmental variables. Archival or pre-field research should be undertaken prior to conducting field investigations and should not be limited to Wisconsin if the project is near the border with an adjacent state. The specificity and focus of archival research varies with the level and scale of the associated investigation; however, most projects can be assigned to one of three broad categories.

First, and probably most common, is research undertaken in support of planned fieldwork. In this case, the purpose of archival research is to obtain background information adequate to (1) develop an effective research design, (2) select appropriate field methods, (3) allow for later interpretation of the results of fieldwork, and (4) provide a basis for preliminary evaluation of identified sites. Archival research undertaken in conjunction with Phase I identification studies will be more broadly based than research associated with Phase II testing and evaluation or Phase III data recovery.

A second application of archival research is as an information-gathering tool for non–field-based research projects. Such background studies are often designed to furnish information necessary to develop a formal historic context or provide data required by a specific research objective.

The third application, land use history, is discussed further below.

The sources described in this chapter represent a partial list and would not be relevant for every archaeology project. A starting point for archaeological and archival records is the Wisconsin Historical Preservation Database (WHPD), which contains two important sources that should be checked before conducting field investigations:

- Archaeological Site Inventory (ASI)
- Archaeological Reports Inventory (ARI)

These sources are described in more detail below. Both are accessible online (per WHS licensing agreement) or in-person at the WHS. They identify and describe previously reported archaeological sites and surveys in an area.

Current links to resources listed in this chapter, if available, can be found in Appendix 1: Resources and Website Links.

LAND USE HISTORY

The third application of archival research is as a screening technique to determine the need for actual field observations or to help define an appropriate scope of work for a particular investigation. In this case, the goal of archival research is often the compilation of a land use history (LUH).

An LUH represents an attempt to develop a detailed history of a particular parcel of land with regard to usage and alteration of the original landscape. Such a study typically consists of three components. The first involves compiling the actual history of the parcel in question. The second focuses on compiling a record of natural and cultural processes that might have affected any

historic resources present. The third provides an assessment of the parcel's potential to harbor historic resources.

An LUH should reference any record of past use of the property. Of particular concern are documented developments and related impacts such as structures; sewer, water, and utility improvements; landscaping; hazardous materials deposition; cultivation; or other disruptive land alterations. The LUH should also be reviewed in relation to community and regional histories and physiographic studies to assess the parcel's potential for archaeological or historical significance. Presettlement vegetation, soil type, and landform class are particularly important in this type of approach. Finally, an effort should be made to document individuals or groups associated with the property through time. The degree to which an LUH is developed for a particular project is related to the project's size and the severity of potential impacts to archaeological properties. Potential information sources are listed below; their relevance depends on the nature of the project:

- county histories
- county soil books
- regional physiographic studies or landform analyses
- maps and aerial photographs (e.g., Wisconsin Historic Aerial Image Finder)
- current and historic plat books
- Government Land Office (GLO) survey notes and field sheets
- deeds and tract indexes
- county atlases
- Wisconsin Land Economic Inventory (WLEI)
- tax records (rolls and judgments)
- post-GLO survey records
- census data
- state-level development permits
- municipal building permits
- local newspaper archives
- local historical collections and photographic archives
- tribal records and knowledge
- oral histories
- informant interviews
- LiDAR data sources

The second component of the LUH should focus on identifying various land use practices that might have affected cultural resources on the parcel. Essentially, this part of the study consists of developing a list of disturbances associated with the historic uses of the property. Disturbances might include natural processes such as erosion, inundation, sedimentation, mass wasting, or eolian episodes. Disturbances traceable to cultural events include various land-clearing practices; agricultural activities; timbering or other logging-related operations; mineral or petroleum exploitation; construction of facilities, structures, or roadways; and installation of utilities.

This part of the LUH should pay particular concern to the nature of specific disturbances. For example, disturbances such as land leveling, deep plowing, or excavation of basements and structure foundations destroy or radically transform most archaeological resources affected. However, massive fill episodes or episodic flooding and accompanying sedimentation may have very limited adverse effects and in certain cases even act to preserve archaeological resources.

The third component of the LUH consists of a synthesis of the data compiled in the first two components. The goal of this effort is a practical assessment of the probability that a particular parcel of land may harbor potentially significant resources. The assessment should make explicit reference to the kinds of prior land use, the nature and extent of documented disturbances, the range of precontact or postcontact resources potentially present, and the potential of the landscape to harbor intact or remnant archaeological deposits.

Land use histories are most effective in dealing with clearly circumscribed project boundaries of limited areal extent, e.g., individual lots or parcels of less than 100 acres. The LUH approach does not readily lend itself to extensive corridor surveys or to reconnaissance of tracts in excess of several hundred acres. Archaeological investigations that target urban settings or former or present industrialized land will readily benefit from compilation of an LUH prior to the initiation of field studies. However, land use histories centered on rural tracts can also provide useful data, depending on the nature and extent of the rural developments involved. In general, the LUH approach can lead to more cost-effective field studies guided by robust, focused research designs.

LOCATIONS OF ARCHIVAL RESOURCES

Below are major Wisconsin archival resources that house essential information for archaeological investigations. The list is neither exhaustive nor exclusive and serves only as a basic frame of reference. See Appendix 1 for hyperlinks to all online references and webpages.

Wisconsin Historical Society (WHS)

The WHS houses essential resources for archival research, including the following:

Wisconsin State Historic Preservation Office (SHPO). This office maintains a computerized database and paper files of all federally and state-mandated archaeological and architectural investigations that are currently under review or have been reviewed in the past three years. After three years, the SHPO purges its files and transfers the purged records to the State Archaeology and Maritime Preservation Program (SAMPP). SAMPP staff review the purged records and discard extraneous materials; the remaining records are filed by county, year, and project. These records may contain copies of survey reports as well as project maps, correspondence, and other documents.

The SAMPP acts as a clearinghouse for information related to archaeology in Wisconsin. The office is responsible for administering and overseeing a number of programs related to preservation and management of historic properties in Wisconsin. Its responsibilities include issuing Wisconsin Public Lands Field Archaeological Permits, preparing State and National Register of Historic Places nominations, coordinating the state tax exemption program, and assigning trinomial state site numbers to newly codified archaeological sites. In addition, the SAMPP maintains the archaeological site records for the state and compiles the Archaeological Reports Inventory (ARI).

Contact the SHPO directly for additional information on its functions and services, particularly those related to the identification and protection of human burial sites.

WHS Archives. The State Archives at the WHS contain a wide range of primary materials, including correspondence, maps, and photos relating to archaeological sites and archaeological investigations in Wisconsin.

WHS Library. The WHS Library, housed in the WHS building on the UW-Madison campus, houses an extensive collection of published sources relating to Wisconsin's past. The collection includes books, scholarly journals, popular magazines, and pamphlets.

American Geographical Society (AGS)

The American Geographical Society collection, housed at the UW-Milwaukee's Golda Meir Library, is one of the premier geographical research facilities in the western hemisphere. Its collections include: maps, charts, photos, atlases, books, journals, and satellite imagery of most

areas of the earth. The collection contains a fair selection of archaeological and anthropological resources, including maps, historical atlases, and various geographical and geological data sets.

Area Research Centers

The various Area Research Centers established throughout the state offer regionally specific information dealing with Wisconsin. Regional coverage, holdings, and emphasis vary from center to center. Other sources to check at Area Research Centers include map and air photo libraries, such as the Robinson Map Library at UW-Madison.

Regional Archaeology Centers

In the 1980s and 1990s, certain Wisconsin institutions, designated as Regional Archaeology Centers, amassed information on sites, research, and planning in their particular regions of the state. Although the formal Regional Archaeology Program no longer exists, these institutions are still good sources of information. Their collections vary in types of materials and extent. Information on the Regional Archaeology Centers is available from the SAMPP.

Local Historical/Archaeological Societies

Local historical societies are typically county-wide in focus, although there are some city-oriented societies as well. The nature and extent of the holdings in these facilities vary widely, as do curation and retrieval capabilities. Holdings might include artifact collections, first-hand accounts of historical significance, and a variety of historic records. Local archaeological societies tend to be more widely focused in terms of a geographic area of interest, and only rarely do such organizations maintain curated research collections. Individual members, however, often maintain well-provenienced and readily accessible collections of archaeological materials and site location data.

Tribal Historic Preservation Officers (THPOs) and Other Tribal Experts

Many tribal governments have formally organized historic preservation offices. Often these facilities have regionally specific archival materials relating to the tribe's history, and other information on sites and areas of importance. In some cases, museum-quality exhibits and research collections are also available. Other tribal experts also have extensive knowledge of important sites and locations. Much of the information known to THPOs and other tribal experts is not recorded in or available through other sources.

Avocational Archaeologists and the Public

Residents with special knowledge of a particular area might possess a variety of unpublished data relevant to the local cultural resource base. Material might include artifact collections, historical documents, photos, and maps. Such people are often extremely knowledgeable about local archaeological resources.

TYPES OF ARCHIVAL RESOURCES

A comprehensive archival search should include the following resources. Major categories include serial and map collections, published materials (including journals and other serial publications), and physiographic reference materials.

Serial Files and Map Collections

Archaeological Site Inventory (ASI). The ASI is maintained by the State Archaeologist and contains listings for all codified (i.e., *recorded* by WHS) archaeological and burial sites in Wisconsin. The records are compiled in a computerized database that is updated regularly, with online access through the WHPD.

Hard-copy records (updated monthly) are available upon request. Site locations and previous survey areas in the ASI are approximate depictions placed on a USGS topographic map layer. Wisconsin archaeological site codes use the Smithsonian trinomial numbering system. Site number 47WB-0101, for example, includes a two-digit state designation (Wisconsin = 47), a two-letter county designation (WB = Washburn), a hyphen, and a numerical designation for the individual site (0101 = the 101st site recorded in that county). The "47" state code is sometimes omitted in reports or correspondence if the site is known to be in Wisconsin (for example, "WB-0101").

Burial site codes (for example, BWB-0101) begin with the letter B, followed by the two-letter county designation (WB = Washburn), a hyphen, and a four-digit numerical designation for each site (0101 = the 101st burial site recorded in that county). Note that not all burial sites are so numbered (i.e., not all have the "B" prefix).

National and State Registers of Historic Places (NRHP). The WHS SHPO maintains a list of all Wisconsin properties listed on, or officially determined eligible for listing on, the National Register. The SHPO also maintains a list of all properties listed on, or determined eligible for, the State Register of Historic Places.

Architecture and History Inventory (AHI). The SHPO maintains this inventory of all WHS-recorded buildings and structures of historic and/or architectural interest. Some historic archaeological sites not listed in the ASI are listed in the AHI. Access to the AHI is provided through the WHPD.

Archaeological Reports Inventory (ARI). The SAMPP maintains a bibliography of reports compiled under the SHPO-reviewed compliance program, including compliance archaeology reports (active and inactive) and reports of survey and planning studies. The current version of the ASI is the product of a long evolutionary process—beginning with Charles E. Brown's manuscripts and Records of Antiquities, through a collection of note cards, to various electronic databases. Each iteration left legacy problems behind in the form of abbreviated descriptions, missing information, typos and transcription errors, etc. Users are strongly encouraged to use the ASI as an abstract only, and to seek out all source references and maps before initiating fieldwork. Access to the ASI is also available via WHPD.

Charles E. Brown Manuscript Files (CEB Mss.) and Archaeological Atlas (CEB Atlas). The Charles E. Brown manuscripts, housed in the WHS Archives, consist of 50 years of notes, correspondence, sketches, maps, and other data relating to archaeological sites. Information is organized by county. These manuscripts are also available on microfilm in the WHS Library. The Charles E. Brown archaeological Atlas provides the locations of archaeological sites plotted on county plat maps. The precontact and postcontact site types include camps, villages, mounds, springs, rock art locations, workshops, quarries, cemeteries, trails, and others.

County Archaeological Site Files. The SAMPP maintains this set of files, indexed by county. They contain more detailed information on some of the sites listed in the ASI. These records often include unpublished reports, photographs, sketch maps, feature forms, letters, and miscellaneous information.

Museum Archaeology Program (MAP) Files. The WHS Museum Archaeology Program maintains an additional set of county files. These files include extensive maps, field notes, photographic materials, project correspondence, and reports generated by field investigations conducted for highway construction projects and other public archaeology projects undertaken by MAP since 1957.

Wisconsin Land Economic Inventory (WLEI). The WLEI consists of a set of maps depicting land use by section for most of Wisconsin. This inventory, conducted in the 1930s and 1940s, reports a variety of cultural and natural features. A complete set of maps is housed in the WHS Archives; a less complete set is available at the AGS collection in Milwaukee.

Trygg Map File. The Trygg map file is a privately published composite of the Government Land Office (GLO) land survey records. These maps are less detailed than the GLO plats; however, the file is an important source of data relating to regional development during the late historic period (ca. mid-1800s).

UW-Madison Map Library.The UW-Madison Map Library contains a wide selection of cartographic resources. It is located in Science Hall on the UW-Madison campus.

Wisconsin State Cartographer's Office. This facility, located in Science Hall on the UW-Madison campus, functions as a clearinghouse for mapping-related topics. The Cartographer's Office publishes a periodically updated Wisconsin Catalog of Aerial Photography that lists all known aerial photography from 1936 on.

Journals, Serial Publications, and Published Sources

The Wisconsin Archeologist. This journal of the Wisconsin Archeological Society has been published continuously since 1901. It is a valuable source of information on Wisconsin's precontact and postcontact history and archaeology.

Bulletin of the Milwaukee Public Museum. This now-defunct series contains detailed accounts of archaeological investigations, ethnographic studies, and historical narratives dealing with Wisconsin.

Milwaukee Public Museum Yearbook. Once published annually, these yearbooks contain accounts of various archaeological and ethnographic projects undertaken by museum personnel in Wisconsin and elsewhere.

Milwaukee Public Museum Publications in Anthropology. This now-defunct series includes scholarly treatments of anthropological and archaeological investigations.

Wisconsin Magazine of History. This journal of the WHS contains a wide range of articles dealing with Wisconsin prehistory and history.

County plat books. Newer editions provide information on current ownership, and older editions often contain information that allows reconstruction of changing land use patterns, past land ownership, and determination of original date of settlement.

County histories. County histories range from unpublished narratives and personal diaries to professionally researched studies. Often these histories contain accounts of contacts between early county settlers and historically known tribal groups.

Physiographic Data

Government Land Office (GLO) Maps and Notes. The GLO records consist of plats and survey notes that contain information on vegetation before Euro-American settlement,

topography, and aquatic features. Some cultural information is also noted on the maps, such as locations of indigenous trails, camps, and villages; maple sugar processing stations; pioneer settlements; and early industrial improvements such as mills, roads, homes, and farmsteads. The GLO records are available at the WHS Archives. Microfilmed facsimiles are available online.

County soil survey maps. County soils maps and accompanying documentation are available from Natural Resources Conservation Service offices located in each county. They are also available as a Web soil survey. Specific information on USDA-NRCS soil series descriptions is available online.

County geological investigations. A series of reports on the glacial and bedrock geology of individual Wisconsin counties has been produced by the Wisconsin Geological and Natural History Survey (WGNHS). These bulletins and informational circulars include descriptive text and maps. This is an ongoing project that, as of 2010, included over 20 counties.

Wetland Inventory Maps. This series of maps delineates formally recognized wetland areas within Wisconsin. The maps are available from the Wisconsin Department of Natural Resources (WDNR).

Ecological Landscapes of Wisconsin. The WDNR has developed an Ecological Landscapes of Wisconsin web page that is an outgrowth of the Wisconsin Natural and Scenic areas program. The web site delineates a number of natural regions defined with reference to a complex set of environmental and biological variables. The resulting divisions may be more useful for archaeological interpretation than conventional divisions based solely on vegetation or physiographic data.

County governments. Most counties have GIS web sites. The information on these web sites varies from county to county but typically includes detailed parcel maps and related data. A number of counties have recently conducted LiDAR surveys, and copies of resulting LiDAR documents and maps (if not the original "cloud data" itself) may be available upon request. More county-wide LiDAR surveys are sure to follow.

Chapter 4

PERMITS AND PERMISSIONS

The archaeological principal investigator is responsible for obtaining any permits or formal permissions required under federal, state, tribal, and local laws and statutes prior to conducting archaeological fieldwork. The archaeologist is also responsible for ensuring fulfillment of any provisions of these permits and permissions.

FEDERAL PERMITS

Under provisions of the Archaeological Resources Protection Act of 1979 as amended (ARPA), a permit from the appropriate federal land manager is required for conducting archaeological field investigations on federal lands, tribal lands, and any lands within the exterior boundary of a reservation. The archaeologist will need to contact the federal agency land manager to learn what steps are needed to obtain a permit under ARPA. In the case of tribal lands or any lands within the exterior boundary of a reservation, the archaeologist must also consult with the relevant THPO or other tribally designated official for historic preservation. Archaeologists should expect variations in the ARPA permit application process, as individual federal agencies and tribal entities have developed their own processes.

STATE PERMITS AND PERMISSIONS

Public Land

Under Wisconsin law (Chapter 44, Subchapter II, Section 44.47), anyone conducting archaeological investigations on or in publicly owned lands or waters must first obtain a Wisconsin Public Lands Field Archaeological Permit from the State Archaeologist. “Archaeology” includes, but is not limited to, all types of Phase I, Phase II, and Phase III field investigations. “Public land” refers to all (non-federal and nontribal) publicly owned land and includes land owned by the state, county, civil town, or municipality. Note that this permit does not cover the removal of human remains under Wis. Stat. § 157.70.

The permit application form is available online from the State Archaeologist at the WHS (see Appendix 1).

Two sections of the form are crucial and must be completed before the form is submitted to the WHS:

- The facility or institution where the artifacts and associated documentation are to be curated must be specified. A copy of the curation agreement must be on file with WHS before the permit can be executed.
- The property owner, or designated property manager, must indicate permission by signing the form.

Currently, the following conditions are appended to all state permits for archaeological investigations on publicly owned land under Wis. Stat. § 44.47:

- Two copies of the final report must be submitted to the SHPO.
- All artifacts and notes must be curated in accordance with guidelines found in 36 CFR Part 79, “Curation of Federally-owned and Administered Archaeological Collections,” or by special arrangement with the Wisconsin Historical Society.

The permit typically needs to be reviewed and signed by a designated representative of the state agency or unit of local government that owns and/or manages the land, prior to review and issuance by the State Archaeologist.

Department of Natural Resources (DNR)

Projects that require especially extensive excavation (for example, mechanical stripping of large areas as a component of burial site relocation excavations) may require permitting from the DNR. Contact the DNR Departmental Archaeologist for additional information on archaeology-related permitting needs and reporting requirements.

Burial Sites

The State Historic Preservation Office provides information on current procedures for archaeological investigations at or within the recorded boundaries of human burial sites on the WHS website (See Appendix 1). Chapter 11 of this Guide ("Investigation of Human Burial Sites") provides further information on policies and procedures regarding archaeological investigations at burial sites.

Under Wis. Stat. § 157.70, all parties must obtain an Authorization (for uncataloged sites) or a Permit (for cataloged sites) from the WHS Director or designee prior to performing ground-disturbing work within the boundaries of a burial site.

The burial preservation Administrative Rules [HS2.04(2)] allow for "limited appropriate subsurface exploration" within the boundaries of a reported human burial site. Limited subsurface exploration would include soil cores, soil boring, and shovel tests. These activities should be directed at determining whether the reported burial site is extant or extends into, or is present in, the project area. Limited subsurface exploration excludes site stripping, test units, or large-scale excavations (however, mechanical removal of plow zone or other disturbed overburden may be approved in certain instances). Also, limited subsurface exploration does not include the excavation or removal of human remains.

However, note that as of Fall 2023, the burial preservation Administrative Rules HS1 and HS2 are still undergoing revision to incorporate and reflect recent [2018] changes made to Wis. Stat. § 157.70.

Under Wisconsin law (Wis. Stat. § 157.70), burial sites are considered to have either uncataloged or cataloged status. Prior to conducting any ground-disturbing work within the boundaries of either type of site, one must request and receive permission from WHS. Currently this requires submitting a "Request to Disturb a Human Burial Site" form following the process outlined on the WHS webpage. The form includes information on the site, the landowner, the project, and the nature of the proposed work.

The review and permission process is different for uncataloged and cataloged burial sites. For uncataloged sites, WHS reviews the application and responds within 30 days. Typically, the request is approved with appropriate conditions in place, such as monitoring by a "qualified archaeologist" (see below). Prior to making a decision whether to allow the disturbance to a cataloged site, the Director must solicit and consider any comments or concerns from those on the Registry of Interested Persons who have an interest in that specific burial site, or in a type or class of burial site that forms part of the request (approved by the Burial Sites Preservation Board) prior to making a decision. The review process typically takes a minimum of 90 days; it may also take much longer if either the Applicant, the Director, or anyone on the Registry requests a state-level hearing.

Please note that any archaeological fieldwork within the boundaries of cataloged or uncataloged burial sites must be undertaken by a "Qualified Archeologist" as specified under Wis. Stats. § 157.70(1)(i) and Wis. Admin. Code § HS 2.04(6). Archaeologists and those they may represent must coordinate all phases of burial site disturbance, investigation, documentation, reporting, disposition and the transfer of field notes and photographs with the WHS. For archaeological investigations occurring in the boundary of a burial site in which NO identification of human remains occurs, archaeologists need not send full field notes etc. to the WHS, though a report is required. For a more complete explanation, see Chapter 11 in this Guide.

TRIBAL PERMITS AND PERMISSIONS

Tribal governments of some of the resident Native Nations and Bands in Wisconsin have adopted resolutions or laws regarding archaeological field investigations and collection on tribal lands. To learn whether a tribal permit or other permission is required to work within the exterior boundaries of a reservation, the archaeologist must consult first with the appropriate THPO or official tribal designee for historic preservation, as well as respective Bureau of Indian Affairs (BIA) personnel.

OTHER CONSIDERATIONS

Before conducting any subsurface field investigations, archaeologists must contact Digger's Hotline by dialing 811 or by completing the online form before project initiation at www.diggershotline.com. Digger's Hotline should be notified prior to conducting any archaeological excavation, particularly along a highway rights-of-way, where utilities, including fiber optic cables and gas pipelines, are often present. Note that Digger's Hotline addresses public utilities and is not responsible for marking the locations of private utilities. Also, some local utilities do not subscribe to Digger's Hotline and must be contacted directly.

Chapter 5

PHASE I: IDENTIFICATION SURVEYS

Phase I identification studies (archaeological surveys) are undertaken to gather information about the location, nature, and condition of archaeological sites. Survey methods and techniques are selected based on existing knowledge about archaeological sites in the region, the objective of the survey, and the nature of the project being proposed. The objective is to determine whether significant archaeological sites would be affected by a project reviewed under Section 106, an agency's proposed management practices as defined in Section 110, a state action as defined through the state compliance process (Wis. Stat. § 44.40), or activities at any burial site as protected under Wis. Stat. § 157.70. The goal in most situations is to identify all archaeological sites within the proposed project area.

The SHPO/SAMPP has compiled information based on data generated by archaeologists working within the state over many years. The Wisconsin Historic Preservation Database (WHPD) includes three key sources of information: the Archaeological Site Inventory (ASI), which also contains information on reported burial sites and cemeteries; the Archaeological Reports Inventory (ARI), and the Architecture and History Inventory (AHI). Agency management plans and regional cultural overviews and study units offer additional information. Archaeologists should review these and other relevant information sources (see Chapter 3, "Archival Research"), use current archaeological theory and methods, and adhere to these guidelines in performing Phase I archaeological field investigations and research.

The Wisconsin Archeological Survey subscribes to the Department of the Interior's *Archeology and Historic Preservation; Secretary of the Interior's Standards and Guidelines* (SISGAHP) (36 CFR Part 61) and subsequent revisions. The SISGAHP guidelines focus on the role of identification studies in a state's preservation planning process; the importance of recordkeeping and information distribution; and the need to conduct studies that generate the data required to make decisions regarding the treatment or preservation of archaeological properties. The results of Phase I archaeological surveys should be appropriately documented, reported, and integrated into the state's historic preservation planning process.

DEFINITIONS AND OBJECTIVES

The *Secretary of the Interior's Guidelines for Identification* groups survey techniques into two categories, defined by the survey's objective and results. The first category, ***reconnaissance survey***, includes techniques that result in the characterization of a region's historic properties. Such techniques might include "windshield" or walkover surveys, with perhaps a limited use of subsurface survey. These surveys are often conducted under Section 110 or under a Programmatic Agreement.

The second category, ***intensive survey***, uses techniques that permit the identification and description of specific archaeological properties in a defined area. This category includes surveys that use techniques intended to identify all archaeological sites in a project area. These surveys are frequently conducted under provisions of Section 106. As described in the *Secretary of the Interior's Guidelines for Identification,*

> ***Reconnaissance survey*** *might be most profitably employed when gathering data to refine a developed historic context—such as checking on the presence or absence of expected property types, to define specific property types or to estimate the distribution of historic properties in an area. The results of regional characterization activities provide a general understanding of the historic properties in a*

particular area and permit management decisions that consider the sensitivity of the area in terms of historic preservation concerns and the resulting implications for future land use planning. The data should allow the formulation of estimates of the necessity, type and cost of further identification work and the setting of priorities for the individual tasks involved. In most cases, areas surveyed in this way will require resurvey if more complete information is needed about specific properties.

A reconnaissance survey should document:

- *The kinds of properties looked for;*
- *The boundaries of the area surveyed;*
- *The method of survey, including the extent of survey coverage;*
- *The kinds of historic properties present in the surveyed area;*
- *Specific properties that were identified, and the categories of information collected; and*
- *Places examined that did not contain historic properties.*

***Intensive survey** is most useful when it is necessary to know precisely what historic properties exist in a given area or when information sufficient for later evaluation and treatment decisions is needed on individual historic properties. Intensive survey describes the distribution of properties in an area; determines the number, location, and condition of properties; determines the types of properties actually present within the area; permits classification of individual properties; and records the physical extent of specific properties.*

An intensive survey should document:

- *The kinds of properties looked for;*
- *The boundaries of the area surveyed;*
- *The method of survey, including an estimate of the extent of survey coverage;*
- *A record of the precise location of all properties identified; and*
- *Information on the appearance, significance, integrity and boundaries of each property sufficient to permit an evaluation of its significance.*

Most Section 106 Phase I site identification surveys would be considered *intensive.* The archaeologist is required to conduct a survey of the entire project area (Area of Potential Effect [APE]) to identify archaeological sites. The distinction between survey and evaluation in this guide parallels the common categorization of field research into Phase I and Phase II, respectively. It does not parallel the federal guidelines, which combine the results of both Phase I identification studies and Phase II evaluation under the definition of *identification*, or intensive and reconnaissance surveys. The federal designation follows the Section 106 procedures in that agency consultation is based on an assessment of “effect.” The agency makes this assessment when it determines how and to what degree the proposed project will affect (impact) a significant archaeological property. To clarify, the WAS *Guide* provides separate recommendations for Phase I identification studies and Phase II evaluation of archaeological sites.

Reconnaissance surveys are used for sampling strategies or making estimates, for overviews, or for obtaining a general view of the number and kinds of archaeological properties in an area. Formerly, reconnaissance surveys were often performed by regional archaeology offices through survey and planning grants administered by the SA. Some academic and avocational surveys also fall into the reconnaissance survey category. In most cases, areas investigated in this way should be intensively re-surveyed if they become included in an undertaking (project) defined under Section 106 or if land management activities under Section 110 will alter the ground surface or subsurface, threatening potentially undiscovered archaeological properties.

The USDA Forest Service survey methodology, for one example, combines both reconnaissance and intensive identification surveys, defining strategies based on environmental variables. The Wisconsin Department of Transportation (WisDOT) also combines both strategies in developing a Corridor Methodology for its large projects, based generally on several realignment alternatives. Sampling and systematic approaches are appropriate only for large tracts of land in which intensive survey coverage is not feasible. Prior consultation with the SHPO, THPOs, and other interested parties is necessary before implementing a corridor or other sampling methodology for Section 106 Phase I surveys.

It is important to record the boundaries of all areas surveyed, whether or not sites are found. This information and corresponding documentation is crucial for developing predictions about site distributions in various geographic areas and in developing other research questions. In Phase I identification studies, the WAS also recommends the following:

1. Along with number and location of sites, any available information on property condition should be documented at this phase (specifically any evidence for or against in-situ archaeological deposits).
2. Property types should be defined using information developed at this stage or level of work (i.e., including information from the SHPO's background documentation, the development of the research design, and the newly developed survey data). The classification should be based on common denominators of material class(es), facilities class(es), and matrix class(es) of the site in comparison to others reported in the state or the geographic region of study.
3. The physical extent of the property should be documented. This information is important for determining the proportion and part of the property's matrix that may be disturbed by the project. Such documentation might require examination of the property outside the proposed project limits. This is highly recommended, if feasible and appropriate, so the impact of the project on the archaeological property can be evaluated (e.g., whether the project will affect the most important or least important area of the property). Agencies often discourage survey outside the project area. The individual agency should be notified of any need to go beyond the project area to ensure that costs will be reimbursed. Landowner or land manager permission to access the parcel must also be secured.

FIELD INVESTIGATIONS

The goals of Phase I site identification surveys are (1) to determine whether archaeological sites exist within a defined project area, and (2) to generate sufficient information on the nature, extent, and condition of the site(s) to make appropriate recommendations regarding the need for further archaeological investigations.

A Phase I survey must thoroughly examine all portions of the proposed project area. All appropriate information must be recorded in field notes, survey forms, and maps. The archaeologist should also consider potential secondary impacts from the project and how they could affect any archaeological sites.

As time and labor costs to fully (100%) examine an entire study area are sometimes prohibitive, sampling strategies are sometimes employed for intensive Phase I survey. Survey coverage of the project area should be complete unless there are compelling reasons for using a sampling strategy instead. The archaeologist and the agency should note that sampling strategies are a risk management tool, and each application is based on the assumption that the strategy selected has a high probability of identifying most of the significant archaeological resources in

the study area. If sampling is used, the sampling strategy should be developed in a research design and approved in advance by the appropriate funding and regulatory agencies.

Field work should take place only after:

- a thorough literature and records search is completed
- the archaeologist is familiar with the nature of the project, and exact project boundaries have been defined
- the archaeologist is aware of the various federal and state agencies involved, and any related federal and state legislation, regulations, and guidelines that should be followed
- the archaeologist is aware of the major research questions relevant to the study area and the survey's potential research contributions
- explicit permission from appropriate property owners and/or agencies has been obtained, including written permission, if appropriate, from the property owner to remove the artifacts, soil, and any other materials necessary for analysis and interpretation

A Phase I archaeological survey should generally not be undertaken under the following circumstances:

- if the area is snow covered or frozen, unless special circumstances warrant such an approach (for example, relocation of mounds)
- if the condition of the project area will compromise either the results of the survey or the health or safety of the archaeologists conducting the survey

The Phase I survey needs to include a complete inspection of the project area, including examining slopes for rockshelters, caves, or ledges that might contain archaeological sites (see Chapter 14, "Documenting Rock Art Sites"). If the area has been disturbed to the extent that no archaeological material could reasonably be expected to remain, the agency and the SHPO should be notified, and the need for further field investigations reevaluated.

The archaeologist should ensure that all necessary information has been obtained to substantiate the extent and degree of prior ground disturbance and should include this documentation in the technical report. In all other cases, archaeological survey of the entire project area should be undertaken using methods and techniques appropriate to the environmental setting. Observation of the survey area should help determine the proper survey techniques.

SURVEY METHODS AND TECHNIQUES

The variety of field survey techniques available, together with the varying levels of effort that may be assigned, offer great flexibility in implementing field surveys. The selection of field survey techniques and level of effort should be responsive to the management needs and preservation goals that direct the survey effort. As noted earlier, the objective of a Phase I survey is to identify and document any sites present in the project area. Appropriate methods should be used to fulfill this objective.

Informant interviews. When permission is obtained to work on a property, owners should be interviewed regarding the property's history and any past discoveries. Local collectors and historical societies should also be contacted, along with tribal experts or other individuals or organizations that might have knowledge of the area.

Surface collection (pedestrian survey). Surface collection should be undertaken in a systematic manner to provide 100% coverage of the APE, with the archaeologists observing the

ground surface along evenly spaced transects, as topography indicates. In vegetated areas, surface (walkover) survey can aid in detecting cultural features that are sometimes visible on the ground surface, such as mounds, earthworks, or foundation remnants or depressions associated with historic sites.

Surface collection, with the goal of identifying sites, is appropriate in areas with actual, substantial exposed ground surface, with no further need for manually removing brush and debris, snow cover, or other obstructions.

For pedestrian survey, the maximum spacing of transects should be at a 5-meter interval with a minimum of 30% surface visibility. As surface visibility approaches 100%, transect spacing may be increased in some cases. Conversely, pedestrian survey transect distance may be reduced when cultural materials are encountered to define site boundaries. See Appendix 2 for pedestrian survey guidelines in surrounding states and provinces.

The professional archaeologist must fully justify their survey methods during reporting, as these minimum standards may need to be adjusted during fieldwork at the judgment of the professional archaeologist. The survey transect interval must be fully explained, based on the local geography, specific vegetation or crop coverage, weather conditions such as snow, and other factors that influence surface visibility.

***Subsurface testing*.** Subsurface testing should be used in areas with significant vegetation or in which the original ground surface is not visible (e.g., locations with fill), or where the landform indicates the potential for buried archaeological deposits (e.g., alluvial fans, loess soils, PSA). The method and intervals for subsurface testing (not more than 15 meters, with supplemental testing as indicated) are determined by a number of factors, including: the nature and extent of surface cover, the depth of intact subsurface deposits, soil types, landscape, recent or historical modification to the property, and professional judgment. To be effective, subsurface tests must extend through any deposits that might contain cultural materials (i.e., into “culturally sterile soil”), and the resulting artifactual data must be tied directly to the soil or stratigraphic units observed and documented in the report.

For shovel test pits, a maximum interval of 15 meters is the standard, but 10-meter intervals are a best practice (Alvey 2021). An interval of 10 meters or less in areas of high potential is appropriate, and surveyors should reduce to 5 meter intervals when cultural materials are encountered to define the site boundaries. Shovel tests should be 30 x 30cm square or 35 x 35cm round. Shovel testing is sufficient to 50-75cm depth, thereafter postholes or augering is necessary. All soils from shovel tests must be screened utilizing ¼-inch hardware cloth.

Subsurface testing is also used to detect or confirm the existence of cultural features that might once have existed in an area but are no longer visible on the surface, such as mounds or historic sites. Selection of specific techniques depends on an understanding of the soil development in the immediate area and the expected type of resource. Chapter 11 (“Investigation of Human Burial Sites”) provides essential information on conducting such investigations on known or potential burial sites.

River valleys containing alluvial and colluvial soils frequently contain deeply buried, well-preserved habitation layers. Within these landforms pedestrian survey alone is inadequate as a site discovery technique. Deep subsurface testing should be utilized at the same intervals as shovel testing, unless the results of deep soil coring or other geomorphological data can adequately display the absence of buried soils potentially containing cultural materials.

Subsurface soil coring should be conducted to sufficient depths whereas there is no potential to contain archaeological sites. Soil probes, due to their small sample size are unsuitable and

inefficient in assessing the location and nature of cultural deposits at identified sites. However, soil probes can be used to determine the soil profiles at a site that can further help interpret the location and character of cultural deposits. Geomorphology and a comprehensive understanding of the soils need to supplement the soil coring.

Disturbed Soils in an Archaeological Context

The professional archaeologist and/or geomorphologist makes the decision whether or not soils exist in a disturbed or undisturbed context based upon multiple lines of evidence. Disturbed soils are characterized by the absolute absence of original soil horizons potentially containing cultural materials and/or the complete commingling of soil horizons where context is no longer present. A plowed context is not immediately considered disturbed soil, since the nature of the disturbance may be relegated only to the depth of the plowzone and the soil horizons have typically neither been removed nor completely amalgamated. The degree of disturbance in a plowzone must be evaluated by the professional archaeologist on a case-by-case basis.

Geomorphological research. Subsurface evaluation is required in areas where sensitive archaeological surfaces might have been covered, or where buried soil horizons or complex or unusual conditions of soil deposition exist. Evaluation of such settings warrants examination by a qualified geomorphologist (see Chapter 12, “Geomorphological and Geoarchaeological Investigations”).

Metal detectors. Metal detectors can assist in Phase I identification surveys, particularly when dealing with historic archaeological sites. However, caution should be exercised when digging to find metal objects, to ensure that the integrity of the site and any features (including human burial sites) and other artifacts proximal to the metal item are not compromised. Because copper and other metallic artifacts might be associated with burials, but metal-detecting signals focus on a specific metallic target, caution is required to minimize the potential for unintended impacts to unidentified burial sites. Also, note that metal detector use on DNR properties requires a permit.

Other methods. Special survey techniques might be needed in certain situations depending on the project location, landform position, and other factors. In these situations backhoe trenching or remote sensing techniques in combination with other subsurface evaluative methods might be the most effective way to gather background environmental data, plan more detailed field investigations, discover certain classes of archaeological properties, map sites, locate and confirm the presence of predicted sites, and define features within properties. For further information on buried sites and “deep site testing,” see Chapter 12. The results of remote sensing should be verified through independent field survey and testing (ground-truthing) before any evaluation or statement is made regarding frequencies, distributions, or types of properties.

Redeposition of Archaeological Material. In certain environmental settings, archaeological materials might no longer be in their primary contexts. If redeposition of artifacts is suspected, the archaeologist needs to fully understand (and be able to articulate clearly) the nature of the site prior to submitting the report. This might require additional investigations outside of the project area to generate data needed to interpret the artifacts found within the project area. Failure to investigate the nature and integrity of the materials at the time of the Phase I survey results in additional costs to the agency or client and fails to provide the information needed by the agency and the SHPO. The archaeologist must ensure that all available avenues of interpretation have been explored and that the data needed to make appropriate recommendations have been generated.

SAMPLING

As noted earlier, reconnaissance survey methods sometimes employ sampling to examine less than the total project or planning area. Sampling can be effective when several locations are being considered for a project or when it is desirable to estimate the cultural resources of an area. If sampling methods are used, the Principal Investigator must explain the type of sampling used and the basis for it. Sampling strategies include *random*, *stratified*, and *systematic*. Selection of a sampling strategy should be guided by the survey objectives, the nature of the expected properties, and the environmental diversity in the project area. Care should be taken to ensure that the work will meet the needs of the agency and the requirements of the project.

If large land areas are involved, sampling can be done in stages. In this approach, the results of the initial large-area survey are used to structure successively smaller, more detailed surveys. This “nesting” approach is an efficient technique since it enables characterization of both large and small areas with reduced field effort. As with all investigative techniques, such procedures should be designed to permit independent assessment of results.

For reconnaissance surveys in which exact project boundaries are unknown or in which survey data will be used to assist in designing large-scale projects, sampling techniques, particularly predictive modeling, may be appropriate. Stratified random sampling is a well-known approach in which an area is divided into several subareas or “strata” on the basis of natural differences (or arbitrarily, if no such differences are apparent), and then survey units within each stratum are selected by random sampling.

Systematic sampling approaches are those with survey units set at intervals- systematically. In theory, they should cover all likely “strata” in an area of study, but they have the potential to miss areas smaller than the interval chosen, as well as things that are “regular” in their interval of occurrence, if those locations do not match the survey interval.

As noted, one form of sampling used by WisDOT is called a “Corridor Methodology.” For larger multi-corridor projects and new alignments, the archaeologist is required to develop a methodology for studying the project area using a sampling strategy. The parameters for this type of sampling have been established by WisDOT and approved by the SHPO. In this approach, intensive Phase I survey is conducted after the corridor survey is completed and WisDOT has determined the final alignment. The entire final alignment is then resurveyed to ensure that it meets appropriate guidelines for Phase I survey.

DOCUMENTATION OF AN ARCHAEOLOGICAL SITE

When archaeological materials are discovered, the site boundaries should be determined, and artifact concentrations or other patterns in artifact distribution should be mapped and documented. The distribution of artifacts can be recorded by piece-plotting, by conducting a controlled surface collection of equal-sized units placed systematically across the entire site area, or by recording the artifacts in relation to local topographic and environmental features, such as natural rises. In addition, global positioning system (GPS) coordinates can be taken at the locations of diagnostic artifacts, at the center of artifact concentrations, or at the boundaries of artifact concentrations or sites. GPS-derived coordinates (especially UTM coordinates) can aid greatly in site mapping and relocation.

Field site or site boundary mapping should be created with reference to a known physical reference point. An ideal datum consists of a survey marker, iron property corner stake, recorded USGS monument, or an easily recognizable physical point on the landscape (such as a road, trail or railroad/road intersection) documented with GPS coordinates. Parcel corners without physical monuments, trees, and buildings are inappropriate as they are not permanent

and may be difficult to relocate in the future. The physical model or hardware number of the GPS handheld unit, range of error recorded on the GPS unit during survey, the number of satellites used to record the GPS point, and GPS unit threshold (such a sub-meter accuracy), as well as the geospatial datum and projection used (e.g., NAD 1983 UTM Zone 16N) must be recorded. Field site and boundary maps must include a scale, north arrow (indicate grid, magnetic, or true north), title, and key.

If a site is identified through other subsurface techniques, the general provenience of the artifacts needs to be documented, as well as observations on the stratigraphic position and density of materials. If subsurface techniques are used, representative soil profiles or sediment strata across the site area must be recorded, and their relationships to cultural stratigraphic units, artifacts, or both noted. Stratigraphic position of the artifacts should be recorded by depth below the present ground surface. Once a site is identified, there are several different ways to sample it. A standard procedure is to reduce the shovel test interval (for example, reducing to 5 meters from a more typical 15 meter minimum interval, depending on the size and nature of the site) at the perimeter of the site to assist in defining site boundaries. Care should be taken to minimize impact to the site from close-interval shovel testing.

All artifacts should be collected, accurately described, and curated according to the guidelines in Chapter 9, “Curation.” If a property owner refuses to allow the removal of the artifacts, all required documentation should be generated in the field, including the documentation of all diagnostic artifacts (e.g., measurements, written descriptions, and photographs).

DOCUMENTATION OF A BURIAL SITE

Chapter 11, “Investigation of Human Burial Sites,” describes procedures for documenting human burials and burial sites.

REPORTING RESULTS OF IDENTIFICATION SURVEYS

Requirements for reporting the results of identification studies are addressed in Chapter 8, “Technical Reporting.” These guidelines provide an outline for the minimum information that must be included in a technical report.

Protection of information about archaeological sites is important because many sites may be threatened by dissemination of information. Such sites can include fragile archaeological properties or sacred or religious sites, structures, or objects whose cultural value would be compromised by public knowledge of the property’s location. The WAS concurs with federal guidelines and state legislation on this issue.

All documentation on sites found should be submitted to the SAMPP, and site codification numbers obtained for inclusion in the report. An archaeological site form should be completed for all new sites and a site map attached. If the site was previously reported, a site update form should be submitted to WHS if the fieldwork or archival research has significantly changed information available for the site, e.g.:

- a change in site location
- a change in site dimensions
- a change in site integrity
- changes in site type, site age, affiliation, significance, NRHP/Determination of Eligibility status
- presence of a human burial(s)

An Archaeological Reports Inventory (ARI) form should also be submitted to WHS. All of this information is essential for integrating survey results with state preservation planning efforts. New information will best serve all archaeologists involved in planning, research, or compliance efforts if it is fully reported.

SELECTED ADDITIONAL INFORMATION/ REFERENCES

Alvey, Jeffrey S.
2021 The Problem of Undersampling for Models of Archaeological Occupations Derived from Shovel Testing and its Consequences for Significance Determinations. *North American Archaeologist* 42(2): 205-234.https://doi.org/10.1177/0197693120980982

Chapter 6

PHASE II: EVALUATION ACCORDING TO NRHP CRITERIA

The purpose of a Phase II evaluation under Section 106 of the National Historic Preservation Act is to determine whether an archaeological site is significant. WAS members undertaking a Phase II investigation must provide an authoritative recommendation to involved federal and state agencies based on demonstrative evidence that the site or sites in question meet or do not meet eligibility criteria for the National Register of Historic Places (NRHP). According to the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* (SISGAHP) (48 FR 44716), evaluation is defined as the process of determining whether identified properties meet defined criteria of significance for the NRHP and, therefore, should be included in an inventory of historic properties. The SISGAHP standards are:

Standard I. *Evaluation of the significance of historic properties uses established criteria.*

Because the NRHP is a major focus of preservation activities on the federal, state, and local levels, the NRHP criteria have been widely adopted not only as required for federal purposes but also for state and local inventories. Under Section 106, significance is evaluated against four basic criteria established by the National Park Service for the NRHP:

(A) association with events that have made a significant contribution to the broad patterns of history

(B) association with the lives of significant persons

(C) embodiment of distinctive characteristics of a type, period, or method of construction

(D) potential to yield important information in prehistory or history

Archaeologists can determine the significance of an archaeological site or a district (a concentration of related sites) under any or all of these criteria. Most archaeological sites and districts are considered under Criterion D, their potential to yield important information in history or prehistory. Central to these criteria is the issue of site integrity.

Significance can be demonstrated on a site basis or in the context of larger regional studies. Many types of sites can be crucially important in understanding patterns in past human behavior, including isolated projectile points, lithic workshops, quarries, short-term camps, fishing stations, extractive locales, symbolic markers such as rock art or mounds, single-component sites, sites with preserved organic remains, sites in atypical locations or habitats, or amorphous lithic scatters. Archaeological sites of the Historic period also can be significant (see Chapter 10, “Recording and Evaluating Historic Archaeological Properties”).

Standard II. *Evaluation of the significance applies the criteria within historic contexts. Properties are evaluated using a historic context that identifies the significant patterns that properties represent and defines expected property types against which individual properties may be compared. Within this comparative framework, the criteria for evaluation take on particular meaning with regard to individual properties.*

archaeological properties should be evaluated based on comparative data associated with a historic context, including configurations of artifacts, soil strata, structural remains, or other natural or cultural features. The importance of such information is evaluated within a cultural, chronological, or regional framework or by developing a historic context. Evaluating the information potential of a site requires developing research questions to which the site might contribute answers. Research questions may be developed from a general body of

archaeological theory or data (see Chapter 2, “Establishing Historic Contexts and Research Designs”) or from existing archaeological contexts.

Standard III. *Evaluation results in a list or inventory of significant properties that is consulted in assigning registration and treatment priorities.*

The evaluation process and subsequent development of an inventory of significant properties is an ongoing activity. Evaluation of significance must be completed before a property is included in the inventory and before preservation treatments are considered. Each property in the inventory should be fully documented, including a statement that clarifies the significance of the property within one or more historic contexts. The SHPO maintains a list of registered properties, found on the WHS website. There is no complete list of archaeological sites that have been evaluated in Wisconsin, nor is there a listing of properties by type or within any historic context. Some of this information may be available via the WHPD; the SAMPP can be contacted for additional assistance.

Standard IV. *Evaluation results are made available to the public.*

Evaluation is the basis for registration and treatment decisions. Information about evaluation decisions should be organized and available for use by the general public and by those who take part in decisions about registration and treatment. Use of appropriate computer-assisted databases should be part of the information-dissemination effort for land-managing agencies, but sensitive information on site locations should be safeguarded from general public distribution. General public distribution may be limited under provisions of federal and state legislation.

Archaeologists may also be involved in the evaluation of other types of cultural properties such as “traditional cultural properties” or “rural historic landscapes.” In these situations, archaeologists are advised to contact the National Park Service to obtain copies of National Register Bulletins that discuss these types of properties (available online). These properties should also be evaluated against the four NRHP criteria noted above.

DETERMINATIONS OF ELIGIBILITY UNDER SECTION 106

An archaeologist working on a Phase II investigation under Section 106 makes a recommendation on site significance. This recommendation is part of the evaluation process used by the SHPO, the federal agency, and the Advisory Council on Historic Preservation to reach a formal Determination of Eligibility (DOE). For a DOE, the archaeologist completes NPS Form 10-900, the National Register of Historic Places nomination form. Copies of this form are available from the SHPO. Step-by-step instructions are available in the National Register Bulletin entitled, *How to Complete the National Register Registration Form*, available online from the National Park Service .

If the SHPO and the federal agency agree with the archaeologist’s recommendation that a site is significant, the site is then determined eligible for the National Register of Historic Places. If the archaeological property cannot be either avoided through project redesign or incorporated into the project design without being impacted by construction, the recommending archaeologist might be contacted to provide a mitigation plan for review and acceptance by appropriate agencies (see Chapter 7, ”Phase III: Data Recovery and Mitigation”). It is important to provide as much information as possible in the DOE, which establishes the important research questions. Furthermore, if the site is avoided through project redesign, such as a shift in a highway alignment, the SAMPP can use the DOE to formally nominate the site to the NRHP. Formally listing the site on the NRHP can help future preservation efforts under state historic

preservation laws, should the site be threatened by activities regulated by state agencies or local units of government.

EVALUATIONS UNDER STATE HISTORIC PRESERVATION LEGISLATION

(Provided by Chip Brown, former Government Assistance and Training Specialist, WHS)

It is important to recognize that Wisconsin state historic preservation laws, while parallel and similar in intent to federal historic preservation laws, are quite different from them in execution, party responsibility, and investiture.

State laws, Wis. Stat. § 44.40, 44.42 and 66.1111 (the first dealing with state agencies, and the latter two dealing with local units of government and school boards), require that the agency or other unit of government determine whether a particular undertaking[1] will affect an historic property. Historic properties are defined at Wis. Stat. § 44.31(3) as:

> *Any building, structure, object, district, area or site, whether on or beneath the surface of land or water, that is significant in the history, prehistory, architecture, archaeology or culture of this state, its rural and urban communities or the nation.*

Further, only certain categories of historic properties may be evaluated for effects under each of the above state laws. According to Wis. Stat. § 44.40, an evaluation may be conducted when an undertaking will affect an historic property that is (1) a listed property on the National Register or State Register either individually (single properties or districts) or as contributing elements in a district; (2) listed in the Architectural Inventory of the WHPD; or (3) on the list of locally designated historic places under Wis. Stat. § 44.45.[2]

Under Wis. Stat. § 44.42, which is defined for local units of government and school boards by Wis. Stat. § 66.037, the categories are further restricted to listed properties (as above), or properties recorded on the list of locally designated historic places under Wis. Stat. § 44.45.

In no case does state historic preservation law require an archaeological survey to locate historic properties. In every case, known historic properties (as described above) must be present and within the area to be affected by the undertaking before any review, and possible archaeological survey, is required.

Under state law, the SHPO must determine whether the undertaking will adversely affect the historic property. Based upon information found in the archaeological Site Inventory (ASI), the Architecture History Inventory (AHI), past compliance records, published and unpublished reports, and other information, the SHPO determines that an adverse effect may, or may not, result. The SHPO then may require negotiation with the agency or unit of government to “reduce such [adverse] effects” (§ 44.40[3] and § 44.42[2]). The archaeologist might be asked by any of these parties for additional information or clarification but is not part of the decision-making process.

When a historic property may be adversely affected, negotiation may lead to archaeological field work of some kind. The scope of any archaeological survey may be narrow or broad as each case requires and as each negotiated agreement dictates.

Frequently, a survey is conducted to identify the boundaries of a known site to establish the basis for redesigning specifics of an undertaking. Guidelines for retrieving this information from the archaeological record may be necessary and helpful to ensure appropriate (to the particular case) data-collection methods, information collection, and report format:

> *A pedestrian survey and/or shovel testing, if justifiable, at the site location shall be conducted to determine site boundaries. The resulting report from such survey shall include information known about this site, lists and general descriptions of artifacts and/or artifact classes if no diagnostic artifacts are*

> *obtained, lists and general descriptions of associated materials (e.g. faunal remains), a map showing the site in its specific environs-particularly in relation to the area of the undertaking, and a USGS topographic map showing the site location as accurately as possible.*

Specifics of many undertakings dictate from the outset that additional archaeological information be obtained, including on significance of the archaeological site. Guidelines for these activities also will assist archaeologists in their survey work:

> *Extensive shovel testing, and some test excavation of defined units, may be necessary to establish this information. The resulting report shall provide extensive information on and analysis of the recovered archaeological and associated materials. This analysis shall be provided within the appropriate local/regional/global context for such sites at such locales. A determination of eligibility for listing in the State Register and National Register of Historic Places may be included in this report. If this survey type is conducted as the initial survey, all of the information described above to be included in the site boundary survey shall be included in this survey report. If this survey is conducted after a site boundary survey has been conducted, data replication is not necessary for its own sake-it is sufficient to reference the previous report.*

Infrequently, an archaeological mitigation must be performed if a significant archaeological site will be destroyed as a result of the undertaking. Guidelines for this work should be the same as those used to direct mitigation work under federal law (see Chapter 7, “Phase III: Data Recovery and Mitigation”). Nevertheless, standards for work may be negotiated under state law so that the archaeological scope of work is either more or less extensive than a comparable scope of work executed under federal law.

Finally, some archaeological surveys are tailored to the negotiated settlement pertinent to the undertaking. One common example of a specialized survey type is monitoring of a project area during ground-disturbing activities to identify archaeological remains, including artifacts, associated materials, and features. General guidelines for such archaeological activity may be useful:

> *An archaeologist shall monitor ground-disturbing activities for the unearthing of archaeological material. If such material is identified, the ground-disturbing activities may be halted to allow for immediate mitigational data recovery.*
>
> *The SHPO shall be notified of such finds as soon as possible after discovery. The excavation shall include recovery of material within the area of ground disturbance. If possible, reconnaissance should be undertaken to determine whether any, and if so what portion, of the archaeological site remains undisturbed. Upon completion of data recovery, the archaeologist shall prepare a report detailing, with brief analysis (if possible), the materials excavated. A statement of site significance shall be included, if significance may be reasonably ascertained. The report shall note that the material was recovered pursuant to a negotiated agreement to allow monitoring and salvage mitigation.*

Each case under state law jurisdiction involving archaeological sites may be negotiated to suit the particulars of the specific undertaking and the principal players involved. Necessarily, constructing guidelines for archaeological work may be general at most, and unknown until negotiated at least. It is important to coordinate all work with the SHPO and the relevant agency or other unit of government before carrying it out because, under state historic preservation laws, as is clear from the foregoing, the actuality of a survey type with its associated guidelines, and any additional or progressive survey work, is never absolute.

[1] Under state law, the word “undertaking” is not often used. Undertaking is used in this context to provide some analogy to federal law. We refer to undertakings as *projects* or *cases.* According to Wis. Stat. § 44.40*,* undertakings actually are:

> *actions of the state agency that may cause or permit an adverse effect on historic property including, but not limited to, any state agency action that involves the exercise of state agency authority in the issuance of a permit, license, authorization, variance or exception or in any grant of financial assistance*

and any state agency action related to property owned by the state agency or related to its long-range planning and facilities development.

Under Wis. Stat. § 66.037, which provides some defining information for Wis. Stat. 44.42*,* undertakings are:

1. *Long-range planning for facilities development.*
2. *Any action under sub. (3) [See below.].*
3. *Razing any historic property which it owns.*

(3) OWNERSHIP, USE AND DISPOSITION OF PROPERTY.

(a) A political subdivision may preserve or rehabilitate any historic property which it owns, construct buildings on that property, own and maintain that property for public purposes or lease or convey that property.

(b) If a political subdivision leases to another person a historic property, the political subdivision shall include provisions in the lease which protect the historic character and qualities of that property. If the political subdivision conveys a historic property, the political subdivision shall obtain a conservation easement under s. 700.40 to protect the historic character and qualities of the property.

[2] The list of locally designated historic places is very short; it includes historic properties from a small number of communities. The office of the Local Preservation Coordinator (LPC) in the SHPO maintains the list of locally designated places. For more information, contact the LPC directly.

[3]A project may be redesigned to avoid the site, or further archaeological work may be conducted.

NOMINATING SITES TO THE NRHP

To nominate an archaeological site to the National Register of Historic Places, the NPS 10-900 form should be completed and submitted to the SAMPP. The National Register Bulletin entitled, *How to Complete the National Register Registration Form,* is recommended for those who have never completed the NPS 10-900 form. Nominations are presented at the quarterly meetings of the State Historic Preservation Review Board. If the state board approves the nomination, it is forwarded to the National Park Service in Washington, DC. If the National Park Service concurs that the site is significant, it formally lists the site and sends a notice to the Historic Preservation Division. The property owner of a site on the NRHP can obtain a tax credit for the land included in the nomination, under Wis. Stats.§ 70.11(13m).

To nominate an archaeological site located on tribal lands or within the exterior boundary of a reservation, the archaeologist should contact the appropriate THPO as well as the SHPO. The NPS 10-900 form should be completed and submitted to the THPO. If the THPO approves the nomination, it is forwarded to the National Park Service in Washington, D.C.

In situations where extensive identification studies have been accomplished, consideration should be given to a possible district nomination. For example, for long, linear projects such a proposed highway corridor, it might be possible to identify numerous sites within a particular valley. These sites might be more appropriately evaluated as a district, with significance not solely determined by individual characteristics of each site. Other sites might be more appropriately evaluated as part of a thematic nomination, such as logging camps in northern Wisconsin.

CONDUCTING A PHASE II EVALUATION

Phase II evaluations are normally part of a variety of preservation planning activities that might be associated with the project. Often, Phase II evaluations are performed to comply with Section

106 if the site is likely to be impacted by a federally sponsored or licensed activity or project. Sites might also be evaluated in conjunction with Section 110 compliance if a federal agency is evaluating sites on lands that it owns. In these situations, the site might not be threatened with imminent destruction, and often multiple sites are evaluated at one time. Sites might also be evaluated in conjunction with survey and planning evaluations, which often focus on thematic or multiple property nominations to the NRHP. In Wisconsin, sites on state and other non-federal public lands might also be evaluated under state historic preservation statutes.

Field investigations. The scale of Phase II field investigations varies with the type, size, and complexity of the archaeological deposits. At a minimum, Phase II evaluations must be designed to generate data on site size, age, structure, and condition so that site significance and integrity can be evaluated and a recommendation made regarding NRHP eligibility.

If site avoidance through project redesign is not a feasible or prudent alternative, additional field investigation may be warranted to generate additional data on site structure, feature density, and feature distribution prior to the development of a Data Recovery Plan (see Chapter 7, "Phase III: Data Recovery and Mitigation"). Additional field investigations and archival work might be needed after completion of the Phase II evaluation but prior to the development of a Data Recovery Plan when agencies or circumstances place a restriction on the amount of field work that can be undertaken during the Phase II evaluation. Such restrictions might limit understanding of the entire site, making it more difficult to formulate recommendations on appropriate mitigation treatment and to develop the research questions and Data Recovery Plan.

The archaeologist should carefully weigh methodological aspects of Phase II field evaluation, including sample size and sampling strategy, type and frequency of surface and subsurface sampling techniques or excavation units, appropriate levels of mapping and documentation, and remote sensing. Deeply buried archaeological deposits require geoarchaeological work as part of the testing plan.

No site should be mechanically stripped as part of a Phase II investigation, even if a plowzone and mixing of archaeological deposits are evident, until state and federal agencies have had an opportunity to comment on the archaeologist's recommendation of site significance in the context of the scope and methods of field work used to reach that recommendation.

Analysis and interpretation. No matter whether a site is determined eligible or not eligible for the NRHP, a technical report must be prepared describing the results of the Phase II evaluation (see Chapter 8, "Technical Reporting"). If the site is determined eligible for, or will be formally nominated to, the NRHP, the archaeologist should complete NPS Form 10-900.

Additional information can be found in the *Wisconsin Supplementary Manual For Nominations to the National Register of Historic Places* page of the WHS webpage and online via the NPS website (see Appendix 1).

Recommendations. If archaeologists believe a site has the potential to produce important information and should be determined eligible for, or formally nominated to, the NRHP, then they should recommend avoiding the site through project redesign. Recommending fencing the site, or even monitoring construction in the immediate site area, may be appropriate to ensure that the site is not inadvertently destroyed or damaged during construction. Language can be recommended for construction contracts to ensure that the contractor is aware of the specific areas to avoid and of penalties for disturbing the site area. Monitoring, however, is never a substitute for data recovery. If the site does not qualify for listing on the NRHP, then no additional archaeological investigation should be recommended. Monitoring should always be considered when there is reasonable potential for encountering unrecorded burials.

Chapter 7

Phase III: DATA RECOVERY AND MITIGATION

If a proposed project will have an adverse effect on an archaeological site that has been determined eligible for the NRHP, and neither preservation in place nor avoidance through project redesign is feasible, data recovery is often undertaken as a way of mitigating the project's adverse effects. The purpose of data recovery is to recover the site's significant information by collecting the relevant data, analyzing and reporting the results, and curating the recovered materials and records.

Under Section 106, the federal agency, in consultation with the SHPO (as well as the THPO if it involves tribal lands or lands within the exterior boundary of a reservation) and the Advisory Council on Historic Preservation (ACHP), should determine how a project may affect any significant archaeological sites. 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 explains the project's history, describes significant archaeological site(s), details the finding of effect, and describes how any adverse effects of the project will be mitigated. A Data Recovery Plan (DRP) details the specific research questions, excavation strategy, laboratory analysis, schedule, and budget. This DRP is subject to review by the SHPO/THPO and the ACHP. In certain situations, a Memorandum of Agreement (MOA) may be developed and executed by representatives of the federal agency, the SHPO/THPO, and the ACHP.

The MOA details the agreement reached by the signatory parties regarding how the project's adverse effects will be resolved.

Note that the issues discussed below generally apply to major academic field projects as well as CRM-driven research.

DEVELOPING A DATA RECOVERY PLAN

The 1980 ACHP publication, *Treatment of Archeological Properties: A Handbook*, provides recommendations for developing a DRP. The *Secretary of the Interior's Standards and Guidelines* also provide guidance on what should be included in a DRP. A key element is a research design that facilitates an orderly, goal-directed, and economical project. The research design should be flexible enough, however, to allow for modification to take advantage of unanticipated but important research opportunities that arise during the investigation, or to adapt to unexpected circumstances. Although a wide range of potential research questions may be posed, the DRP must contain research questions that can be addressed with tangible archaeological evidence likely to be recovered from that particular site or sites.

METHODS AND TECHNIQUES OF DATA RECOVERY

Field techniques for data recovery 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, obtained during the Phase I and Phase II investigations: (1) extent of the site; (2) stratigraphy and previous land use practices; (3) kinds of features; and (4) density of features and distribution across the site. Some of this information might be

established by previous investigations in the region or at other sites included in the property type.

Carrying out data recovery as a two-step process is often advantageous. The first stage involves investigating a portion or a sample of the site. After the first stage is completed, a preliminary evaluation of the results is undertaken, and consultation with agency officials and the SHPO/THPO about the results also may occur. If all parties agree that it is appropriate, more extensive data recovery then could be undertaken as a second stage. This two-step approach also allows for more efficient modification of the research design if unanticipated discoveries are made or the results are different from what was anticipated.

Data recovery methods can include controlled surface collections, machine excavation where prior testing has identified deeply buried cultural deposits or mixed surface deposits (or both), and sampling or total excavation of all documented features. There are no set rules, standards, or methods other than clear implementation of the approved MOA and DRP.

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, such as archaeologists, can be directly involved in obtaining and addressing comments and concerns raised by tribes and other 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 archaeological properties.

PUBLIC BENEFIT

Efforts should be made to inform the public about project results, especially for large-scale data recovery projects. 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 archaeology, and efforts should be made to engage local media, school, and other community groups.

Additionally, it is desirable to engage and involve members of interested communities, especially local tribal communities or other groups who have an ancestral interest or other heritage stake in the site. Public outreach should be coordinated with pertinent agencies and other entities as appropriate, and special care should be taken if the project involves burial sites or other sensitive information.

Keeping colleagues updated on the status of major excavations-in addition to the usual professional papers or monographs-is also important.

In a nutshell, archaeologists have a responsibility to communicate the results of their efforts and share their passion for the work, not only with agencies and colleagues, but also with the public they are privileged to represent, and both data recovery and major academic research projects offer excellent opportunities to do so.

Chapter 8

TECHNICAL REPORTING

Professional archaeologists have a fundamental responsibility to document their work in appropriate formats and make the information available to diverse audiences. Different types of projects call for different forms of documentation. The *Secretary of the Interior's Standards for Archeological Documentation* and accompanying *Guidelines for Archeological Documentation* provide a basic framework applicable to a wide range of project types. The guidelines for format and content presented below focus on technical reports prepared for public archaeology projects, but they can be adapted to many types of research projects as well as specialized investigations.

This *Guide* is intended to promote responsible and high-quality archaeological research in Wisconsin. The following guidelines on technical reports are not intended to serve as a rigid format or to exclude categories of data not listed. Rather, they show the level of documentation that should be provided in reports prepared for public archaeology projects. They provide a general outline for report format and follow federal guidelines for compliance with Section 106 of the National Historic Preservation Act as well as state statutes and WHS protocols. They also incorporate report guidelines adopted by the Society for American Archaeology Regional Conference on Cultural Resource Management Subcommittee on Standards and Guidelines (1986). The guidelines follow the research process for federal and state-regulated research projects:

- archival documentation or reconnaissance documentation only
- Phase I identification research
- Phase II evaluation of a site(s) with respect to criteria of eligibility for listing on the National Register of Historic Places (NRHP) (36 CFR 60). This would also include a statement of significance for each site (potentially eligible, eligible, not eligible, etc.) and should include documentation for a formal Determination of Eligibility if appropriate.
- Phase III mitigation of archaeological properties after the agency and SHPO/THPO have reached a formal Determination of Effect (no effect, adverse effect, no adverse effect, conditional no adverse effect, etc.)

The following guidelines are for detailing the results of Phase I identification and Phase II evaluation research projects, as appropriate to the nature of the undertaking (project), results of the investigations, and nature of the sites identified. Reports on Phase III (formal excavation/mitigation) projects are written in accordance with the Data Recovery Plan approved by the agency, the SHPO/THPO, and the Advisory Council on Historic Preservation. It is assumed that Phase III reports will include all of the information described below in addition to the requirements of the DRP, and will follow the *Secretary of the Interior's Guidelines for Archeological Documentation.*

REPORT COMPONENTS

A report should contain, at a minimum, the following sections and the information described under each section.

Note on Measurements: Precontact sites should be documented in metric measurements, and postcontact or "historic" sites should be documented in both metric and English measurements.

1. Title Page

The title page should contain information on the researcher, agency, and all relevant project numbers:

- the title of the report, including the name and location of the project and the type of archeological investigation(s)
- the principal author(s) and principal investigator, and their organizational affiliation and address
- a list of contributors and their organizational affiliations, if appropriate
- the name of the lead agency, institution, or organization funding the research, the agency project number, and the name and address of the client, if appropriate
- if available, the WHS compliance number, assigned by the Office of Preservation Planning
- the date the report was prepared
- whether it is a draft or final report

2. Abstract/Management Summary

The abstract should contain sufficient information to be used as a summary statement for entry into the Archaeological Reports Inventory (ARI). The abstract should include:

- the type of project and size of the project area (in hectares and acres) for which the archaeological research was conducted
- the type of research conducted (Phase I, II, III, archival research, etc.), the methods used, and a brief summary of the results of the research
- the number of archaeological sites investigated, including their state (Smithsonian) codification numbers
- a statement of significance, as appropriate, for each site according to NRHP criteria (potentially eligible, eligible, not eligible, relative integrity of site, etc.)
- the nature of potential impacts, with recommendations

3. Table of Contents

The table of contents should list all sections (topical headings) within the report with the corresponding page numbers. Authors of sections should be indicated if different from the principal authors.

4. Lists of Figures, Tables, and Appendices

These lists should include the name of each individual figure (illustration, plate, map, etc.), table, and appendix with the corresponding page number. Figures and tables should be listed in the order in which they appear in the text. They should be placed on the page(s) following their citation in the text. If photographs are included in the report, it is recommended that each image be annotated with the date of image capture, as well as other applicable credit information.

5. Introduction

The introduction should include:

- a description of the purpose and circumstances of the project, including project administration and constraints
- a map showing the location of the project area in Wisconsin
- a map showing the location of the project area on a USGS 7.5' quadrangle (to assist WHS in plotting surveyed areas on state base maps)
- a detailed map of the project area (such as highway plans showing the proposed right-of-way and slope intercepts) and/or the location of the project area plotted on a low-flight aerial photograph (USDA Agricultural Stabilization and Conservation Service 1" = 660' air photos, standard and available at every county Natural Resource Conservation Service [NRCS] office as well as online)
- a summary of the scope of work (contract requirements)
- dates of work and numbers of field personnel involved
- a concise statement of the report's site investigation results

6. Environmental Setting

The Environmental Setting section should include:

- a description of the current environmental characteristics of the project area and how they may have affected the results of the field investigations
- a review of the history of land use for the project area (regardless of the results of the investigations), including a detailed description of current land use
- a description of the paleoenvironment, including the geology, geomorphology, soils, hydrology, and vegetation, if archaeological properties were identified, with the environmental information related to the nature and type of archaeological properties identified

7. Archaeological Context

This section should include:

- a summary of the archaeological record for the project area and surrounding region (i.e., known archaeological sites in, or within one mile of, the project area)
- a description of the nature and type of previously reported sites and previous field investigations
- a description of Euro-American occupations in the area, based on archival research
- a description of the information sources consulted
- relevant culture histories, chronological sequences, settlement and subsistence patterns, site types, and other available data useful in assisting in the identification and interpretation of archaeological sites

For reports detailing the results of Phase II evaluations, an archaeological context should be developed. This should include a description and the results of other site evaluations within the region (e.g., cultural overviews or study units). Cultural components should be identified and temporal associations should be specified and reviewed.

8. Methods

This section should describe the research design (purpose and intent of the research, including assumptions, techniques, strategies, methods, and hypotheses), field methods, analyses conducted, and any additional information on how the research was undertaken. If a sampling strategy was used in the field or laboratory, it should be described and justified. In addition, this section should explain deviations from standard or planned methods (for example, deviations from planned field methods caused by unexpected conditions or new information).

Phase I Identification. The Methods section for a Phase I report should include:

- A description of the research design and a discussion of any departure from the strategy initially proposed
- A description and rationale for the field methods and techniques used, such as: surface collection, subsurface testing (e.g., augering, shovel probing, coring), excavation units, or backhoe trenching. This description should include the distance between and within survey transects, percentage of ground visibility, representative soil profiles, and maps showing the locations of surface and subsurface testing units. If more than one technique was used, maps and text should clearly describe where within the project area the different techniques were used. Each map should contain a scale, a north arrow, a caption, the date the map was generated, and a key to symbols used.
- If an archaeological site was identified, information on how the data were recorded, the nature of field mapping, how the artifacts were collected, and how the provenience information was recorded. If certain classes of cultural materials were observed but not collected, the reasons for not collecting them should be explained. ("Non-collecting" strategies might need to be pre-approved by SHPO/SA, as well as the agency on whose behalf the investigations are undertaken, for projects conducted under provisions of Section 106 or Chapter 44, respectively.)
- A description of laboratory processing procedures used.
- An explanation of the classification and typological schemes used in artifact description and analysis, and the means of chronological determination for the assemblage. All artifact classes or types should be explicitly defined; if following a published description, the source should be cited and included in the References Cited section.

Phase II Evaluation. For a Phase II project report, the Methods section should include:

- A description of the research design and a discussion of any departure from the proposed research strategy
- A description of the field methods and techniques used to evaluate the archaeological site(s), such as excavation units, backhoe trenching, ground-penetrating radar, hand excavation of features, or coring. Maps used to convey this information should have a scale, a north arrow, a caption, the date the map was generated, source data, and a key to any symbols used.
- Information on how the data were recorded, the nature of field mapping, and how the artifacts and other samples (floral, soil, charcoal, etc.) were collected and provenience information recorded
- A description of the laboratory processing procedures used
- An explanation of the classification and typological schemes used in describing and analyzing features and artifacts, and the means of chronological determination for the

assemblage. All artifact classes or types should be explicitly defined; if following a published description, the source should be cited and included in the References Cited section.

- A description of the field and laboratory techniques used in the study of paleoecological data (pollen, floral, faunal, sediment, phytolith, etc.)
- Information on any specialized analytical techniques (edge wear analysis, raw material source identification, manufacturing techniques, etc.)

9. Results of Investigations

Phase I Identification. If archaeological sites are identified during a Phase I project, the Results section should contain a thorough discussion of the findings, including:

- The locations of all identified sites (with site codification numbers), plotted on a copy of the USGS quadrangle map (7.5' series), and on either the project map, if of reasonable scale, or a low-flight aerial photo or (such as 1" = 660' USDA air photos). Map sources should be identified.
- A description of the site, including site size, cultural/temporal affiliation (if known), site type/function, and reliability and value of the data recorded (considering field conditions, present land use, etc.). If a site map is provided, it should have a scale, a north arrow, a key to symbols used, the date the map was generated, and a caption.
- Descriptions of all cultural materials recovered listed by site, temporal period, and artifact and/or feature type
- Descriptions and illustrations of all diagnostic artifacts, or a sample of each type, using line drawings or photographs that include a scale and a label showing each artifact's cultural/temporal association
- Measurements and descriptions of all projectile points. Chronological or cultural type names should be provided and raw material types noted.
- Descriptions of all cultural materials observed but not collected, with the reasons for not collecting them
- For historic archaeological sites, a sketch map showing the locations of any structural remnants or artifact concentrations, as well as the results of a deed search detailing the history of ownership
- An assessment of integrity for each site, including degree of disturbance, erosion, deflation, or deposition, and an assessment of site context and stratigraphic context as indicated by subsurface testing

Phase II Evaluation. For a Phase II evaluation, the Results section should contain a thorough discussion of the findings, including:

- The location and name (including state codification number) of the site, plotted on a copy of the USGS quadrangle map (7.5' series), and on either the project map, if of reasonable scale, or a low-flight aerial photo (such as 1" = 660' USDA air photos). Map sources should be identified.
- A description of the site, including site size, cultural/temporal affiliation (if known), site type/function, and reliability and value of the data recorded (considering field conditions, present land use, etc.)

- A site map showing the site boundaries; locations of all excavation units or other subsurface testing, and areas in which any other investigative technique was used; and locations of features and artifact concentrations. The map should also contain a scale, topographic features, the date the map was generated, modern features, and the coordinates of a permanent datum.
- A summary of the levels excavated (natural, cultural, or arbitrary) and an explanation of techniques used
- Descriptions and illustrations of a representative sample of cultural feature types. Illustrations should include plan views and profiles.
- Descriptions of all cultural materials, with tabulations by horizontal and vertical provenience, count, weight (if appropriate), temporal period, and artifact type. Distribution plotting should be used, when appropriate, to assess site structure.
- Illustrations of diagnostic artifacts, or of a sample of each type, using line drawings or photographs that include a scale and a label showing each artifact's cultural/temporal association
- Measurements and descriptions of all projectile points. Chronological or cultural type names should be provided and raw material types noted.
- Quantification of all lithic debitage in a table, with appropriate lithic reduction stages and raw material types
- Descriptions of ceramics. All ceramic rims should be described, and typed if possible, and attributes such as paste, temper, and profile assigned to a specific type.
- Descriptions of all cultural materials observed but not collected, with the reasons for not collecting them
- Tabulations of the faunal and floral material by taxon and number, if possible
- Results of radiocarbon dating and the basis for sample selection. It is not acceptable to state in the report that a sample has been submitted, but the results are not available for interpretation and inclusion. If samples have been submitted but the lab has not processed them in a timely manner, the sample number and name of the lab should be listed.
- Laboratory reference numbers for all absolute dates. Calibrated dates, calibration program, and procedure should be identified following Society for American Archaeology (*American Antiquity*) guidelines.
- For historic archaeological sites, a map that shows the locations of any structural remnants or artifact concentrations, and archival search results that detail the history of ownership, occupation, and land use
- An assessment of site integrity, including degree of disturbance, erosion, deflation, or deposition, and an assessment of site context and stratigraphic context as indicated by subsurface testing. This interpretation should be accompanied by supporting field data (e.g., a detailed soil description, a geomorphology report, profile illustrations, or soil core data).

Statement of significance. Recommendations (i.e., assessment) regarding the site's significance, or potential to contribute to scientific or humanistic understanding of the past (potentially eligible, eligible, not eligible, etc.), should be made after evaluating the site's potential to contribute information to the historic context defined for the site. Relevant research questions that could be addressed by further study of the site should be outlined and supporting

documentation provided. The value of the site to any specific living group should be addressed, as should the site's possible interpretive value.

Documentation for a Determination of Eligibility. Archaeological sites are evaluated by applying specific eligibility criteria for listing on the NRHP. Each site should be placed in its context (e.g., state plan, thematic nomination, regional cultural overview, or property types as defined by the SAMPP) and an assessment made of its interpretive or research potential. Each site should be considered to be of potential National Register quality until enough information on its nature and condition is collected to permit a determination of significance. Potential research questions should be detailed and related to information likely to be recovered at that particular site. A copy of the Determination of Eligibility (NPS Form 10-900) should be included as an appendix to all Phase II evaluation reports in which the recommendation is that the archaeological site be considered eligible for listing on the NRHP.

10. Summary and Recommendations

An evaluation of the impact of the proposed project (or project alternatives) on the archaeological resources should include:

- Recommendations regarding the need for additional work. Any recommendation for no further work must be explained fully, since it indicates that the site is not eligible for the NRHP and means that the site will be destroyed by the proposed project. [Example: Fieldwork was confined to a small percentage of the site within the project scope, and although the site's NRHP eligibility could not be determined, the study determined that the portion of the site in the project area lacked the potential to yield significant information.]

  Any recommendations for further work also should include a discussion of the nature and extent of the proposed research.
- The types of adverse effects (or absence of adverse effects) the project will have on the site. This discussion should include any possible cumulative adverse effects the project might have. Remember that adverse effects may occur "off-parcel" (i.e., within a potential broader APE), as well (e.g., staging areas, borrow areas, access points).
- Possible indirect impacts to the site (e.g., impacts from altered water flow, changes in lake levels, or increased industrial, recreational, commercial, or residential development)

Specific recommendations should be directed toward preservation and conservation of archaeological resources and should include:

- Where possible, a discussion of alternatives and their implications. The report should recommend the alternative that either assures the preservation of the resource or, if preservation in place is not possible, allows for maximum recovery of potential archaeological data.
- Recommendations and justifications for preservation, mitigation, or additional preliminary work, described in enough detail so the agency can understand how to proceed
- A statement that mitigation efforts must be coordinated with the WHS or SHPO/THPO/federal agency, as indicated

Curation statement. All artifacts, samples, field notes, maps, log books, photographs, drawings, analysis sheets, project correspondence, and any other documentation generated during the project should be deposited in a facility that meets or exceeds the standards described in Chapter 9 ("Curation"), or with a facility that meets state (WHS) permitting standards.

The report should provide a statement regarding the present location of artifacts and documentation and, if different, the facility that will serve as the permanent curation location.

It is the responsibility of the archaeologist to obtain permission for permanent curation before beginning fieldwork. This should be coordinated with the agencies on whose behalf the research is undertaken, as well as with WHS/SAMPP.

Incidental/accidental discovery. The report should also include a statement that acknowledges the possibility that presently undiscovered archaeological sites might exist in the project area. The statement should note that if such discoveries are made, the agency, project coordinator, or construction personnel should immediately notify the State Archaeologist (statearchaeologist@wisconsinhistory.org). Discoveries that potentially involve human remains should be directed to the SHPO at 1-800-342-7834.

To comply with the requirements of the Native American Graves Protection and Repatriation Act (NAGPRA), tribal statutes, and federal agency procedures, if the discovery is on:

- Tribal land (including private lands) within the exterior boundaries of an Indian reservation, or trust lands, the specific THPO and/or (as directed) the nearest office of the Bureau of Indian Affairs should be contacted
- Other federal properties (e.g., military installations, U.S. Fish & Wildlife lands, U.S. Army Corps of Engineers lands), the nearest office of the respective federal agency should be contacted.

11. References Cited

References Cited should follow *American Antiquity* style guidelines.

12. Appendices

Appendices should include necessary supporting data, such as the scope of work, the proposal for work, or the Memorandum of Agreement (or letters) between the contractor and the principal investigator. Examples include:

- The project research design (especially if approved by the SHPO/THPO as a separate document, such as a WisDOT corridor methodology)
- Copies of pertinent federal, state, and/or tribal permits, including, as applicable, an Archaeological Resources Protection Act (ARPA) permit, a Wisconsin Public Lands Field Archaeological permit, or WHS authorization to conduct limited appropriate subsurface exploration within the boundaries of a recorded human burial site
- Artifact summary tables (if too lengthy to incorporate into the main text)
- National Register form NPS 10-900 for a Determination of Eligibility (if applicable)
- If unknown to the WHS, a brief statement of qualifications of the primary project personnel (i.e., confirmation that the Principal Investigator meets the Secretary of the Interior's Standards for Archeology)
- The scope of work requested by the agency
- Project correspondence
- Copies of any Wisconsin Archaeological Site Inventory (ASI) or Update forms for sites described in the report

- A Wisconsin Archaeological Reports Inventory (ARI) form prepared for this technical report

STANDARDIZED FORMS AS TECHNICAL REPORTS

Currently, some agencies have negotiated with WHS the use of abbreviated reports for projects in which no archaeological sites are identified. The Wisconsin Department of Transportation (WisDOT) and the Wisconsin Department of Natural Resources (WDNR) both have adopted standardized Archaeological Survey Field Report (ASFR) forms.

An ASFR with attached supporting documentation serves as an abbreviated report. The attached documentation typically includes, at a minimum, any state and federal permits, an archaeology and records literature search form, survey areas and pertinent sites depicted on a USGS topographic map, and a project plan with a notation regarding the survey methodology. Photos can be helpful as well.

Please contact either WisDOT or WDNR for copies of their ASFR forms.

DISTRIBUTION OF REPORTS

Archaeologists working on compliance projects should provide copies of reports to the following offices:

- One hard copy and one electronic copy of the report should be submitted to the WHS as SHPO, if Section 106 or Wis. Stat. § 44.40 or 157.70 applies. This is generally done by providing copies to the agency funding the research, and the agency then forwards the copies as appropriate to the WHS and respective THPOs. It is ultimately the archaeologist's responsibility to provide such copies when investigations are conducted under provisions of a "Public Lands" archaeology permit. Note: If the report is required for activities permitted by the Wisconsin Department of Natural Resources (DNR), three copies should be forwarded directly to DNR, which will forward two copies to WHS (contact DNR directly for burials-related reporting requirements). DNR may require additional copies for projects undertaken on DNR-owned or managed properties.
- The contracting firm, state or federal agency, or applicant will need additional copies of the report for their own use and files.
- If human remains, cemeteries, or potential burial areas are described in the report, two copies should be sent to the WHS.

Chapter 9

CURATION

The WAS advocates that its members ensure that all archaeological collections they generate (including related reports, imagery, and other project documentation), regardless of the source of funding, are curated according to professional standards and guidelines. The WAS would like to take a leadership role, along with the SAMPP, in ensuring that archaeological collections are appropriately managed and available to future generations.

The SAMPP can provide guidance in finding and determining the appropriateness of a curation facility. Temporary curation is acceptable only if the material is protected and arrangements are made for permanent curation within a specified time frame.

As described in Chapter 4 (“Permits and Permissions”), before a state permit can be executed, the facility or institution where artifacts and associated documents are to be curated must be specified, and a copy of the curation agreement should be on file with WHS.

Information on the location and nature of curated materials should be provided in technical reports (also see Chapter 8, “Technical Reporting”). If the curation facility is managed by a different organization or institution, the report should include a letter indicating the willingness of the curation facility to accept and curate the collection.

In principle, WAS has adopted the federal curation standard (see *Curation of Federally Owned and Administered Archeological Collections,* 36 CFR Part 79) as its standard. Also, WAS strongly recommends adoption of the WHS cataloging system as the statewide standard, to ensure the broadest possible complementarity and compatibility of data. In addition, collections from an individual site are often housed in more than one institution, and we recommend that the collection managers consider consolidation where appropriate.

This chapter briefly discusses collection management issues, including the long-term curation of archaeological objects, samples, materials, notes, maps, digital imagery, datasets, reports, and other archival documentation. Museums and other institutions that curate archaeological collections are facing staff reductions, a continual decrease in available storage space, and rising costs associated with the long-term care of these collections.

The Code of Ethics for the Society for American Archaeology and the American Association of Museums discourages its members from assembling private collections in their areas of professional expertise. Federal legislation also precludes private contracting firms (e.g. archaeological, environmental or engineering firms, or individuals) from curating archaeological collections generated by federal historic preservation legislation.

Due to the ongoing destruction of archaeological sites in Wisconsin by development as well as by natural processes, the scholarly and interpretive value of curated collections increases steadily through time. The no-collection policy espoused by some federal agencies is generally not applied in Wisconsin. Consultation with the WHS/SHPO is advisable before implementing methodologies that vary from those outlined in this guide. Implementation of sampling strategies must be negotiated with WHS/SHPO and any agencies on whose behalf the research is undertaken.

Documentation that should accompany artifact assemblages includes original field notes, project and site maps, photographs and negatives, digital imagery in a common/ lossless format, site forms, correspondence files, assemblage databases, sensor data, other types of field and laboratory analysis forms and datasets, and other relevant information. The agreement

between an archaeologist and a curation facility should include procedures for identifying (accessioning), recording (cataloging), and maintaining (storing and retrieving) the proveniences of all collected artifacts, samples, documents, and records.

Three principles should be applied to archaeological collections:

1) Collections should be curated at a facility in the state of origin.
2) The facility should (ideally) curate all collections from the same site or project location (i.e., identification, evaluation, and data recovery phases of investigation).
3) The collection should reflect the collecting policy of the museum or institution (e.g. from a similar geographic region or cultural area).

As a general rule, archaeological collections from the same site should be curated at a single repository. All associated records and documents should be kept at the same curation facility with the archaeological materials to ensure the long-term integrity and research value of the collection. Dividing collections and their supporting documentation among different curation facilities can drastically complicate issues related to collections management and utilization.

Archaeologists should contact WHS directly for current information and protocols governing the removal and relocation of archaeological materials recovered from Wisconsin public lands and water to out-of-state facilities.

Costs associated with the long-term curation of archaeological collections and associated materials (e.g., maps, photos, reports of investigations) are the responsibility of the federal, state, or other agency funding the research or sponsoring the project.

WAS recommends that archaeologists confer with WHS regarding current conservation (both in-field and post-field), cataloging, and accessioning requirements well in advance of fieldwork or when processing older extant or "orphan" collections.

Hazardous materials (e.g. asbestos, chemical containers, live ammunition) should not be submitted to any curation facility.

ETHICS OF COLLECTIONS STEWARDSHIP

The following principles were developed by the SAA Advisory Committee on Curation in collaboration with the SAA Standing Committee on Ethics.

Guiding Principles for SAA Ethic #7: Records and Preservation

The same ethic of stewardship applies to collections and associated records as to in situ sites or other components comprising the archeological record.

The integrity of collections, including their associated records, must be preserved and maintained. Field records are an integral part of a collection and are not the permanent property of an individual researcher or contractor.

Field notes, photographs, maps, laboratory notes and data, and other records require the same levels of management, care, and preservation as artifacts and other recovered items.

Data and records created or stored in electronic formats are fragile and require specialized long-term care and management.

Archeological excavation is a destructive process, and the resulting collections are finite, non-renewable resources. Efforts should be made to employ existing collections and databases to address research questions whenever possible, and prior to initiating new excavations or other destructive techniques.

Archeological projects should explicitly provide for the permanent curation of resulting collections at an appropriate repository. Collections and associated records—including all necessary permits and deeds of gift—should be deposited in a timely manner. The location and accessibility of collections should be provided in research and compliance reports.

As part of their training, professional archeologists should understand the need for, and basic principles related to, the long-term preservation of archeological collections and associated records, including curation, collections and archives management, and conservation. Elementary training in these areas should be part of undergraduate and graduate curricula in archeology.

OWNERSHIP OF COLLECTIONS (Deed of Gift/Clear Title)

The curation facility must have, as part of the agreement for the curation of collections and donations, a deed of gift that provides clear title and transfers ownership to that institution. The archaeologist must have the landowner sign the deed of gift or similar document indicating that the property owner agrees to transfer clear title of the collection to the curation facility.

For collections from federal properties, the agency responsible generally does not relinquish ownership of archaeological collections. Instead, the federal agency enters into a formal loan agreement with the institution curating the collection and associated documentation and records. Such loan arrangements are usually made before the ARPA permit is issued.

Policies and protocols for tribal lands vary, but consent regarding the disposition of the collection is needed from the Native tribe or nation having jurisdiction over the land. Generally this consent is a component of an ARPA permit and is on a loan basis, which is an agreement between a tribe and the curation facility.

Any special terms or conditions imposed by the tribe or the landowner should be included in the documentation.

All archaeological field research projects on state lands, or subdivisions of the same, are subject to the terms indicated in Wis. Stat. § 44.40. In such cases, ownership of the collections remains with the State or its respective subdivision. Curation of these collections by an institution other than WHS may be specified in the Wisconsin Public Lands Field Archaeological Permit issued by the SAMPP (pending approval of same).

Private landowners should be asked to transfer ownership and clear title of artifacts collected or excavated on their land to the investigating group or the agency. The private landowner must sign a deed of gift transferring ownership of materials to the responsible agency or curating facility.

Ownership of collections from underwater sites presents special considerations. The Wisconsin DNR controls and manages lakebeds below the ordinary high water mark, with the adjacent landowner owning land along the lakeshore above the ordinary high water mark. Along rivers and streams (including flowages/impoundments), the riverbed or streambed is owned by the adjacent landowners, with the ownership divided at the midpoint of the stream or river. The U.S. Army Corps of Engineers has special responsibilities for navigable waterways within the contiguous boundaries of a reservation, but how (or whether) these responsibilities affect ownership of archaeological collections is unclear.

Removal of archaeological materials from federal lands without landowner permission is a violation of the federal Archaeological Resources Protection Act (ARPA). Removal of archaeological materials from state or state-subdivisions lands and waters without a WHS-issued Public Lands permit is a violation of Wis. Stat. § 44.47.

REMOVAL OF ARTIFACTS FROM PRIVATE PROPERTY IN WISCONSIN

In Wisconsin, the opinion of the State Attorney General's Office is that artifacts remain the property of the landowner unless a written agreement has been signed that specifies ownership of artifacts, samples, and other items removed during fieldwork. Contact the WHS for an example of a "Deed of Gift" form for transference of ownership from a private party. Such a document is a legal and binding agreement that transfers clear title of the artifacts to the WHS or other curation facility. A similar agreement should be negotiated between the respective agency and the private property owner for all federal compliance projects to ensure professional curation of archaeological collections.

Some property owners will grant permission to conduct a Phase I identification survey only if they are permitted to retain the artifacts. In such cases, archaeologists should return the artifacts, but only after they have been properly analyzed and documented. This documentation should include an inventory of the artifacts returned, drawings and/or clear photographs of all diagnostic artifacts, and appropriate descriptions and measurements. For state or federal compliance projects, archaeologists should notify the appropriate agency, in writing, of the terms of the agreement with the property owner.

As noted above, removal of archaeological materials from the state without landowner permission is a violation of ARPA.

GUIDELINES FOR FEDERAL COLLECTIONS

The following is taken from the *Secretary of the Interior's Guidelines for Archeological Documentation* (cf. 36 CFR Part 61), subheading "Curation":

> *Archeological specimens and records are part of the documentary record of an archeological site. They should be curated for future use in research, interpretation preservation, and resource management activities. Curation of important archeological specimens and records should be provided for in the development of any archeological program or project.*
>
> *Archeological collections include both the objects and their associated documentation [e.g. artifacts, photographs, maps, and field notes]. It also includes materials of an environmental nature [e.g. bones, shells, soil samples, wood charcoal, and seeds]. The documentation and data generated during the analysis and interpretation of the collection and archeological site should also be curated permanently with the collection.*

Federal legislation has more specifically defined the responsibility of federal agencies to ensure that archaeological collections generated through public archaeology projects are properly documented, curated, and made available for ongoing research. This legislation is titled *Curation of Federally Owned and Administrated Archeological Collections* (36 CFR Part 79).

Federal agencies are required to ensure that curation facilities meet 36 CFR Part 79: *Curation of Federally-Owned and Administered Collections*. The Federal Agency Official must determine that:

> *(1) The repository has the capability to provide adequate long-term curatorial services, as set forth in s 79.9 of this part;*
>
> *(2) The repository's facilities, written curatorial policies and operating procedures are consistent with the regulations in this part;*
>
> *(3) The repository has certified, in writing, that the collection shall be cared for, maintained and made accessible in accordance with the regulations in this part and any terms and conditions that are specified by the Federal Agency Official;*

(4) When the collection is from Indian lands, written consent to the disposition has been obtained from the Indian landowner and the Indian tribe having jurisdiction over the lands; and

(5) The initial processing of the material remains (including appropriate cleaning, sorting, labeling, cataloging, stabilizing and packaging) has been completed, and associated records have been prepared and organized in accordance with the repository's processing and documentation procedures [taken from 36 CFR Part 79.5(b)].

Records on the disposition of a collection should minimally include:

(1) The name and location of the repository where the collection is deposited;

(2) A copy of the contract, memorandum, agreement or other appropriate written instrument, and any subsequent amendments, between the Federal agency, the repository and any other party for curatorial services;

(3) A catalog list of the contents of the collection that is deposited in the repository;

(4) A list of any other Federal personal property that is furnished to the repository as a part of the contract, memorandum, agreement or other appropriate written instrument for curatorial services;

(5) Copies of reports documenting inspections, inventories and investigations of loss, damage or destruction that are conducted pursuant to s 79.11 of this part; and

(6) Any subsequent permanent transfer of the collection (or a part thereof) to another repository [taken from 36 CFR Part 79.5(c)].

Archaeologists conducting field investigations and generating archaeological collections and data from sites on federal or tribal land must adhere to the requirements of ARPA. This act requires that archaeologists obtain an ARPA permit that addresses appropriate curation, as mandated under provisions of 36 CFR Part 79. Archaeologists should also be aware of their responsibility to meet the requirements of NAGPRA.

GUIDELINES FOR STATE COLLECTIONS AND COLLECTIONS GENERATED BY GRANT FUNDING

Wisconsin historic preservation legislation directs the SAMPP to oversee archaeological research on state lands (public lands) as defined under *Field Archaeology* (Wis. Stat. § 44.47). Prior to conducting field investigations on public lands, archaeologists must obtain a permit from the SAMPP, as described previously. To receive this permit, the archaeologist should demonstrate that the collection, materials, and documentation will be curated at an appropriate facility. The ownership, custody, and use of objects and data are defined as follows:

The state reserves to itself the title to all objects found and data gathered in field archeology on state sites. Although a permit may name a custodian other than the Historical Society, title to the objects and data discovered at state sites is reserved to the Historical Society as trustee for the state. Physical possession of such objects shall revert to the state if the custodian is not properly caring for them or keeping them conveniently available for study by students of archeology [s44.47[5], WI Stats.].

It is the responsibility of the archaeologist conducting field investigations to inform property managers/owners where the archaeological materials will be curated. The SAMPP should be notified if problems arise regarding the curation of materials from field investigations conducted under a state permit (Wis. Stat. § 44.47).

COLLECTION MANAGEMENT PRACTICES

A collection management policy is a comprehensive written statement that articulates the purpose of the museum or curation facility and how this purpose is pursued through the institution’s collection goals, activities, and methods. A strong collection management policy

brings consistency to the day-to-day handling of an institution's collections. A museum's mission statement determines what the museum will collect and preserve. Minimally, a policy should include the scope of collections, acquisition policy, loan policy, deaccessioning policy, and NAGPRA policy.

Every curation facility should have a formal collections policy. Accredited museums must have a collections policy that meets American Association of Museum (AAM) standards. A collections policy sets the parameters (geographic, physical, etc.) of the museum's collections and establishes the standards for the institution. It should be adopted by the institution's governing board. The institution should have a formal policy for accepting and deaccessioning materials. Terms for ownership and loans, as well as terms of access to collections, should be explicitly stated in the collections policy. Insurance and risk management may also be part of the policy.

For curation facilities that are not accredited, the archaeologist should, prior to the curation agreement, obtain a copy of the institution's policies. Universities can provide excellent curation facilities but, since many are not accredited as museums or curation facilities, they may not have explicit curation policies. Examples of curation policies may be obtained from the American Alliance of Museums (AAM), the Neville Public Museum, the Milwaukee Public Museum, the Wisconsin Historical Museum, and other accredited curation facilities. Note that WHS is not an AAM-accredited curation facility at the time of this revision (Fall 2023) (consult the AAM's website for a current list).

Acquisition Policy and Accessioning

An acquisition policy establishes the type of collections a museum should be collecting. The policy outlines:

1) what collections are essential to fulfilling the museum's mission
2) what collections will enhance interpretation and research
3) what legislative requirements may be applicable to the long-term care and preservation of the collection

This policy provides the parameters for making decisions regarding what objects or collections the museum will acquire or accept on loan (for example, from a federal agency).

When a potential acquisition has been approved, it is accessioned. Accessioning is the process of officially accepting objects into a museum's collection. The process of accessioning establishes legal custody and ownership through written documentation and provides important information on the history of the collection and how the collection was acquired. There are generally five types of accessions: field collections, gifts, purchases, exchanges, or incoming loans.

Use of Collections (e.g. exhibition, scientific, research)

An obvious use of archaeological collections is further and future professional study. For example, follow-up or future research might involve processing soil samples, conducting edge-wear analysis, or reanalyzing ceramics in light of new typologies. Copies of publications resulting from any such study should be given to the curation facility and, in cases where the collections are from federal or tribal lands, to the federal agency or THPO, as indicated.

Institutions should also have a policy dealing with requests that would result in alterations to or destruction of the objects (or samples such as pollen or bulk soil samples) accessioned for long-term curation.

Archaeological collections are also used in displays and exhibits for educational purposes. This should be permitted only if the material will not be harmed by exposure and will be in a secure environment, with a loan agreement in place as needed.

Loans

Loans represent a temporary lender/borrower relationship that involve a transfer of custody but not a change of ownership. Such loans are a cost-effective way for researchers to study materials in distant institutions. The terms of the loan should be clearly stated and should specify the length of the loan as well as the party responsible for insurance, and the terms of insurance. Any items loaned should be kept under secure, environmentally appropriate conditions. Study conditions and methods of analysis should be agreed upon in advance and specified in the loan agreement. Both parties should also agree in advance on shipping and packaging of the loaned items.

Except in special circumstances, sub-loans to other institutions should be discouraged, and any such sub-loans may be initiated only after receiving authorization from the institution that has (or should have) legal custody of the materials.

Traditional Care/NAGPRA Issues

Compliance with NAGPRA is the responsibility of the owner of the collections (as well as the professionals who anticipate working with NAGPRA-subject materials and/or properties). Consistent with provisions of the Act, this may be the federal or other agency from whose lands the artifacts were initially collected. For collections owned or otherwise managed by the curating facility, it is up to that facility to comply with the provisions of NAGPRA.

Many institutions no longer accept or accession NAGPRA-subject objects. When there is a compelling reason for a curating facility to accept NAGPRA-related items and other culturally sensitive objects, treatment of these items should follow professional standards for storage and handling, while respecting traditional practices related to the handling and storage of such objects when at all possible. The appropriate federally recognized tribe should be consulted, or if the tribal group is not known, guidelines from the Wisconsin Inter-tribal Repatriation Committee (WITRC), a committee sanctioned by the Great Lakes Intertribal Council, may be consulted.

Examples of an institutional NAGPRA policy can be obtained from the National Park Service, the Milwaukee Public Museum, the Wisconsin Historical Museum, the University of Wisconsin-Madison, and other recognized curation faculties.

Provenience Tracking

Accurate provenience information is essential for interpreting archaeological site data. Both field and lab staff must adhere to systems that maintain the association between collections and their provenience information. As soon as artifacts and samples are recovered in the field, they should be packaged and labeled to preserve provenience information. Procedures for preserving provenience associations vary, but a system must be in place to track collections and maintain their provenience association from field recovery through processing and analysis to final storage.

As collections come into the lab for processing, lab staff should reconcile the bag log with the bags received to ensure that all bags are accounted for. If this is done in a timely manner, problems encountered (e.g., missing bags, bags with incorrect provenience information, bags

with no numbers) can be addressed quickly. The tracking system then should be able to account for the material at every step of the way, from initial receipt through final curation.

Collections Processing and Treatment

Generally, artifacts should be cleaned with water or dry brushed. Washing with water is appropriate only if it will not cause the materials to deteriorate and will not destroy archaeological evidence such as residues. Fragile items such as crumbling sherds, bone, shell, daub, burned clay, mortar, or fabric should be brushed gently with paint brushes or soft toothbrushes rather than being immersed in water. Very small or fragile items should be placed immediately in vials or small boxes.

Unless conservation resources are available, ferrous metal artifacts might be better cleaned by brushing rather than with water.

As artifacts dry and as they are re-bagged, their provenience association must be maintained.

The decision to subject archaeological objects to treatment beyond typical cleaning should weigh the ultimate benefit as well as the expertise available among staff, and any funding available to purchase professional conservation services. Will the material provide better information about the site now and in the future if the treatment is undertaken?

Some materials, such as friable ceramics or bone, might not be good candidates for permanent curation unless they are consolidated. Reconstruction of objects such as stone tools and vessels might yield more accurate measurements or make them more suitable for display.

Whenever special treatments are undertaken, there must be a way to record the type of treatment undertaken, the materials used in the treatment, the person treating the objects, and the date the treatment was carried out. Before-and-after photographs of the objects are sometimes appropriate. This information should remain available in the records for the objects.

Refitting ceramic sherds usually leads to an evaluation of the merits of replacing missing material. Documentation on the object record should always indicate if replacement material forms a part of a reconstructed vessel. Decisions about replacing lost material should be made only after potential conservation issues have been identified and addressed-for example:

- Is the vessel a candidate for exhibit? Will the materials most likely be used for research purposes?
- Will reconstruction improve the stability of the vessel?
- Is there appropriate evidence for the replacement?
- Will the replacement of material help or hinder storage of the ceramics?

Evolving information on curation methods and technology means that recommendations for treatment materials such as cements or consolidants change. Curation facilities and archaeologists need to stay informed on current practices and recommendations.

Packaging and Labeling Collections

Every effort should be made to package and label collections using archival materials, and to keep current on recommended packaging and labeling materials and protocols. Programs should have procedures for labeling objects and for deciding which objects should have catalog numbers applied. Polyethylene bags and acid-free and lignin-free boxes make excellent long-term curation materials. Acid-free, paper bag tags written with archival quality pens (Pigmas) or printed with a laser printer are acceptable ways of identifying collections in a bag or

box. Artifacts of different material types (such as lithics, pottery, bone, shell, charcoal, historic ceramics, glass, metal, faunal remains, floral remains, etc.) should be placed in separate bags. This allows separation of materials to protect them from damage and for special storage requirements.

Fragile items (bone, wood, shell, copper beads, etc.) should receive additional support by placing them in vials or in trays lined with Ethafoam or acid-free tissue. The weight of boxed collections should be distributed as evenly as possible.

Archival Records (e.g., paper, film, electronic records)

Archival records are original records that document efforts to locate, evaluate, record, study, preserve, or recover archaeological resources. Some records such as field notes, artifact inventories, and oral histories may be originals prepared as a result of the field work, analysis, and report preparation. Other records such as deeds, survey plats, and historical maps are usually copies of original public or archival documents assembled and studied as part of the records and literature search and used during research.

There is a nationally recognized concern regarding archival records: documentation generated during the course of research is not the personal property of the archaeologist, under any circumstance. Ethically, as well as practically, the documentation must remain with the collection and be curated in an appropriate facility.

Archaeologists have relied increasingly on electronic records because of the convenience and versatility of newer technologies; however, long-term curation of electronic records requires monitoring to ensure that the records remain accessible as storage media and software evolve. In addition, institutions must ensure that electronic documents on individual computers (including e-mails that serve as formal project correspondence) are organized and remain accessible through personnel changes, equipment failure, or upgrades.

Retention vs. Disposal

For some artifact categories, permanent curation of every item might not be viewed as warranted or economically feasible, and curation facilities must make decisions regarding such items' disposition. Some items might be assessed as having questionable long-term research value, while others pose problems for permanent curation because of bulk, weight, or instability. Some common examples are: unmodified rock or fire-cracked rock from precontact sites, or plate-glass fragments, nails, or other building debris from postcontact sites.

Factors to consider in deciding to dispose of some materials include: archaeological context, research potential, amount and manageability of the materials, stability, and available curation and conservation resources. Archaeologists should employ the best professional knowledge and judgment to decide how to deal with these materials, and should consider the items' potential future research value. Depending on their size and stability, these materials might be either analyzed and left in the field or returned to the lab for analysis but discarded before final curation.

As noted previously, implementation of artifact sampling strategies must be negotiated with WHS/SHPO and any agencies on whose behalf the research is undertaken in advance of field research or other investigations.

Curation of Ecofacts

Ecofact samples include animal and plant remains, bulk soil samples, flotation samples taken to recover macroflora and fauna, and phytolith, pollen, or other specialized samples for recovery of microfloral remains.

Such materials pose unique (and evolving) challenges related to conservation and storage, so archaeologists should consult with their designated curation facility for current protocols for collecting them. Again, sampling and retention strategies must be agreed to before the materials are collected.

Object Care and Conservation

Conservation or stabilization of objects should be conducted by or in consultation with a professionally trained conservator experienced in the treatment of similar media or materials. The American Institute of Conservation maintains registries of trained conservators. Use of consolidants, coatings, or other adhesives should be reversible and kept to a minimum. Conservation practices undertaken during fieldwork and analysis must be consistent with practices determined by the designated, qualified curation facility.

The goal in the treatment of objects is to stabilize rather than restore them.

Archaeologists should be guided by a concern for both the external, formal properties of an object and its chemical composition and structure. Any conservation or stabilization actions should be fully documented, and records relating to the treatment and condition of objects should be considered part of basic collections documentation. These records are necessary both for future object treatment and to assess whether the objects are suitable for specific analytical techniques (either currently in use or yet to be developed) that might be affected by treatments, consolidants, or storage conditions.

The integrity of collections records, including records of conservation or treatment and environmental conditions, and their association with object collections is of fundamental importance and must not be compromised in any manner.

Chapter 10

RECORDING AND EVALUATING POSTCONTACT ARCHAEOLOGICAL PROPERTIES

Postcontact archaeological sites in Wisconsin are those that date to the arrival of Europeans or later. Previously, these may also have been referred to as “historic” sites. There is no simple formula for determining the significance of a postcontact archaeological site, but general parameters can be set.

To be NRHP eligible, postcontact archaeological sites should have sufficient integrity to address the research questions being asked. Additionally, any of the following qualities contribute to a site’s eligibility:

1. rarity of site type (based on time period, function, ethnic affiliation, etc.)
2. short-term occupations (providing clarity of data)
3. long-term occupations with vertically or horizontally separated deposits
4. historical documentation of residents’ identities (allowing more specificity in questions)
5. representation of a historic theme

PHASE I: IDENTIFICATION

Background Research

In addition to the standard resources for precontact sites, background research for the project area should include systematic examination of resources such as early plat books, aerial photographs (e.g. the Wisconsin Historic Aerial Image Finder available online, county histories, oral histories, the WHPD Architecture and History Inventory (AHI), Wisconsin Land Economic Inventory Field Sheets, THPOs or other tribal experts and, for urban areas, Sanborn fire insurance maps. This work will provide potential locations of historic sites within the project area, and in some instances, a ready identification of the sites. Much of this research should be done before fieldwork begins. Once sites have been identified, property ownership records and tax rolls for those properties should be examined.

Field Work

Phase I field work should identify the nature of the resource, provide a preliminary assessment of the site’s condition, and provide sufficient information to design an effective testing strategy for Phase II investigations. For purposes of studies conducted under federal historic preservation laws, an archaeological site is an area of focused human activity that is at least fifty years old. Areas of very widely scattered historic materials, with no archival or archaeological evidence of structures or focused activity areas, are generally not considered sites.

Properties with standing structures over 50 years old should also be identified for their potential architectural significance (as well as archaeological potential. Archaeologists are encouraged to work closely with historians and architectural historians in this process.

Results

At a minimum, reports on Phase I investigations at historic sites should include the following information:

- site function through time
- rough dates of occupations
- photographs of all existing structures (should include date of image capture)
- descriptions and analysis of recovered artifacts (also note any classes of artifacts present but not recovered)
- data on ownership and land use from archival materials
- site layout and estimation of the site boundaries (must include sketch map with boundaries and prominent landscape features, drawn to scale)
- assessment of the site's integrity, based on subsurface testing unless otherwise justified
- assessment of the site's potential significance
- brief land use history

PHASE II: EVALUATION

Background Research

Research oriented toward NRHP eligibility should focus on establishing a historic/cultural context within which to understand the relationship of individual sites to the broader historical development of a particular region or, in some instances, to the development of particular industries. A first step, if it has not already been done for the area, is to examine successive plat books and chart the history of development by recording numbers of structures through time within a specific geographic area (decided in concert with the SHPO; examples include township, county, drainage, road corridor). Property ownership records and tax assessment rolls can provide information regarding improvements to specific properties, such as construction of buildings. Development of a cultural context will depend on the nature of the property being examined. For example, if a site was occupied by a particular ethnic group, the focus of the historic context could be the immigration, acculturation, and land use practices of that particular group. If a site was known to have been a dairy farm, the focus of the context could be the development of the dairy industry in that particular region. Background information on Wisconsin's ethnic groups, industries, and numerous other resources and themes already deemed significant are synthesized in *Cultural Resource Management in Wisconsin* (Volumes I–III) (Wyatt 1986).

Field Work

Phase II fieldwork should provide sufficient data to assess the site's NRHP eligibility in terms of both integrity and significance, or research potential. Specifically, testing should focus on providing an assessment of artifact and feature diversity and determining whether vertical and/or horizontal separation of deposits exists at the site. It should also assess the information potential of available historical documentation for the property.

Results

In addition to standard requirements outlined in Chapter 8 ("Technical Reporting"), the Phase II report should include, at a minimum:

- a detailed history of past ownership and land use
- a detailed site map with established boundaries and landscape features

- descriptions and analyses of features and artifacts, including an assessment of the clarity of the data (i.e., at sites with a long history of occupation, are there temporally discrete features or levels within features?)
- an assessment of site integrity
- an assessment of significance or research value and NRHP eligibility according to the criteria listed above
- a Determination of Eligibility form if the site is considered significant

Please note that historic sites should be documented in both metric and English measurements.

According to National Register Bulletin 15, historic properties may be eligible for the National Register under four different criteria:

- **Criterion A:** association with events that have made a significant contribution to the broad patterns of history
- **Criterion B:** association with significant individuals
- **Criterion C:** representation of distinctive design or construction (of a type, period, or method of construction)
- **Criterion D:** potential to yield information important in prehistory or history

Although archaeological sites can be eligible under Criteria A, B, or C, this generally requires that the site be in overall good condition with excellent preservation of features, artifacts, and spatial relationships.

Integrity requirements under Criterion D are not as stringent. For this reason, most archaeological sites are generally nominated under Criterion D, the potential to yield important information. The "importance" of information should be measured in terms of its ability to address research questions identified within the disciplines of historical archaeology, precontact archaeology, history, or anthropology. In addition to the topics identified in *Cultural Resource Management in Wisconsin*, SHPO historians and archaeologists have suggested the following list of significant research areas:

- ethnicity
- gender
- social/class inequalities
- consumerism
- transportation networks
- evolution of technology
- settlement studies (frontier settlement, settlement patterns)
- adaptation to natural and cultural environments
- material culture studies

In preparing a Determination of Eligibility or nomination under Criterion D, it is essential to explain a site's potential to address one or more questions related to themes in *Cultural Resource Management in Wisconsin* or the listed research areas. For example, can ethnicity be identified by artifact types or site layout? Does this vary across regions within Wisconsin? How quickly did acculturation occur? How dependent were a site's occupants on local, regional, or

world markets?

SELECTED ADDITIONAL INFORMATION/ REFERENCES

Wyatt, Barbara (editor)
1986 Cultural Resource Management in Wisconsin (Volumes 1-3). Historic Preservation Division, State Historical Society of Wisconsin, Madison.

Chapter 11

INVESTIGATION OF HUMAN BURIAL SITES: Permission, Identification, Documentation, Removal, and Analysis

All archaeologists working in Wisconsin must become familiar with state burial law (Wis. Stat. § 157.70) and the associated administrative rules (Chapter HS 2) adopted to implement this legislation, as well as current administrative policies developed and updated by the WHS. Copies of the current procedures and links to the law and administrative procedures are available online at: http://www.wisconsinhistory.org/hp/burialsite s/.

Wisconsin's burial sites preservation law, Wis. Stat. § 157.70, was passed in 1987. Under this law, discoveries of human bone must be reported immediately to the WHS (as well as local law enforcement personnel). All ground disturbance in the area of the discovery should cease, and excavation or construction cannot proceed without the authorization of the Director of the WHS. It is illegal to disturb burial sites without prior authorization. Only a "qualified archeologist" approved by the Director may work within the boundaries of a human burial site and oversee the excavation of human burials.

To apply for this approval, an archaeologist must demonstrate experience in the excavation of burials by submitting a curriculum vitae and two letters of reference for consideration to the Director of the WHS.

In brief, archaeologists and those they may represent must coordinate all phases of burial site investigation, documentation, reporting, and disposition with the WHS.

Provisions of NAPGRA may apply to the investigation of burial sites not only with respect to the inventory, consultation, and repatriation of Native American human remains and certain cultural items, but also because aspects of the law pertain to intentional excavation or inadvertent discovery of Native American human remains and cultural items on federal lands or tribal lands. Archaeologists need to be aware of the applicability of NAGPRA for each project, and coordinate with all appropriate agencies.

BURIAL SITE DEFINITION

In Wisconsin, a human burial site is defined as "any place where human remains are buried" 157.70(1)(b) https://docs.legis.wisconsin.gov/statutes/statutes/157/iii/70

In the WHPD database, burial sites are clearly labeled. Some of these sites were recorded very early; specific details are often lacking and the site boundaries are often indefinite or highly generalized.

Nevertheless, they are considered burial sites for the purposes of Wisconsin law, and if you plan on conducting ground-disturbing activities within the recorded boundaries of any human burial site, you first need to receive permission to do so from the WHS.

BURIAL SITE IDENTIFICATION

Records and Literature Search

Prior to initiating field work (either Phase I or Phase II) at a burial site, an archaeologist should compile information on the cultural history of the region in general and the project area in particular. That effort should include, at a minimum, data on the geology, soils, and biotic

environment as well as the known and expected distribution of all site types (both precontact and postcontact). The type of background research necessary is detailed in Chapter 3, “Archival Research.” In addition, when working at historic cemeteries, the investigator should visit the County Register of Deeds office and copy the deed or deeds for the burial site.

Additional information may also be available from the Wisconsin State Old Cemetery Society (WSOCS via the WHS website, See Appendix 1).

Ground-Disturbing Activities at a Recorded Burial Site

Prior to initiating ground-disturbing activities, including archaeological investigations, within the boundaries of a reported burial site as mapped and described in the WHPD, a “burials-qualified” archeologist must obtain permission from the SHPO. The policy and procedures for completing this pre-field step are posted on the WHS website (See Appendix 1). A Request to Disturb a Human Burial site form is prepared, including attachments, referenced on the form, and submitted to the Wisconsin Historical Society (SHPO).

The archaeologist should review this online information and, if there are questions, contact the SHPO: compliance@wisconsinhistory.org.

Receiving permission to complete ground-disturbing activities within the boundaries of a human burial site involves submitting a proposal letter that includes the name of the burial site, the state code number if applicable, and the burial site code number; the nature and extent of the proposed work; and the name of the investigator.

Field Survey

The goal of an archaeological survey is to determine whether archaeological sites, including precontact and postcontact burial sites, are present within a delimited area. Background research and interviews with local residents and collectors are useful for obtaining corroborating information on site locations and additional information on site types and locations that may not be referenced or recorded in written documents. THPOs or other tribal experts might also have site information unavailable through other sources.

Surface survey. Burial sites are often, but not always, marked by surface features. These indications may include actual human bone or bone fragments discovered on the surface of badly eroded and/or plowed sites; grave pit depressions; obvious changes of vegetation, either natural or cultural (lilies or lilacs, for example); spirit houses; wooden crosses; precontact mounds; and gravestones or fragments of stone markers.

Please note that, according to Chapter HS 2.02 (8), “grave markers” means any surface indications of burials including stone monuments, spirit houses, wooden crosses, and precontact Indian mounds. All are recognized as burial sites under provisions of state law.

Methods employed to locate different types of burial sites in diverse environments vary. Consequently, survey and sampling strategies must be evaluated and individually developed for each survey. For example, if background research suggests that an isolated historic grave might lie within a given project area, the transect interval employed must represent the minimum necessary to locate that burial. In areas of dense vegetation and limited ground visibility, undertaking surface survey during the late fall or early spring is advisable. Various remote sensing techniques also are now available and might prove viable. The results of a remote-sensing investigation will need to be “ground-truthed,” since these techniques cannot identify human skeletal remains and might not produce results that can clearly be identified as human graves.

If an archaeologist identifies a feature that might represent a precontact Indian mound or other burial feature for which no site record exists (e.g., it is not in the ASI of the WHPD), that feature may be explored using a soil probe or other appropriate technique to assess further whether or not this “earthwork” is actually a Native American mound. In such instances, the archaeologist may wish to contact the WHS to discuss sampling options prior to undertaking that activity.

Under state law, it is not necessary to physically uncover human bone to designate a mound (or any other location) a burial site. If a soil profile confirms a soil discontinuity that is cultural in origin and clearly not related to “recent” land disturbance or agricultural activity, the location of that mound feature must be documented on an ASI form and submitted to the State Archaeologist at WHS.

Even if no human remains are encountered, or the results from coring or other sampling techniques are inconclusive, the elevated earthen feature might still be a mound and protected under Wisconsin’s burial law. This assessment should be based on the location, shape, size, and configuration of the feature.

Subsurface survey*.* Subsurface testing within the boundaries of a human burial site may be undertaken:

- after documentary research is completed
- following surface survey (if advisable)
- in the event that surface survey could not be effected because of dense ground cover
- if permission has been obtained from the WHS to conduct limited subsurface testing

The investigations must be designed to provide the maximum amount of information regarding the stratigraphic continuity and spatial extent of the site.

Depending on the nature of local sediments, vegetation cover, size of the area to be tested, and cost and other considerations, remote sensing techniques might be selected as the least intrusive and most cost-effective method for examining a large area. Ground-penetrating radar (GPR) and soil resistivity surveys have both proved useful in specific archaeological contexts (primarily historic) where radio interference from outside power sources is not a factor. Because results of these tests can vary tremendously depending on local conditions, subsequent test excavations are typically recommended to confirm (“ground-truth”) the results.

In some cases, controlled, monitored, mechanically assisted excavation of large areas of overlying fill or other disturbed soils (e.g., plow zone) to locate grave outlines or burial pits can be a practical, low-cost alternative to the use of remote sensing equipment (which, as noted, typically requires ground-truthing to verify the nature of detected anomalies). Mechanical stripping is potentially destructive (although minimally so, when properly implemented), but it provides the most comprehensive and definitive plan view of surface distributions of burial (and other) features. Before beginning any mechanical site stripping at a human burial site you must contact staff at the WHS. This type of activity represents a special request and is not covered under the provisions for “limited appropriate subsurface exploration” (HS 2.04[2]).

The request to conduct burial site investigations should contain the following information:

- site name
- site code
- state burial number
- brief project description, i.e., why is the work necessary?

- nature and extent of the proposed work, including methods to be employed and size of the area to be investigated

WHS staff will review the information and, if it is complete, will approve the application to disturb.

Controlled, monitored, mechanically-assisted stripping of overlying soils is typically recommended when early maps indicate the presence of Indian mounds or other burials within the present-day project area but surface indications of those cultural features no longer remain. The same situation might apply in some village sites (e.g., Oneota) known to have burials. As noted, permission must be obtained from WHS prior to any mechanical stripping within a reported burial site.

When the sediments in the area under investigation exhibit clear soil horizons (with color and textural differences), burial pits can be detected by locating areas of disturbed soil profiles. Soil probing can be effective in locating burials, particularly if a systematic survey strategy is employed. Close-interval testing is recommended when probing to locate burials. The standard shovel-testing interval of 10 to 15 meters used for Phase I surveys is not considered adequate or effective for locating burials.

Burial Site Documentation

The following documentation is needed to determine the effect of a project on a human burial site and for “cataloging” the site under Wis. Stat. § 157.70(5), a crucial step for the site’s long-term preservation:

- the legal definition of property boundaries as contained in a warranty deed or other legal document
- a certified survey plat of the cemetery or, if not available, a less formal plat maintained by the property manager
- a field sketch map, to scale, of the cemetery showing external and internal landmarks such as streets and lanes, location of marked burials, and location(s) of known or reputed unmarked burials if this information is not shown on the cemetery plat (the map or field notes need to include a property corner, or property line description)
- for field notes: orientation of burials as interpreted from cemetery plat or physical evidence, grave marker orientation, age, and/or surficial evidence; physical condition of cemetery; potential for unmarked graves; property owner or manager contact information
- photographs that illustrate the current setting and condition of the cemetery
- the owner’s name and contact information
- a cataloging boundary description that includes the appropriate justifications

Currently, the Wisconsin Department of Transportation (WisDOT) requires all archaeological consultants to provide the above documentation for projects involving burial sites. Contact WisDOT for a copy of the required "Documentation for Cemeteries” form.

In cases where no deed or property description is available, such as precontact mound groups or other unmarked or undocumented graves, sufficient information should be generated to allow the WHS to catalog the site as described below.

CATALOGING BURIAL SITES

Documentation

According to Administrative Rule Chapter HS 2.03 (2), documentation of a burial site may include, but is not limited to:

- physical evidence, as demonstrated by archaeological or written historical reports showing the presence of human bone or grave markers
- adequate historical documentation
- oral depositions, affidavits, or oral histories
- any additional information requested by the Director

Metes and Bounds Description of a Burial Area

Under law, the location of a human burial site can be protected by “cataloguing.” To catalog a burial site, the WHS needs a metes and bounds description for the exterior boundary of the burial, the names and addresses of the property owners, a scaled sketch map, and a 7.5’ USGS quad with the site boundaries clearly delineated. Photographs that depict the current boundaries of the cemetery and conditions at the cemetery are also of value.

In a compliance case, the agency forwarding information to the WHS for review must furnish the office with a metes and bounds description, or sufficient information for WHS staff to develop a metes and bounds description of the burial/cemetery. This description should include a suggested and justified boundary (including a "buffer"; cf. below) for the cataloged site.

Historic burial sites. Many historic burials already have metes and bounds descriptions recorded on deeds filed with the County Register of Deeds. The WHS appreciates (but does not require) a copy of the deed describing the cemetery, including its name and burial site and state site number (as available) and the page number(s) of the volume from which the description was copied.

If there is a deed describing the boundaries of a burial site, this legal description must be verified in the field against the actual (i.e., present-day) dimensions of the burial site.

If there is no existing deed with a metes and bounds description, the archaeologist must define the burial area and “sufficient contiguous land” necessary to protect the site; this may be accomplished by surface survey and/or subsurface testing. “Sufficient contiguous land” is defined in the statute as a minimum of 5 feet from any part of a burial site. Although statutes define a minimum 5-foot buffer, WHS currently recommends a 15-foot buffer (but larger and smaller buffers may be negotiated; Wis Stat. § 157.70[2][a]).

Precontact burial sites*.* As with previously undefined historic burial sites, the archaeologist must first define the burial area and sufficient contiguous land necessary, under the law, to protect the site. The site boundaries and cataloguing boundary should be drawn around the entire mound group rather than individual mounds, and the buffer distance from the edges of all of the mounds must be at least 15 feet. Obviously, if a boundary is drawn around an entire group, the buffer around some mounds might be larger than 15 feet. There might be cases where a 15-foot buffer is not practical, or where a larger buffer seems appropriate. In those cases, please contact the WHS.

If landowners request a larger buffer zone, their request must be reasonable, not excessive (i.e., simply to take advantage of a larger tax exemption). When a burial site with a protective buffer is cataloged, the burials and buffer area included in the cataloged area form a **“**no disturbance

zone." Once the landowners are notified of the cataloging, they may apply for a property tax exemption by contacting WHS. WHS and the landowner then contact the Register of Deeds. Once the cataloged area is recorded, it becomes part of the deed, and the protected area "runs with the land."

EXCAVATION OF HUMAN REMAINS

To ensure that the excavation, analysis, and report preparation of human remains investigations are performed and completed in a timely manner, and that sufficient information is provided to the Director of the WHS to allow for a disposition decision per Wis. Stat. §157.70(6) and HS 2.05(1), the WHS has a developed a standard burial contract between the qualified professional (archeologist), WHS, and the project sponsor. This contract needs to be adapted to specific project needs and fully executed prior to any excavation or investigation. Contact the WHS to establish a Burial Contract.

To excavate human remains from a burial site in Wisconsin, an archaeologist must be "qualified" as per 157.70 and HS 2.04(6)(a) and approved (in writing) by the Director.

To apply for approval, an archaeologist must meet the Secretary of the Interior's Standards, have experience with human osteology or human anatomy, and demonstrate experience in the excavation of burials by submitting a *curriculum vitae* and two letters of reference. See the WHS website (Appendix 1).

Please consult directly with WHS before initiating this process for information on current requirements.

A listing of "Archaeologists Qualified to Excavate Burials" is updated as needed and kept on file at the WHS, and is available online via the WHS website (see Appendix 1).

Before initiating fieldwork on state, county or municipal land, the archaeological contractor must also secure a field permit under Wis. Stat. § 44.47(4) from the State Archaeologist.

AUTHORIZATION

The discovery of any human remains, or remains suspected to be human, must be reported immediately to the WHS in person, by telephone, or by e-mail (phone: 1(800) 342-7834). Additionally, the burial area should be secured and all activities in the immediate area should cease. Contacting local law enforcement is essential for securing the area.

No excavation of human bone from a burial context is permitted without the express permission of the Director of the WHS. Note, however, that an archaeologist does not need prior authorization to excavate human remains if the bone is not recovered from a burial context—for example, if isolated fragments of human bone are found in a trash midden or a refuse pit.

If the context of discovery is at all questionable, it must be treated as a burial site until evidence is collected that clearly demonstrates that it is not a burial.

Discovery of a Native American burial site on federal or tribal lands automatically invokes the Native American Graves and Repatriation Act (NAGPRA). NAGPRA may also pertain to discoveries on non-federal/tribal lands if Native American human remains "are taken" into possession and control by a "museum" as defined by NAGPRA. The consulting archaeologist should ensure that compliance agencies understand their responsibilities under both state and federal burial laws. The contracting archaeologist must contact the WHS immediately and must also contact the funding or licensing federal agency regarding its policy on the excavation of

(Native American) human remains. The excavation of non–Native American human remains still requires authorization from the Director of the WHS.

If human remains are discovered during monitoring of construction, the archaeologist must direct the contractors to stop all construction in that area until WHS has evaluated the discovery, based upon discussions with the parties involved and possibly a field visit, regarding whether or not the remains can be removed. The Wisconsin Archeological Survey strongly recommends preservation of burials in place, rather than removal, whenever possible. If permission is given to remove the remains, a standard contract must be signed by ALL parties involved. The archaeologist must inform the contractor that no construction can proceed in that area until the excavation of the human remains is completed.

METHODS

Documentation

A large number of field and laboratory forms for documenting burials and human remains are now available online. The archaeologist and skeletal analyst should choose the forms that best fit the situation.

Exposure and Initial Documentation

As noted, the WHS maintains a list of “Qualified” Archaeologists approved to excavate human burials.

The following guidelines represent the minimum information that must be recorded during the excavation of human remains:

1. The first step is to identify boundaries of the burial pits(s) and record burial dimensions (once exposed) and pit size (length, width, depth), orientation, burial type, position, shape, and vertical and horizontal location in plan view. Contrasts in soil color and texture should be described, and soil samples taken of the surrounding pit fill. The entire excavation process should be documented photographically.
2. The next step is to carefully remove the sediments surrounding the burial(s) and expose the human remains using excavation tools appropriate to the task. The bone should not be touched with sharp metal tools. Wooden or bamboo picks, brushes of various sizes, artist’s soft metal painting tools, and cans of compressed air are all useful in helping to expose burials. All pit fill should be screened through ¼-inch or finer screen to catch small bones such as sesamoids, ossicles (bones of the ear), hyoid pieces, phalanges, and other fragments. Care should be taken during excavation to identify these types of bones in situ if possible. A second sample of sediments should be taken from the area of the sacrum, if feasible. Care is needed in removing sediments from this area due to the possibility of fetal bones being present with female skeletons. If bones are damp when initially exposed, they should not be left to dry in direct sunlight.

3a. If the burial is supine, the frontal bone of the cranium and the innominates (pelvic bones) will normally be the first exposed through excavation. These elements are often the most fragmentary and often hold the greatest potential for determining sex and age, and they should be excavated last if possible. They can be used as landmarks from which to approximate the locations of the long bones (arms and legs) and expose them before excavating the chest, pelvic, and cranial regions. Once an area is exposed, it should be kept free of sediment by covering it with cloth. This is not always easy, as one area (e.g., elbow or hip joint) may still be in articulation with other bones.

3b. If the burial is flexed, the side of the skull (and possibly the lateral portion of the orbit), the side of the pelvis, and the knee joint will likely be exposed first. Because of the circumstances of burial deposition, excavation must begin at the most elevated points and work sideways and downward until the remains are exposed. Procedures used must be sensitive to the context and reflect the objectives (including time and cost constraints) of the recovery plan as well as field conditions and safety concerns for the remains.

4. All skeletal elements and associated objects should be left in situ if possible until the remains are completely exposed, photographed, and mapped on graph paper. Photographic documentation must include both black-and-white prints and color slides and/or digital photographs, as well as a list of photographs taken with their numbers, orientations, and type of film used. All photographs should include a date, identification of agency or individual, a scale, and an arrow pointing to magnetic north. The WHS site and burial numbers must also appear in the photograph if assigned and available.
5. The vertical and horizontal location of the human remains should be recorded, and a scale drawing made of each burial and any associated artifacts.
7. Field notes and the information on the Field Recording Form (contact WHS for current format/form information) must be as complete as possible. If feasible, and if within the scope of the project, the land adjacent to the burial must be investigated to determine whether there are features that might provide additional context for interpreting the burial site and associated mortuary behavior. If the adjacent land cannot be surveyed, that fact must be explicitly recorded in the field notes.
8. Certain stipulations of the customized “standard” contract may preclude various degrees of field and laboratory documentation and levels of analysis.

Removal

As noted earlier, the WHS has developed a standardized burial investigation contract that needs to be approved by all parties prior to any disturbance of a human burial. Please contact WHS directly for further information about this process.

Again, the Wisconsin Archeological Survey strongly recommends preservation of burials in place, rather than removal, whenever possible.

Analysis and Report

After removal, the human skeletal material should be taken to an appropriate facility for analysis. This facility should have appropriate security and meet basic curation standards. Human remains excavated in Wisconsin cannot be moved to out-of-state facilities for analysis without the express permission of the WHS or the respective federal agency.

The analysis must be completed by a “Qualified Skeletal Analyst” as defined in HS 2.02(12) and HS 2.04(6)(b) and whose name and qualifying documentation are on file with the WHS. A WHS-approved list of such analysts is maintained online at the WHS webpage (Appendix 1).

The analysis and report must be done in an expedient manner and within the time frame specified in the burial excavation contract.

The analysis of human remains required under Wisconsin’s burial sites preservation law is intended to provide sufficient information to the Director of the WHS to allow for a disposition decision per Wis. Stat. § 157.70(6) and HS 2.05(1).

The analysis and written report must include:

1. The standard report sections expected of all professional archaeological reports as outlined in this volume, including the following:
   a) a complete literature search and interviews with local residents undertaken before beginning the excavation
   b) an overall site map that references the location of the burial(s) relative to a permanent datum point as well as the preparation of an in-situ plan view and profile drawings of the excavation and each burial
   c) scaled photometric documentation of the disturbance, the excavation, and any associated objects
   d) a completed archaeological site inventory form, as submitted to the State Archaeologist at the WHS
2. The analysis of the human remains must include:
   a) determination of either direct kinship or the cultural, tribal, or religious affiliation of the remains if possible
   b) minimum and maximum number of individuals identified, including their age and sex, if possible
   c) to the extent necessary to make the determination, documentation and description of trauma, evidence for cultural and/or medical intervention, presence and documentation of pathology, and any relevant taphonomic factors (for guidance, refer to *Standards for Data Collection from Human Skeletal Remains*, edited by J. E. Buikstra and D. H. Ubelaker)
3. Please be aware of the following:
   a) Soil removed from the bones during cleaning must be retained with the remains for future disposition
   b) No bone samples may be retained for study without the express permission of the Director under HS 2.04(9)
   c) No images, pictures, video, drawings, or illustrations of the burial or of work on the human remains may be used in any public presentation or report until the WHS accepts the report
   d) The archaeological contractor is responsible for transferring all reports generated and copies of field notes, maps, and photographs related to the burial site to the WHS, under HS 2.04(10)
   e) The archaeological contractor is responsible for submitting two copies of the report to the director of the WHS for review once the excavation and analysis are completed. As noted above, the report must include information on the context of the discovery and any associated cultural information that would aid in determining the antiquity and direct kinship, or the cultural, tribal, or religious affiliation, of the remains.

DISPOSITION

Once WHS staff receive the report on the excavation and analysis of human remains removed from either an uncataloged or a cataloged burial site, they will review the report. If the report is not acceptable, the author will be notified and the report returned with comments. Once the report is accepted, the WHS staff will prepare a memo summarizing their review of the report and making the recommendation to the Director of the WHS about the disposition of the human remains.

A notice is prepared and sent to all individuals, organizations, or descendant communities who have expressed an interest in the type of burial(s) that has been unearthed. The individuals, organizations, or descendant communities have 30 days to respond in writing. All responses are carefully reviewed, and the Director then makes a decision on the final disposition of the remains.

The remains will then be transferred and either reburied or curated and the matter considered closed.

Chapter 12

GEOMORPHOLOGICAL AND GEOARCHAEOLOGICAL INVESTIGATIONS

Archaeologists should have a basic understanding of the land use history, geomorphology, soils, and landforms of any area they are investigating, to properly assess the archaeology and to determine whether additional professional geomorphological help is needed.

Geoarchaeological investigations on archaeological sites should be designed to (1) establish the physical context of archaeological deposits, and (2) assist in assessing the effects of the post-depositional (post-abandonment) environment on the condition or integrity of the archaeological deposits. The physical context is three dimensional and has four major components: (1) morphology, (2) soils, (3) stratigraphy, and (4) biota. Because geomorphology is the study of earth surface processes, components 1 through 3 are directly within its realm. Component 4, biota, covers the role of plants and animals, including humans, in shaping the landscape and therefore lies on the interfaces between geomorphology, biology, ecology, and archaeology (social sciences). The role of people in the formation of archaeological deposits is, obviously, a focus of archaeological investigations. Not as obvious are the important roles of people and other biota in post-depositional changes that structure the archaeological record.

The post-depositional environment consists of all the physical and biological forces that act on archaeological deposits after an archaeological site is abandoned. Post-depositional conditions determine what archaeological features and artifacts will be preserved. The major forces involved are (1) erosion, (2) deposition, (3) soil formation including biological activity, and (4) anthropogenic activity. Here the focus is on the archaeological deposits themselves as a source of information on past human activity and the need to make decisions about site integrity and eligibility for the National Register.

Resources for preserving or excavating archaeological sites are limited; therefore, it is important to understand the condition of the deposits when designing research and making preservation decisions. For instance, specific sets of data are needed to address specific research questions. The condition of the deposits in part determines whether the appropriate data can be recovered. In Wisconsin, a major factor in altering and destroying archaeological deposits is Euro-American land use, especially farming, lumbering, and urbanization.

The following focuses on geomorphological and geoarchaeological aspects of locating and interpreting archaeological deposits (developing a physical context that directly or indirectly aids in interpretation). Archaeological deposits are the result of the interaction of the four components described above with the material remains of human activity. The interaction begins when a landscape facet is occupied and continues until the soil/sediment is removed. The continuous interaction creates the archaeological deposit and turns a landscape facet into an archaeological site.

Physical context is, in some ways, analogous to historic context as outlined earlier in this *Guide*. As with a historic context, a physical context can be viewed as an “organizational framework” for the geomorphological and geoarchaeological variables. Continuing with the analogy, a geomorphic equivalent of a property type, the Landform Sediment–Assemblage (LSA) is suggested. The LSA is a basic geomorphic unit established by many large-scale geoarchaeological research projects in the Midwest. The physical context of each archaeological deposit is not unique; patterns exist and can be discovered. An LSA characterizes the morphology of the land surface, the soils/sediments, and the stratigraphy, in

three dimensions. This includes urban areas where cut and fill patterns should be examined. Also, site formation processes can be addressed through the relationships between soils, vegetation, and biomechanical mixing regimes. LSAs can be constructed from widely available online maps of soils and topography as well as other archival data, and refined in the field. In combination with the soil-region approach to site location, LSAs will form project- and site-specific data for assessing: (1) potential for deeply buried archaeological deposits, (2) site integrity, and (3) data potential in the context of preservation planning.

The following guidelines are based on those adopted in Iowa and Minnesota. Additional sections not specifically covered in other guidelines pertain to geoarchaeological investigations of site formation processes and determinations of site "integrity," especially in regard to the direct and indirect effects of modern land use on archaeological deposits.

All archaeological projects need some level of geomorphological assessment. Both the level of assessment and the degree of expertise needed depend on the complexity of the landscape in the project area. Archaeological deposits cannot always be located by examining the modern landscape surface (pedestrian survey and shovel testing). To determine the type of geomorphological investigation needed, the phase of the archeological investigation, the complexity of the landscape, and the archeological or geoarchaeological research questions should be considered.

QUALIFICATIONS

A great deal of geomorphological-type investigation can and should be done by archaeologists. The minimum training should be a working knowledge of standard descriptive systems available for describing landscapes, soils, and sediments (see references below). Standard descriptions not only provide an objective data base for geoarchaeological and archaeological research, they also facilitate communication with professional geomorphologists and soil scientists.

Geoarchaeologist

A geoarchaeologist is a qualified archaeologist who, through education and experience, has:

- acquired adequate skills to evaluate project areas from a geomorphological perspective, especially on Phase I reconnaissance surveys
- demonstrated familiarity with and ability to apply standard geoarchaeological descriptive terminology in field situations
- geoarchaeological experience in the Upper Great Lakes, Upper Mississippi valley, or both

Project Geomorphologist

A geomorphologist qualified to be a project geomorphologist has:

- completed or nearly completed a postgraduate degree in geology, physical geography, soil science (pedology), or Quaternary studies
- experience in the Upper Great Lakes and/or Upper Mississippi Valley

PHASE I RECONNAISSANCE SURVEY

The goal of Phase I archaeological survey is to identify and record all archaeological properties in a project area. Perhaps it is useful here to view the geographic location of the project not as an area but as a volume, especially when considering the project's potential for destroying archaeological resources. Geomorphological investigations may be necessary at the Phase I

level to (1) locate and investigate areas of the landscape where the potential for buried archaeological deposits exists, and (2) aid in assessing the integrity of any archaeological deposits. Archaeological deposits are considered buried if they are in situ in the soil or sediment regardless of the depth of the archaeological survey technique used. Generally shovel probing and pedestrian surface survey sample the upper 30–40 cm of the landscape. In areas where buried archaeological deposits are suspected, soil-stratigraphic investigations should be designed to evaluate the potential of the buried environment for archaeological deposits and to suggest techniques for sampling that environment for archaeological materials. Effects of modern land use on the archaeological deposits are the major initial concern in assessing the integrity of deposits.

Geomorphological investigations of large project areas or study corridors in which the final project design will impact only a portion of the area surveyed should be divided into standard survey and deep testing phases. The reason is cost. If large parts of the project area are LSAs with potential for buried archaeological deposits (locations where sediment may have accumulated in the last 13,000 years), the cost of deep testing to construct a soil stratigraphic framework and then sample those buried environments to locate archaeological material would be prohibitive. The two-phase approach, carried out preferably during the Phase I archaeological survey, provides a cost-effective alternative. In the first phase the parts of the project area with potential for buried deposits are identified, and standard archaeological survey techniques are employed over the rest of the project area. In the second phase, the areas with potential for buried sites are investigated from both an archaeological and a geomorphological perspective using a deep testing protocol (see references at end of chapter).

Pre-Field Investigation

Literature search. A search of the geological, soil science, and geoarchaeological literature should be conducted to locate information relevant to the project area and the project goals. A preliminary LSA map of the project area should be constructed from available data including (1) 1:24,000 topographic maps (available online from the USGS), (2) soil maps (available online at the Web Soil Survey), (3) aerial photographs, and (4) publications and technical reports. LSAs are assigned a level of potential for buried archaeological deposits and are then used as a tool for planning the archaeological survey and the deep testing.

The project geomorphologist should coordinate scheduling and research goals, including (1) construction of the LSA maps to provide information to the archaeologists for use in planning the archaeological investigations, and (2) determination of project goals that need geomorphological data to be addressed adequately. To provide useful information, a preliminary geomorphological field reconnaissance with the archaeologist might be necessary, especially if the landscape in the project area is complex.

Environmental assessment and land use history. Modern land use (post–EuroAmerican settlement) impacts archaeological deposits both directly and indirectly. Understanding these impacts is important for determining the integrity of the deposits and assessing their information. Because the impacts are relatively recent, evidence for identifying and interpreting them is easily obtained.

If possible, a brief land use history should be compiled before field investigations begin, using data from historic sources such as deeds and old air photos, maps, and plats. Often such information is collected during the archaeological and historical literature search. From the perspective of the environmental assessment, land use that results in ground-disturbing activities, including cultivation, excavations, or filling, should be documented. The effects of the land use identified during the record search must be confirmed during the field investigation. In

addition, data collected during the records search is useful in determining what type of disturbance to look for and where to look for it during the field investigations.

Field Investigations

Environmental assessment during field investigation. Assessing the effects of modern land use on the landscape should be an integral part of all archaeological surveys. Direct impacts fall into two broad categories:

(1) construction activities, especially in urban and suburban areas; and (2) agricultural activities, especially plowing and timber harvesting.

Many types of construction activities are associated with urban and suburban sprawl, and their effects on archaeological deposits need to be assessed on a case-by-case basis. Just because an archaeological project is in a suburban or urban area does not mean that in-situ precontact and postcontact archaeological deposits do not exist. Archaeological phenomena exist at a variety of scales, and important archaeological resources may be preserved in patches in urban and suburban areas.

The intensity and nature of construction activities vary from place to place and through time. For example, the pre–EuroAmerican soil surface in a backyard, park, or courtyard might be relatively undisturbed even in the midst of buildings and roads. Before the extensive use of modern excavating equipment and the current “moonscape” approach to civil engineering, construction methods were very different and often less destructive to archaeological deposits. Fill, depending on how and when it was emplaced, may actually preserve archaeological deposits.

No project area should be summarily written off because it is partially covered by buildings and roads. The degree of disturbance to archaeological deposits should be determined in the course of field investigations and/or by examining old construction or road-building plans, or the buildings themselves, to determine whether the pre–Euro-American soil surface has been removed.

Landowner interviews conducted either when obtaining permission to enter private land or as a separate procedure are very useful for obtaining information on present and past land use. An effective approach is to use a map or air photo with the project area clearly marked and direct questions about land use to the specific project area.

Plowing has an obvious direct impact on archaeological deposits. Less obvious is its indirect impact. Plowing exposes the soil surface to erosion, which proceeds at a rate many times greater than on a vegetated surface. The erosion results in the removal of soil by sheet flow, rill flow, and gullying. On many plowed fields erosion also results in the movement of artifacts downslope or the creation of artifact lags. Eroded soil and artifacts are transported to lower areas on or off the agricultural fields. In these areas the original A horizon or plow zone might be buried and isolated below the depth of cultivation. The direct and indirect impacts of cultivation on the archaeological deposits should be an explicit component of the process of determining eligibility.

Identifying areas with potential for buried archaeological deposits. In the field, landscape position and degree of soil formation can be used to locate areas where archaeological deposits might be buried. Subsurface investigations to identify buried deposits are especially important on landforms such as floodplains, terraces (former floodplains), alluvial fans, and footslopes. Subsurface investigations should begin with the simplest and least expensive techniques, such as soil pits and hand probing, and move to more expensive and sophisticated techniques as needed. Degree of soil development can be used to get a gross relative age on the surface

deposits, especially to differentiate older sediment from sediment deposited recently as a result of Euro-American agricultural activity. Using the degree of soil development to determine the age of soils involves interpreting multiple lines of evidence, including landform, landscape position, and degree of soil development, and is best done by professional geomorphologists or soil scientists.

Deep testing: identification of buried archaeological sites. Investigation of areas with potential for intact buried archaeological deposits should be both archaeological and geomorphological in nature. The archaeologist's role is to locate and record the cultural context of artifacts or features. The geomorphologist's role is to construct a soil-stratigraphic framework for interpreting the physical context of the artifacts. Techniques for sampling a volume of soil/sediment for archaeological materials at depth are fraught with logistical and statistical problems. However, state-of-the-art approaches need to be applied to locating buried archaeological deposits and to begin developing efficient, cost-effective means of doing so. Some suggested techniques are as follows:

1. *Existing exposures.* Stream bank cuts, gravel pits, road cuts, and any other existing exposures should be described. Exposures are extensive in some areas of the state and provide quick, inexpensive access to the subsurface.
2. *Hand-excavated soil test units.* These units are effective in sandy soils where exploratory holes can be excavated quickly, allow for good vertical control as each unit is excavated, and expose soil/ stratigraphic profiles to depths of 1–2 meters.
3. *Backhoe trenches.* Backhoe trenches are fast and economical, especially over large areas. Trenches should be excavated in small increments (± 5 cm) with a smooth-edged bucket to locate artifacts and identify features. Trenches can expose large volumes of soil for archaeological sampling and can expose soil/stratigraphic profiles to depths of 2–4 meters. Selected strata exposed in the profile wall should then be screened.
4. *Hand and power auguring* (flight augers and bucket augers). A *flight auger* is essentially a large screw that delivers a continuous stream of sediment to the top of the hole; the depth of penetration depends on the sediment and the diameter of the auger (for example, a 12-inch-diameter auger can reach a depth of 8–10 feet in a silt loam or sandy loam soil; smaller-diameter augers can penetrate deeper). There are problems with vertical control because only the upper profile and the cuttings are directly observable. Mixing of strata or horizons may occur. This technique can be used as a systematic deep sampling method analogous to shovel testing, but it is best utilized in conjunction with techniques that expose a deep profile.

   A *bucket auger* recovers a discrete interval of soil/sediment that reflects the length and width of the auger bucket. The advantages of bucket augers are the depth control on the sample and the lack of mixing. Bucket augers can be used effectively in conjunction with flight augers for sampling easily recognizable horizons or strata.
5. *Hand and power coring.* Various lengths and volumes of intact soil and sediment can be recovered and small-diameter cores taken by hand, but larger-diameter cores need a motorized drill rig. Intact cores are advantageous for soil and stratigraphic analysis but do not recover an adequate volume of soil for reliable archaeological sampling. If cores are to be used for locating archaeological deposits, the core should have as large a diameter as possible, and samples should be fine-screened by flotation. The hope is to recover small artifacts (microdebitage) or ecofacts that might indicate the presence of archaeological deposits. Coring is best used to build a soil-stratigraphic framework, with another technique then used to sample for artifacts.

6. *Remote sensing.* Remote sensing uses various magnetic, electrical, and acoustic techniques for examining the subsurface. Techniques are too varied and setting specific to outline here. These techniques are useful for extending point data (trenches or cores) laterally over a larger area, increasing the strength of stratigraphic correlations. Remote sensing techniques can also be used to identify some archaeological features. They should be used in conjunction with other techniques.

The cost benefit and effectiveness for locating buried archaeological sites using coring, trenching, power augering, and remote sensing were compared in developing the Minnesota Deep Test Protocol. Trenching was found to be the most effective for locating sites and the most cost beneficial. Coring combined with power augering was effective at locating sites but was more expensive (see Minnesota Deep Test Protocol for details).

Evaluating the geologic potential of buried environments for archaeological deposits. Geologic potential is a qualitative measure of the likelihood that a particular geologic environment will contain archaeological deposits in primary context. During the evaluation, archaeological variables (settlement and subsistence patterns, for example) are not considered. Rather, three major geomorphic criteria are used when assigning a level of potential: (1) age of the deposits, (2) depositional environment, and (3) post-depositional modifications. Human occupation in Wisconsin has occurred from the Late Pleistocene through the Holocene (less than ±14,000 ^{14}C yrs BP). Consequently, sediments deposited during this time span are considered as having chronological potential. Depositional environments most conducive to burying the primary context of the archaeological assemblage are eolian (dunes, sand sheets); fluvial vertical accretion (floodplains, terraces, alluvial fans); near-shore lacustrine; sheet-wash colluvium; and mass-wasting off slopes. Post-depositional modifications that might disturb the context of, and perhaps bury, archaeological deposits are pedogenic processes such as bioturbation and shrink-swell in clayey soils, and historic anthropogenic activities such as mining, agriculture, and various construction activities.

Geologic potential can be subdivided by considering soil attributes. For example, buried soils mark former landscape surfaces and certainly have high potential. However, all buried landscape surfaces are marked by buried soils. Other soil attributes provide information on the environment during soil formation, particularly whether the soil formed under well or poorly drained conditions. Nationally accepted guidelines have been established for identifying hydric soils in conjunction with delineating wetlands. Hydric soils have organic surface horizons (peat or muck) or are mineral soils that are gleyed and/or mottled. Landscape position, environment of formation, or both can be inferred from hydric features. All the soil morphological attributes of hydric soils can be identified readily in the field, with minimal training.

As in archaeology, in geomorphology there are always exceptions and corollaries that depend on context. Soil morphological features that result from soil formation under wet conditions are reversible if the conditions change and the soil becomes better drained. Climate change, for instance, could result in a soil becoming better drained, due to lower water tables. With the new soil-forming environment, soil morphology would begin to reflect the new conditions, imprinting over or destroying soil features formed under the wet conditions. Soils formed in deposits of early and middle Holocene age may be better drained during some part of their developmental history.

PHASE II EVALUATION

The purposes of soil and geomorphological investigations during Phase II archaeological investigations are to (1) develop and interpret the geomorphic, pedologic, and stratigraphic history of the archaeological deposits at the site, and (2) determine the effects of the geomorphic and pedologic processes on the formation of the archaeological record. If a geomorphic context for the Phase II investigations was not developed during the Phase I investigations, it should be incorporated as part of the Phase II investigations.

The geomorphological evaluation methods are flexible and consist of a two-stage approach. The first stage is collection of field data and samples. Field data are collected from archaeological excavation units, backhoe trenches, and cores. Backhoe trenches and cores are used in nearby off-site areas, and on-site in areas not being hand excavated, to obtain crucial information for interpreting site stratigraphy and site formation processes. Field data consist of detailed descriptions of strata and soil horizons, photographs, and drawings. Descriptions follow standard terminology for soils and sediments. The types and number of soil/sediment samples taken depend on the types of laboratory data needed to address pertinent research questions. The following forms of analysis are available for various types of geomorphological and geoarchaeological investigations.

1. *Basic characterization.* This level of analysis provides descriptive data for general interpretation of pedogenesis, sedimentation, and site formation processes. A basic characterization is generally necessary for any extensive soil-geomorphic investigations.
2. *Sedimentological analysis.* This type of analysis furnishes data for interpreting depositional units from the perspective of physical processes of sedimentation by both natural and cultural agents.
3. *Chemical analysis.* This form of analysis provides data for interpreting cultural content of the deposits that is not preserved in macro form such as bone, ash, wood tissue, etc. It may also provide ancillary information on the formation of the deposits by distinguishing cultural from non-cultural strata.

REPORT PREPARATION

A separate technical report on the geomorphological investigations should be prepared and included as a chapter in or an appendix to the archaeological report. In either case the soil-geomorphic data should be integrated into the report text. The geomorphologist's report should include the following as a minimum:

1. Introduction

The introduction should contain:

- the location of the project area relative to the landform and/or geologic regions
- the scope and purpose of the geomorphological investigations, especially in relation to the archaeological research questions and goals

2. Background Research

This section should include the locations of and a summary of literature and maps that provide information on the physical and environmental context of the project area. Included should be any information on landforms, soils, land use, geology, and environmental and geomorphic history as they relate to the location and interpretation of the archaeological deposits.

3. Methods

The Methods section should provide descriptions of:

- methods and techniques used and how they fit in with the goals of the project
- equipment and personnel used in the field and laboratory investigations

4. Results

The Results section should:

- provide a geomorphic/geologic map (a 7.5' USGS quadrangle or portions thereof) of the project area that includes the location of data points such as bore holes, soil pits, trenches, or exposures
- describe and interpret landforms, soils, deposits, and stratigraphy with the goal of constructing a physical contextual framework for interpreting the archaeological and environmental data (including presentation of relevant field and laboratory data)
- integrate the geomorphology with the archaeological investigations, including direct reference to research questions, potential for buried archaeological deposits, effects of geomorphic and pedogenic processes on the archaeological deposits, and possible paleoenvironmental reconstructions

5. Conclusions and Recommendations The final section should present:

- conclusions with regard to archaeological and geomorphological research questions and project goals
- recommendations for further work if project goals have not been achieved, and/or recommendations for geomorphological and geoarchaeological investigations for the next phase in the evaluation process

6. References

7. Appendix

The appendix should contain the raw data from which inferences and conclusions were drawn, including (1) detailed soil and strata descriptions from profiles, exposures, and cores; and (2) tables of all laboratory data, including radiocarbon dates and associated information. It should also serve as a data repository for use by other researchers.

SELECTED ADDITIONAL INFORMATION/ REFERENCES

See Appendix 1 for website links to other state/province guidelines.

Chapter 13

INVESTIGATIONS OF SUBMERGED AND WET SITE CULTURAL RESOURCES

The following provides an overview of specialized archaeological, historical, and remote sensing methods for identifying, evaluating, and documenting archaeological resources in Wisconsin that are completely or partially submerged in water or are considered wet sites. Submerged site examples include cultural resources such as shipwrecks, canoes, or submerged structures. Partially submerged site examples include wharves, docks, and shipwrecks along shore that extend into extant water. Wet site examples include landlocked shipwrecks, docks, or cultural resources located in bogs. These guidelines are meant to be used in conjunction with accepted underwater archaeological methods and are adopted from, and in general conformity with, laws and guidelines developed by the National Park Service (NPS), the Minerals Management Service (MMS), the U.S. Army Corps of Engineers (USACE), and others.

Most underwater archaeology in Wisconsin takes place in waterways regulated by the State of Wisconsin, USACE, United States Coast Guard (USCG) and, potentially, National Oceanic and Atmospheric Association (NOAA). archaeology in Wisconsin at sites that are submerged or partially submerged may be subject to additional specific project scopes of work and permit conditions. Permit applicants and others conducting archaeology in Wisconsin waters are encouraged to contact the WHS's State Underwater Archaeology Program well in advance of anticipated work to confer on specific project methodology and permit requirements.

GENERAL REQUIREMENTS

All archival research, field survey, excavation, recovery, conservation, curation, and reporting work should follow standard and accepted procedures and ensure:

- obtaining all necessary materials, equipment, personnel, and permits needed to complete a project having the potential for submerged, partially submerged, or wet site resources
- an appropriate project research proposal focused for submerged, partially submerged, or wet site resources
- appropriate execution of investigations specific to these classes of sites
- recommendations and evaluation of the cultural resource with regard to eligibility for listing in the National Register of Historic Places (NRHP)
- preparation and submission of reports
- conservation and curation of all artifacts, notes, maps, photos, original manuscripts, figures, and any other materials generated from this research, according to federal guidelines 36 CFR 79 and accepted professional guidelines for submerged, partially submerged, or wet site resources

Methods and techniques used in conducting underwater archaeological investigations should follow the *Archeology and Historic Preservation: Secretary of the Interior Standards and Guidelines* and the *Abandoned Shipwreck Act: Final Guidelines* prepared by the NPS. These guidelines describe the experience needed by the principal investigator and the field director to conduct archaeology of submerged sites such as shipwrecks (i.e., underwater archaeologists

must meet the *Secretary of the Interior's Standards*, with specific expertise and experience in underwater archaeology).

The archaeologist meeting the *Secretary of the Interior Standards* for underwater archaeology is responsible for obtaining any permits needed for conducting archaeological research on state bottomlands, including (1) a Wisconsin Department of Natural Resources (DNR) Bureau of Water Regulation and Zoning permit to disturb bottom sediments in the course of test excavation; (2) a WHS Public Lands Field Archaeological permit from the Office of the State Archaeologist for survey and excavation of archaeological remains on public lands; and (3) any county or municipal permits required to anchor vessels or conduct diving operations in the project area. Other interested parties such as tribal governments, adjacent private landowners, and reservoir management entities should be contacted as appropriate. The archaeologist is, of course, also responsible for complying with federal, state, and local laws pertaining to all facets of the work, including environmental protection, worker safety, labor standards, vessel operations, and diving operations.

LITERATURE AND RECORDS SEARCH

A comprehensive literature and records search for the project area should be conducted prior to the field investigation. This research should provide documentation of precontact and postcontact sites believed to be present in the project area, including wrecks of vessels and small craft, harbor structures, and other archaeological remains. Historical documentation should include a project area history (including phases of harbor construction, if relevant); photographs and maps; data on construction, operation, loss, and salvage of vessels in the project area (including, if possible, builders' plans or records and photographs); and present location of known or suspected sites.

The archaeologist should consult, at a minimum, records of the WHS, local and county historical societies, the Milwaukee Public Library (MPL) marine collections, the Institute for Great Lakes Research, the Duluth Canal Park Marine Museum, the Wisconsin Maritime Museum, and other repositories having information relative to the prehistory, history, navigation, waterfront and harbor development, and shipwrecks of the project area. Historians, divers, archaeologists, and other individuals knowledgeable in these subjects should also be consulted for further information and to determine whether any underwater archaeological resources may lie within the project area.

PHASE I: MINIMUM TECHNICAL SPECIFICATIONS

Appropriate methods and techniques used in underwater archaeological surveys must be adequate to identify precontact and postcontact archaeological resources within the project area.

Phase I field survey for the portion of the area of potential effect that exists in a completely or partially submerged environment should be conducted with a complete (100% coverage) marine geophysical remote-sensing survey. Marine geophysical survey should employ dual instrumentation that will detect both buried and exposed cultural remains. An example of proper methodology for sites, or portions of sites that are completely submerged, might include geophysical remote sensing with terrestrial archaeological techniques such as manual or hydraulic probing, to be sufficient to accurately identify and define submerged cultural resources. A terrestrial technique, such as manual or hydraulic probing through water to river or lake bottoms, used without any geophysical remote sensing, does not accurately account for surface or subsurface/buried existence of submerged cultural resources and does not meet

NPS guidelines to adequately identify or define submerged cultural resources. Geophysical remote sensing instrumentation should represent state-of-the-art technology and be properly deployed and tuned, and all recorded data should be legible, accurate, and properly annotated.

SCUBA diving activities should be conducted in accordance with the American Academy of Underwater Sciences (AAUS) guidelines. These standards include having an emergency evacuation and medical treatment procedures plan, safety procedures, and equipment in place for the actual diving operation, responsibilities designated for the dive team members, and procedures for equipment use and maintenance. For the safety of divers and to minimize the potential for diving accidents, all dives should be conducted as non-decompression dives. Because the AAUS does not recommend closed-circuit scuba systems at this time, when SCUBA diving activities will employ the use of closed-circuit scuba systems, this deviation from AAUS guidelines should be explained. If there is a potential for deep water sites that exceed the depth recommended for research diving by the AAUS, consultation with the State Underwater Archaeology Program and SHPO concerning the most appropriate survey, documentation, and identification methods should begin before conducting any fieldwork. If a motorized boat will be used for survey of submerged or partially submerged resources, a float plan should be filed, and local law officers or officials should be made aware of when boating and diving activities are ongoing.

Methods discussed and recommended here may not be applicable to both open water/deeper water environments and shallow water or enclosed waterway environments. Instrumentation should be tailored to the environmental situations of the area of potential effect: land-locked, shallow water, or deeper water. These guidelines also are not all-inclusive with respect to methodology; for particular survey environments, other options might be employed for identifying submerged cultural resources. Proposed survey methods or equipment for public archaeology surveys of submerged, partially submerged, or wet sites that differ from those outlined here should be discussed in consultation with the State Underwater Archaeology Program and the WHS before conducting any fieldwork.

Instrumentation for Deep Water Sites

Deep water sites are defined as underwater sites located in water over 20 feet (6 meters) deep. Shipboard survey equipment should include at a minimum:

1. A **navigation/positioning control system** or some other means of recording locations of survey transects, features, and landscape elements, such as a portable global positioning system (GPS) unit. This navigation/positioning control system (GPS) should be capable of either digitally or manually interfacing with other remote sensing records so that geophysical remote sensing survey results can be correlated to exact locations.
2. A **marine magnetometer** with a data sampling rate not to exceed 1-second intervals, preferably a towed sensor type. The sensor should be towed as close as possible to the lake or riverbed, optimally at a distance of 6 meters or less. A mechanical or digital depth sensor should be attached to the magnetometer sensor, and each survey line should be annotated with tow sensor depth and start of line (SOL) and end of line (EOL) times. In all instances where a magnetic anomaly is encountered, the sensor depth should be annotated on the magnetometer record. The magnetometer should not be operated in “zero mode,” as this setting does not measure the ambient magnetic field. Background noise levels should not exceed 3 gammas, peak to peak. Position fixes and recorder speed should be annotated on the strip charts for each survey line whenever possible, the magnetometer should be towed at a minimum distance of 2.5 vessel lengths behind the survey vessel to eliminate any magnetic influence from the vessel.

3. A **side-scan sonar** with at least a 800kHz dual-channel sensor that has high resolution. Side-scan sonar should be used to record continuous planimetric images of the project area, lake or riverbed, providing 100% coverage of the survey area. Data obtained should be of sufficient quality to permit detection and evaluation of objects, structures, and features lying upon the lake or riverbed within the project area. Whenever possible, the side-scan sonar sensor should be towed above the bed at a distance of 10 to 20% of the instrument range. The vertical sound beam width should be appropriate to the water depth, and the horizontal sound beam width should provide optimum resolution. Tuning should be accomplished in a manner that enhances the echo returns from small nearby objects and features without sacrificing the quality of echo returns from more distant objects and features.
4. A **depth recorder/fathometer** or some other means of recording depth of features, and landscape elements. Continuous water depth measurements should be made using a high-frequency, narrow-beam depth sounder. Bathymetric data should be recorded with a recording sweep appropriate to topography and water depth.

Other equipment includes:

5. A **sub-bottom profiler** with minimum 2-meter resolution. As required by the project scope of work, a sub-bottom profiler might be needed to determine the location and nature of sediments, geological features, and archaeological remains beneath the floor of a lake or river. Data obtained must be of sufficient quality to permit evaluation of these features and remains for determining possible precontact or postcontact significance. The system used should be capable of providing data for the upper 15 meters of sediment; however, the actual bottom penetration achieved will vary with bottom sediment type and conditions
6. **Additional equipment,** as needed. Some projects might require additional forms of geophysical remote sensing; light detection and ranging (LiDAR) or satellite imagery; remote sensing; underwater television; still, video, or movie cameras; remote or manned submersibles; bottom coring; or other equipment.

Instrumentation for Shallow Water Sites

Shallow water sites are defined as underwater sites located in water less than 20 feet (6 meters) deep. If a small vessel is used for survey, shipboard survey equipment should include, at a minimum:

1. A **navigation/positioning control system** or some other means of recording locations of survey transects, features, and landscape elements such as a portable GPS unit. This navigation/positioning control system (GPS) should be capable of either digitally or manually interfacing with other remote sensing records so that geophysical remote survey results can be correlated to exact locations.
2. A **depth recorder/fathometer** or some other means of recording depth of features, and landscape elements.
3. A **side-scan sonar and magnetometer, or sub-bottom profiler** that in a small vessel survey should include mounted or modified towable geophysical remote sensing equipment that meets the specifications for deep water sites.
4. **Additional equipment,** as needed. Under certain conditions, additional equipment or methods similar to those for deep water surveys might be required.

Instrumentation for Wet Site Resources

Wet-sites are defined as cultural resources that are located in permanently saturated deposits, were once submerged by water, or currently exist in environments with wet soils. Equipment should include, at a minimum, a means of keeping wet artifacts and materials collected from drying out until they can be conserved properly. The crucial factor with these sites is to make sure the site and the remains are not compromised by drying as the survey is conducted.

Survey Parameters

Survey parameters recommended for conducting underwater archaeological remote sensing surveys include:

Area surveys. An area survey should cover the entire area of a proposed bottom-disturbing activity as well as that portion external to the project area within which activities may cause physical and/or long-term magnetic disturbances. The survey should be run along parallel primary lines spaced at a maximum of 50 meters. Tighter line spacing may be required in spatially restricted areas, in areas of known or suspected underwater archaeological resources, or where otherwise required by the nature of the bottom sediments, the bathymetry, or the archaeological resources themselves.

Linear surveys. The parameters for all linear surveys (such as pipelines and cables) must include a transect along the proposed project centerline, and one or more offset parallel lines on either side of the center transect at a maximum spacing of 50 meters. The number of parallel transects should be sufficient to provide 100% coverage of the area within which the project may cause physical and/or long-term magnetic disturbances. A minimum of two offset parallel transects should be conducted. The area of physical disturbance might also include locations where anchors, platforms, or other construction equipment will be placed during construction activities.

Data Collection and Analysis

Transects should typically be run at a survey vessel speed not to exceed 2 to 4 knots, to provide for accurate data recovery. All analog records should be minimally annotated with position coordinates at every 100 feet along each transect, unless continuous remote sensing/positioning data correlation is provided automatically through a shipboard computer interface. Magnetometry data should be contour plotted, in at least 10-gamma contour intervals. Magnetic targets should also be recorded on sonar (if detectable) to facilitate identification. Side-scan data may be graphically depicted either through scanned or photo-printed annotated images or by supplying original sonargraphs. Acoustic (sonar) targets that appear to be shipwrecks should be recorded from several different aspects, angles, or directions to facilitate target identification. Anomalies in magnetic or sonar data should be ground-truthed by diver reconnaissance. Exposed cultural remains should be ground-truthed by visual inspection. Subsurface anomalies should be ground-truthed by manual or hydraulic probing, and if necessary, by test excavation using induction dredge, airlift, or water jet, as appropriate to conditions. Ground-truthing should include documentation by measured sketches, verbal description, and photography/video if necessary.

PHASE II AND PHASE III INVESTIGATIONS

Currently, most underwater archaeology projects in Wisconsin are focused on shipwrecks associated with the Great Lakes, although inland lakes and rivers clearly contain undiscovered sites as well. All Phase II and Phase III investigations of submerged, partially submerged, or wet

site cultural resources should involve a research design that is first submitted to the State Underwater Archaeology Program and the WHS for review and comment. Submerged, *non-shipwreck associated archaeological sites* can present significant research and investigation challenges that might warrant extensive consultation with WHS-and colleagues with previous experience in such investigations. The Lakes-focused projects are typically Phase II type investigations, which generate in-situ documentation of lake-bottom shipwrecks. Phase III mitigation/recovery investigations are uncommon for a variety of reasons, including expense and the inherent difficulties in conserving and curating large, organic, and metallic materials associated with such wrecks. Since submerged sites typically occur beneath the waters of state owned and managed water bodies, consultation with WHS-in advance of investigations is recommended.

PROJECT REPORTING AND RECORD KEEPING

Standard archaeological records for the project, including field notes and maps, site survey forms, excavation records, photographs, videography, sonargraphs, magnetometry data, and field logs should be kept at a designated repository. State archaeological survey forms must be prepared for all sites discovered during the survey, and records on previously reported sites updated if new information is obtained.

The report of the investigations and/or excavations should follow the WAS reporting guidelines. Reports should present information in whatever combination of graphic, textual, and tabular data the archaeologist finds most effective, while still conforming with WAS minimum guidelines. Specialized underwater archaeological figures include magnetic contour maps of the project area, sonargraphs of acoustic targets, and line drawings and photographs of important architectural, engineering, and archaeological features. Additional report sections, figures, or topics may be added at the discretion of the archaeologist. The Methods section should describe all archival and field methods, equipment, and personnel used on the project. It should also provide project dates, number of staff, and approximate person-hours devoted to different aspects of the project. The Results section should include field conditions, site environment, archaeological findings, and general project results. The Results section also should detail survey findings and provide a full description and analysis of wreckage, structures, features, artifacts, and remote sensing anomalies encountered by the survey.

Maps and schematic drawings will be used to show the location of and fully describe all archaeological findings. National Ocean Service charts, or appropriate nautical charts which do not infringe on copyrights, may be used in lieu of USGS 7.5' quadrangle maps to plot site locations. For projects that only involve historic shipwrecks or historic nautical sites, the References Cited section should provide references in the *Historical Archaeology* journal format. For projects that involve historic shipwrecks or historic nautical sites and precontact sites or terrestrial survey for precontact sites, this section should provide references in *American Antiquity* journal format as is discussed elsewhere in these guidelines.

SPECIAL CURATION REQUIREMENTS

Materials recovered from underwater archaeological sites pose extraordinarily complex conservation problems and therefore require special consideration for recovery and curation. As discussed in Chapter 9, “Curation,” archaeologists are responsible for ensuring the conservation and curation of all project notes, maps, photos, original manuscripts and figures, artifacts, and any other materials generated from archaeological research according to federal guidelines 36 CFR 79, *Curation of Federally-Owned and Administered Archeological Collections*, and accepted professional guidelines. Underwater archeologists can seek assistance from the State

Underwater Archaeology Program, WHS, in finding suitable in-state repositories for project records and artifacts. Acceptable provision for conservation of recovered artifacts will generally be a precondition for issuance of state archaeology permits.

A detailed discussion of professional guidelines in artifact conservation and curation cannot be attempted within this document. Specific requirements should be written into individual project scopes of work and artifact custody agreements. As a general guideline, only professionally accepted, safe, and reversible methods for artifact conservation should be employed. Due to the extensive training and experience required to undertake conservation work safely and successfully, WAS recommends that conservation treatments be undertaken only under the supervision of a conservation professional meeting the code of ethics and guidelines of practice of such organizations as the American Institute for Conservation (AIC) and the International Institute for Conservation (IIC).

SELECTED ADDITIONAL INFORMATION/ REFERENCES

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Chapter 14

ROCK ART SITES

Rock art sites have been reported in Wisconsin since the late 1870s. As of 2023, 189 rock art sites have been recorded in the state. Most of these sites have been identified through systematic survey begun in 1985. The next 25 years saw a major focus in state research for rock art identification and documentation.

Documentation has two purposes: to record the sites for posterity and to provide a baseline data set for each site. If someone attempts to destroy or remove rock art figures at the site, the initial documentation can be used to assess the new damage. Successful prosecution of the perpetrator can depend on the accuracy of the initial documentation.

Rock art sites are fragile, and extreme care must be taken in documenting them. This is especially true if the rock art is found in poorly consolidated sandstones. The guidelines in this chapter reflect lessons learned through experimentation and describe the techniques most likely to preserve the remaining figures and panels.

Until the 1970s, photography and plaster casting were the primary forms of documentation. Carved figures were often chalked to accentuate the faint markings before they were photographed. Traces of chalk and plaster still remain from these early experiments in documentation. Latex peels also were sometimes used. All of these techniques have the potential to damage fragile rock-art surfaces and are not acceptable today.

Archaeologists working in cave sites also need to be aware of safety concerns and caving etiquette, as well as evolving environmental concerns for these unique settings. For example, bright lights and activity can fatally disturb hibernating bats, and the threat to bat populations from “white nose syndrome,” a disease caused by the cold-loving fungus *Geomyces destructans,* has led to new decontamination protocols and, in Wisconsin, new legal requirements for working in caves. The National Speleological Society and the Wisconsin Speleological Society provide helpful information on safe, responsible caving. The DNR website also has information on bat protection and related legislation.

DEFINITIONS

Rock art site identification and documentation concentrates on precontact and postcontact Native American designs. While it is important to record all historic and modern Euro-American graffiti present on rock art panels, survey to date has not focused on locating postcontact or recent historic graffiti.

Four types of Native American rock art figures have been found in the state:

Petroglyphs. Petroglyphs are carved, pecked, or incised figures and are the most common type. These figures are found primarily in sandstone caves and rockshelters and on bluff faces. Most of these figures are found on vertical faces, although a few have been recorded on cave floors. One site in Dodge County has figures on exposed surface bedrock unconnected with a cave or shelter. Most petroglyphs are outline figures, and some have interior designs such as heart lines; however, three-dimensional petroglyphs also have been recorded. Most petroglyphs are geometric designs (i.e., line combinations such as grids, grooves, circles, or diamonds) rather than recognizable animal, human, or (less commonly) plant figures.

Pictographs. Pictographs are painted figures found on vertical faces and ceilings in caves and rockshelters and on bluff faces. Pictographs often contain more detail and interior design than petroglyphs. Red, orange, blue, and black pigments have been recorded. Petroglyphs and pictographs sometime occur at the same sites, and a few rare figures contain both carved and painted designs.

***Petroforms*.** Petroforms are boulder outline figures located on unsheltered soil surfaces and constructed of local stone such as portable glacial erratics or eroded limestone. These figures are very large and are usually in wide-open locations, similar to mound sites. Like mound sites, they might have been placed with aerial view (spiritual in nature) in mind. Often these figures are found in fields or pastures littered with natural glacial debris. For this reason, petroform locations are problematic, and great care must be taken to determine the past and present use of the area and to verify the authenticity of suspected petroforms.

Portable rock art. Many habitation or mortuary sites in Wisconsin contain various forms of carved stone, including pipes, tablets, and miscellaneous objects. These portable rock-art artifacts are important for potential stylistic correlation with petroglyphs or pictographs. The portable objects are often more easily dated because of their contextual associations, so they can assist in establishing chronologies for glyphs found on cave walls and bluff outcroppings.

SURVEY METHODS

Petroglyphs and Pictographs

Locating rock art is, in most cases, as simple as locating exposed rock faces and large boulders. The best times to survey for rock art are in the late fall, winter, and early spring, when foliage is absent and snow accentuates exposed rock. Rock art clarity changes with varying light (sunshine or overcast) and even throughout the day, so it is recommended that identified sites be visited for lengthy periods of time under varying lighting conditions. In dim shelters or dark-zone caves, a high-intensity flashlight is needed to see pictographs. Raking the light beam across the wall at various angles helps in identifying and photographing petroglyphs.

Many Wisconsin rock art sites are situated on fragile and exfoliated surfaces. Physical contact with rock art figures must be kept at an absolute minimum, for several reasons:

- Human oils, sweat, and exhalation destroy pictographs, as evidenced by the deterioration of well-known sites in France.
- Many walls containing pictographs and petroglyphs are composed of poorly cemented sandstones, and some recorded sites have experienced natural damage since they were first reported. Many more sites have experienced human damage. It is essential to determine the content and fragility of the base rock before contact.
- Due to weathering and graffiti, many figures are already faint or distorted. Additional contact may further damage the figures.
- Native American–related rock art sites are considered sacred by many tribes, and physical contact may be considered disrespectful. Communication with local tribes and those known to have inhabited the area historically is an important part of rock art survey, documentation, and interpretation.

Many caves, rockshelters, and bluff faces contain growths of lichen, moss, and worts. In some cases, figures will be visible through the growths. Growth removal is strongly discouraged at this time, until future research can provide a non-damaging method. If the growth is removed physically, it is likely that portions of the rock art figures will be removed as well. Chemical removal may disrupt future dating or paint analysis and may discolor pictographs. It is not

advisable to use any chemical that is not 100% reversible. Experimentation on walls free from rock art must be done before application on rock art figures themselves. Chemicals that might work in other areas of the country might not work the same way in Wisconsin. At this time only distilled water sprayed in a fine mist is permissible on Wisconsin rock art sites. In all cases, even after removal, growths will reestablish themselves, further damaging the rock art figures.

Natural cave-formation processes also may produce surface geo-coatings, such as travertine, over rock art. These coatings of calcium or other minerals can make rock art identification difficult. Currently, there has been no research in Wisconsin to assess safe methods of removing travertine deposits. Indeed, in some cases the pictograph pigments may become incorporated into travertine deposits.

Petroforms

Survey in areas undisturbed by agriculture, development, and other ground-altering activities might identify boulder alignments. It is important to carefully investigate and map every boulder within and surrounding the potential alignment to determine whether the figure is indeed ancient or a result of natural forces or modern human activities. Research into past and present land use is essential. Investigating, in place, the soil lines and lichen growth of each boulder in the alignment will reveal recent disturbance.

Subsurface Investigations

Many floors of caves and rockshelters, as well as ledges beneath bluff faces, contain deposits of soil or sediments. Since it is unlikely that these deposits have been disturbed by modern human activities, it is not recommended that shovel testing be done in these sites. The areas inside caves and rockshelters are often very small, and shovel testing could compromise future excavations. If it is important to determine the extent of the deposits, a 1" to 3" geologic probe or a small 2" to 3" trowel-dug hole would do the least damage. Any subsurface investigations should be marked with a nonperishable item at the base before backfilling, and any disturbance marked on the plan view/floor map. Backdirt from any animal disturbances should be screened through ¼" hardware cloth. If shovel testing is needed at a petroform site, it should be conducted outside the figure outlines.

Landscape Survey

During project planning for rock art site survey, examination of the surrounding landscape should be considered. These areas may contain associated habitation or activity areas. Future investigations may link the rock art sites to other sites in the area.

DOCUMENTING ROCK ART SITES

Field notes, maps, photographs, and drawings are required in documenting rock art sites. Monitoring the current condition of sites recorded in the past has proved the importance of comprehensive site records. Advanced technology, such as computer-enhanced photographs, photogrammetry, and large-format cameras, may be used to complement the methods described in these guidelines. However, basic site and figure documentation must be conducted initially. The following guidelines provide a complete and economically viable way to document sites and the rock art figures within them.

Not all caves, rockshelters, bluff faces, and exposed bedrock contain pictographs and petroglyphs, just as not all undisturbed ground surfaces contain petroforms. Gathering

information on the location and surrounding environment is as important to identifying high-priority areas that contain rock art as it is with habitation or other activity sites.

Recording rock art locations as archaeological sites follows the same basic procedure as reporting other types of archaeological sites, with a few modifications. Documenting the rock art itself, however, is a time-consuming process with different requirements and reporting standards. When planning a documentation project, it is important to allow enough time to conduct all mapping, photography, drawing, and note-taking. It is also important to remember that information gathered on the initial visit can be used to assess natural and human damage observed in subsequent visits. Repeat visits to the site might also be needed to confirm details that appear in photos but were not visible to the eye.

If preservation is not feasible (e.g., the site is significantly and imminently threatened by natural processes such as exfoliation, or modern dangers such as vandalism or construction), destructive methods of recordation should be carefully considered as a form of mitigation.

Minimum documentation includes the following:

1. **Site name.** Rock art sites should not be named after the landowner or a nearby named feature (such as a stream, valley, lake, or road). These types of names could point looters directly to the site. The name selected should not diminish or inadvertently show lack of respect for the sacredness of the site to Native American tribes.
2. **Date recorded.**
3. **Names of surveyors and recorder.**
4. **Legal location.** The site should be plotted on a 7.5' USGS topographic quadrangle, and township, range, section, quarter-section (at least three), and UTM coordinates recorded. GPS readings should be taken at the nearest open point, such as the entrance to a cave.
5. **Elevation.** Three elevations should be recorded:
   a) Elevation of the site above sea level.
   b) Elevation of the site from a nearby bottomland, if applicable.
   c) Elevation of each panel or figure above the ground surface within the site. This last elevation will indicate whether further examination is appropriate for determining if the ground surface has been altered either naturally or mechanically since the rock art was placed on the wall. For example, if rock art is just above the present ground surface, that might mean that the precontact ground surface is covered by fill, and additional figures might be buried. On the other hand, rock art in a relatively high location might mean that soil has been removed from the floor since the rock art was created (alternatively, some form of scaffolding or scaling-pole might have been used by the artist).
6. **Landowner permission and cooperation.** Landowner permission is essential, and landowner participation is preferred. Future site preservation depends on landowner cooperation and stewardship. In some cases, the landowner might be absent, or has rented the land, or has allowed other parties access for activities such as hunting. Contact with other such parties is also important.

   Rock art sites are rare, and each one is both unique and irreplaceable. These sites are also increasingly subject to vandalism, either inadvertently through graffiti or as part of the illegal antiquities market. It is important to know whether the landowners are willing to help protect the site. It is also important to know how landowners feel about additional investigations or if they are uncomfortable with further visits.

7. **Accessibility.** Both modern access and easiest pre-modern access to the site should be recorded. Most of these sites are in remote areas, and access from the nearest modern road location might not have been the route taken by precontact Native Americans. It is also important to note whether the site is easily reached and entered. Some sites might have been chosen for their significance or their position on the landscape rather than their accessibility. Rock art has been found at rockshelter or outcrop locations on high, steep bluffs as well as in caves with sinkhole entrances.
8. **Closest water source.** The name of and distance to the closest water source should be recorded. Note, however, that the nearest water source today might not have been the original one.
9. **Unusual or outstanding geologic or topographic feature.** The landscape visible from the site should be described, since the location might have been chosen for visual, acoustic, or other sensory features. Photographs of the site should include scenic views.
10. **Basic measurements.** Caves and rockshelters require the following basic measurements:
    - the direction of the opening
    - the direction of the bluff face in which the cave or shelter is found
    - the length (range) and width (range) of the cave or shelter interior
    - the height (range) from floor to ceiling

    Bluff faces require the following:
    - the direction of the bluff face
    - the length (range) and width (range) of the ledge below the rock art
    - a note of any protective overhang and the height between the bottom ledge and the overhang, if possible

    Petroform sites or petroglyphs or pictographs on a horizontal rock outcrop require:
    - the acreage/size of the site
    - if the site is on a discrete landform, a description of that landform
12. **Type and condition of rock faces and boulders.** It is important to record:
    - the type of rock on which the figures are placed (i.e. sandstone, limestone, granite) and the condition of the surface (smooth, slightly rough, very rough, irregular, fractured)
    - whether the rock is stable, poorly cemented, exfoliating, wet, or dry, and whether mineral deposits are present
    - whether the surface was prepared before the rock art was applied
    - the presence of lichen, moss, or worts, and how extensive the growths are
    - any historic or modern graffiti, disturbances to the dirt floor, or roof markings such as areas blackened by fire (natural hematite stains and colored lichens, especially black, may resemble areas blackened by fire)
    - for petroform sites, the types and sizes of the boulders along with any lichen, wort, or moss growth
13. **Subsurface investigations.** Rock art sites should NOT be subject to subsurface investigations unless the work is required as part of a contracted project or is part of a

research design developed by the archaeologist. Results of any subsurface investigation should be recorded, including the type of investigation done (i.e., shovel testing, probing, screening, inspection of animal disturbance). The exact location of any investigation or animal disturbance should be marked on the plan view/floor map.

14. **Rock art.** The rock art and its location within the site should be described, including number of figures, how many petroglyphs and pictographs, number of partial figures, number of complete figures, and total size of the decorated surface. Information on each figure should be included, such as size, type, and design. An opinion as to the degree of preservation (excellent, good, fair, poor), with explanations as appropriate, also should be included.
15. **Photography.** Extensive photographs of the site to document the setting and current condition are crucial. Overview shots should be taken from a variety of vantage points, including looking toward the bluff face or rockshelter/cave entrance, along the fronts of these exposures from opposite sides, and outward from the site. A photo log recording the number of shots taken and type of film used is essential for standard black and white, color, IR, or UV (negative producing) photographs. Digital photographic files should be accurately labeled soon after the field visit. Any video-recording should be noted, including the format.
16. **Maps and drawings.** The number of maps and drawings done should be recorded, with a list of the subjects.

MAPPING ROCK ART SITES

A general map of the site is essential. For a cave, rockshelter, or bluff face, a plan view/floor map should be prepared. The Wisconsin Speleological Society and other caving associations have members trained in cave survey techniques who often volunteer to make standardized, detailed maps of cave sites. The base map should include the dimensions of the site, the location of any disturbances on the floor, and the locations of rock art figures on the surrounding walls. Without this information, relocation of the figures can be difficult or impossible. Also, future visits to the site might find that figures have been destroyed by natural or human disturbance, so as much information as possible should be recorded on the initial visit.

It is also essential to map the walls that contain rock art figures, keeping the figures in context. A scale drawing of each wall with figures scaled to size, orientation, and location is strongly recommended. Natural (e.g., exfoliation) and human (e.g., graffiti) disturbance to the walls should be included.

For petroform sites, all the rocks in a designated area should be mapped, not just those that constitute the boulder outline. Rock densities in the area, as well as places where rock appears to have been cleared, are important data.

RECORDING ROCK ART FIGURES

Current rock art recording techniques have benefited from past experiments. There are a number of techniques that can be safely employed, and a number of others that cannot be employed on rock art in Wisconsin.

Photography and drawings complement each other. Each technique has the potential to reveal information on rock art figures that is not revealed by the other. For example, lighting associated with different photographic settings can reveal faint portions of figures not visible to the eye alone. Drawings that include measurements of carvings can add to the growing data on tools and techniques that might aid in dating the panels. It is essential that both photography and measured drawings be undertaken in documentation projects.

Still Photography

Extensive photography of the site, walls, panels, individual figures, and boulder outlines is essential. Digital cameras now facilitate detailed photographic recording in black and white, color, and infrared, as well as digital enhancement; however, digital files also present archiving issues and require regular migration to new software and storage media. It is important to label digital images soon after returning from the field, and file copies should be stored on secure servers. In addition, computer enhanced digital images should be documented with an associated metadata file.

For archival purposes, black-and-white and color slide photography remain important for rock art documentation. Infrared and ultraviolet film have been found to capture otherwise difficult to see pigments in some, but not all, cases. For best results, the first shot of each black-and-white roll should include a gray scale, or a chromatic scale for color images. Both scales can be purchased in most photo stores. It is important to tell the photo processing lab to process shots using the scale at the beginning of the roll. At least one shot of each subject should include a measuring device such as a meter stick or scale. The International Rock Art Federation has a standardized color centimeter scale that is highly effective for photographing rock art.

Petroglyphs and pictographs should be photographed from a position directly in front of the figure, not from an angle. Since rock art figures can be difficult to photograph, experimentation with meter settings, depth of field, and external lighting is required. A light cloud cover is ideal for photographing exposed figures. In dark caves, photographs of pictographs are often most successful using a straight-on view with a flash and no other light on the subject. Photographs of petroglyphs are usually best accomplished with raking artificial light and reduced flash.

It is important that an experienced photographer (a professional, if possible) produce the photographs. In caves and dark shelters, flash photography using 400 ASI film is recommended for the sharpest pictures. A white umbrella or sheet of white paper provides back light for better shots. Frames should be overlapped for stereographic viewing, keeping the distance constant for scale. It might be helpful to include a directional arrow for “north” in all photos and a notation for “up” on vertical faces where there might be some doubt as to the orientation.

Faint petroglyphs and pictographs can be darkened by spraying them with a light mist of distilled water. This is the only accepted method of preparation permitted for Wisconsin rock art. Chalking, color enhancement, recarving, growth removal, and brushing are not permitted.

Video Photography

Video photography, in addition to but not in place of still photography, is highly recommended. Panning the video camera is an ideal way to document figures in context. Video can also be shot successfully in dark places. Again, a color scale and a meter stick or ruler should be used in panel and figure shots. As with still photography, the use of digital video recorders offers many advantages, but archival concerns must be addressed.

Measured Line Drawings

Panels, figures, and petroforms should be drawn to scale. In some areas of the state, Mylar sheets, tissue paper, rice paper, or tracing paper laid over the petroglyph or pictograph can be used; however, only professionals experienced in rock art recording and thoroughly knowledgeable about bedrock conditions at the site should attempt this recording method. If there is any possibility that physical contact will damage the figure, tracing methods cannot be

used. Caution should be used when tracing on any form of plastic, as reflected sunlight might obscure or distort the figure.

Rubbings are not permitted on any sites in Wisconsin. Plaster casting as a method to produce full-scale replicas has been found to cause damage over time and is not permitted. Plaster casting leaves a residue that has obscured faint figures in at least one site. The residue is difficult or impossible to remove without damaging the site. Casting also destroys evidence of panel preparation. Clay and plastic casting are not permitted for similar reasons.

Measured or scale drawings should include whole-panel drawings to document the figures in context. For petroglyphs, drawings should include notations on depth and size of carvings and a cross section of the carved line. This last measurement is instrumental for identifying the shape of the tool used to carve the petroglyph. Care must be taken when drawing overlapping figures. If possible, notations should be made indicating the relative ages of the figures. Figures should be drawn using their original orientations and their relationships to other figures in the panel. Notations on the type of figure (petroglyph or pictograph) should be made. The floor and ceiling should also be drawn into each panel to aid in locating the panel in the future. Munsell color notations for pictographs are optional but recommended. Modern and historic graffiti and natural damage should also be incorporated into the drawing. When the figure drawings are finalized, all photos should be scrutinized to be sure that all faint portions of the figure or panel have been recorded.

Measured drawings of petroforms should include all boulders in the immediate vicinity. Notations should be made for those boulders that appear to have been recently moved.

Drawings from Slides

In some site situations, rock art figures are beyond the reach of the investigator or in such poor condition that any physical contact would be detrimental. In those cases, measured drawings in the field might not be appropriate or feasible, and tracings would not be permitted. Instead, color slides with rulers or meter sticks can be projected on a drawing board and adjusted to exact size or scaled to whatever size is appropriate for the drawings. Drawings done by slide projection can then be taken back to the site and compared with the original for proper detail. This method can also be used in cases of inclement weather or poor lighting.

Digital Imaging Enhancements

Computer programs allow manipulation of digital photographs as well as scanned slides or black-and-white prints. Programs such as Adobe Photoshop can be used to modify color intensities to “bring out” images that are otherwise difficult to see. Again, it is important to retain the original images as well as the altered images, and to document the modifications from the original settings.

SITE INTERPRETATION

Rock art site interpretation in Wisconsin has advanced substantially since the 1980s; even so, rock art sites remain enigmatic largely due to issues pertaining to determining the age and deciphering the meaning of ancient art. Nonetheless, certain patterned motifs and themes have been identified. Dating and determinations of cultural affiliation are difficult for most rock art sites in the state, but direct AMS dates have been obtained for a few pictographs. Few petroglyph and pictograph sites have been excavated, and many sites lack floor deposits. Sites with multiple occupations present difficulties for interpreting the rock art on the walls. Time indicators such as the bow-and-arrow and the horse are portrayed at a few sites. Only a few of the recorded petroform sites have been excavated.

Current rock art interpretation efforts include research into Native American customs and cultures. As noted above, many Native American tribes consider aboriginal rock art sites to be sacred places. Insight and assistance from local tribes and those who inhabited an area historically is essential to interpreting rock art sites.

REPORT PREPARATION

Reports on rock art sites should be prepared in the format developed for other archaeological sites and should also include the results of research into Native American culture, customs, and mythology.

ROCK ART PRESERVATION

Few preservation techniques have been tried as yet on rock art sites in Wisconsin. Permanent lichen removal, graffiti removal, repair of site damage, and reversible chemical preservatives are a few of the many topics for future research. Any chemical preservative must be tried on rock faces without rock art and studied for a number of years before application on a rock art site. Rock art removal is not permitted as a preservation technique (unless the site is imminently and significantly threatened, as described earlier). Attempts at removal would most likely cause the panel to crack, exfoliate, or fall before the block could be removed.

Until physical preservation techniques are developed, archival preservation will be used to provide data for researchers on Wisconsin rock art. The State Archaeologist is the official repository of rock art archives. Copies of reports and information gathered on rock art sites must be submitted to this office. Copies of photographs, slides, and videos as well as maps, drawings, and notes should be submitted with the reports.

Site stewardship programs with landowner cooperation, public education opportunities, and site management plans for long-term preservation are encouraged. The goal for each site is to find an appropriate preservation balance, since signs, gates, or other protective measures designed for well-behaved visitors can also draw vandals' attention to sites they otherwise might not notice. Some sites can be preserved by the construction of a barrier such as a fence or platform to discourage graffiti. Various forms of gating ranging from wood to chain-link fences have proved unreliable for preventing vandalism. A steel welded gate designed by the American Cave Conservation Association has been found to prevent vandalism while retaining natural environmental conditions. Rock art exposed to the elements may be protected by the construction of an overhang to minimize erosion.

Site stewardship also includes guarding against well-intentioned but potentially destructive efforts to clean modern graffiti from caves, shelters, and outcrops. Graffiti-removal projects conducted by well-meaning clean-up volunteers who never suspected rock art was present have caused irreparable damage to rock-art sites in the United States and abroad.

SELECTED ADDITIONAL INFORMATION/ REFERENCES

See Appendix 1 for website links to relevant resources/organization websites.

Schrab, Geri and Robert F. Boszhardt
2016 *Hidden Thunder: Rock Art of the Upper Midwest.* Wisconsin Historical Society Press. Madison, WI.

Appendix 1

RESOURCES AND WEBSITE LINKS

FEDERAL AND STATE LAWS, STATUTES, AND QUALIFICATIONS

Secretary of the Interior's Professional Qualification Standards
https://www.doi.gov/pam/asset-management/historic-preservation/pqs

48 FR 44716, "Secretary of the Interior's Standards for Guidelines in archaeology and Historic Preservation" (SISGAHP)
https://www.nps.gov/subjects/historicpreservation/upload/standards-guidelines-archaeology-historic-preservation.pdf OR
https://www.nps.gov/articles/series.htm?id=62144687-B082-538A-A0174FFF26496394

36 CFR Part 61, "Procedures for State, Tribal, and Local Government Historic Preservation Programs" https://www.ecfr.gov/current/title-36/chapter-I/part-61

36 CFR Part 79, "Curation of Federally Owned and Administered Archeological Collections"
https://www.nps.gov/archaeology/tools/laws/36cfr79.htm

Archaeological Resources Protection Act of 1979 (ARPA)
https://www.nps.gov/archaeology/tools/laws/arpa.htm

National Historic Preservation Act (NHPA)

Section 106:
https://www.gsa.gov/real-estate/historic-preservation/historic-preservation-policy-tools/legislation-policy-and-reports/section-106-national-historic-preservation-act-of-1966

Section 110:
https://www.govinfo.gov/content/pkg/USCODE-2011-title16/html/USCODE-2011-title16-chap1A-subchapII-partA-sec470h-2.htm

Native American Graves Protection and Repatriation Act (NAGPRA)
https://www.nps.gov/subjects/nagpra/law-and-policy.htm

Wisconsin Statutes

Chapter 44.31(3), Definition of Historic Property
https://docs.legis.wisconsin.gov/statutes/statutes/44/ii/31/3

Chapter 44.40, "State Agency Decisions; Negotiation"
https://docs.legis.wisconsin.gov/statutes/statutes/44/ii/40

Chapter 44.42, "Negotiations with Political Subdivisions and School Boards"
https://docs.legis.wisconsin.gov/statutes/statutes/44/ii/42

Chapter 44.45, "List of Locally Designated Historic Places"
https://docs.legis.wisconsin.gov/statutes/statutes/44/ii/45

Chapter 44.47, "Field Archaeology"
https://docs.legis.wisconsin.gov/statutes/statutes/44/ii/47

Chapter 66.037, "Historic Properties"
https://docs.legis.wisconsin.gov/1997/statutes/statutes/66/037

Chapter 66.1111, "Historic Properties"
https://docs.legis.wisconsin.gov/statutes/statutes/66/xi/1111

Chapter 70.11(13m), "Archaeological Sites"
https://docs.legis.wisconsin.gov/statutes/statutes/70/11/13m

Chapter 157.70, "Burial Sites Preservation"
https://docs.legis.wisconsin.gov/statutes/statutes/157/iii/70

Wis. Admin. Code HS1.03, "Registry of Interested Persons"
https://docs.legis.wisconsin.gov/code/admin_code/hs/1/03

Wis. Admin. Code HS2.02, "Definitions"
https://docs.legis.wisconsin.gov/code/admin_code/hs/2/02

Wis. Admin. Code HS2.04, "Disturbing Burial Sites"
https://docs.legis.wisconsin.gov/code/admin_code/hs/2/04

Wis. Admin. Code HS2.05, "Disturbing Burial Sites"
https://docs.legis.wisconsin.gov/code/admin_code/hs/2/05

WISCONSIN HISTORICAL SOCIETY (WHS) RESOURCES

Archaeologists Qualified to Excavate Burials
https://www.wisconsinhistory.org/Records/Article/CS2835

Area Research Centers https://www.wisconsinhistory.org/Records/Article/CS4000

Burial Sites Procedures https://www.wisconsinhistory.org/Records/Article/CS15239

Report burial discovery/disturbance: 1-800-342-7834 or burialsites@wisconsinhistory.org

How to Submit a Request to Disturb a Burial Site
https://www.wisconsinhistory.org/Records/Article/CS3129

National and State Registers of Historic Places (NRHP)
https://www.wisconsinhistory.org/Records/Article/CS15299
About the Registers http://www.wisconsinhistory.org/hp/register/

Public Lands Field Archaeological Permit
https://www.wisconsinhistory.org/Records/Article/CS4123

Registry of Interested Persons https://www.wisconsinhistory.org/Records/Article/CS3244

Resources for Preservation Professionals
https://www.wisconsinhistory.org/Records/Article/CS4048

Tribal Historic Preservation Offices https://grantsdev.cr.nps.gov/THPO_Review/index.cfm

Wisconsin Historic Preservation Database (WHPD)
https://www.wisconsinhistory.org/Records/Article/CS4091

Submission/Updates Requests: WHSASI_GIS_Submittal@wisconsinhistory.org

Wisconsin State Archaeologist Office (State Archaeology and Maritime Preservation Program)
https://www.wisconsinhistory.org/Records/Article/CS4048

State Archaeologist contact: statearchaeologist@wisconsinhistory.org

Wisconsin State Historic Preservation Office (SHPO)

compliance contact/inquiries: compliance@wisconsinhistory.org

burial sites contact/inquiries: burialsites@wisconsinhistory.org

Wisconsin State Old Cemetery Society (WSOCS)
https://www.wisconsinhistory.org/Records/Article/CS87

ARCHIVAL RESEARCH RESOURCES

Bulletin of the Milwaukee Public Museum
https://www.mpm.edu/research-collections/collection-support/publications

County geological investigations https://search.library.wisc.edu/digital/AWGNHS

County governments https://wisconsin-wi.com/wisconsin-gis-maps.html

County plat books https://www.sco.wisc.edu/maps/platbooks-land-ownership-maps/

County soil survey maps http://websoilsurvey.nrcs.usda.gov/app/Hom ePage.htm

Ecological Landscapes of Wisconsin
https://dnr.wi.gov/topic/landscapes/index.asphttp://dnr.wi.gov/landscapes/

Government Land Office (GLO) Maps and Notes https://www.sco.wisc.edu/glo/

Milwaukee Public Museum Publications in Anthropology
https://www.mpm.edu/research-collections/collection-support/publications

Publications of the National Register of Historic Places (National Register Bulletins)
https://www.nps.gov/subjects/nationalregister/publications.htm

USDA-NRCS soil series descriptions
https://www.nrcs.usda.gov/resources/data-and-reports/official-soil-series-descriptions-osd

Wetland Inventory Maps https://dnr.wisconsin.gov/topic/Wetlands/inventory.html

Wisconsin Historic Aerial Image Finder http://maps.sco.wisc.edu/WHAIFinder/

Wisconsin Land Economic Inventory (WLEI)
https://www.library.wisc.edu/steenbock/wisconsin-land-economic-inventory-the-bordner-survey-land-cover-maps/http://steenbock.library.wisc.edu/bordner/

Wisconsin Magazine of History https://www.wisconsinhistory.org/Records/Article/CS15287

FIELDWORK RESOURCES

Advisory Council on Historic Preservation, "Treatment of Archaeological Properties: A Handbook" (1980)
https://www.achp.gov/digital-library-section-106-landing/treatment-archeological-properties-handbook-1980

Center for Disease Control (CDC) https://www.cdc.gov/
Refer to specific safety resources, as applicable, like:
Heat and Outdoor Workers:
https://www.cdc.gov/disasters/extremeheat/workers.html#:~:text=Wear%20a%20brimmed%20hat%20and,to%20prevent%20heat%2Drelated%20illness

Digger's Hotline 1-800-242-8511 or www.diggershotline.com

Occupational Safety and Health Administration (OSHA) https://www.osha.gov/
Refer to specific safety resources, as applicable, like:
Heat Illness Prevention: https://www.osha.gov/heat

U.S. Department of Labor Occupational Safety and Health Administration (OSHA 2226-10R 2015) https://www.osha.gov/sites/default/files/publications/osha2226.pdf

Wisconsin Horticulture (Poison Ivy) https://hort.extension.wisc.edu/articles/poison-ivy/

Wisconsin Ticks and Tick-Born Diseases
https://wisconsin-ticks.russell.wisc.edu/tick-identification-for-public-health-and-medical-professionals/

FIELDWORK RESOURCES - STATE/PROVINCE GUIDELINES

IOWA

Association of Iowa Archaeologists
2022 Guidelines for Archaeological Investigations in Iowa. Electronic document, accessed 7/20/2023.
http://aiarchaeologist.org/data/documents/2020-AIA-Guildelines-Revised-10312022.pdf

ILLINOIS

Illinois Department of Natural Resources Historic Preservation Division.
2023 Archaeology. Electronic document, accessed 7/20/23.
https://dnrhistoric.illinois.gov/content/dam/soi/en/web/dnrhistoric/preserve/siteassets/pages/archaeology/archaeological-guidelines.pdf

MICHIGAN

Michigan Department of Transportation
2005 *Modeling Archaeological Site Burial In Michigan: A Geoarchaeological Synthesis.* Environmental Research Series Volume 1.

MINNESOTA

Minnesota Office of the State Archaeologist

2011 State Archaeologist's Manual for Archaeological Projects in Minnesota. Office of the State Archaeologist. Ft. Snelling History Center. St. Paul, MN 55111. Electronic document, accessed 7/20/23.
https://mn.gov/admin/archaeologist/professional-archaeologists/manuals-licenses/survey-manual/

CANADA (Ontario)

Ontario Ministry of Tourism and Culture

2011 Standards and Guidelines for Consultant Archaeologists. Electronic document, accessed 7/20/23. https://www.ontario.ca/page/standards-and-guidelines-consultant-archaeologists

FIELDWORK RESOURCES - ORGANIZATION WEBSITES

American Rock Art Research Association: www.arara.org/

National Speleological Society: www.caves.org

Wisconsin Speleological Society: https://www.wisconsincaves.org/

Bat Frequently Asked Questions (Wisconsin DNR): https://dnr.wisconsin.gov/topic/EndangeredResources/batFAQs.html

REPORTING RESOURCES

American Antiquity Style Guidelines
https://documents.saa.org/container/docs/default-source/doc-publications/style-guide/saa-style-guide_english_updated_2021_final08023c15928949dabd02faafb269fb1c.pdf?sfvrsn=c1f41c1b_2

National Park Service Determination of Eligibility (DOE) form (10-900)
https://www.nps.gov/subjects/nationalregister/national-register-forms.htm

National Park Service “How to Complete the National Register Registration Form”
https://www.nps.gov/subjects/nationalregister/upload/NRB16A-Complete.pdf

CURATION RESOURCES

American Alliance of Museums (AAM) Accredited Facilities
http://ww2.aam-us.org/resources/assessment-programs/accreditation/accredited-museums

American Institute of Conservation (AIC) Registry of Trained Conservators
https://www.culturalheritage.org/

National Park Service (NPS) Museum Management Program
https://www.nps.gov/museum/publications/mhi/mushbki.html

Appendix 2

GUIDELINES FOR OTHER STATES/PROVINCES (https://docs.google.com/document/d/1I_aRp8HDB-jrv5HDki4dgZtQ57FEBYnt/edit)

Sources and archaeological monitoring guidelines for other states / provinces (data collected 2023):

Location	Source	Archaeological Monitoring Guidelines (summary)
Michigan	MI follows federal guidelines.	Secretary of interior guidelines do not include archaeological monitoring.
Iowa	Association of Iowa Archaeologists guidelines	Monitoring during construction generally is not recommended. Cultural resource considerations should be fully addressed before any construction work is initiated.
Illinois	Illinois DNR Historic Preservation Division	No mention of monitoring in "Archaeological Guidelines."
Minnesota	State Archaeologists' Manual for Archaeology in Minnesota (hard copy pdf on file)	"Archaeological Monitoring: This type of activity is done in conjunction with Phase 1 surveys, Phase 2 surveys, Phase 3 investigations, or Burial Authentications and will thus be subject to licensing and professional qualifications appropriate to the activity being performed. Monitoring should not be recommended unless well justified and consistent with management needs." Monitoring can refer to archaeological observation of machine stripping of soil or of construction activities to discover sites or explore sites. In most situations monitoring is not an appropriate reconnaissance, evaluation, or burial authentication field procedure in Minnesota except in instances where it is impractical to perform pre-construction sub-surface testing (e.g., beneath an existing building or parking lot) or if it is used to rapidly examine private land projects not subject to formal environmental review procedures or state licensing.
Ontario	Ontario Standards and Guidelines for Consultant Archaeologists, Ministry of Tourism and Culture 2011 (hard copy pdf on file)	RE mitigation and avoidance of sites: "During grading and other soil disturbing activities, inspect and monitor the area to be avoided to verify the effectiveness of avoidance strategies. If alteration of the archaeological site is observed at any time during construction, notify the ministry immediately." E.g. create a 20 m buffer at edge of site and 50 m "monitoring zone". In the monitoring zone, "the consultant archaeologist is empowered to stop construction if there is a concern for impact to an archaeological site" RE possible survey ONLY in conditions of deeply buried archaeological resources expected as a result of Stage 1 evaluation, "the consultant archaeologist must monitor excavation and the removal of fill as follows: a. Conduct on-site monitoring where and when work is proceeding in areas where archaeological sites are predicted to exist, or where construction excavation is extending to a depth that warrants concern."

Data on pedestrian / surface survey guidelines for other states / provinces (collected 2023)

Location	Minimum surface visibility	Max. surface survey transect interval	Other guidelines
Michigan	Not described or quantified; "reconnaissance survey"	Not quantified or described	No formal guidelines. Conversation with former SHPO employee generally noted nothing is standardized, but 15m pedestrian survey and STP transect with is the norm
Iowa	25%	15 m	● 80 - 100% Rain washed/weathered 15 meters. ● 80-100% Freshly turned, 10 meters. ● 40 - 80% Any condition, 10 meters. ● 25 - 40% Rain washed/weathered 5 meters. ● 25-40% Freshly turned, 3 meters. ● Less than 25% Systematic subsurface sampling.
Illinois	Ped Survey of plowed fields: Visibility 25% or > of ground surface area	5 meter max transect interval in plowed fields	Pedestrian survey only acceptable in plowed fields, but "pedestrian survey can also be employed in areas with good surface visibility that have not been recently plowed."
Minnesota	"Reasonable visibility" but not quantified	5 meters intervals	Surface reconnaissance: 5 meter minimum transect in high potential areas Spacing in areas of lower potential can extend to 10 or 15 meters or be limited to a single transect down the center of a narrow project corridor.
Ontario	Must be plowed, 80% surface visibility	5 meter maximum transect spacing	Pedestrian survey: When archaeological resources are found, decrease survey transects to 1 m intervals over a minimum of a 20 m radius around the find to determine whether it is an isolated find or part of a larger scatter.

Data on subsurface survey (shovel test pit) guidelines for other states / provinces (data collected 2023)

Location	Max. STP interval and spacing	Deep testing or coring?	Other guidelines
Michigan	Not quantified	Not discussed	Conversation with former SHPO employee generally noted nothing is standardized, but 15m STP transect with is the norm
Iowa	15m minimum interval	Bucket augering 20cm diameter.	Less than 25% surface visibility requires systematic subsurface sampling. Shovel tests (square 30-cm by 30-cm) test unit or 35-cm diameter round test unit; this method useful to ca. 50cm depth but then augering or posthole tests required. All StPs and augers should be 50cm below the depth of disturbance.
Illinois	15 m grid max interval, reduce to 5 m when cultural materials encountered to define site boundary	"Deep testing. When dealing with areas that potentially contain deeply buried cultural remains, it will be necessary to utilize techniques that can investigate deep strata." (Methods and examples provided)	Pedestrian survey only acceptable in plowed fields, but "pedestrian survey can also be employed in areas with good surface visibility that have not been recently plowed." 15-meter-grid STP interval is less thorough than plowing but often must be resorted to in areas that have not been previously disturbed, or where forested conditions, topographic features, or structures prohibit plowing. Holes 40 x 40 cm across down to sterile soil (usually the B horizon).
Minnesota	Not to exceed 15 m in areas of med to high potential. 10 m or less in areas of high potential may be appropriate.	Deep testing may be required if soils with high or moderate potential to contain significant archaeological materials exist below 1 m in an area that may be impacted by a project.	Recommendation of vertical control of 20 cm within STPs, 30-40 cm diameter STP. When a shovel test yields archaeological material, but the shovel tests on either side at 15-meter intervals do not, additional shovel tests should be excavated in the vicinity of the positive test preferably at regular intervals (5 or 10 meters) in the cardinal directions.
Ontario	5 m to 10 m max intervals	Necessary when potential for buried cultural materials	Max intervals of 5 m (400 test pits per hectare) when < 300 m from any feature of archaeological potential. Maximum intervals of 10 m (100 test pits per hectare) when > 300 m from any feature of archaeological potential. STPs: Test pit to within 1 m of built structures (both intact and ruins), or until evidence of recent ground disturbance. Ensure test pits are at least 30 cm in diameter.