

JEFFERSON PROVING GROUND

CULTURAL RESOURCES MANAGEMENT PLAN



GEO-MARINE, INC.



**US Army Corps
of Engineers
Fort Worth District**

**JEFFERSON PROVING GROUND
CULTURAL RESOURCES MANAGEMENT PLAN**

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FOREWORD

The present document follows the requirements for the preparation of a Cultural Resources Management Plan (CRMP) or a Historic Preservation Plan as defined in Army Regulation (AR) 420-40. (The new Army Regulation [AR] AR 200-4 is expected to be finalized in the near future. The regulations in AR 200-4 will supersede AR 420-40 and should be followed when final.) The text is designed to be of use to multiple audiences who are concerned with the management or preservation of the historic properties (i.e., cultural resources eligible for listing in or currently included on the National Register of Historic Places) contained within the limits of the Jefferson Proving Ground (JPG) in Jefferson, Jennings, and Ripley counties, Indiana. These audiences include: the Army Materiel Command (AMC); the Test and Evaluation Command (TECOM); the JPG staff; state and federal cultural resources managers; professional historic preservationists and archeologists; and the general public.

This CRMP is presented in four sections. Section I is an overview that explains the Department of the Army policy toward historic properties as well as briefly describing the body of legal requirements necessary for compliance. The overview provides a set of goals to integrate the JPG mission with appropriate management of historic properties. The section offers a brief review of the local prehistoric and historic cultural chronology and an evaluation of the archeological and architectural data accumulated at the facility to date. Section II presents a review of the architectural and archeological inventories as well potential prehistoric and historic site locations, outlines the appropriate documentation and preservation procedures, and provides a list of the recorded sites that includes their eligibility status for inclusion in the National Register of Historic Places. Section III presents the management plan requirements established by Federal regulations and the treatment plans for those cultural resources that are considered to be significant enough to be designated as historic properties (i.e., eligible for or listed on the National Register of Historic Places). Section IV provides compliance procedures for examples of mission-related ground-disturbing activities that may damage historic properties.

Following the body of the CRMP, a set of technical appendices has been added to supplement the various report sections. The abbreviations and a glossary that define many of the acronyms and terms applied throughout this document are found in Appendix A and Appendix B, respectively. Appendix C presents examples of the types of letters that may be needed for consultation with the Advisory Council on Historic Preservation. Appendix D provides a list of sources from whom applicable laws, regulations, and guidelines relating to cultural resources management may be obtained. Appendix E is a brief description of the geology and environment of the general vicinity. Appendices F and G present, respectively, a prehistoric overview of the region and a historic overview of the surrounding counties and the immediate vicinity of the installation; Appendix H is the historic context. Appendix I is a data inventory of recorded archeological sites on the facility, and Appendix J is a summary of buildings and bridges currently situated on JPG. An

inventory of potential historic sites based on archival research is provided in Appendix K. A copy of the Amended Programmatic Agreement (PA) Concerning Realignment and Closure of Army Installations in Accordance with Base Closure and Realignment Act (BRAC) that is particularly important to facility managers/caretaker staff is included as Appendix L. A memorandum of agreement between the Army and the Indiana State Historic Preservation Officer (SHPO) concerning closure of JPG included as Appendix M completes the document.

EXECUTIVE SUMMARY

Jefferson Proving Ground falls under two agreements that affect the management of cultural resources located within the facility:

- the 1992 Amended Programmatic Agreement Between the Department of the Army (DA), the Advisory Council on Historic Preservation (ACHP), and the National Conference of State Historic Preservation Officers (NCSHPO) Concerning Realignment and Closure of Army Installations in Accordance with Base Closure and Realignment Act (see Appendix M) and
- the Memorandum of Agreement (MOA) between the Department of the Army, the Advisory Council on Historic Preservation, and the Indiana State Historic Preservation Officer Concerning Closure of the Jefferson Proving Ground, Indiana.

The BRAC PA was established in accordance with Sections 106, 110, and 111 of the National Historic Preservation Act (NHPA). Under the agreement, Army closure or realignment of some installations will affect historic properties on those installations. The Area of Potential Effects (APE) is the area within the installation boundaries. According to the PA, the Army must meet all its NHPA responsibilities, identify and evaluate historic properties, determine the effects of BRAC actions on historic properties, and undertake treatment and management procedures that ensure the effects of BRAC actions on historic properties are in accordance with the determinations and agreements within the BRAC PA (see Appendix M).

The JPG MOA stipulates that the Army, among other requirements, will ensure that a Cultural Resources Management Plan is implemented, that interim protection is afforded cultural resources, and that JPG may be disposed of to another Federal agency or to a nonfederal agency. All of these actions will affect cultural resources.

This CRMP provides guidelines and procedures that will enable the JPG to meet its legal responsibilities while under Army control for the identification, evaluation, and treatment of historic properties under its jurisdiction. The following laws are some of those applicable to the management of cultural resources:

- The National Historic Preservation Act (NHPA) of 1966, as amended through 1992; Executive Order 11593; the National Environmental Policy Act (NEPA) of 1969; the American Indian Religious Freedom Act (AIRFA) of 1978; Americans with Disabilities Act (ADA) of 1992; Archeological Resources Protection Act (ARPA) of 1979; the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990; and accompanying regulations, particularly Army Regulation 420-40, prescribe management responsibilities and standards of treatment for historic properties. Curation standards for federally owned and administered collections are specified in 36

CFR Part 79. Procedures for meeting the requirements of Section 106 of the NHPA are set forth in 36 CFR 800, *Protection of Historic Properties*; and 36 CFR 60 sets forth criteria for eligibility for inclusion in the National Register of Historic Places.

The development of the CRMP in consultation with the Indiana SHPO and the ACHP is an important step toward achieving compliance with NHPA and associated Federal regulations while JPG is under Army control.

By definition, cultural resources that have been evaluated and identified as eligible for inclusion in or formally listed on the NRHP are considered to be "historic properties." These historic properties may be archeological sites (both prehistoric and historic), buildings, structures, objects, and districts. Resources of unknown NRHP eligibility are those resources that must be considered potentially eligible but for which the NRHP evaluation process has not yet been undertaken or has not yet been completed. NRHP-ineligible resources are those resources that do not qualify for inclusion in the NRHP. The process of inventorying the cultural resources and the assessment of those archeological sites and architectural resources for nomination to the National Register of Historic Places (NRHP) has been initiated for JPG. The following summary concerns cultural resources on the installation.

- JPG cultural resources fall under the 1992 Amended BRAC PA between the DA, the ACHP, and the NCSHPO as well as the MOA between the DA, the ACHP and the Indiana SHPO.
- All of the NRHP-listed or NRHP-eligible properties should be protected, preserved, or mitigated for loss if primary or secondary impact is unavoidable.
- The properties of unknown NRHP eligibility must be considered to be potentially eligible and should be protected and preserved until the NRHP evaluation process is completed.
- Currently, one building on JPG is listed on the NRHP.
- Built Environment:
 - * *Formal NRHP Eligibility Determinations:* The determination of NRHP eligibility of architectural resources was initiated in 1984 with the U.S. AMC Development and Readiness Command (DARCOM) inventories and evaluations conducted by Building Technology, Inc. (BTI 1984), and was continued during the present study in 1995 by Hardlines: Design & Delineation Company—under subcontract to Geo-Marine, Inc. (GMI). Because of its significant role during World War II, for its importance to Indiana social and economic history, and for its integrity of landscape, infrastructure, and architecture, it is recommended that elements of the World War II facility be considered eligible for listing in the NRHP under Criteria A (significant events) and C (distinctive characteristics of type) as a potential district under a multiple properties nomination that encompasses 74 of the World War II standing buildings. Within the physical boundaries of the proposed district are 77 additional buildings dating to either World War II or the Cold War that are considered not eligible for either NRHP inclusion nor the proposed district.
 - * *Buildings Inventory and Potentially Eligible NRHP Properties:* The CRMP includes an inventory of JPG buildings and structures based on the JPG Real Property Inventory (see Appendices I and J). Based on this information, there are 410 pre-1989 architectural resources on the JPG; all have been inventoried/evaluated. Of the 410 inventoried resources, 16 were built prior to World War II; 198 were erected during World War II; and 174 were built during the Cold War (see Appendices I and J). Additionally, 22 bridges are located throughout the facility; 20 were constructed prior to World War II, while two date to the Cold War era (see Appendix J). Seventy-six buildings and eight bridges dating to pre-1946 are considered eligible for NRHP inclusion. Of these 84 potentially NRHP-eligible buildings and structures are:
 - 74 World War II buildings considered to be contributing elements to the proposed NRHP district; and
 - considered to be individually eligible but not included within the district nomination are

- two pre-war buildings (the ca. 1869 Oakdale School [Building No. 401] currently listed on the NRHP, and the 1920s Old Timbers Lodge [Building No. 485] determined eligible for NRHP inclusion); and
 - eight bridges (four bridges [Nos. 17, 25, 27, and 28] considered eligible, and four other bridges [Nos. 2, 8, 10, and 22] considered potentially eligible).
- * *Architectural Resources Ineligible for Listing in the NRHP:* A number of the architectural resources built during World War II have been evaluated as ineligible, for they are secondary support facilities with neither distinguishing architectural characteristics nor of functional significance. The 174 buildings constructed during the Cold War do not meet Criteria Consideration G for exceptional significance that is applied to resources less than 50 years in age.
- * The completion of National Register district nomination forms listing the NRHP-eligible and NRHP-ineligible architectural properties related to the World War II era is suggested.
- * For historic properties being transferred through sale, the Army will provide preservation covenants where required noting the potential NRHP eligibility.
- * Reasonable care should be taken to protect and preserve documentation—i.e., architectural building records that may include inventory cards, real property records, maintenance records, architectural and engineering drawings, and buildings lists—related to architectural properties that may be impacted through facility actions.
- **Archeological Resources:**
 - * With the exceptions of timber harvesting, there are no additional construction projects planned for JPG. If this situation should change, however, and future projects will impact previously unsurveyed areas, survey of the affected areas should be scheduled as soon as possible, pending available funds.
 - * Archeological inventory of the 55,264-acre facility was initiated in 1975. Subsequently, five additional surveys have been completed.
 - The combined areas that have been surveyed total 4,845 acres.
 - Disturbed acreage totals an additional 28,800 acres.
 - Remaining to be inventoried for archeological resources are 21,619 acres.
 - * *Archeological Resources Eligible for Listing in the NRHP:* Of the 153 recorded archeological sites on the facility (74 prehistoric, 55 historic, and 24 prehistoric/historic), none are presently eligible for inclusion in the NRHP.
 - * *Archeological Resources of Potential (Unknown) Eligibility for Listing in the NRHP:* Currently, 23 sites are of unknown eligibility (potentially eligible), requiring further investigation or evaluation before final determination can be made. Test excavations of properties of unknown NRHP eligibility may be necessary at some sites for the final determination of NRHP eligibility. The temporal designations of the sites of unknown eligibility are:
 - 13 prehistoric sites;
 - 3 historic sites;
 - 7 multicomponent prehistoric/historic sites.
 - * *Archeological Resources Ineligible for Listing in the NRHP:* Evaluation of the remaining 130 sites has determined that these sites are of limited information potential and, thus, require no further work:
 - 61 prehistoric sites;
 - 52 historic sites;
 - 17 multicomponent prehistoric/historic sites.
 - * *Potential Archeological Resources Known from Archival Research:* Previous archival research identified 478 potential historic-era sites (Stafford et al. 1985). Among these sites were the Oakdale School and the Old Timbers Lodge, both of which have since been architecturally documented and determined eligible for NRHP inclusion; thus, for purposes of this report, they will be considered among the architectural properties and not included within the archival sites,

which now number 476. Of these 476 sites, 288 are inaccessible; 188 are in areas that are accessible to survey:

- 21 of Stafford et al.'s 1985 previously identified accessible archival sites have been located and recorded (note: the actual number of archival sites in this CRMP totals 23 sites, for one archival site was relocated, subdivided, and recorded as three separate sites by Largent in 1996);
- 167 of the accessible previously identified archival sites remain to be documented.
- * Of the documented prehistoric sites on the facility, most cannot be assigned to a specific temporal prehistoric period. Limited evidence from several sites on the facility, however, suggests that prehistoric habitation of the JPG area may have spanned temporal periods from the Archaic through the Mississippian. Although unknown at the present time, prehistoric sites that remain to be discovered on the installation may include resource procurement sites, short- and long-term encampments, base camps, and isolated finds. As archeological survey is extended to the upland forested bluff crests and lower floodplains, additional sites, possibly including villages, may be encountered. It is also probable that prehistoric sites in forested locations will be the most likely to maintain physical integrity as they have been least disturbed by preinstallation farming and industrial/military development.
- * The known historic period sites that exist on JPG represent the remains of late nineteenth- to mid-twentieth-century farmsteads and/or rural residences, two commercial enterprises, and the associated refuse. Most of the known sites are in poor condition. The historic site types and the condition of the undocumented archival sites remain unknown.
- The development of a cultural resources data base for JPG cultural resources would enable the management system to consider the impact on historic properties an early stage in planning future actions, thereby avoiding any costly delays later in the implementation phase of the project.
- Care should be taken that historic properties are not inadvertently destroyed through land management programs such as forest management and hazardous waste assessment and remediation.

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- Of interest to AMC, TECOM, and the JPG staff (noted by red stripe on tab)
- Of interest to State and Federal Cultural Resources Managers (noted by yellow stripe)
- Of interest to Public (noted by blue stripe)

Primary target audience of each section is listed first with secondary and tertiary audiences following.

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I. OVERVIEW

A. Management Plan

The goal of this CRMP is to provide guidelines and standard operating procedures for cultural resources management so that those ultimately managing JPG may accomplish their missions and carry out their responsibilities for the management of historic properties as outlined by the NHPA, as amended through 1992.

This document provides basic standards for cultural resources management according to a body of pertinent statutes. A PA outlining the commitment of the JPG to protect and preserve its historic properties has been established to implement the Section 106 and Section 110 responsibilities included in this management plan. The CRMP has been drafted to significantly reduce the management time and effort used in the evaluation of cultural resources on a case-by-case basis. Further, the implementation of these guidelines will fulfill a large portion of the Section 106 and Section 110 requirements of the NHPA.

- The ultimate goal is the successful integration of cultural resources management with mission management so that mission goals may be achieved without unnecessary delay and that historic properties may be addressed in accordance with Federal, Army, and State regulations.
- By implementing the CRMP in a timely and cost-effective manner, the legal responsibilities of the installation to manage and protect historic properties (i.e., those resources considered eligible for inclusion in or presently listed on the National Register of Historic Places) will be met.

The JPG, a government-owned government-operated facility, is located in Jefferson, Jennings, and Ripley counties, Indiana (Figures I-1 and I-2). The U.S. government has responsibility for the 55,264-acre facility, which is operated by TECOM. This large area is protected by Federal law, and the CRMP provides a means of preserving historic properties that may contribute to our understanding of prehistory and history.

- Historic architectural resources, documenting the role of the facility in support of the war effort during World War II, exist within the boundaries of the JPG.
- Significant prehistoric and historic period archeological sites, remains of the preinstallation settlement and development in the region, also exist within the facility.
- A primary responsibility of the JPG, which is mandated by Congress in the NHPA, is the protection and management of historic properties for the use of future generations.

B. Installation Policies

The following statements reflect the specific commitments made to cultural resources management.

- The Army is responsible for carrying out the management of the historic preservation program at all levels, but may delegate the authority by appointment of a Historic Preservation Coordinator (HPC) or a Cultural Resources Point of Contact for JPG for all projects that may impact historic properties and to determine whether further Section 106 review is required.
- In accordance with TM 5-801-2 and the Memorandum of Agreement between the Army, the ACHP, and the Indiana SHPO (see Appendix M), the Army will secure, protect, and maintain the NRHP-listed Oakdale School, as well as the NRHP-eligible Old Timbers Lodge and Bridges No. 17, 25, 27, and 28.

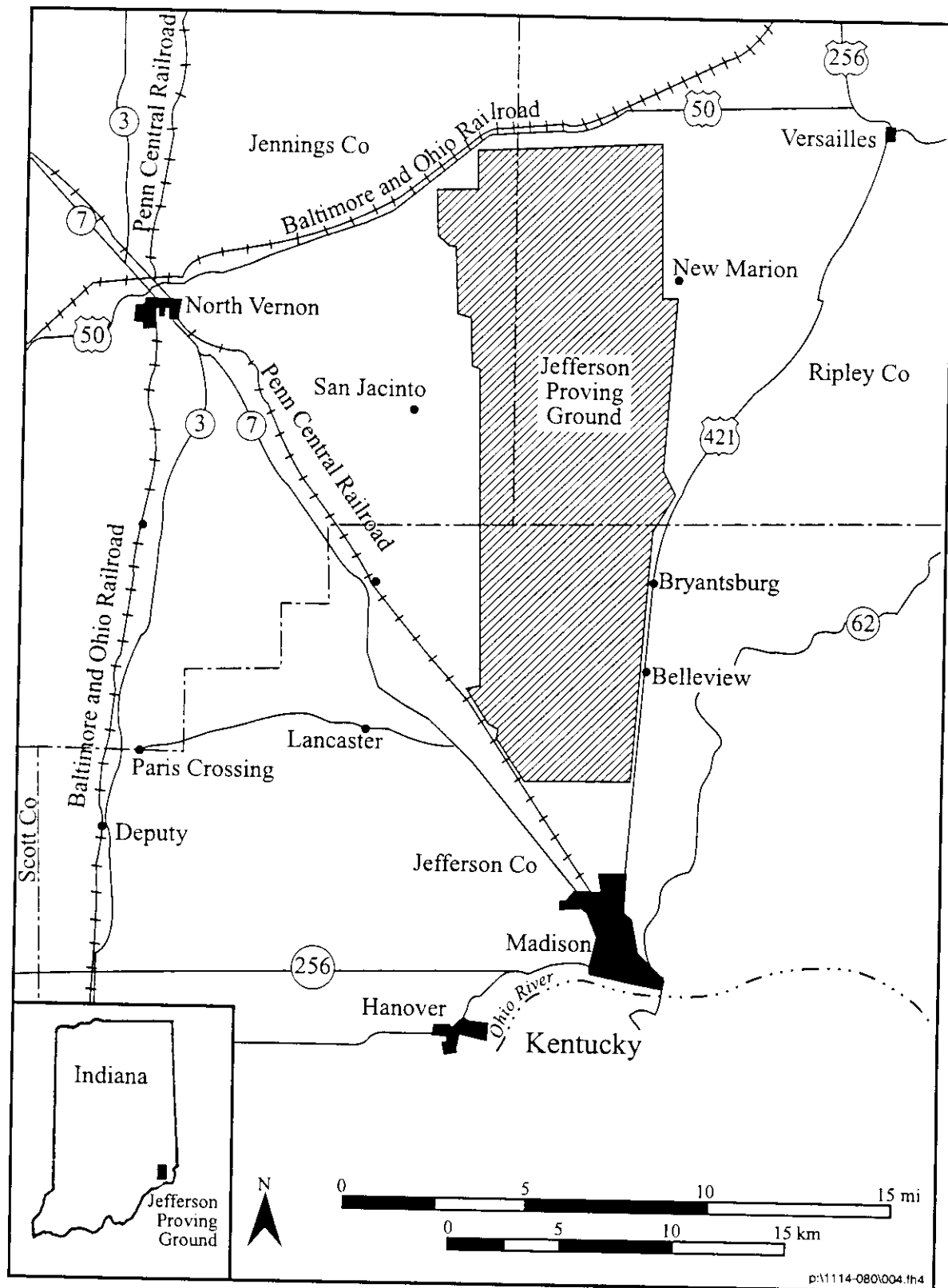


Figure I-1. Regional location of JPG, Jefferson, Jennings, and Ripley counties, Indiana.

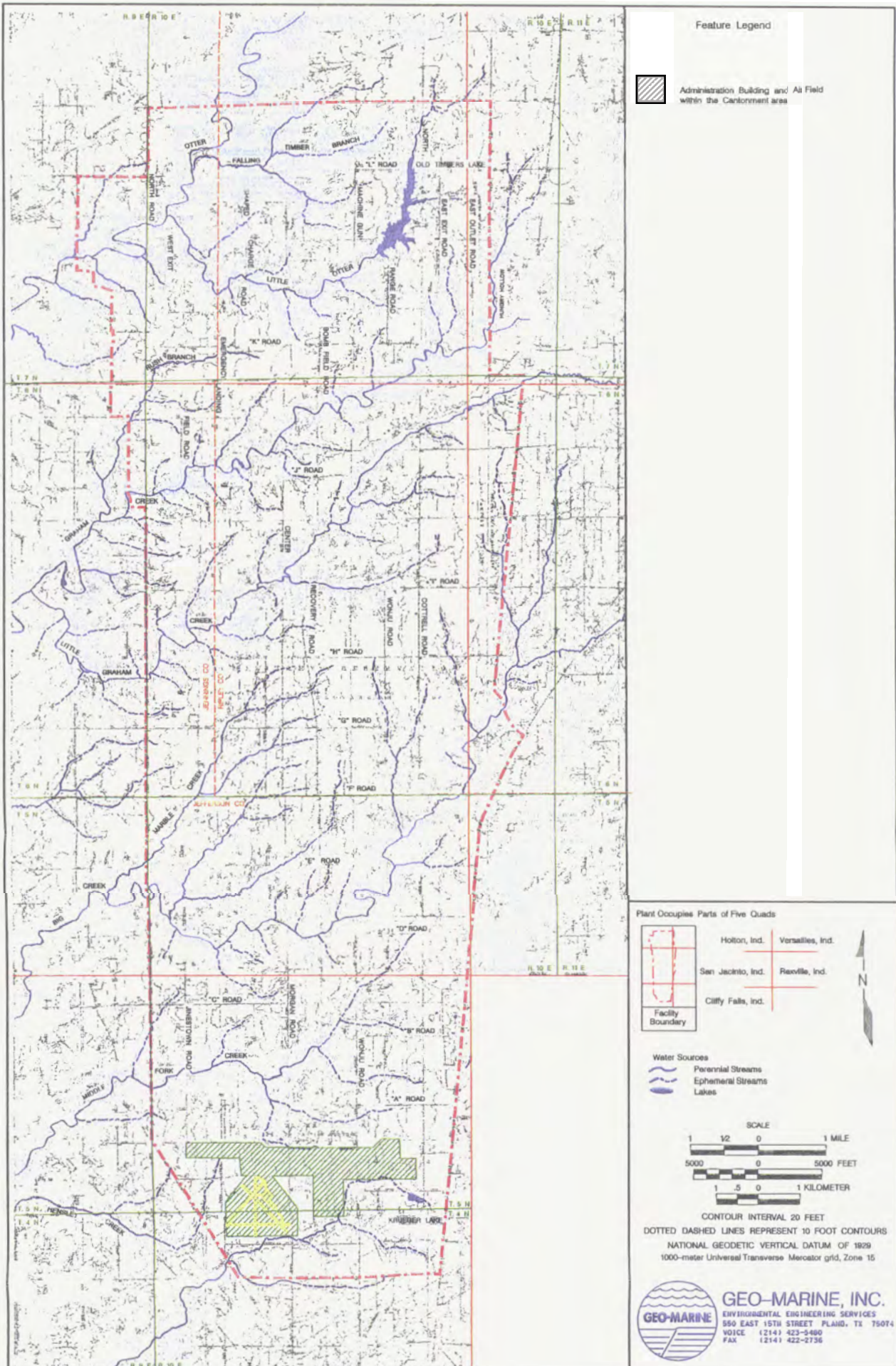


Figure I-2. Jefferson Proving Ground, Indiana.

- As JPG is excessed, historic preservation obligations shall be deemed to pass to the receiving agency if excess is to another Federal agency for conservation purposes. If disposal is to another Federal agency for purposes other than conservation, the parties of the MOA (Appendix M) and the receiving agency will consult to determine what actions, if any, may be necessary to preserve historic properties subject to effect by such transfer and will amend the MOA or take actions in accordance with 36 CFR 800 to the extent needed to specify how such actions, if any, will be implemented.
- The timing of the inventory process for identification, evaluation, and nomination of historic properties will be dependent upon the projected owner and final disposition of the facility. However, the process must be completed prior to the excessing of land and the transfer of architectural resources to private ownership.
- Any NRHP-eligible building or structure that remains under Federal ownership, or under a designated Federal agency, will be maintained and protected, and NRHP-eligible properties should be inspected on a periodic basis in order to document the condition of the property and evaluate the need for active maintenance measures.
- The Army shall ensure that the personnel conducting remedial investigation and feasibility study tasks related to the Installation Restoration Program are familiar with historic property compliance requirements.
- Care should be taken to preserve and protect facility records pertaining to the construction, evolution, and history of the JPG so that the appropriate records—which may include facility plans, building floor plans and elevations, drawings, and photographs—can be curated for archival purposes.

C. Legal Responsibilities

As defined by Federal laws and associated regulations, the Army is responsible for the identification, evaluation, and protection of all historic properties on lands under its control or use. As outlined by AR 420-40, these responsibilities include, but are not limited to:

- implementing the provisions of the National Historic Preservation Act of 1966, as amended through 1992;
- implementing the provisions of the National Environmental Policy Act of 1969, as amended;
- implementing the provisions of the Archeological and Historic Preservation Act of 1974, as amended;
- implementing the requirements of the Archeological Resources Protection Act of 1979, as amended;
- compliance with guidelines established by the American Indian Religious Freedom Act of 1978 and with the requirements of the Native American Graves Protection and Repatriation Act of 1990;
- implementing the guidelines established for professional standards for cultural resources management personnel and projects, and for the management and curation of federally owned and administered archeological collections;
- managing the historic preservation requirements through a CRMP; and
- conducting a cultural resources management program in a timely and cost-effective manner.

JPG must comply with the provisions of the Amended BRAC PA as well as the MOA between the Department of the Army, the Advisory Council on Historic Preservation, and the Indiana State Historic Preservation Officer. The BRAC PA was established in accordance with Sections 106, 110, and 111 of the NHPA (see Appendix L). Under the agreement, Army closure or realignment of some installations will affect historic properties on those installations. The area to be affected is the area within the installation boundaries. According to the PA, the Army must meet all its NHPA responsibilities, identify and evaluate historic properties, determine the effects of BRAC actions on historic properties, and undertake treatment and management procedures that ensure the effects of BRAC actions on historic properties are in accordance with the determinations and agreements within the BRAC PA (see Appendix L).

A large body of Federal legislation, regulations, and executive directives exists that outlines the responsibilities of Federal agencies for cultural resources preservation and provides procedural guidelines for the management of federally owned or controlled properties. Those laws or regulations particularly relevant to JPG managers/caretaker staff are discussed here; other relevant legislation, regulations, and directives are presented in Table I-1.

The NHPA, as amended through 1992, has become the cornerstone of Federal cultural resources management law. It established a national historic preservation program that includes elements for identification, evaluation, and protection. The NHPA presents a policy of supporting and encouraging the conservation of historic properties by directing Federal agencies to assume responsibility for those cultural resources judged to be significant. NHPA policies are implemented through the following means:

- the Secretary of the Interior (Secretary) was authorized to expand and maintain a National Register of Historic Places, and procedures for nomination to the NRHP were established;
- the Secretary was directed to approve state preservation programs that may be directed by a SHPO and a historic preservation review board;
- a National Historic Preservation Fund was established;
- a grant program was authorized to provide funds to the states for historic preservation projects and to individuals for the preservation of NRHP properties;
- the ACHP was established as an independent Federal agency that advises the President, Congress, and other Federal agencies on historic preservation matters;
- the Section 106 review process which ensures that cultural resources are properly considered in the planning stage of any Federal agency activity was established; and
- the key directive of Executive Order 11593 to inventory and evaluate cultural resources on federally owned or controlled lands was further defined and incorporated as Section 110.

Of the above, the Section 106, 110, and 111 directives and their associated procedures are the most important for JPG managers/caretaker staff. Section 106 [16 U.S.C. § 470f], as amended, provides the following directive:

The head of any Federal agency having direct or indirect jurisdiction over a proposed Federal or federally assisted undertaking in any State and the head of any Federal department or independent agency having authority to license any undertaking shall, prior to approval of the expenditure of any Federal funds on the undertaking or prior to the issuance of any license, as the case may be, take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register. The head of any such Federal agency shall afford the Advisory Council on Historic Preservation established under Title II of this Act a reasonable opportunity to comment on any such undertaking.

Several terms associated with this directive and other historic preservation legislation are presented in Appendix B for reference. A list of abbreviations used in this document is presented in Appendix A. Selected terms are defined below.

The regulations define the *area of potential effects* (APE) as "the geographic area or areas within which an undertaking may cause changes in the character or use of historic properties, if any such properties exist" [36 CFR Part 800.2(c)]. The determination is based not on knowledge of specific properties, but on what effects might be created if historic properties do exist in the APE of the undertaking. The agency must consider the full range of possible impacts, both those that will be direct results of the project and those that could be indirect consequences. The APE is defined before identification actually begins, so it may not be known whether any historic properties actually exist within it.

Table I-1
Federal Laws, Regulations, Orders, and Procedures

Number	Name
Public Law 59-209 34 Stat. 225 16 U.S.C. 431 et seq.	Antiquities Act of 1906
Public Law 74-292 49 Stat. 666 16 U.S.C. 461 et seq.	Historic Sites Act of 1935
Public Law 86-523 16 U.S.C. 469- 469c 74 Stat. 220	Reservoir Salvage Act of 1960
Public Law 89-665 80 Stat. 915 16 U.S.C. 470 and Public Laws 91-243, 93-54, 94-422, 96-199, 96-244, 96-515, 98-483, 99-514, 100-127, and 102-575	National Historic Preservation Act of 1966 (NHPA) as amended through 1992
Public Law 91-190 83 Stat. 852 42 U.S.C. 4221 et seq.	National Environmental Policy Act of 1969 (NEPA)
Public Law 93-291 88 Stat. 174 16 U.S.C. 469 et seq.	Archeological and Historical Preservation Act of 1974
Public Law 94-201	American Folklife Preservation Act
Public Law 94-422 16 U.S.C. 460 et seq.	Land and Water Conservation Act of 1976
Public Law 95-341 92 Stat. 469 42 U.S.C. 1966	American Indian Religious Freedom Act (AIRFA) of 1978
Public Law 96-95 93 Stat. 721 16 U.S.C. 470	Archeological Resources Protection Act of 1979 (ARPA)
Public Law 101-601 104 Stat. 3048 25 U.S.C. 3001 et seq.	Native American Graves Protection and Repatriation Act of 1990 (NAGPRA)
Executive Order 11593	Protection and Enhancement of Cultural Environment, May 13, 1971
48 FR 44716-44740 (Sept. 29, 1983)	Archeology and Historic Preservation; Secretary of the Interior's Standards and Guidelines
44716-44720	The Secretary of the Interior's Standards for Preservation Planning
44720-44723	The Secretary of the Interior's Standards for Identification
44723-44726	The Secretary of the Interior's Standards for Evaluation

Table I-1 (cont'd)

Number	Name
44726-44728	The Secretary of the Interior's Standards and Guidelines for Registration
44728-44730	The Secretary of the Interior's Standards for Historic Documentation
44730-44734	The Secretary of the Interior's Standards and Guidelines for Architectural and Engineering Documentation
44734-44737	The Secretary of the Interior's Standards and Guidelines for Archeological documentation
44737-44740	The Secretary of the Interior's Standards and Guidelines for Historic Preservation Projects, including the Professional Qualification Standards
5 CFR 333	Intergovernmental Personnel Act of 1970
32 CFR 229	Protection of Archaeological Resources: Uniform Regulations
33 CFR 325	Processing of Department of the Army Permits: Procedures for the Protection of Historic Properties
36 CFR 60	National Register of Historic Places
36 CFR 61	Professional Qualifications
36 CFR 63	Determinations of Eligibility
36 CFR 65	National Historic Landmarks
36 CFR 67	The Secretary of the Interior's Standards for Rehabilitation
36 CFR 68	The Secretary of the Interior's Standards for Historic Preservation Projects
36 CFR 78	Waiver of Federal Agency Responsibilities, under Section 110 of the National Historic Preservation Act
36 CFR 79	Curation of Federally Owned Archeological Resources
36 CFR 800 44 FR 21 (Oct. 1986)	Protection of Historic and Cultural Properties
ARPA 1988 Amendments:	
51 FR 31115 (Sept. 2, 1986)	Protection of Historic Properties
52 FR 1965	Archaeological Resources Protection Act, Supplemental Regulation
53 FR 4727	Guidelines for Federal Agency Responsibilities under Section 110 of the National Historic Preservation Act
43 CFR Part 7	ARPA Supplementary Regulations
43 CFR Part 10	NAGPRA Regulations Final Rule

The word *effect* is broadly defined. Effects can be direct or indirect, positive or negative, and cover any foreseeable change when "the undertaking may alter characteristics of the property for inclusion in the NRHP. For the purpose of determining effect, alterations to features of the property's location, setting, or use may be relevant depending on a property's significant characteristics and should be considered" [36 CFR Part 800.9(a)].

The reference to an *undertaking* within these regulations means “any project, activity, or program that can result in changes in the character or use of historic properties, if any such historic properties are located in the APE. The project, activity, or program must be under the direct or indirect jurisdiction of a Federal agency or licensed or assisted by a Federal agency. Undertakings include new and continuing projects, activities, or programs and any of their elements not previously considered under Section 106” [36 CFR Part 800.2(o)]. Examples of an undertaking include:

- management and use of lands;
- management of timber, grazing areas, minerals, and other natural resources;
- troop field training;
- construction, rehabilitation, and maintenance of buildings;
- installation and modification of facilities;
- abandonment or demolition of facilities;
- real property acquisition and disposal;
- munitions testing;
- remediation of toxic and hazardous waste conditions; and
- recreation.

The term *historic property* refers to “any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register. This term includes . . . artifacts, records, and remains that are related to and located within such properties.” [36 CFR Part 800.2(e)].

The term *eligible for inclusion in the National Register* includes both properties formally determined as such by the Secretary of the Interior and all other properties that meet the NRHP criteria as defined by 36 CFR Part 60.4.

The term *National Register* means the National Register of Historic Places as established under 16 U.S.C. § 470a and is the basic inventory of national historic properties—including buildings, structures, objects, sites, districts, and archeological resources—maintained by the Secretary of the Interior.

Reference to the *Advisory Council* means the Advisory Council on Historic Preservation established under 16 U.S.C. § 470i which functions to advise the President and the Congress on historic preservation matters, to review the policies and programs of Federal agencies, and to inform and educate Federal agencies on matters relating to historic preservation [16 U.S.C. § 470j].

The public may request ACHP review of an agency’s findings at several points within the Section 106 review process. The NHPA also requires that particular interested parties be invited to become consulting parties under specific circumstances. Interested parties may include local government representatives; applicants for Federal assistance, permits, and licenses; Indian tribes; and the public. The regulations require that the public be informed concerning the consultation process and that their views be elicited. The agency official should use existing agency public involvement procedures to provide this opportunity.

Although the Section 106 review process was not defined in the original Act, the ACHP has produced regulations, *Protection of Historic Properties* [36 CFR Part 800], in order to effectively implement this critical process. This implementation process provides JPG managers with procedures to follow for compliance with the NHPA. Since 36 CFR Part 800 is critical to the compliance process, Appendix D provides the source from which the entire regulation can be obtained.

Section 110 [16 U.S.C. § 470h-2] outlines the responsibilities of a Federal agency in relation to the use and protection of historic properties.

- The Federal agency must assume responsibility for the preservation of historic properties that are owned or controlled by the agency.
- The Federal agency also shall use, to the maximum extent possible, historic structures that are available. Any preservation, consistent with the historic property and the agency mission, shall be conducted as necessary in order to comply with this directive.

Section 110, as presented, reinforces the responsibilities of the Federal agency to inventory, evaluate, and preserve historic properties. As such, a variety of responsibilities are included within Section 110.

- It is the responsibility of the agency to establish a program to locate, inventory, and nominate to the Secretary all cultural resources that appear to qualify for inclusion in the NRHP. Each agency will ensure that no potentially NRHP-eligible historic property is inadvertently transferred or sold.
- If federal actions will substantially alter or destroy an NRHP-eligible property, sufficient time and effort will be expended to properly record the property.
- Planning and actions necessary to minimize harm to any National Landmark sites will also be undertaken when a project may adversely affect such sites.
- Each Federal agency shall designate a qualified official as its "preservation officer" who shall be responsible for coordinating that agency's activities under the NHPA.

Of critical importance to the fulfillment of these responsibilities is the additional directive that the Federal agency may include the costs of preservation activities under this Act as eligible project costs. Reasonable project costs may be charged to federal licensees and permittees as a condition of the issuance of such licenses or permits.

Section 111 [16 U.S.C. § 470h-3] complements the directives of Section 110 by addressing the responsibilities of a Federal agency concerning the lease, exchange, or management of Federal historic properties. Several features of this directive follow.

- After consultation with the ACHP, any Federal agency may lease a historic property owned by the agency to any person or organization, or exchange such property with a comparable historic property, if the agency head determines that the lease or exchange will ensure the preservation of the property.
- The head of any Federal agency having management responsibility of any historic property may, after consultation with the ACHP, enter into contracts for the management of such property. Any such contract will contain terms and conditions necessary to protect the interests of the United States and ensure adequate preservation of the historic property.

Army Regulation 420-40 (*Historic Preservation*) establishes that each Federal agency is responsible for the protection of historic properties and shall ensure that:

- undertakings regarding historic properties shall conform to professional standards under regulations developed by the Secretary in consultation with the ACHP, other affected agencies, and the appropriate professional societies of the disciplines involved, specifically archeology, architecture, conservation, history, landscape architecture, and planning;
- personnel undertaking preservation projects shall meet qualification standards established by the Secretary and the appropriate professional societies of the disciplines involved, specifically archeology, architecture, conservation, history, landscape architecture, and planning;
- records and other data be permanently maintained in appropriate data bases and made available to potential users.

Guidelines for the fulfillment of these above responsibilities have been developed by the National Park Service (NPS) and the ACHP under ARPA 53 FR 4727 (see Table I-1). In recognition of these

responsibilities, the DA has also developed its own guidelines for installations such as the JPG. AR 420-40 (which is soon to be superseded by new regulations AR 200-4 which will then become the applicable legal regulation) prescribes management responsibilities and standards for the treatment of historic properties. It also presents a format and the proposed contents for the development of a CRMP in consultation with the ACHP and the appropriate SHPO. Form letters for consulting the ACHP are presented in Appendix C. Since AR 420-40 is critical to the compliance process, Appendix D provides the source from which the entire regulation can be obtained.

The provisions of the *National Environmental Policy Act* (NEPA) of 1969 [P.L. 91-190; 83 Stat. 852; 42 U.S.C. § 4321-4347, et seq.] charge Federal agencies with the responsibility of reviewing all of their present and future programs to determine their total environmental impact and to prepare statements which set forth those impacts. Included in this responsibility is the mandate to "preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity and variety of individual choice" [42 U.S.C. § 4321-4347b(4)]. Statements about the impacts are to be made available for comment to the appropriate Federal, State, and local agencies, which are authorized to develop and enforce environmental standards. These statements and comments shall be made available to the President, the Council on Environmental Quality, and to the public as provided in Section 552 of Title 5. The Section 106 requirements of NHPA are not satisfied by complying with the requirements of NEPA. It is useful to coordinate the requirements of NEPA and NHPA. Additionally, impact reviews under NEPA should consider the mandates required by the American Indian Religious Freedom Act (AIRFA) regarding traditional use properties.

The *Archeological Resources Protection Act* (ARPA) of 1979 [P.L. 96-95; 93 Stat. 721; 16 U.S.C. § 470aa-470ll] was designed to protect archeological cultural resources on public or Indian lands and increase communication and exchange of information among governmental authorities, professional archeologists, and private individuals. This Act defines prohibited activities (e.g., excavation, removal, damage, alteration or defacement of archeological resources) on public and Indian lands and the associated criminal penalties that are enforced by this law. This Act requires a permit for any excavation or removal of archeological resources from public or Indian lands which is not sponsored by the Federal agency [16 U.S.C. § 470cc(a)]. Such excavations must be of a scientific nature and conducted by qualified applicants. Individuals should comply with the Secretary's *Standards of Professional Qualifications*. All archeological resources removed from the public lands under the permit remain the property of the Federal government. The permit-granting authority usually belongs to the land manager responsible for the property. Permits for Army installations are granted by the U.S. Army Corps of Engineers District Real Estate Division (AR 405-80). However, acquiring a permit under the ARPA regulations does not constitute compliance with Section 106 of the NHPA. Permits are not required for work contracted by the Army.

Federal agencies also are mandated by law with respect to two principal areas of Native American rights beyond the legislation cited above. Although JPG may not interfere with Native American religious practices that have cultural affinity to the area, an awareness of Native American religious rights is mandated. Compliance with policy established by the *American Indian Religious Freedom Act* (AIRFA) of 1978 [P.L. 95-341; 92 Stat. 469; 42 U.S.C. § 1966] and the requirements of the *Native American Graves Protection and Repatriation Act* (NAGPRA) of 1990 [P.L. 101-601; 104 Stat. 3048; 25 U.S.C. § 3001-3013] are required by federal land managers of public and Indian lands. A 1980 amendment to the NHPA recommends ways to "preserve, conserve, and encourage the continuation of the diverse traditional prehistoric, historic, ethnic, and folk traditions that underlie and are an expression of our American heritage," and are directly applicable in the management of culturally significant traditional areas. This section of the NHPA can be used to address "preservation and conservation (of) the intangible elements of a cultural heritage such as arts, skills, folklife, and folkways" when associated with a tangible property.

The AIRFA sets forth a resolution that Federal agencies shall evaluate their policies and procedures in consultation with traditional religious leaders in order to protect and preserve Native American religious

cultural rights and practices. The resolution states that it is the policy of the United States to "protect and preserve for American Indians their inherent right of freedom to exercise the traditional religions of the American Indian, Eskimo, Aleut, and Native Hawaiians, including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites." The provisions of AIRFA guarantee access to traditional sites and, in the case of traditional cultural properties with real property historically tied to the traditional practice, can place the associated property on the NRHP. The provisions of the AIRFA legislation are to be considered whenever a Federal land manager considers any permit under the ARPA regulation. Additionally, consultation under AIRFA with Native American groups can simultaneously satisfy the requirements of NEPA as well.

The purpose of the NAGPRA is to set forth the rights of Indian tribal groups and Native Hawaiian organizations with respect to human remains, funerary objects, sacred objects, and objects of cultural patrimony with which they can demonstrate lineal descent or cultural affiliation. NAGPRA requires that Federal agencies and museums receiving Federal funds inventory holdings for such remains and objects, and work with the tribal groups in a consultation process to reach agreements on the repatriation or other disposition of the remains and objects. The Act also protects Native American burial sites and controls the removal of human remains, funerary objects, sacred objects, and objects of cultural patrimony on Federal, Indian, or Native Hawaiian lands during planned or unanticipated excavations, either data recovery or testing. The stricter requirements of NAGPRA—which is not part of the Section 106 process—should be implemented in addition to the Section 106 requirements when an undertaking has the possibility of impacting Native American cultural resources; however, both are overlapping at times and need coordinating efforts. Unlike the Section 106 process, NAGPRA gives individuals and certain groups considerable decision-making authority in the excavation, removal, and repatriation of Native American cultural items and burials. NAGPRA regulations in 43 CFR 10 (Sections 10.4-10.6) provide guidelines for procedures to follow upon unexpected discovery of human remains. Excavation of Native American cultural items should be undertaken only as appropriate to the NAGPRA legislation and in consultation with the appropriate federally recognized Native American groups.

Several key coordinating guidelines have been issued by the Secretary and the ACHP which prescribe standards recommended to manage historic preservation programs. A significant discussion is found in the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* issued in the *Federal Register* of September 29, 1983 [48 FR 44716-44740]. This set of guidelines discusses preservation planning, identification, evaluation, registration, documentation, and professional qualifications. The NPS established definitions, standards, procedures, and guidelines to be followed by Federal agencies in the preservation and maintenance of collections of prehistoric and historic material remains and records in their care that are recovered from Federal or federally assisted programs [36 CFR Part 79]. The NPS has issued guidelines [36 CFR Part 63] which describe identification and evaluation procedures for Federal agencies with which to request determinations of eligibility. The ACHP regulation [36 CFR Part 800] describes the process which the Federal agency uses to meet its responsibility for compliance with Section 106 requirements of the NHPA. This regulation is a critical portion of the consultation process.

It should be mentioned that in the event of a national emergency declared by the Office of the President, or of a natural disaster as declared by a state governor, or of a public health concern (such as contaminated archeological sites), the treatment requirements for cultural resources are partially waived under 50 FR 7622, *Treatment of Historic Properties Under Emergency Conditions*, and 36 CFR Part 78, *Waiver of Federal Responsibility*, under Section 110, and 16 U.S.C. § 470h-2(j). The waiver of provisions is solely in event of natural disaster or imminent threat to national security. The Secretary is to promulgate regulations regarding such procedures under Section 106 *Special Provisions for Emergency Undertakings*.

D. Prehistory and History of the JPG

The following sections provide a brief discussion of the local prehistory and history of the area. A description of the geology and environment of the JPG vicinity is presented in Appendix E. More in-depth discussions of the prehistory and the preinstallation historic era are presented in Appendices F and G, respectively.

1. Prehistoric Cultural Chronology

Based on previous research, the aboriginal cultural history of the region may be subdivided into five broad temporal periods: Paleo-Indian (10,500 - 8000 B.C.), Archaic (8000 - 1500 B.C.), Woodland (1500 B.C. - A.D. 1050), Upper Mississippian/Fort Ancient (A.D. 1000 - 1700), and Historic Native American (A.D. 1675 - 1773). A generalized cultural chronology for the region is summarized in Table I-2.

Table I-2
Native American Cultural Sequence for the Central Ohio Valley and Southeastern Indiana
(after Stafford et al. 1985)

Temporal Period	Date
<i>Paleo-Indian Period: 10,500 to 8000 B.C.</i>	
<i>Archaic Period: 8000 to 1500 B.C.</i>	
Early Archaic	8000 - 6000 B.C.
Middle Archaic	6000 - 3500 B.C.
Late Archaic	3500 - 1500 B.C.
<i>Woodland Period: 1500 B.C. to A.D. 1000</i>	
Early Woodland	1500 - 500 B.C.
Middle Woodland	500 B.C. - A.D. 650
Late Woodland	A.D. 600 - 1000
Late Woodland/Mississippian Transition	A.D. 900 - 1050
<i>Upper Mississippian/Fort Ancient Traditions: A.D. 1000 to 1700</i>	
<i>Historic Native American Period: A.D. 1675 to 1773</i>	

Paleo-Indian Period (10,500 - 8000 B.C.)

Evidence for the initial human occupation of the central Ohio River valley is sparse. While surface finds of fluted projectile points have been found, the evidence is extremely limited. The nature of archeological remains indicates that these early populations roamed the landscape in search of large game animals, many species of which have since become extinct, as well as gathering wild plants and hunting smaller animals in a tundra or spruce/parkland environment (Stafford et al. 1985:2-8). The hunters occupied small temporary base camps located along bluff tops, terraces, and uplands (Stafford et al. 1985:2-8). In the vicinity of JPG, evidence of Paleo-Indian occupation comes almost exclusively from distinctive fluted projectile points recovered from primarily disturbed surface contexts. Five fluted projectile points have been found in Jefferson County (Anslinger 1993:4; Tankersley 1990:9).

Archaic Period (8000 - 1500 B.C.)

The Archaic period can be divided into three subperiods: the Early Archaic dating from 8000 to 6000 B.C., the Middle Archaic from 6000 to 3500 B.C., and the Late Archaic from 3500 to 1500 B.C. The transition from one subperiod to the next is often difficult to delineate, as is the transition from the preceding Paleo-Indian period to the Archaic.

Early Archaic sites in southeast Indiana generally occur in upland settings and along drainages. Upland sites tend to be small lithic scatters (Anslinger 1993:4). The artifact assemblages from these sites contain very few, "functionally restricted" artifacts suitable for hunting-related activities (Anslinger 1993:5). Common projectile points during the Early Archaic include corner and basal notched varieties such as the Thebes (Justice 1987:54-60), Kirk (Justice 1987:71-84), and bifurcated Lobed and LeCroy (Justice 1987:85-97) clusters (Anslinger 1993:5). The site distribution and artifact assemblage contents suggest that the Early Archaic populations were highly mobile (Anslinger 1993:4-5). Along the Ohio River south of JPG, intact Early Archaic deposits have been reported at the Haag site in Dearborn County, Indiana (Anslinger 1993:5; Reidhead and Limp 1974:7; Tomak et al. 1980:28-58). Early Archaic deposits have also been reported at the Swan's Landing and Simpson sites in Harrison County and in the Mexico Bottoms of Switzerland County.

The Middle Archaic is poorly documented in Indiana (Munson et al. 1977). Sites, including base camps, hunting camps, nut collection/processing stations, lithic workshops, and fishing/mussel gathering stations tend to be located along the Ohio River and its major tributaries, or on prominent, well-drained elevations in close proximity to interior lowlands which support lacustrine soils (Anslinger 1993:5; Kellar 1993).

Although the distribution of sites and site types remained similar to that of the Middle Archaic, the Late Archaic sites were more oriented toward valley settings. The more permanent Late Archaic sites are characterized by burial mounds located on the bluffs lining major drainages (Kellar 1993; Stafford et al. 1985:2-8).

The Woodland Period (1500 B.C. - A.D. 1050)

The Woodland period is divided into three sub-periods. The Early Woodland dates from 1500 B.C. to 500 B.C., the Middle Woodland from 500 B.C. to A.D. 650, and the Late Woodland from A.D. 600 to A.D. 1000. The primary delineation between the Archaic and the Woodland is the introduction of ceramics. The starting date of 1500 B.C. is somewhat arbitrary since ceramics first appeared on the south Atlantic coast at approximately 1500 B.C., in the Northeast at 900 B.C., and in the Midwest at 600 B.C. Some Early Woodland complexes, such as the Adena in southern Ohio, northwest West Virginia, and northeast Kentucky, were characterized by elaborate mortuary practices and the construction of earthworks and burial mounds. Adena, however, was essentially a mortuary complex practiced by a number of different societies, each following a subsistence and settlement system adapted to the local environment. These locally adapted subsistence systems were much like the systems practiced during the Late Archaic, although they were generally more specialized. The Nowlin Mound, an Early Woodland site southeast of the project area in Dearborn County, is one of the largest prehistoric structures in Indiana (Anslinger 1993; Kellar 1993). Seven tombs were identified in association with the mound, which is of Adena affiliation. Another notable Adena mound, the C.L. Stone Mound, is located in Shelby County, Indiana, to the northwest of the project area.

During the Middle Woodland period, the midcontinental region of North America was dominated by Hopewell-affiliated cultures. Like the Adena complex that preceded it, Hopewell was a system of shared mortuary practices (Muller 1986:95-96), with the addition of an extensive exchange network. The Hopewell homeland in Ohio and the Havana Hopewellian cultures in western Illinois are considered to be the primary centers, with other variants located over a wide geographic area. The Hopewell period was marked by an intensification of Adena burial practices. Mounds constructed over single tombs replaced the accretional

burial mound practices of the Adena period. The range of items traded expanded to include exotic, nonutilitarian materials and finely made nonutilitarian pottery. The investment of labor necessary for the construction of elaborate mounds in the upper Ohio River valley suggests that a more complex level of social organization developed during this period than was prevalent here before (Swartz 1973:22).

The subsequent Late Woodland period is characterized by a decline in cultural sophistication and in population. Mound building continued on a lesser scale, and the mounds were more commonly constructed of stone slabs. Complex and elaborate burial practices declined, populations were more dispersed, the amount of grave goods decreased or disappeared entirely, and the "fine arts" of the Middle Woodland period disappeared (Muller 1986:123-128). Components dating to this period have been identified at the Haag and Bratfish sites in Dearborn County, east of the project area (Anslinger 1993:7).

By the end of the Late Woodland period there was a move back toward the exploitation of bottomland resources and a shift to maize-based horticulture in many areas. Corresponding changes in ceramic technology and settlement patterns signaled the beginning of the Mississippian period.

The Mississippian/Fort Ancient Period (A.D. 1000 - 1700)

Two cultural traditions, Fort Ancient and Mississippian, replaced the Woodland tradition along the Ohio River. The area around the Falls of the Ohio marks the boundary between Fort Ancient, which occurs upstream to the east, and the Mississippian, which occurs downstream to the west. Fort Ancient sites occur in Ohio, Kentucky, southeastern Indiana, and West Virginia; and the Mississippian sites are found in the central Mississippi River valley in Illinois and the lower Ohio River valley in Kentucky and southwestern Indiana. Between these two areas are a number of other regional variants such as the Kincaid-Angel complex, the Vincennes complex, and the Falls complex (Muller 1986). While there was considerable variation between these different complexes, even to the point that applying the single term Mississippian to all of them may be inappropriate, historically these groups, as well as others to the south and north, have been referred to under that name.

In general, the Mississippian culture can best be defined as an adaptive system, a system characterized by the intense utilization of the bottomland environment for the cultivation of tropical cultigens (i.e., maize, beans, and squash); the restriction of wild resource utilization to the most abundant, dependable, and most easily obtained flora and fauna; and by a ranked social organization (Muller 1986:172-173). Middle Mississippian societies were situated in areas with wide floodplains containing extensive and renewable alluvial deposits such as the Falls of the Ohio area (Muller 1986:174).

In contrast, the Fort Ancient populations inhabited a region where the Ohio River flows within a narrow gorge with limited alluvial deposits but more readily available upland resources. Southeastern Indiana, including the JPG area is within the Fort Ancient culture area. Of all Fort Ancient sites reported in Dearborn and Ohio counties of southeastern Indiana, the Haag site in Dearborn County is the most intensively investigated (Anslinger 1993:8).

While cultivation of tropical cultigens was of major importance to the Fort Ancient population, a wide variety of wild foods was exploited as well, including nuts, berries, seeds, elk, bear, raccoon, and large quantities of deer (Griffin 1978:552). Fort Ancient societies lacked the high degree of social stratification characteristic of the Mississippian culture but often exceeded many Mississippian cultures in the degree of nucleation, with significant portions of the population living in the central town (Muller 1986:259).

Historic Native Americans (A.D. 1675 - 1773)

Several sedentary Native American groups lived in the Ohio River valley until they were driven out in the late seventeenth century by the Beaver Wars, fought among Native Americans over access to the European fur trade (Hunter 1978). Beginning in the seventeenth century, other Native American groups migrated or were forced west and southward into what is now Indiana (Brasser 1978:84; Hunter 1978:590; Peckham 1978:1).

By the eighteenth century several Native American groups including the Miami, Wea, Piankawahaw, and Shawnee inhabited eastern Indiana, where they lived in summer agricultural villages and winter temporary hunting/trapping camps. Later arrivals in the area included the Delaware, Potawatomi, and Kickapoo groups (Stafford 1985:2-15). The Delaware and the Potawatomi are reported to have occupied the land east of Butlerville in Jennings County (Bundy 1992; Leland et al. 1956:89) that is today part of JPG (Caldwell, personal communication 1995).

2. Preinstallation Euro-American Historic Period Cultural Chronology

The first European presence in the Ohio River valley was in the 1670s as French explorers entered southern Indiana. The subsequent Euro-American culture history of the Ohio River valley region has been divided by Munson et al. (1977:12) into four principal subperiods: the Colonial era (1660-1800), the Pioneer era (1800-1860), the Agricultural era (1860-1920), and the Industrial era (1920-present). Jefferson, Jennings, and Ripley counties, portions of which contain Jefferson Proving Ground, share a similar history. Table I-3 provides a generalized chronology for the Euro-American presence in the region.

Table I-3
Euro-American Cultural Sequence for the Central Ohio Valley and Southeastern Indiana
(after Munson et al. 1977)

Temporal Period	Date
Colonial Era	1660 - 1800
Pioneer Era	1800 - 1860
Agricultural Era	1860 - 1920
Industrial Era	1920 - present

The Colonial Era (A.D. 1660 - 1800)

Until Indiana became a territory in 1800, the majority of its residents were Native Americans (Munson et al. 1977:12). The French were the first known Europeans to set foot in the future Hoosier State; the area was penetrated by French *voyageurs* as early as A.D. 1675, and by 1679 the explorer Sieur Robert Cavalier de La Salle had reached the site of what is today the city of South Bend (Hawkins and Walley 1995:III-11). By 1700, French traders had established a strong presence in the area and were involved in hunting, gathering, and trading; many came from bases along the Great Lakes and the St. Lawrence River.

The years between 1749 and 1783 were characterized by European competition throughout the region (Stafford et al. 1985:2-11). Although their relationship was generally a friendly one, rivalry over control of trade and fur had kept the association between the French and the Native Americans somewhat strained. By taking advantage of this rivalry, the British made great inroads into the area during the early decades of the eighteenth century. In 1754, disputes between the French and the British over the Ohio valley resulted in the so-called French and Indian War (Baird 1909:23), a local manifestation of the globe-spanning Seven Years' War (Morgan 1993). Ownership of the Ohio valley officially passed to Great Britain with the first Treaty of Paris in 1763. The treaty ceded all land east of the Mississippi to England, and resulted in the withdrawal of France from the continent.

The first official Anglo-American settlement in what is today Indiana was established as a consequence of the Revolutionary War (1775-1783). Between 1778 and 1779, George Rogers Clark, from the colony of Virginia, led an expedition to capture British posts at Kaskaskia, Cahokia, and Vincennes. After defeating the English and Indians at Vincennes on February 25, 1779, Clark established headquarters at the Falls of the Ohio (today's greater Louisville/New Albany area). Subsequently, the colony of Virginia laid claim on the region of Indiana in 1778, and until 1781 Indiana was considered part of Illinois County, Virginia. In 1781 Virginia ceded most of her western claims to the new national government. After 1783, Indiana became part of the so-called Northwest Territory. Clark's Grant of 1783 became the first Euro-American settlement in Indiana Territory; it is located in the current counties of Clark, Floyd, and Scott. Clarksville, the first authorized American settlement in the Northwest Territory, was platted in 1784 at the southwest corner of Clark's Grant. This area lies just 80 km southwest of JPG, where today's Interstate 65 crosses the Ohio River into Louisville, Kentucky.

Indiana Territory was created by an Act of Congress on May 7, 1800 (Muncie 1932:2). When Indiana Territory was established, there were no Euro-American settlements on the land that later became Jefferson, Jennings, and Ripley counties. The land on which JPG is situated today was acquired from Native Americans as part of the Grouseland Purchase of 1811 (Hawkins and Walley 1995:III-12).

Pioneer Era (A.D. 1800 - 1860)

Euro-American settlement of JPG and its vicinity can be traced back to about 1811 (Baker 1991:7). The majority of the settlers came from the Carolinas, Virginia, and Kentucky. Most immigrants reached Indiana by water, but some arrived overland via Cincinnati and Columbus, Ohio (Anslinger 1993:9). Many of the early settlers were veterans of the Revolutionary War. Following the War of 1812, a new wave of settlers entered southern Indiana, most from the upland south. Early settlement quickly met with resistance from Native American groups, principally the Delaware, Shawnee, and Miami. The resistance, however, was short-lived as Native American groups subsequently retreated to government-owned lands in northern Indiana (Baker 1990:7-8).

The earliest Euro-American families in Jefferson, Jennings, and Ripley counties were subsistence farmers. Subsistence farming remained the principal occupation during the early half of the nineteenth century. Early industries were agriculture-related; these included mills and stills run by horse and water power, as well as tanneries and brick and lime kilns. Early transportation included steamboats, which appeared on the Ohio as early as 1812. Steamboat travel on the Ohio was greatly facilitated by the completion of the Louisville and Portland Canal in 1830. The canal allowed ships to bypass the Falls of the Ohio, increasing the ease and safety of navigation up and down the Ohio River. A resulting boom in riverboat building would occur in the Falls of the Ohio region in the nineteenth and early twentieth centuries. Shipbuilding is one of the oldest industries in Madison, which lies close to JPG in Jefferson County (Hawkins and Walley 1995:III-14; Stafford et al. 1985:2-16). The National and Michigan roads were constructed in the 1830s, canals in the 1840s, and the earliest railroads in the 1840s. The construction of the railroad began to tilt the economic balance of the state from the Ohio River valley base to northern Indiana.

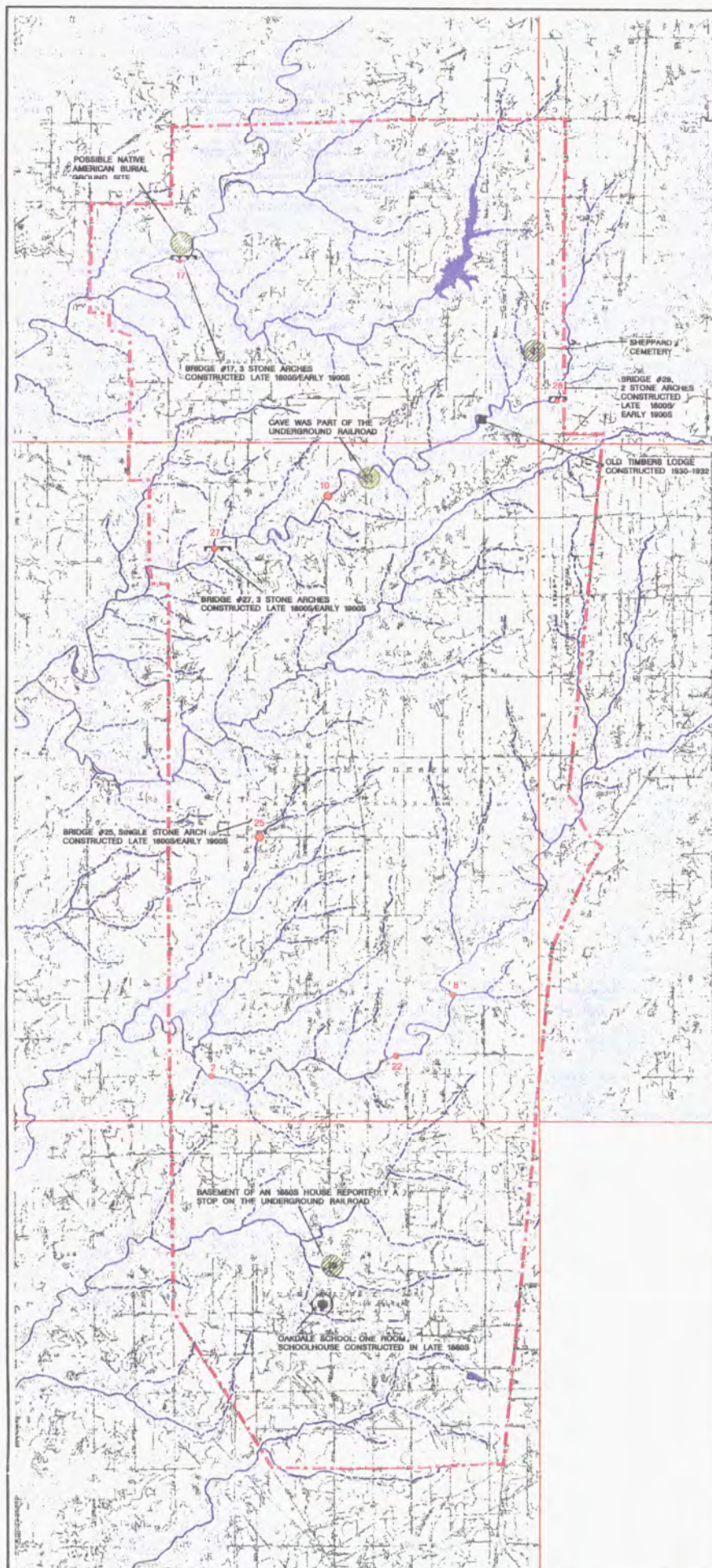
Although Indiana was a slave-free state, a moderate number of African-Americans were among the early immigrants into southern Indiana (Cord 1993:100; Muncie 1932:164). The Northwest Ordinance and the Indiana state constitution prohibited slavery. However, slavery was permitted under the guise of indenture at least into the 1830s. Some of the southern immigrants brought their slaves (Peckham 1978:38). Some residents of Jefferson, Jennings, and Ripley counties were sympathetic to the plight of the slaves. On JPG, "[h]omes of the ardent anti-slavery faction became stations on the eastern route of the Underground Railroad" (Baker 1990:8), which traversed JPG from south to north (Baker 1990:8; Muncie 1932:159; Figure I-3). Several known stations in Jefferson County include one at the mouth of Eagle Hollow, two miles above Madison; one at the mouth of Clifty Creek about the same distance below the city; one on the Robert Elliot farm in Monroe Township; and one on Mr. Carr's farm on Ryker's Ridge. The Underground Railroad stations existed approximately every 10 miles along the route (Muncie 1932:159). Despite an 1851 constitutional ban of African-American settlement in Indiana, during the 1850s many slaves from Kentucky fled across the Ohio River into the state (Cord 1993:99; Rawick 1977:ix, 232). Later, after the Civil War, large numbers of African-Americans seeking work crossed over the Ohio River into Indiana from Kentucky (Muncie 1932).

Agricultural Era (A.D. 1860 - 1920)

Although some residents of Jefferson, Jennings, and Ripley counties were sympathetic with the cause of the South, the state of Indiana fought on the Union side when the Civil War started (Thornbrough 1965). An unknown number of men from land that now belongs to JPG joined the Union Army (Baker 1991:10). The story of the "Fighting Baxters," seven brothers from the JPG area who fought in the Union Army and survived the war, is fondly told in this area. One of the more dramatic events of the Civil War in southern Indiana occurred in early July 1863. The Confederate general John Hunt Morgan led 2,500 cavalymen across the Ohio River from Kentucky into Indiana, in flagrant disregard of standing orders. "During two breathtaking days the rebels galloped from Dupont across the Proving Ground area to Bryantsburg" (Baker 1990:9). Morgan's men followed the meandering Big Creek across the land that would become the proving ground and crossed Jinestown Road, Paper Mill Road, and the road which extended north to Marble Corner. As they traversed through the proving ground, the soldiers "behaved themselves as rascally gentlemen [and] prowled every farm, barn and pasture in an area five miles wide across Monroe Township to Bryantsburg demanding provisions and fresh horses" (Baker 1990:9). Near Marble Corner, three of Morgan's men who became separated from the main column were captured by George Baxter and John Mayer, both Union soldiers home on furlough. Later the Union Calvary went through JPG in pursuit of Morgan's men.

"As the war ended in 1865 and the soldiers returned, life for all the area families settled into a comfortable routine centered around home and family and the business of farm life" (Baker 1991:14). The decades between 1880 and 1920 were years of significant agricultural change in southeastern Indiana. New farm equipment was introduced and an effective catalyst for change was provided by Purdue University, whose influential School of Agriculture opened in 1879. Beginning in the 1880s, Purdue's programs encouraged Indiana farmers, including those that lived on present-day JPG land, to adopt new farming techniques.

World War I affected residents on the present-day JPG in various ways. As men left their farms to fight overseas, wartime demands on agricultural products caused profits to rise at home. The process of developing ties with world markets provided Indiana farmers an economic stake in the cause of the Allies. Industrial production continued to increase until by 1920 matched that of agriculture. As transportation routes and systems continued to improve, a northward shift occurred in population growth, commerce, and industry. As a consequence, commerce and industry ebbed in Jeffersonville and New Albany, once major river ports (Stafford et al. 1985:2-17), while those river ports with railroads (like Madison) maintained a booming trade.



Feature Legend

Pre-JPG bridges (eligible for NRHP)

NRHP-listed

Archival sites - potentially eligible NRHP

Listed On Indiana Register and eligible for NRHP
Old Timbers Lodge, bridges #'s 17, 25, 27, 28

Plant Occupies Parts of Five Quads

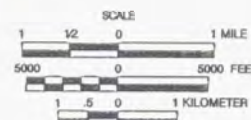


Holton, Ind. Versailles, Ind.
San Jacinto, Ind. Raville, Ind.
Clifty Falls, Ind.

Facility Boundary

Water Sources

Perennial Streams
Ephemeral Streams
Lakes



CONTOUR INTERVAL 20 FEET

DOTTED DASHED LINES REPRESENT 10 FOOT CONTOURS

NATIONAL GEODETIC VERTICAL DATUM OF 1929

1000-meter Universal Transverse Mercator grid, Zone 15



GEO-MARINE, INC.

ENVIRONMENTAL ENGINEERING SERVICES
550 EAST 15TH STREET PLANO, TX 75074
VOICE (214) 423-5480
FAX (214) 422-2736

Industrial Era (A.D. 1920 - 1940)

After World War I, the JPG area remained largely agricultural. Although small family-operated farms continued to decline, overall farm production increased. By 1940, 25 percent of the farms on the land that became JPG were occupied by tenant farmers. Like the rest of the nation, the JPG farmers were affected by the stock market crash of 1929 and the subsequent Depression. Efforts to improve agricultural production continued, however, and in 1933, the Civilian Conservation Corps (CCC) was established in Jennings County in an attempt to control runaway erosion that was causing gullyng and loss of topsoil. The CCC combated the problem by constructing check dams and planting trees (Hawkins and Walley 1995:III-13) as well as a 43-acre white pine plantation adjacent to Old Timbers Lodge. Hybrid corn was introduced in 1937 (Madison 1986:264).

By 1940, the portions of Jefferson, Jennings, and Ripley counties on which present-day JPG is located consisted of an area of dispersed farmsteads, schools, churches, cemeteries, and small crossroad communities. Prior to the commissioning of JPG in 1940, at least 17 schools, 10 churches, and 17 cemeteries had existed within the boundaries of the present-day facility (Moore, personal communication 1995). A description of the majority of those schools, churches, and cemeteries is found in local historian Sue Baker's 1990 book, *Echoes of Jefferson Proving Ground*.

Schools

The educational system in southern Indiana has its roots in the pioneer days. "By the Ordinance of 1787, the sixteenth section of each congressional township was set aside for school purposes. . . . When Indiana became a state, its constitution reserved Section XVI in each township for school purposes and also set aside one entire township for a seminary of learning" (Muncie 1932:37). The earliest, Jefferson County's Liberty School, was established in 1817 (Baker 1990:43), as the early settlers were eager to have their children educated. During the early part of the nineteenth century, the one-room school was a common feature on the land that is now JPG; in southeast Indiana, the schoolrooms were mostly hewn-log structures. These schools were supported by parents through subscription fees, "often forcing children of large families to attend in the relay system" (Baker 1990:42). The younger children attended in the spring or summer; their older siblings went to school in the winter, when they were not needed as much on the farm. Subscription fees were abolished in 1852, and when township-financed schools eventually replaced subscription schools, attendance soared. By the 1860s, sturdier schoolhouses, made of native limestone, replaced the log structures (Baker 1990:42). By the early twentieth century most teenagers were attending and graduating from high school.

Prior to the commissioning of the proving ground in 1940, many of the at least 17 schools that had existed on the land that is now JPG had long since stopped functioning, and others had been consolidated to create larger township schools. Oakdale School (Building No. 401), built in late 1869, is the oldest surviving building on the proving ground and one of the few remaining one-room schoolhouses in the local area (see Figure I-3). Constructed of masonry, it is a good example of a highly intact architectural type unique to its historic era (BTI 1984). The school building was restored in 1992 and listed on the National Register of Historic Places in 1993.

Churches

Church history on JPG began in earnest with the circuit riders of the early nineteenth century. Judge Sparks preached the first sermon in a house in the town of Madison in 1811 (Muncie 1932:48). According to Baker, ". . . each nineteenth century congregation anxiously awaited the circuit rider. The itinerant Methodist or Presbyterian clergymen performed marriage ceremonies, prayed over the recently buried in the graveyard,

and, despite the weather conditions, baptized the faithful in the closest creek. . . . Through the years the many Proving Ground area churches and their members encountered both division and consolidation and by 1940 had evolved into eight, or perhaps nine, groups which held services" (Baker 1990:19-20). Most churches maintained cemeteries.

Cemeteries

Some 30 cemeteries once existed on JPG lands (Baker 1990). All but two, St. Magdalene's old cemetery and the Sheppard cemetery (see Figure I-3), were removed to land off the proving ground immediately after government acquisition (Stafford et al. 1985:4-1). Overall, 3,500 burials (Baker 1990:67), several of which date prior to 1850, were reburied. In 1861, the deteriorated and unreadable tombstones from St. Magdalene's first cemetery (1830-1860) were removed and incorporated into the foundation of a new church. The cemetery was then leveled and a large cross, which is still standing over the site, was erected. It has been suggested that the burials from this cemetery were not removed after government acquisition, as they were not easily identifiable (Baker 1990; Hawkins and Walley 1995:III-14).

The Commissioning of JPG

As it became apparent that World War II was imminent, this area of Indiana became attractive to the U. S. government. From the government point of view, the lack of cities or extensive industrial development, the low population density, and the accessibility to/from national transportation networks made the area ideal for use as a weapons testing facility (Baker 1990:1). In December 1940, Congress commissioned the formation of JPG in portions of Jefferson, Jennings, and Ripley counties. On December 6, the government notified 2,000 landowners and residents to vacate the future proving ground. Although initially the farmers were given 30 days to relocate, the process actually took several months longer; still, however, "the transformation from quiet, rural neighborhoods to the rumble of the first 75 MM test round took only 155 days" (Baker 1990:1-2). Nineteen of the better farmhouses were moved from their original locations and resituated in the southern portion of the facility. These farmhouses were used as family housing; 13 presently remain on the facility (BTI 1984:13).

Post-1940 History of the Jefferson Proving Ground

Presently part of TECOM, the installation was built as an ordnance testing facility, a key component of the mobilization plan which sought to develop an American ammunition industry virtually overnight after the German invasion of France in the summer of 1940. Designed specifically to evaluate different types of ammunition to ensure that they met government specifications before being sent to U. S. Army troops, JPG was an integral part of the American logistical system that simply overwhelmed the Axis powers by war's end. Land acquisition for JPG began in 1940, and construction began in 1941, with the installation in active use by the end of that year. By 1945, 149 of its 332 buildings had been erected: maintenance, administrative, test firing, and assembly facilities, as well as the airfield built on the south end of the installation, and observation bunkers built uprange in the test firing area to the north (BTI 1984:12). At the war's end, the proving ground was deactivated and its buildings mothballed, only to be reactivated in 1949 shortly before the outbreak of the Korean War. The Korean War precipitated a second wave of construction at the installation. Between 1951 and 1953, some 107 new structures were constructed (BT 1984:12). For the most part these consisted of additional test firing and storage facilities, but with improvements to the infrastructure as well. The end of the Korean War brought about the deactivation of JPG once again. In 1961, however, the installation was reactivated and has remained in continuous use until recently. In 1988, the Defense Department Commission on Base Closure and Realignment announced plans to transfer the JPG mission to Yuma Proving Ground in Arizona, anticipating a complete shut-down of JPG by the end of 1995.

E. Cultural Resources at JPG

1. Definition of Classes of Historic Properties

Five major classes of cultural resources may be listed in the NRHP. These classes are based on the function or character of the resource at the time it achieved significance rather than its present state. Based on definitions in 36 CFR 60.3, these five classes are:

- Building** "A building is a structure created to shelter any form of human activity, such as a house, barn, church, hotel, or similar structure. Building may refer to a historically related complex such as a courthouse and jail or a house and barn.
Examples: Molly Brown House (Denver, CO)
Meek Mansion and Carriage House (Hayward, CA)
Huron County Courthouse and Jail (Norwalk, OH)
Fairtosh Plantation (Durham vicinity, NC)"
- Structure** "A structure is a work made up of interdependent and interrelated parts in a definite pattern of organization. Constructed by man, it is often an engineering project large in scale.
Examples: Swanton Covered Bridge (Swanton vicinity, VT)
Old Point Loma Lighthouse (San Diego, CA)
North Point Water Tower (Milwaukee, WI)
Reber Radio Telescope (Green Bay vicinity, WI)"
- District** "A district is a geographically definable area, urban or rural, possessing a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united by past events or aesthetically by plan or physical development. A district may also comprise individual elements separated geographically but linked by association or history.
Examples: Georgetown Historic District (Washington, DC)
Martin Luther King Historic District (Atlanta, GA)
Durango-Silverton Narrow-Gauge Railroad (right-of-way-between Durango and Silverton, CO)"
- Site** "A site is the location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself maintains historical or archeological value regardless of the value of any existing structure.
Examples: Cabin Creek Battlefield (Pensacola vicinity, OK)
Mound Cemetery Mound (Chester vicinity, OH)
Mud Springs Pony Express Station Site (Dalton vicinity, NE)"
- Object** "An object is a material thing of functional, aesthetic, cultural, historical or scientific value that may be, by nature or design, movable yet related to a specific setting or environment.
Examples: Delta Queen Steamboat (Cincinnati, OH)
Adams Memorial (Rock Creek Cemetery, Washington, DC)
Sumpter Valley Gold Dredge (Sumpter, OR)"

All five major classes of historic properties are presently recognized within JPG, and these broad classes represent the range of historic properties that potentially may be encountered within the JPG.

2. Previous Archeological Research

Previous archeological work conducted at JPG consists one archeological overview and management plan, four Phase I small-scale surveys (Anslinger 1993; Guendling 1975; Hawkins and Walley 1995; Schenian and Mocas 1993:i), and one relatively large-scale survey (Largent 1996). A total of 153 sites has been recorded in 4,872 surveyed acres (Figure I-4).

In 1975, the Glenn A. Black Laboratory conducted a Phase I survey of 150 acres in the north-central part of JPG (see Figure I-4). A single fragmentary projectile point diagnostic of the Late Woodland/Mississippian period was recovered (Guendling 1975). This site is not eligible for listing in the NRHP (Guendling 1975).

In 1985, Woodward-Clyde Consultants drafted an archeological overview and draft management plan for Jefferson Proving Ground (Stafford et al. 1985). Although no fieldwork was conducted, the existing archeological site records were examined (at the time, Guendling's 12Ri12 was the only prehistoric site recorded on the facility), as were old plat books and maps illustrating the locations of preinstallation homesteads. Not surprisingly, the overview focused on historic cultural resources: locations of 478 potential historic archeological sites were identified (Stafford et al. 1985).

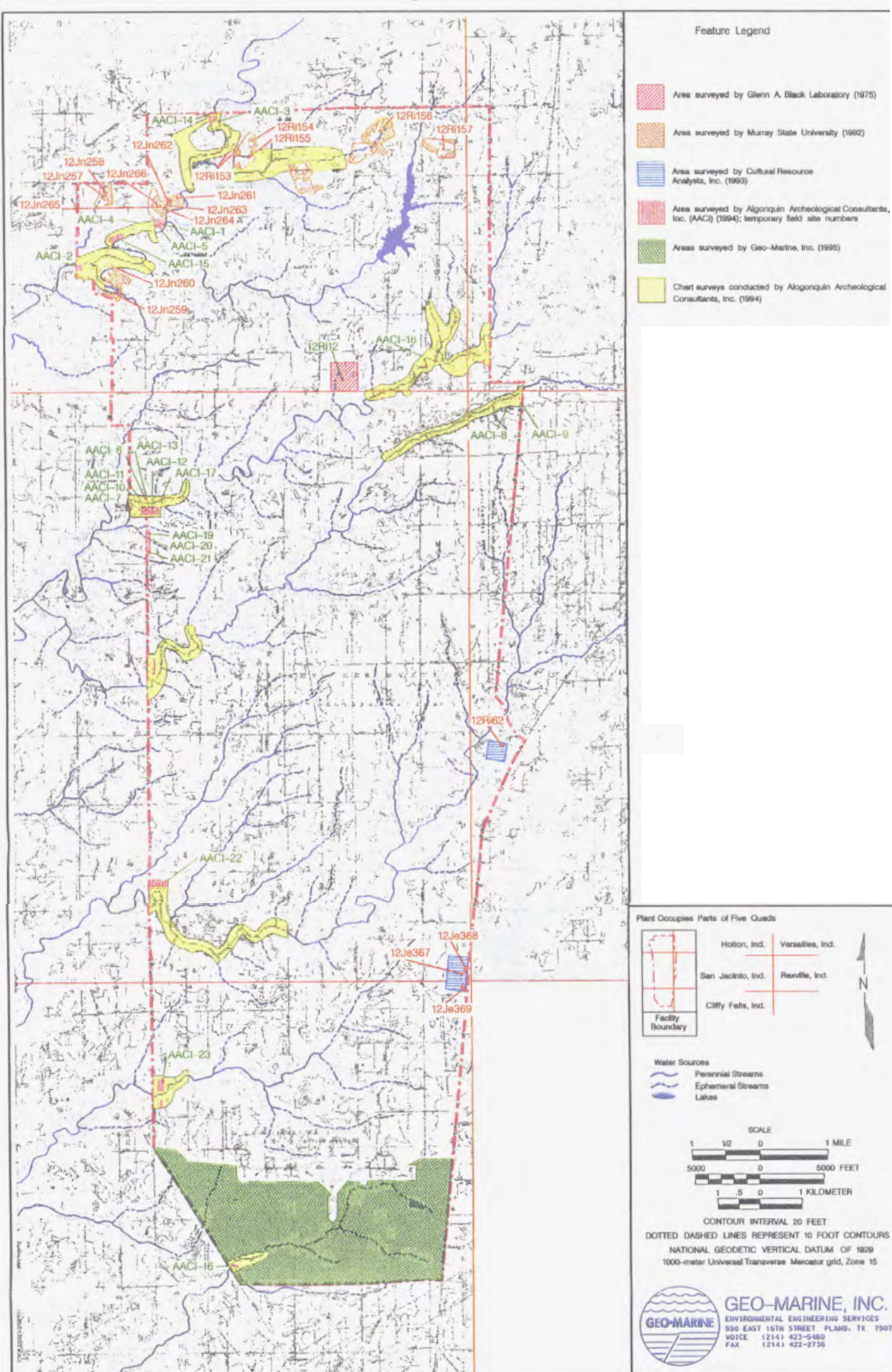
In 1992, the Archeology Service Center at Murray University, Kentucky, completed a Phase I survey of 212 acres in two timber management areas of JPG (Schenian and Mocas 1993; see Figure I-4). Fifteen sites were recorded during this survey. Four of the sites were prehistoric isolated finds: one was an isolated find of a Late Archaic projectile point; the cultural affiliation of the other three sites could not be determined. Nine of the sites were small lithic artifact scatters whose prehistoric affiliation could not be determined. One of the sites recorded during this survey is a mid-twentieth-century residential site containing a limited number of artifacts. The inventory included one multicomponent site where a late nineteenth- to early twentieth-century farmstead had disturbed a prehistoric site of an unknown cultural affiliation. All 15 sites recorded during this survey are considered ineligible for listing in the NRHP (Schenian and Mocas 1993:ii).

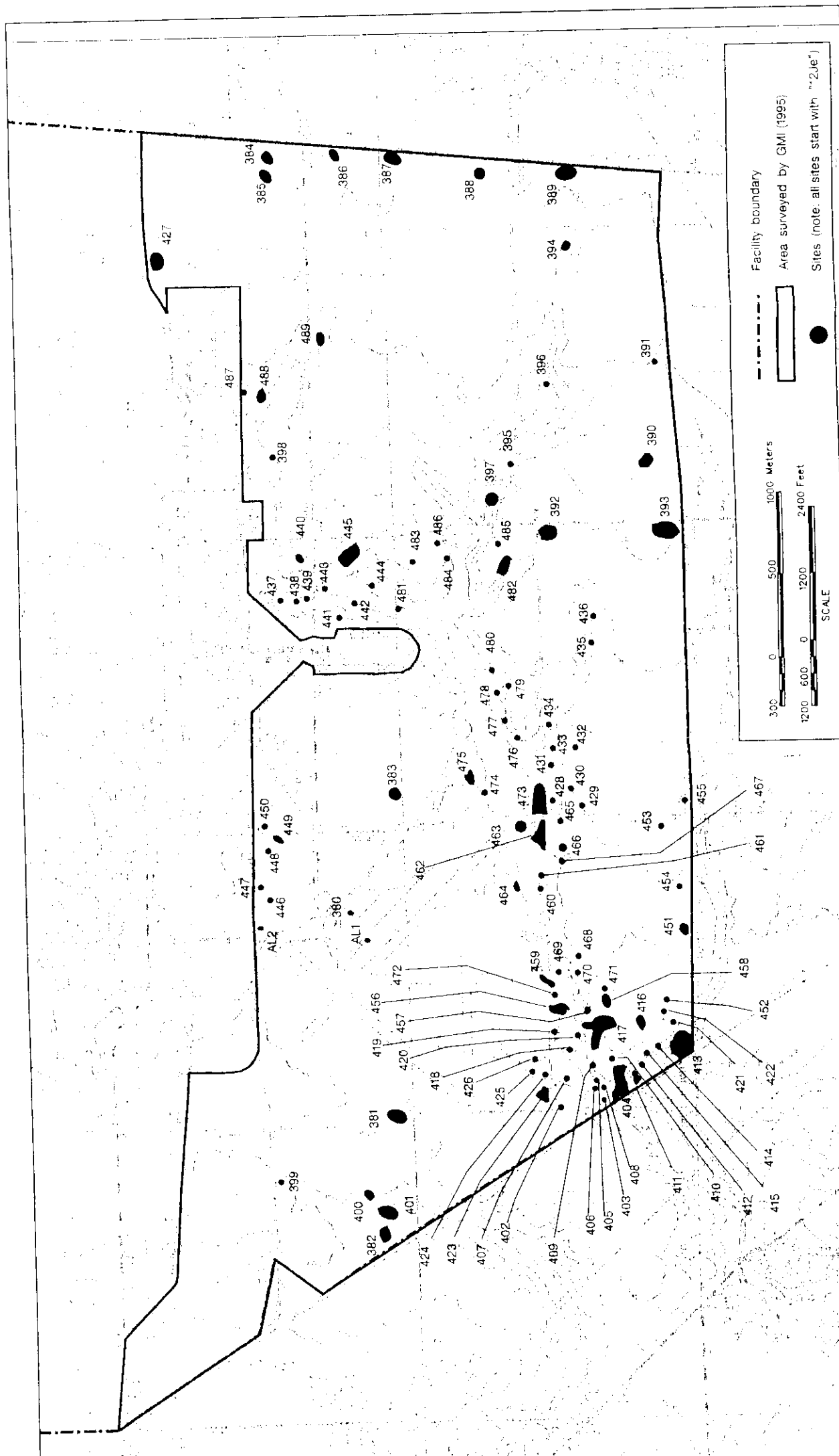
In 1993, Cultural Resources Analysts, Inc., conducted archeological survey of 120 acres on JPG (see Figure I-4). The survey recorded four sites: two prehistoric, one historic farmstead, and one multicomponent. The multicomponent site contained prehistoric and historic artifacts (Anslinger 1993:17). None of these sites is eligible for listing in the NRHP (Anslinger 1993:ii).

In 1994, Algonquin Archeological Consultants, Inc., conducted a survey for chert sources along nearly 91 km of stream valley covering 2,802 acres of JPG (see Figure I-4). In addition, Algonquin conducted an archeological survey in several designated tracts within the chert survey segments (Hawkins and Walley 1995). The archeological portion of the survey covered 79 acres of JPG land. Twenty-three archeological sites were located and recorded. Two of the sites are historic homesteads, one is a prehistoric lithic scatter and a historic artifact scatter associated with a farmstead outside the survey area; the remaining 20 are prehistoric sites. The two historic sites (JPG-AACI-22 and JPG-AACI-23) should be evaluated (Hawkins and Walley 1995:ii). Additional testing of the prehistoric component and an evaluation of the historic component should be undertaken at the multicomponent site JPG-AACI-1 (Hawkins and Walley 1995:VIII-11). Of the 20 prehistoric sites, two are located in rockshelters and the remainder consist of isolated finds (n=7) and lithic scatters (n=11). The NRHP eligibility for nine prehistoric sites could not be determined, thus requiring a Phase II significance evaluation (Hawkins and Walley 1995:VIII-1 to VIII-46).

In 1995, Geo-Marine, Inc. (GMI), of Plano, Texas, conducted a survey of 4,431 acres south of the Firing Line at JPG. The survey resulted in the discovery of 110 unrecorded archeological sites containing an estimated 130 site components (Figure I-5). Of the 110 sites, 38 are purely prehistoric in nature; 51 are historic; and 21 are multicomponent, incorporating both prehistoric and historic remains. Of these resources, 58 site components date from the prehistoric period, while 72 site components are from the historic period.

All the prehistoric sites, as well as the prehistoric components of the multicomponent sites, are lithic finds lacking features. Ten of the 58 prehistoric components are isolated flake finds, and as such cannot be considered eligible due to their utter lack of research value; similarly, most of the smaller lithic scatters can be dismissed due to their poor contexts and/or small, nondiagnostic assemblages. However, a few sites and site components represent larger lithic reduction camps, some of which are somewhat disturbed but are extensive and may retain significant intact deposits (12Je456, 12Je458, and the prehistoric component of sites 12Je404, 12Je417, 12Je473, and 12Je482), and others of which are smaller but apparently in good to





excellent states of preservation (12Je418 and 12Je471 [multicomponent sites], 12Je470, 12Je478, and 12Je480). It is believed that additional testing might identify the cultural affiliations of each of these sites, and might provide other useful data as well. Each of these 11 prehistoric sites/components is recommended for additional testing; if that cannot be accomplished, each should be preserved through avoidance.

The historic sites and site components represent the remains of a multitude of late nineteenth- to mid-twentieth-century farmsteads and/or rural residences, commercial enterprises, and the associated refuse. Most of these sites are in poor condition. Of the 70 historic components identified: 11 are isolated finds; nine are trash dumps; 17 are artifact scatters not associated with features or architectural remains; two are the remains of commercial businesses; two are of unknown origin and function; and 29 are the remains of farmsteads and rural residences. The most significant of the historic sites are the businesses and farmsteads. Unfortunately, these have been extensively damaged. Neither the Harlow General Store (site 12Je450) nor the Nicklaus Vegetable Cannery (12Je463) is considered eligible for inclusion in the NRHP. Most of the other historic sites and site components are also in poor condition, and, as such, are not eligible for inclusion in the NRHP. However, several historic sites/components are considered to retain some research value and are recommended for further testing or preservation through avoidance. These include farmstead site 12Je401 and the historic components at 12Je418 and 12Je482. Both the prehistoric and historic components of 12Je418 are considered significant, and site 12Je482 is the best-preserved of all the historic site components in the sample, presenting the best possibility for collecting new, useful data.

The topography of JPG has been described as "conducive to prehistoric activity" (U.S. Army Corps of Engineers [USACE] 1991:3-46), and this is amply demonstrated within similar topography in the area surrounding the facility, where a large number of sites have been recorded. An archeological survey prior to the installation of the Texas Gas Pipeline in south-central Indiana recorded over 200 sites in a 100-mile corridor through topography similar to that characteristic of JPG. Most of the sites occur near or overlooking a water source or on an area of good drainage. Over 190 sites have been recorded in Jefferson County and over 100 sites have been recorded within each Jennings and Ripley counties (USACE 1991). Most of these sites occur within 500 m of water sources, such as springs or streams, and on slopes or crests of upland flats overlooking the water sources. East of JPG in counties along the Whitewater and Ohio rivers, a number of earlier studies were conducted (Black 1934, 1936; Kellar and Swartz 1970).

Although many historic sites potentially exist at JPG, few have been documented. Schenian and Mocas (1993) reported one historic and one multicomponent site. Anslinger (1993) recorded one historic and one multicomponent site. Algonquin Archeological Consultants, Inc., recorded one multicomponent and three historic sites (Hawkins and Walley 1995). During a recent survey (June 1995) GMI archeologists identified and documented 51 historic sites and 21 multicomponent sites. Stafford et al. (1985) made a compilation of historic sites based on research of historical atlases, plat books, and other maps published between 1876 and 1921. Four hundred seventy-eight potential historic sites were identified from the archival sources (Figure I-6 and Appendix K). These potential sites included the Oakdale School (Stafford et al. archival # 426) and the Old Timbers Lodge (Stafford et al. archival # 478). Since these are known buildings that have been determined NRHP-eligible, the actual number of historic archival archeological sites, for purposes of this discussion, is 476. Of these, 21 have been evaluated for NRHP eligibility. The 21 sites include two sites recorded by Schenian and Mocas (1993:30-33) as well as 19 sites recently evaluated for NRHP eligibility (Largent 1996). Of the 19 recently evaluated historic sites (Largent 1996), upon field visitation, one archivally identified site was subdivided and recorded as three separate sites for a total of 23 archival sites.

Interest in the prehistory of southern Indiana goes back to the initial settlement in the area. Early settler George Rogers Clark had a keen interest in the prehistory of the area around the Falls of the Ohio (greater Louisville/New Albany area), and was involved in the debate over the origins of the numerous mounds located in the Ohio and Mississippi river valleys, correctly attributing their origin to Native Americans (Janzen 1972:307). Subsequent to Clark, others took an interest in the prehistory of the area.

Earlier archeological investigations in the vicinity of JPG included excavations of burial mounds in Dearborn County (Anslinger 1993; Black 1934; Kellar 1993). Several small surveys were conducted in Jefferson, Jennings, and Ripley counties where more prehistoric sites were identified and investigated during that period. Most of these sites were lithic scatters or isolated finds (Hawkins and Walley 1995:IV-3). During the 1980s a review of sites recorded on JPG was completed by Stafford et al. (1985), and an archeological overview and management plan was produced for the facility (Stafford et al. 1985). Descriptions of the archeological sites so far recorded on JPG are presented in Appendix I.

3. Evaluation of Present Data Base

a. Archeological Cultural Resources

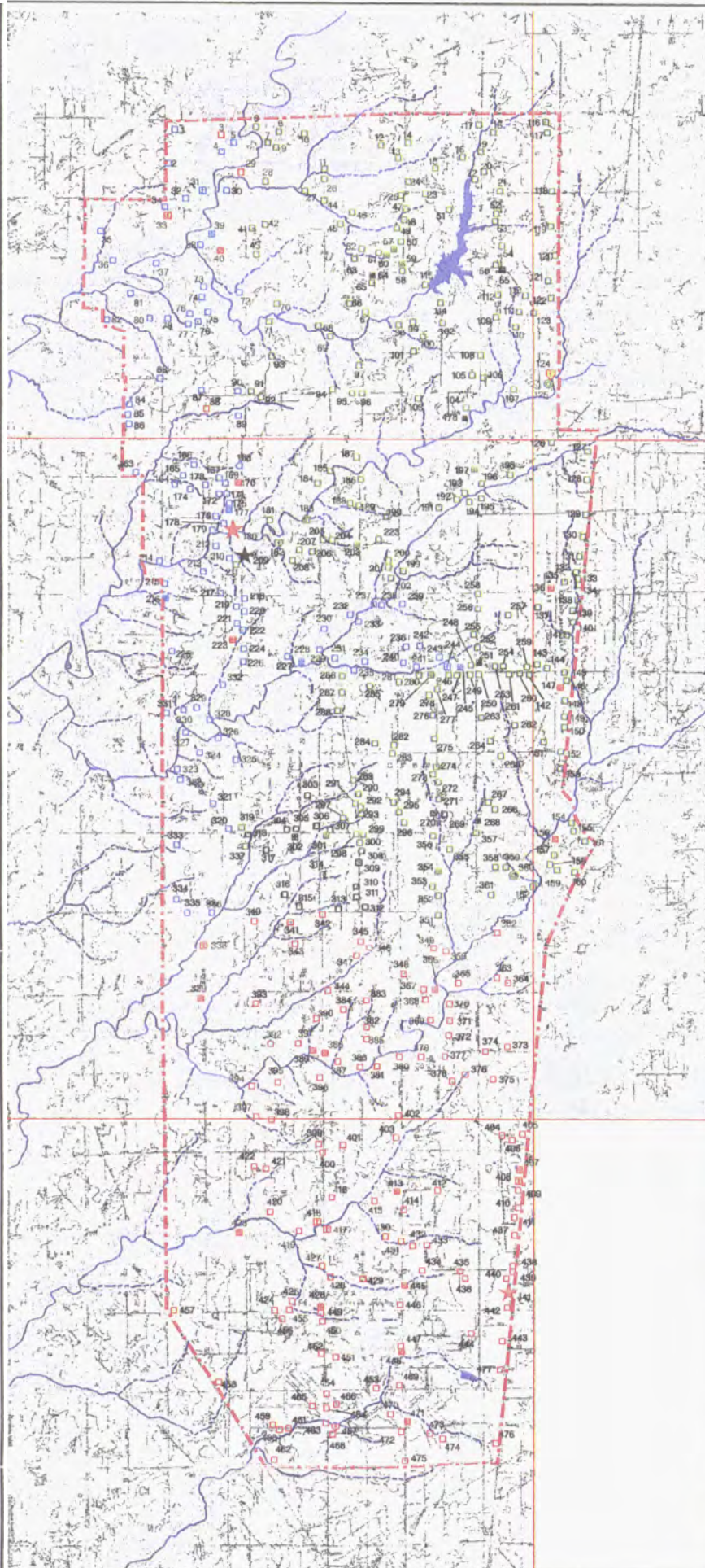
The present archeological data base for JPG is very modest (see Figures 1-4 and 1-5) and is based on one archeological overview and management plan (Stafford et al. 1985) and five completed professional survey reports (Anslinger 1993; Guendling 1975; Hawkins 1995; Largent 1996; Schenian and Mocas 1993). With the exception of the Largent 1996 survey, all previous surveys were of a moderate scope. At the present time, the data base provides little more than a preliminary measure of the distribution of both historic and prehistoric resources. The exact character and significance of the historic and prehistoric resources is not well-defined due to the limited nature of the surveys and the lack of test excavations. Nevertheless, research has demonstrated that prehistoric cultural resources with components related to the Archaic, Woodland, and Mississippian periods are present on JPG and suggests that other prehistoric components are likely (Anslinger 1993; Guendling 1975; Largent 1996). During the historic era, the area was the focus of a significant historic occupation dating to the nineteenth and early twentieth centuries (Stafford et al. 1985). Historic sites at the JPG likely include farmsteads, isolated rural residences, schools, and rural agricultural processing and storage sites such as mills and granaries (Stafford et al. 1984).

b. Architectural Cultural Resources

The present architectural data base is the result of several architectural inventories and assessments, each including detailed HABS/HAER Level IV survey sheets on pre-JPG, World War II, Korean War, and Cold War properties (see Appendix G; BTI 1984; Thayer and Associates 1995). Based on the just completed inventory of buildings and structures (Appendix J) and on an analysis of JPG's historic context, it has been determined that several of the pre-1946 buildings and structures are either listed on (the Oakdale School) or are potentially eligible for (the Old Timbers Lodge, as well as eight bridges) inclusion in the NRHP. Building and structure evaluations conducted to date provide an accurate assessment of the military's historic built environment. Based on these inventories and evaluations, many of the World War II buildings are recommended as eligible for inclusion as a potential NRHP district under a multiple properties nomination (Figures I-7 and I-8).

4. Identification of Sensitive Areas

The survey and reconnaissance data that have been gathered indicate that archeological properties are likely to occur throughout the installation. The JPG is generally characterized by moderately rich soils, plentiful water, and wooded environments. Some areas of the JPG, such as perennial stream floodplains and neighboring upland ridgecrest areas, are considered to have a greater cultural resources sensitivity than those that are located farther from water access. Sensitivity models for cultural resources, respective of both prehistoric and historic sites, have been developed and are discussed in Section II.



Feature Legend

- Farmstead
- ⊞ Church
- ⊞ School
- ⊞ Cemetery
- ★ Post Office
- ⊙ Mill

Archival Sources

- Andreas 1876
- Lake and Co. 1883
- Lake and Co. 1884
- Lake and Co. 1900
- Herald Publishing Co. 1921
- Holton 7.5' USGS quad. map 1959
photorevised 1980
- Versailles 7.5' USGS quad. map 1961

Plant Occupies Parts of Five Quads

Holton, Ind.	Versailles, Ind.
Sen Jacinto, Ind.	Reuville, Ind.
Clifty Falls, Ind.	
Facility Boundary	

Water Sources

- Perennial Streams
- Ephemeral Streams
- Lakes



CONTOUR INTERVAL 20 FEET

DOTTED DASHED LINES REPRESENT 10 FOOT CONTOURS

NATIONAL GEODETIC VERTICAL DATUM OF 1929

1000-meter Universal Transverse Mercator grid, Zone 15



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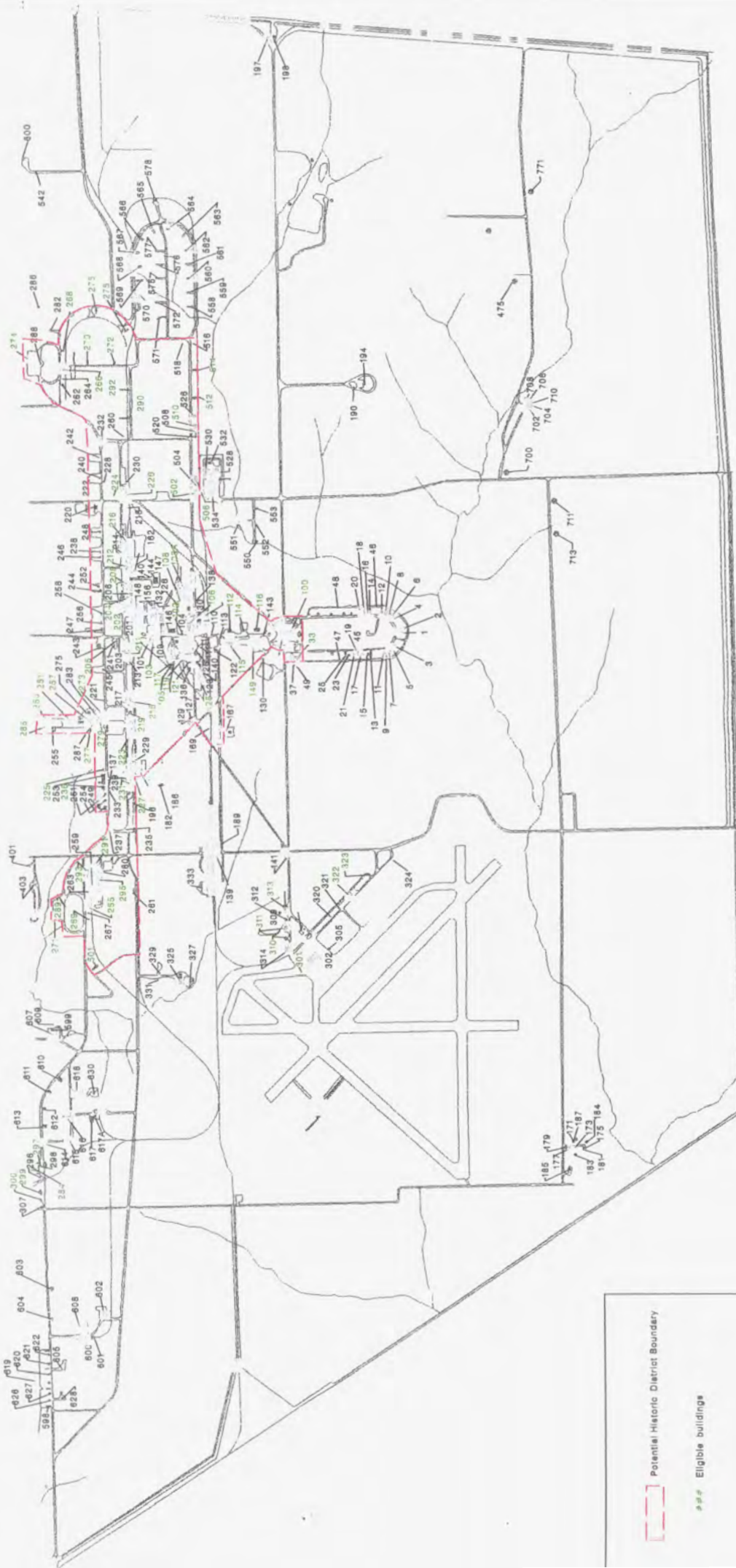
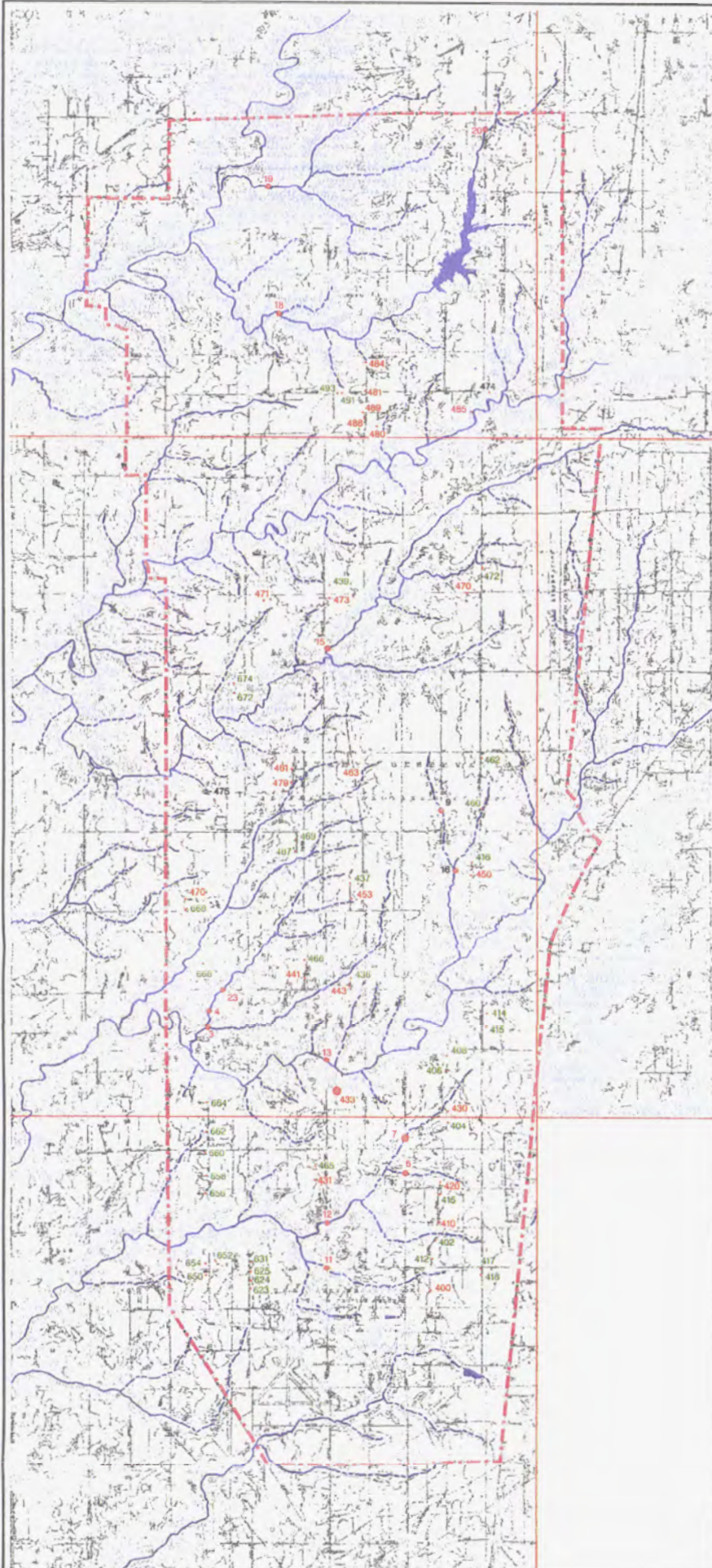


Figure 1-7. The potential historic district and buildings south of the firing line, JPG.



Feature Legend

- Pre-JPG
- World War II
- Korean War
- Cold War

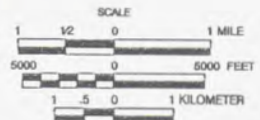
Plant Occupies Parts of Five Quads

Holton, Ind.	Versailles, Ind.
San Jacinto, Ind.	Reaville, Ind.
Catty Falls, Ind.	

Facility Boundary

Water Sources

- Perennial Streams
- Ephemeral Streams
- Lakes



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JPG is considered historically important due to its association with the events of World War II. As such, many of the buildings or structures associated with the World War II facility are considered to be potentially eligible for inclusion in the NRHP, and the treatment agreed upon in the BRAC PA will act to mitigate any loss resulting from transfer of their title into private ownership, planned demolition, or ruination through disuse. However, no JPG buildings, structures, or objects dating to the Cold War meet Criteria Consideration G for exceptional significance that is applied to resources less than 50 years in age and, as such, are considered ineligible.

Published sources (Bundy 1992; Leland et al. 1956) suggest that a Native American burial ground may exist on the installation (see Figure I-3). If present, the burial ground will be treated as stipulated under NAGPRA regulations. There are no known traditional cultural properties as defined by the NHPA at JPG (Hawkins and Walley 1995; Stafford et al. 1985; USACE 1991).

Other areas of sensitivity are those that contain the three stone monuments marking the Civil War trail followed by Confederate General John H. Morgan as his cavalry raided through Indiana in 1863; a parish cross; the reputed existence of the Sheppard Cemetery; and two sites (a cave and a house basement site) that were part of the Underground Railroad (see Figure I-3). The stone monuments, the parish cross, and the two sites associated with the Underground Railroad are included on a map of historic sites (JPG Draft 1155) prepared in 1988 (revised and approved 4/4/90) for the Office of the Director, Engineering Housing Management Division, JPG by Mr. Michael Moore who was Chief Data Analyst at the installation. NRHP eligibility evaluation of these resources remains to be completed.

F. Integration of Cultural Resources Management with Installation Mission

The management goals or missions of the JPG have reflected its past function as a munitions proving ground. The general mission of JPG was the production acceptance and specification testing of all types of ammunition, projectiles, propellants, cartridge cases, primers, fuses, boosters, bombs, and grenades. Subsequent to JPG closure, the Army's mission may also involve demolition and other undertakings that may seriously impact cultural resources.

As stipulated in the MOA regarding the current plan for base closure and to cease function, sell, or lease the land and/or buildings, the Army is responsible for the management of the cultural resources while under its control as directed by Federal law and regulations (see Appendix L). Therefore, the Army is responsible for the design and supervision of the undertakings that may impact significant cultural resources at the JPG. With the completion of the archeological inventory process, the Army will have a knowledge of site location and significance that will permit the consideration of historic properties as scheduled actions are undertaken. It is imperative to integrate cultural resources data into a centralized data base for all resources, and it is important that the appropriate Army management staff have access to the data base concerning the location and significance of the cultural resources for two critical reasons:

- with ready access to such a data base, Army activities may proceed with full knowledge of the location and significance of cultural resources; and
- Army projects and maintenance work may proceed without the delay caused by inadvertent discovery of unknown cultural resources or identification of a previously known historic property during work or through late coordination on cultural resources.

The end result will be the efficient fulfillment of Army tasks and responsibilities as well as the preservation of historic properties.

G. Confidentiality of Archeological Resources Information

It is important to recognize that sensitive locational information concerning historic properties can be protected under NHPA Section 304(a) and (b) [16 U.S.C. § 470w-3] and 43 CFR Part 7.18. Because archeological sites are susceptible to vandalism, the locations of archeological cultural resources may not be made known to the public or to Army personnel except on a need-to-know basis (AR 420-40, 4-8). Therefore, the Federal land manager—if deemed necessary—may not make available to the public, under these or any other provision of the law, information concerning the nature and location of any archeological resources.

II. INVENTORY

A. Documentation Standards and Methodology

1. Introduction

This chapter reviews the necessary components and procedures to complete the inventory of archeological cultural resources at the facility. The discussion begins with a review of the role of the historic context as it is applied in the inventory and evaluation process. When the identification of historic properties is undertaken as part of a comprehensive planning process, background research should be part of the development of a historic context. The historic context serves to organize information and identify the various types of resources of a particular period. A set of historic contexts typically provides the comprehensive summary of all selected aspects pertaining to the prehistory and history of a given area. Appendices F and G of this document provide overviews of the facility and are presented toward the development of prehistoric and preinstallation historic contexts.

After defining the historic context, a discussion of the procedures for completing an archeological inventory follows. The archeological inventory is first guided by the identification of sensitive areas or those locations likely to contain prehistoric and historic archeological sites. The text presents an outline of the sensitive areas identified on the facility and presents the appropriate procedures for conducting an archeological survey. Data recovered during survey and recording generally allow resources to be evaluated and placed into one of two NRHP classes: sites not eligible for inclusion; sites that are potentially eligible (i.e., of unknown status) for inclusion. Although based on survey-level data, a few sites may be placed into a third class restricted to sites that are determined eligible for inclusion in the NRHP. Potentially eligible properties require additional fieldwork to acquire sufficient data for definitive evaluation. Procedures for nomination of eligible resources to the NRHP are then presented.

The procedures used to complete an inventory of architectural properties are similar to those of an archeological inventory. Documentation of architectural resources may range from basic inventory cards suitable to complete a catalogue of existing buildings and structures to the creation of more complex, detailed, measured drawing and photographs. The architectural inventory and assessment of JFG buildings and structures have been completed. As management of architectural resources is somewhat different from archeological resources, a discussion appropriate to a particular type of action that may maintain, alter or demolish the resource is presented.

Following the methodology, the current data are presented for known and potential archeological sites, any Native American cultural items or traditional cultural use areas that may be present, and the architectural inventory of the facility. The remainder of the section discusses the NRHP criteria for evaluating cultural resources and the current status of those resources that are situated on the facility.

2. Historic Contexts

As defined by 36 CFR Part 800.2(e):

"Historic property" means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register. This term includes, for the purposes of these regulations, artifacts, records, and remains that are related to and located within such properties. The

term "eligible for inclusion in the National Register" includes both properties formally determined as such by the Secretary of the Interior and all other properties that meet National Register listing criteria.

The inventory and evaluation processes for archeological cultural resources, and the subsequent determination of those resources that are considered eligible for inclusion in the NRHP (i.e., historic properties), begin with archival or background research. As defined by the Secretary of the Interior's *Standards for Preservation Planning*, decisions about the identification, evaluation, nomination, and treatment of historic properties are best informed when the relationship of individual properties to other similar properties is understood. Information concerning archeology, history, architecture, and engineering must be gathered and organized to define these relationships. The resulting organizational framework is called a "historic context." Based on a theme, the historic context groups information about related historic properties within a limited geographic area and a specific chronological period. An important component of the historic context is the concept of the "property type" or the particular physical manifestation of the historic context, such as a particular type of archeological site. The property type consists of a group of related cultural resources that shares a common physical or temporal characteristic such as prehistoric villages of the late Woodland period or historic-era farmsteads.

3. Archeological Properties

a. Inventory Projects

Survey, documentation, and testing procedures constitute the inventory and evaluation phases for archeological resources. Generally, the methodology used to complete the inventory is an intensive survey of the project area. As a part of this phase, background archival work for the project area is conducted in order to better understand the local and regional history. In addition, intensive archival work is undertaken for historic period sites identified during the survey. The results of archival research will then be used to formulate a research design, with the objective of integrating research and project goals with field and laboratory methodology.

The combination of archival research, surface reconnaissance, and intensive survey efforts completed to date has established that the potential is high for the presence of significant historic and prehistoric period archeological sites within the boundaries of the JPG. Moreover, the facility may contain archeological resources nearly anywhere within the installation where sedimentary environments permit the preservation of cultural deposits. Approximately 21,619 acres of the JPG total 55,264 acreage remain to be examined for historic properties. The following survey methodology is proposed to complete the JPG historic property inventory based on the research completed to date.

b. The Cultural Resources Sensitivity Model

The cultural resources sensitivity model is designed to exclude a total area of 33,645 acres of the 55,264-acre facility:

- 28,800 acres of lands disturbed by the construction, use, and maintenance of the JPG (Figure II-1);
- 4,341 acres south of the Firing Line (including the cantonment area) surveyed by GMI during May and June 1995; as well as
- 504 acres previously surveyed for cultural resources north of the Firing Line.

Primary military features of the landscape consist of railroads, gravel and paved roads, fences, structures, buildings, and reservoirs. Related to these features are a variety of disturbed lands where the potential for

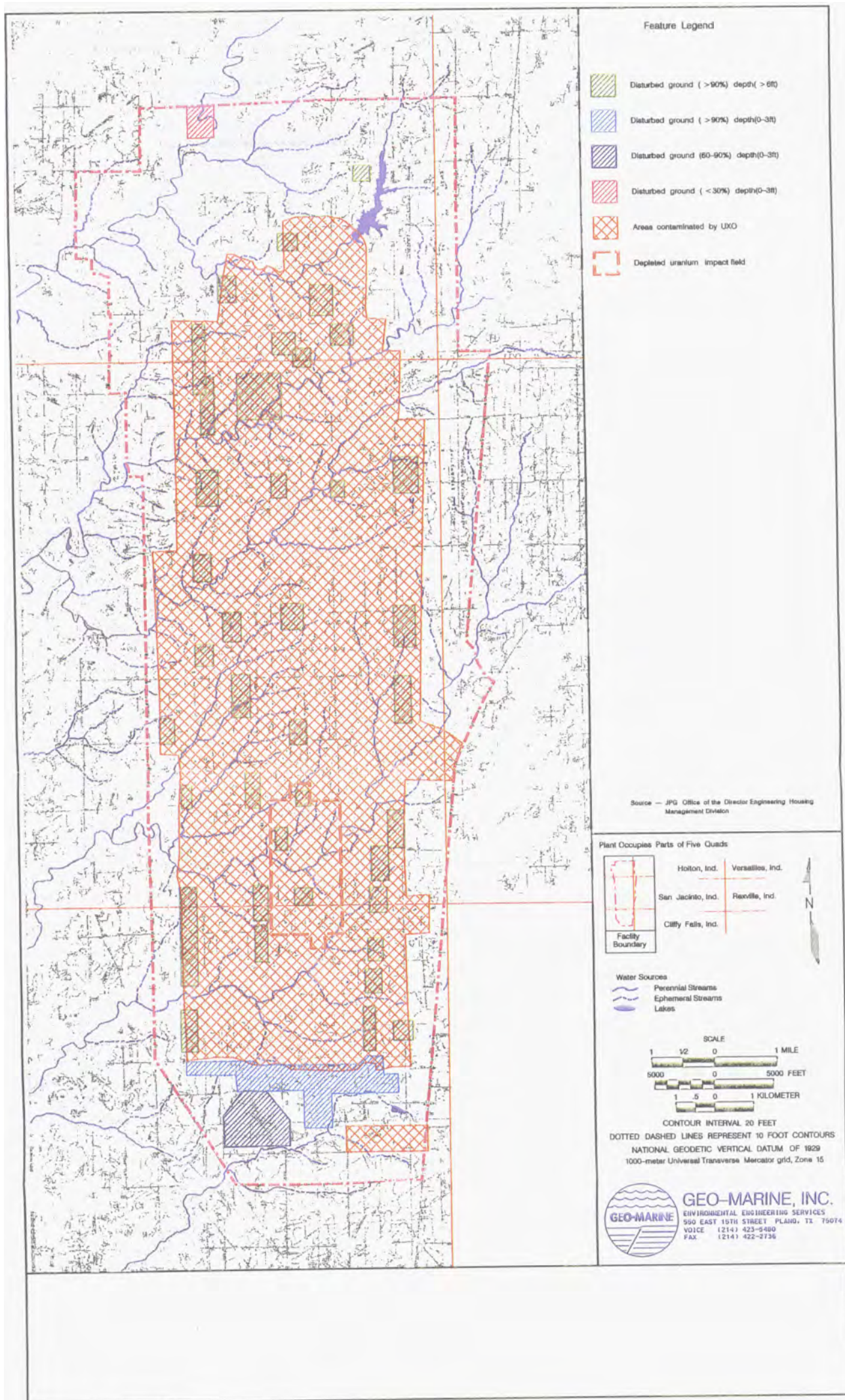


Figure II-1. Disturbed ground, JPG.

intact cultural resources is likely to be very low. JPG terrain excluded from the cultural resources sensitivity model was compiled from a variety of sources: various aerial photographs; data compiled by the office of the JPG environmental office; and maps from the U.S. Department of Agriculture, Soil Conservation Service. Excluded lands consist of lakes and ponds, as well as areas of erosion, areas containing concentrations of railroads, buildings and structures, and areas impacted by ordnance testing.

The sensitivity model prepared for prehistoric cultural resources is illustrated in Figure II-2. The determination for areas of high sensitivity for prehistoric cultural resources is based primarily on access to water, relatively level topography, and ridge crest locations. Areas expected to contain the highest density of prehistoric sites are within 500 meters of perennial streams. Areas of relatively level topography that occur near water sources, particularly those associated with stream confluences, were typically favored habitation areas for both short- and long-term camps and villages. Lower order ephemeral drainage areas and springs also provided water sources at different times and are considered to have a moderate to high potential for prehistoric sites. Ridge crests that maintain commanding views over the surrounding landscape are also likely to contain Archaic sites such as short-term hunting or extractive camps and isolated residences of the late Prehistoric period.

Low sensitivity areas for prehistoric cultural resources include those lands that do not have access to water, maintain moderate to steep slopes, and the lower order ephemeral drainages with minimal floodplains. Those areas that have not been disturbed but are beyond the limits of the high sensitivity areas have been designated as being of low sensitivity for prehistoric sites (see Figures II-1 and II-2).

The favored variables of initial frontier homestead siting during the eighteenth century were probably not altogether different from the aboriginal settlements, where well-drained soils and proximity to water and woodlot for building and fuel supplies were likely primary considerations. As the agricultural, market-oriented economy emerged subsequent to the early frontier period, however, the areas preferred for later historic settlement may have differed considerably from those deemed desirable by prehistoric populations because of the evolution of different lifeways of or cultural adaptations by Euro-American populations. Despite this apparent preference change by later Euro-Americans, it is anticipated that the earlier frontier settlements occurred within those areas designated as high sensitivity for prehistoric sites.

Partial records are available that document early JPG land grants. Consequently, it is known where some of the early homesteads were established. Information is needed to determine the particular variables of early farmstead siting beyond the assumptions that have been made and whether there were noticeable differences in settlement patterns. In other regions, preference for farmstead siting includes such issues as slope, drainage, water access, and soils (Louis Berger & Associates, Inc., 1990, 1991); protection from prevailing winds and view shed (Manning 1984); prevailing ethnic or local tradition (Allen 1852:29); and evolving property lines (Wacker 1975). Additional influences that may have been operative by the 1870s probably included access to the road network, as well as proximity to industrial centers consisting of grist mills, saw mills, potteries, warehouses, tanyards, and blacksmith shops.

Despite the fact that most areas of the installation have had only limited access during the last 50 years and virtually no development has taken place north of the Firing Line, there has been loss of potential archeological sites through construction of JPG and through impact areas from incendiary experiments north of the Firing Line. The creation of Old Timbers Lake and the resultant inundation of Little Otter Creek may have affected potential archeological sites. Historically documented site locations, from a body of local informants and historic maps, have been transposed onto modern maps using Intergraph, a Geographic Information System (GIS) software package (see Figures I-6 and I-7). It is expected that most of the historic sites that remain should fall within 200-500 feet of the specific projected locations.

c. Inventory Documentation Procedures

(1) Phase 1: Recommended Survey Methods

The present JPG landscape is primarily marked by forested areas and two small reservoirs. The JPG forested lands under long-term management total approximately 25,464 acres located along the perimeter fence of the installation and in the area south of the Firing Line (Figure II-3). Timber harvesting is based on timber stand improvement, where the most mature trees are removed. Wherever deemed necessary, undergrowth is cleared as pulp, and all areas are subject to periodic, selective harvesting. Timber sales are conducted every 15 to 18 months by the U.S. Army Corps of Engineers, Louisville District. Each sale results in the removal of 300,000 to 400,000 board feet of timber (USACE 1991: 3-29). Archeological surveys have been conducted on approximately 4,800 acres of the timber management areas. When timbering is to take place in previously unsurveyed and undisturbed areas, cultural resources survey, including shovel testing to locate potential sites, should be employed.

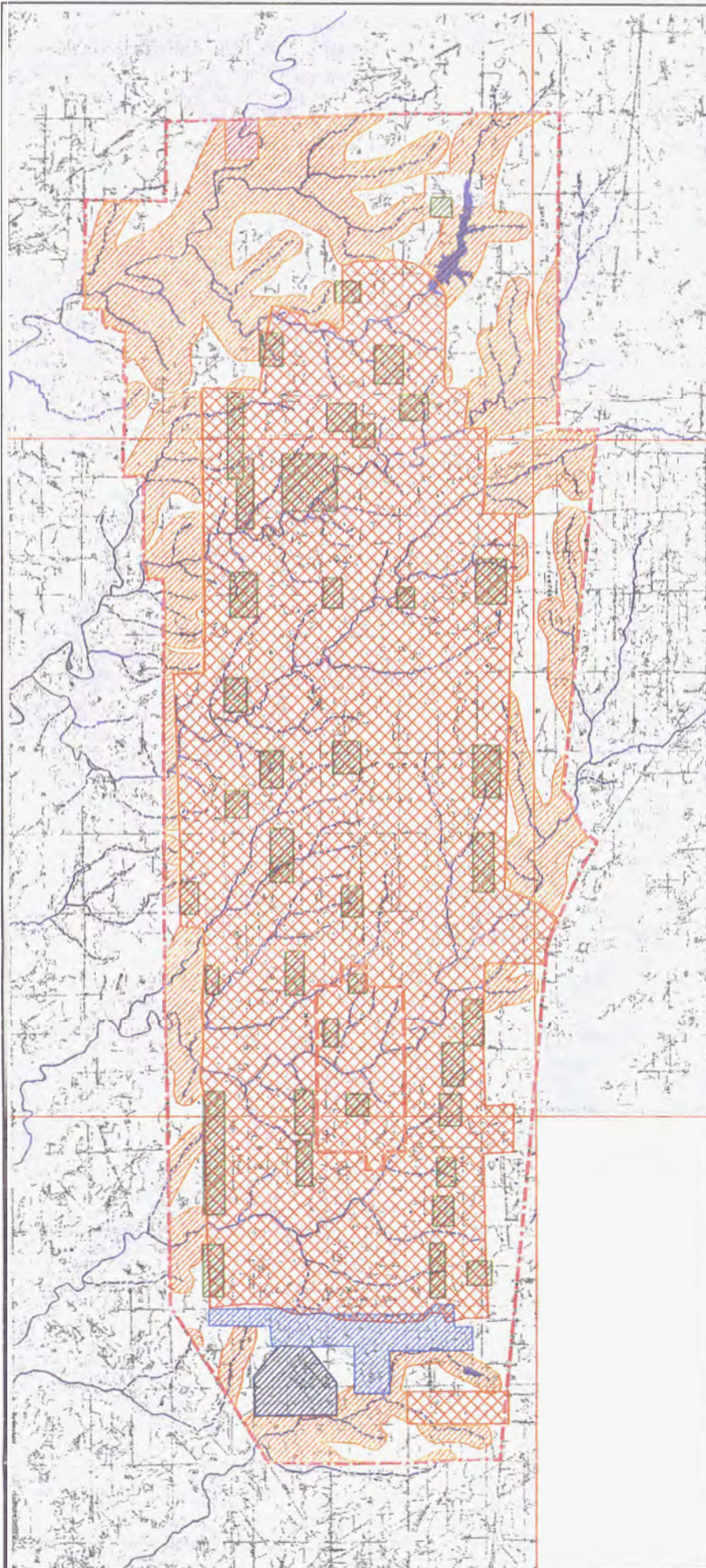
The Indiana SHPO guidelines do not advocate any particular survey method or minimum spacing between pedestrian or subsurface inspection. Survey methods, in general, should involve systematic transects at regular intervals, with shovel tests excavated at interval appropriate for the landform and its potential to contain sites. The following is a suggested survey methodology to follow for archeological survey of the installations, after consultation with the Indiana SHPO.

- Survey requires an examination using shovel tests. Survey transects should be at a maximum of 20-m intervals and individual shovel tests should be established at no more than 30-m intervals. Selective shovel testing should be conducted on specific landforms such as stream terraces, spring heads, or other areas of high cultural resources sensitivity (see Figures II-2 and II-3).
- Within low-site-potential areas, survey transects may be spaced at greater distances (30 m) and shovel tests placed judgmentally. This selective shovel testing should be tailored to the landscape as necessary.
- Areas exhibiting greater than 15 percent slope should merely be traversed in order to locate benches that may have been optimal places for camp sites.

The potential for deeply buried cultural deposits in the floodplains, in which streams have meandered and which have been subjected to frequent flooding for long periods of time, could result in a variety of buried components on buried stream terraces.

- It should be stressed that the potential for deeply buried cultural deposits in the floodplain is very high. Therefore, it appears likely that a variety of additional deeply buried cultural components may be present along the lower river terraces. However, unless a planned action will result in direct or secondary impacts to deeply buried floodplain deposits, general survey operations should limit investigations (through shovel tests of 50-x-50 cm by .8 m [depth]) to the upper 80 cm in those settings. Planned impact to deeply buried deposits will be preceded by cultural resources management investigations that incorporate the use of earth-moving equipment (backhoe, gradall, or trackhoe) and/or a coring program to identify artifact-bearing deposits and stratigraphy prior to evaluation or Phase 2 activities. Any deep sampling must consider the Occupational, Safety, and Health Administration (OSHA) regulations for appropriate shoring or terracing requirements.

If artifacts are located on the surface or in a shovel test, immediate investigation must continue in order to determine whether this area represents an isolated find or a site.



Feature Legend

-  Disturbed ground (>90% depth(> 6ft)
-  Disturbed ground (>90% depth(0-3ft)
-  Disturbed ground (60-90% depth(0-3ft)
-  Disturbed ground (<30% depth(0-3ft)
-  Areas contaminated by UXO
-  Depleted uranium impact field
-  Low potential for prehistoric cultural resources (all non-patterned area within facility boundary)
-  Areas with high potential for prehistoric cultural resources

Source — JGC Office of the Director Engineering/Housing Management Division

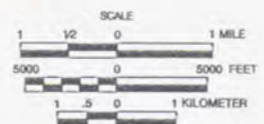
Plant Occupies Parts of Five Quads

	Holton, Ind.	Versailles, Ind.
	San Jacinto, Ind.	Rawville, Ind.
	Catty Falls, Ind.	
		

Facility Boundary

Water Sources

-  Perennial Streams
-  Epithermal Streams
-  Lakes



CONTOUR INTERVAL 20 FEET
 DOTTED DASHED LINES REPRESENT 10 FOOT CONTOURS
 NATIONAL GEODETIC VERTICAL DATUM OF 1929
 1000-meter Universal Transverse Mercator grid, Zone 15



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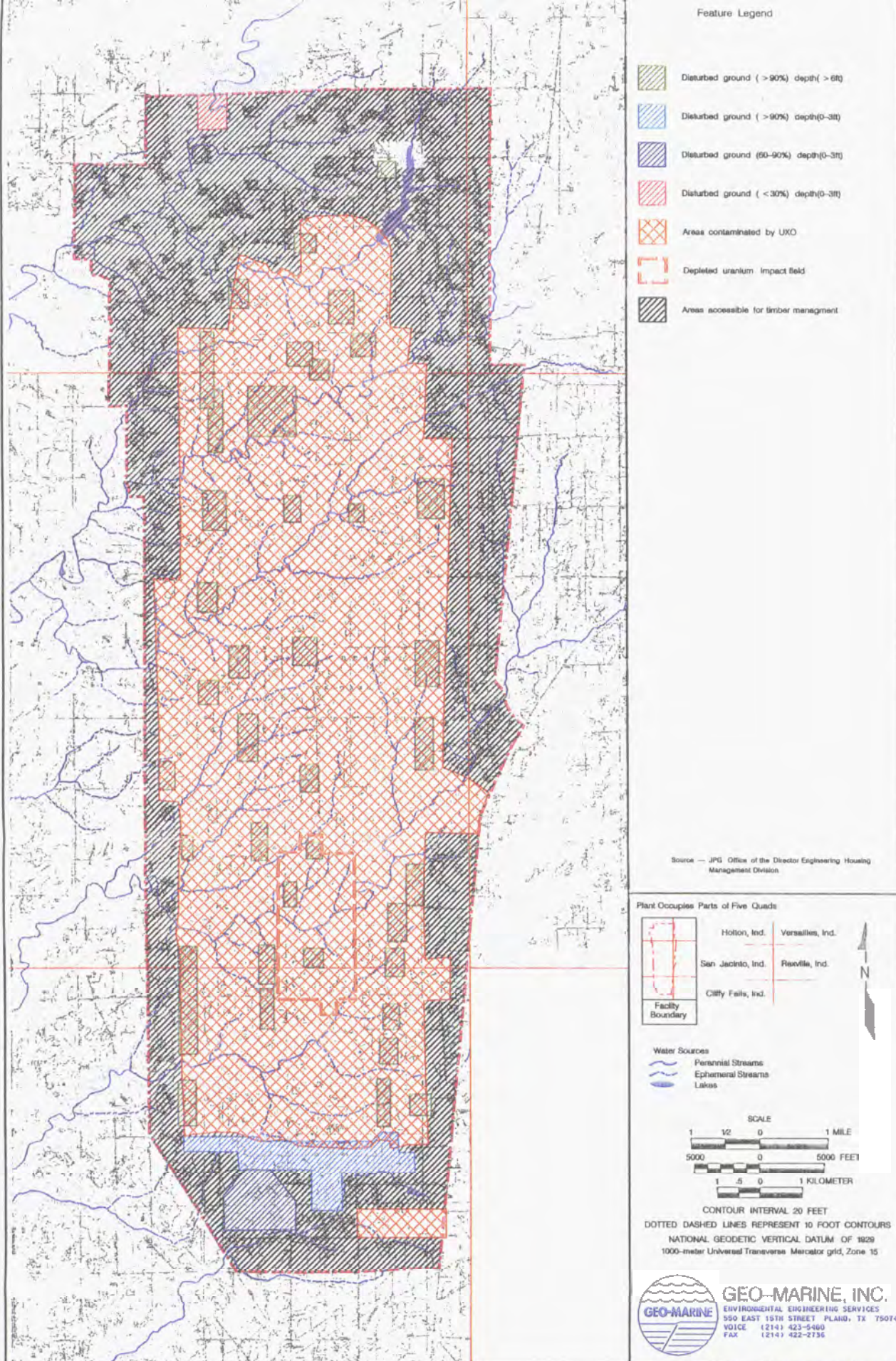


Figure II-3. Areas accessible for timber management, JPG.

- Shovel tests—with minimal dimensions of 30-x-30 cm and 30 cm in depth—are excavated in the vicinity of the original find to help with the site/locality and site area determinations.
- The soil from all shovel tests should be sieved through 6.4-mm (¼-in) mesh hardware cloth.
- If the remains are found to constitute a site, the tests will aid in broadly defining the horizontal and vertical extent of the cultural deposits, as well as in determining whether subsurface deposits remain intact.
- A scaled pace-and-compass topographic sketch map of each site is to be drawn.
- *It is important for the survey to provide general dimensions of each site (vertical and horizontal) and to record the general configuration of the site by indicating the boundaries on project maps.*

When an archeological site is found during a survey, a surface collection of selected diagnostic artifacts may be made. The collection strategy, as well as the type and quantity of artifacts collected, will depend on the size of the site, the number and diversity of artifacts, environmental constraints, and the timetable of the project. Spatial control, with appropriate written descriptions and maps, is required of all surface collections. If artifacts are observed but not collected, frequencies per square meter should be estimated and materials should be photographed or described.

Descriptions of each shovel test should be recorded in addition to the other documentation of the site area; this documentation should include the completion of an appropriate state archeological site survey form; the plotting of the site position on a U.S. Geological Survey (USGS) 7.5-minute topographic map; the drawing of a scaled pace-and-compass, topographic sketch map; and photographs from at least two viewpoints. Sites must be recorded on the State of Indiana site forms and submitted to the Indiana SHPO. A temporary marker is placed at each site bearing the date of the site recording and the site field number, or permanent state number if known.

(2) Phase 2: Site Testing and Evaluation for NRHP Eligibility

A testing phase for an archeological resource is required when a definitive determination of NRHP eligibility cannot be made from survey-level data. The testing phase may serve other purposes. For example, test excavations are often necessary for obtaining a data base for specific research purposes. Procedures used in the testing phase produce a more accurate and extensive data set than is possible during survey. If human remains are encountered during any undertaking, non-Native American remains are assessed as any other resource, with significance and historic association completed. If the human remains are of Native American affiliation, then NAGPRA [P.L.101-601] will apply. NAGPRA, however, is not part of the Section 106 process.

After the inventory and preliminary evaluation phase has been completed, further evaluation of the potentially eligible properties may be necessary.

- If at all possible, the site should be protected from any further damage from construction or vandalism.
- It is recommended that such sites be left for future investigation as innovative techniques for gathering more and better data are consistently being developed.
- Should the military mission override the consideration to avoid or protect the site or if the site is in danger of destruction through natural processes, a site-specific mitigation plan should be developed in order to recover as much information as possible.

Excavation of the site should be designed to answer specific research questions pertinent to the region as a whole as well as general regional concerns. However, the techniques and documentation used should be designed in such a way that the information recovered could also be used to help address research questions that may be generated in the future.

- During Phase 2, or test excavation, a transit and tape or other mapping equipment are to be used to map the site, establish a grid, locate excavation units, and maintain vertical and horizontal control.
- Larger units are excavated with greater control.
 - * A large number of relatively small units, specifically 50-x-50-cm squares, may be used to more accurately delineate the components and rapidly collect data on the spatial extent and depth of cultural deposits.
 - * Using this information, a limited number of larger units (e.g., 50-x-100-cm, 1-x-1-m, or larger) should be placed in areas of higher artifact density, greater depth, suspected features, etc., in order to increase artifact samples and collect additional data on horizontal and vertical stratigraphy, site context, physical integrity, and preservation potential. Since a larger unit is used, deeper excavations are possible and more information on soil horizons/strata, disturbance within deposits, and relative positions of artifacts within the deposits can be gathered.
 - * All of these units should be excavated in cultural strata or arbitrary 5-cm and/or 10-cm levels, with the sediments processed through 6.4-mm (¼-in) mesh hardware cloth.
 - * Documentation of each level of each unit (provenience) is essential. Artifacts should be carefully inventoried so that the test units can be reconstructed at a later time in the laboratory.
 - * In cases of historic farmsteads, machine trenching may be used to expose larger or deeper soil profiles. These trenches are particularly valuable for understanding how the stratigraphy encountered in isolated test units articulates with others across the site and to provide a rapid means of examining selected soil strata.
 - * For deeply stratified prehistoric sites where artifact-bearing deposits occur below a depth of one meter, larger test units (i.e., 1-x-2 m) are recommended, with maximum provenience never exceeding one square meter. In particularly large prehistoric sites with extensive deposits, or smaller sites with deeply buried cultural deposits, limited backhoe trenching may be appropriate. Any deep testing must consider the OSHA regulations for appropriate shoring or terracing requirements.

(3) Phase 3: Data Recovery as a Mitigation Measure for NRHP-Eligible Sites

Excavation strategies for data recovery must be based on site specific characteristics and must be developed on a case-by-case basis. The methodologies to be employed in both field and laboratory settings, as well as their rationale and the use of information obtained in problem-oriented management models, must be reviewed by the SHPO and other professionals.

The initial step for the mitigation of cultural resources is the development of a historic context or a research design (i.e., a summary of the available information and a statement of research objectives and methodology). A mitigation plan is developed when it is determined that mitigation of an adverse effect by some form of data recovery is necessary. These documents:

- identify the overall and specific project goals,
- list the methods and techniques needed to attain these goals,
- provide a focus for the work to progress, and
- address specific research questions pertinent to the region.

Formal research designs for the prehistoric and historic eras of the JPG remain to be completed for the facility. Mitigation plans will vary from situation to situation according to the level of documentation defined in the scope of work for the project.

Mitigation of archeological properties can take many forms depending upon the amount and area of the site to be destroyed, the depth of the deposits, the type of site involved, and the type of disturbance planned for the area.

- On sites with features exposed on the surface or historic sites with permanent surface features that may provide clues to the site size and function, large blocks of units may be placed in order to gather data on those features and their associated cultural deposits.
- On sites where structures are not revealed by surface artifact or feature distributions, test excavation units should be systematically placed across the site so that intrasite variability of artifacts and features may be examined. The interval between units on this systematic grid will vary according to the size and complexity of the site.
- In areas where disturbance will only claim a portion of the site, excavation in that portion may be complete if the area is small. If the area is large, excavation blocks will be focused on those areas that provide the best contextual integrity related to specific occupational episodes or cultural components. Since portions of the site will remain intact, the mitigation plan for this type of situation can define specific questions regarding the occupation of the excavated portion of the site because future questions can be answered at a later time with excavations in other portions.
- In areas where site deposits are buried, mitigation plans involving heavy machinery for the removal of overburden may be developed. This type of excavation is usually restricted in scope by its very nature. Removing overburden and sampling stratified living surfaces consumes time and money and usually exposes only a small portion of the area to be investigated.
- Avoidance or protection of deeply buried sites is usually possible and should be considered the best alternative.

A specific data recovery plan should be developed in consultation with the SHPO. Such recovery plans should be developed with appropriate research designs and consideration of the Secretary's *Guidelines for Historic Preservation Projects: Professional Qualifications Standards* [48 FR 44716-44740] and 36 CFR Part 60. If the Army and the SHPO cannot reach agreement concerning the data recovery plan, ACHP comment may be solicited as a means of resolving the disagreement.

If necessary, prior to commencement of fieldwork, the project principal investigator, key field and laboratory personnel, and the cultural resources representative for the facility will meet with a representative of the SHPO in order to ensure a proper understanding of the project goals and objectives and to coordinate data recovery efforts. Native American coordination pursuant to NAGPRA is recommended as well.

Project requirements as well as requirements for personnel involved in an excavation are stipulated by standards established by the Secretary of the Interior and specified in 36 CFR 61.

- As a minimum requirement, Principal Investigators (PIs) must have acquired a graduate degree and should have at least one year of full-time professional experience or equivalent specialized training in archeological research, administration, or management.
- The PI must develop a research design encompassing past work in the region with pertinent research questions to be answered by the excavation.
- The profiles of all larger test units should be drawn and described, and the investigation should include an in-depth investigation of the stratigraphy and site formational processes.
- The purpose of the excavation should be to add to the information already gathered in the area and attempt to answer questions that have arisen from other excavations in the region.
- The excavation should produce an ordered body of data readily usable not just by the PI but by anyone else interested in studying the information in the future.
- Initial laboratory work (cleaning artifacts, fine screening samples, etc.) should be recorded in an accompanying notebook to be used in conjunction with the field documentation so that materials recovered in the field retain the associations they had when taken out of the ground.

- Extensive notes on the types of analysis and definitions and procedures used must be maintained.
- When analysis is completed, the PI may disseminate the information to other researchers through a professional-quality report, conference presentations, and professional journals.

Dissemination of information about the project to the public may be accomplished through distribution of a popular version of the final technical report to area libraries, video media, or public displays. If the dissemination of such information is intended, it must be planned for in the original scope of work at the time of initial project planning.

d. Curation of Data Obtained through Archeological Investigations

Data such as maps, notes, labeled artifacts, etc., obtained during archeological inventory, survey, and excavation projects will be curated in a *federally approved institution per 36 CFR Part 79*. The cultural remains recovered from the facility will require a curation agreement with an appropriate facility to preserve records and materials to be made available to researchers in the future.

e. Nominations to the NRHP

One of the responsibilities of the Federal agency under Section 110 of NHPA, as amended through 1992, is that

- the agency, with the advice of the Secretary and in cooperation with the SHPO, shall establish a program to locate, inventory, and nominate to the Secretary all properties under the agency's ownership or control that qualify for inclusion in the NRHP.

Following the completion of the inventory procedures outlined within this document, those resources judged to be eligible for inclusion in the NRHP (i.e., historic properties) may be formally nominated.

- Formal nomination of a historic property does not preclude the property's protection. Sites determined eligible are afforded the same "treatment" and protection under the law as are those sites *formally listed on the NRHP*.

AR 420-40 specifies that the Army will nominate historic properties through command channels to the National Park Service. INT Form NPS 10-900a (NRHP Inventory Nomination Form) and INT Form NPS 10-900b (Continuation) will be used for nominations. Nominations include, among other information, an explicit statement of significance that identifies the relationship of the site to the broader historical, architectural, archeological, or cultural context that has been established by the state.

4. Architectural Properties

Survey, inventory, and documentation of all architectural resources at JPG have been completed. The evaluation process was begun in 1984 by BTI and completed in 1995 in conjunction with the development of this CRMP. The following section presents methods of documentation to be undertaken in cases of impacts to NRHP-eligible architectural resources.

a. Future Construction Projects for NRHP-Eligible Properties

(1) Alterations, Additions and Demolitions

Substantive modifications to NRHP-eligible properties typically are determined to be adverse effects under Section 106 of the NHPA. As a result, an appropriate level and kind of mitigation are required to offset the effects before alterations and additions to the buildings are allowed. Modifications are considered substantive if they change character-defining features or qualities of a property. Negotiated mitigation for a determination of adverse effect is governed by an MOA and typically focuses on an appropriate level of Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) or similar type documentation.

HABS standards for architectural properties are set forth in the Secretary's *Standards for Historic Documentation* [48 FR 44728-44730] and involve various levels of documentation. For engineering structures, such as bridges and dams, HAER documentation parallels that of HABS. Buildings and structures with intact machinery and equipment contributing to NRHP significance may require documentation to HAER standards.

- Such documentation may include drawings and large format archival photography. A written descriptive and historical narrative as well as negotiated documentation photography of some type are always included.
- Requirements and standards for HABS/HAER and similar documentation are rigorous, but are tailored to the resource and the conditions surrounding it.
- The level of documentation is dependent on the extent of historic documentation already existing in the form of archival materials and drawings, the extent of alteration of the building (including demolition), and the importance of the building.

Guidance documents for HABS/HAER documentation include *Photographic Specifications*, *Guidelines for Preparing Written Historical and Descriptive Data*, and *Transmitting Documentation to HABS/HAER*. These documents are updated regularly and are often tailored by regional NPS offices independent of one another. An excellent reference manual for HABS/HAER documentation, and its oversight, is *Recording Historic Structures*, published in 1989 by the American Institute of Architects. General HABS/HAER directives are also summarized within 48 FR 44716-44740, subsection 44730-44734, Secretary's *Standards and Guidelines for Architectural and Engineering Documentation*.

Alternatives to HABS/HAER documentation may include a redesign of planned alterations or additions to achieve determinations of no effect or no adverse effect for construction projects. HABS/HAER documentation may sometimes also be negotiated at lesser levels of recording in conjunction with limited project redesign to support determinations of no adverse effect. Demolition of NRHP-eligible buildings nearly always is considered to have an adverse effect on historic properties, and typically will necessitate full-scale HABS/HAER documentation negotiated with appropriate NPS staff.

(2) Maintenance, Repair, Rehabilitation, and Restoration

Any maintenance, repair, rehabilitation, or restoration project for NRHP-eligible properties should routinely address the following concerns.

- *Procedures and Management*—All projects involving NRHP-eligible properties require assessment, administrative review, and coordination. Assessment should be made by a technically qualified professional with experience in historic architecture; administrative review should be accomplished

with full knowledge of applicable regulations and requirements for compliance with applicable PAs and/or MOAs; coordination should be thorough and involve all interested parties.

- *Field Assessment Procedures*—Field assessment of eligible or potentially eligible buildings that are subject to intervention should be comprehensive and coordinated with proposed modification plans and review of appropriate documents. Field assessment should be guided by a standardized maintenance and repair checklist, and annual report form to achieve consistency among building records. Field assessment should be performed by a qualified professional architect or engineer with experience in historic preservation.
- *Professional Qualifications*—Field assessment and evaluation of proposed intervention to NRHP-eligible buildings should be conducted by a qualified professional who meets the professional qualification standards for history and historic architecture as defined in 48 FR 44738-44739.
- *Rehabilitation Standards*—Projects involving physical changes to NRHP-eligible and NRHP-listed buildings and structures should make every attempt to incorporate the Secretary's *Standards for Rehabilitation* into the renovation, rehabilitation, or restoration process. In particular, the 10 standards guiding the philosophy of treatment for historic properties, as revised in 1992, should be followed.
- *Record Keeping*—Organized record keeping is essential to the efficient maintenance and repair of historic structures and to achieve compliance with applicable regulations. Each structure should have a building file used by those in management positions who have authority for maintenance and repair activities. The file should include historical archival materials, original construction documents and photographs, maintenance records, and HABS Level IV documentation and/or inventory sheets. Files should be reviewed prior to and in conjunction with maintenance, repair, and development activities.
- *Review of Hazardous Materials Survey*—All work involving eligible buildings should include a review of hazardous materials, particularly asbestos-containing and lead-based materials such as paints, coatings, pipes, and fittings. Repair or replacement of original historic building fabric may involve mitigation of hazardous materials.

b. Lease or Sale of NRHP-Eligible Buildings

The lease or sale of buildings identified as listed on or eligible for inclusion in the NRHP may require historic preservation covenants legally attached to their transfer. The covenants encourage the preservation of the architectural integrity of the given resources. Such covenants typically reference the Secretary of the Interior's Standards for Rehabilitation. An MOA between the DA, the ACHP, and the Indiana SHPO concerning the closure of Jefferson Proving Ground dictates general resolutions concerning disposal of buildings and structures (see Appendix M).

B. Current Inventory of Cultural Resources

1. Archeological Resources

a. Recorded Sites

To date, 153 archeological sites have been recorded at JPG (Table II-1). These recorded sites can be subdivided on the basis of temporal association:

- 74 prehistoric period sites,
- 55 historic sites (including 16 originally identified through archival sources), and

Table II-1
Preinstallation-Era Cultural Resources Recorded at the Jefferson Proving Ground

Site #/ Temporary Site #	Site Description	Temporal Affiliation	NRHP Eligibility	Recommendation	Recorder(s)/ Date recorded
12Je367	Isolated find	Unknown prehistoric	Ineligible	No further work	Anslinger 1993
12Je368/ Vestal site	Historic artifacts	20th century	Ineligible	No further work	Anslinger 1993
12Je369	Prehistoric isolated find; Historic artifacts	Unknown prehistoric; Unknown historic	Ineligible	No further work	Anslinger 1993
12Je380	Historic artifacts	Late 19th/mid-20th century house site	Ineligible	No further work	Largent 1996
12Je381	Concrete foundations, historic artifacts	Late 19th/mid-20th century farmstead	Ineligible	No further work	Largent 1996
12Je382**	Concrete foundation, cistern, septic tank, and historic artifacts	Late 19th/mid-20th century farmstead	Ineligible	No further work	Stafford et al. 1985/ Largent 1996
12Je383	Fence line, limestone wall, and watering hole	Late 19th/mid-20th century farmstead?	Ineligible	No further work	Largent 1996
12Je384	Remains of concrete foundation and historic artifacts	Late 19th/mid-20th century farmstead	Ineligible	No further work	Largent 1996
12Je385	Farm implement parts and other historic artifacts	Late 19th/mid-20th century trash dump	Ineligible	No further work	Largent 1996
12Je386*	Bricks, concrete, and ornamental grasses and trees	Late 19th/mid-20th century historic unknown	Ineligible	No further work	Stafford et al. 1985/ Largent 1996
12Je387	Concrete slab foundation and historic artifacts	Late 19th/mid-20th century farmstead	Ineligible	No further work	Largent 1996
12Je388	Cistern, building material, and historic artifacts	Late 19th/mid-20th century farmstead or rural residence	Ineligible	No further work	Largent 1996
12Je389*	Foundation, wells, and historic artifacts	Late 19th/mid-20th century farmstead	Ineligible	No further work	Stafford et al. 1985/ Largent 1996
12Je390	Historic artifacts	Late 19th/mid-20th century trash dump	Ineligible	No further work	Largent 1996
12Je391	Pre-WWII automobile bodies; water heater	early 20th century trash dump	Ineligible	No further work	Largent 1996
12Je392*	Foundation?, building material, well, and other historic artifacts	Late 19th/mid-20th century farmstead?	Ineligible	No further work	Stafford et al. 1985/ Largent 1996
12Je393*	Foundations, windmill base, well, and historic artifacts	Late 19th/mid-20th century farmstead	Ineligible	No further work	Stafford et al. 1985/ Largent 1996

Table II-1
Preinstallation-Era Cultural Resources Recorded at the Jefferson Proving Ground

Site #/ Temporary Site #	Site Description	Temporal Affiliation	NRHP Eligibility	Recommendation	Recorder(s)/ Date recorded
12Je394	Building material and other historic artifacts	Late 19th/mid-20th century historic unknown	Ineligible	No further work	Largent 1996
12Je395*	Building material and other historic artifacts	Late 19th/mid-20th century historic farmstead or rural residence	Ineligible	No further work	Stafford et al. 1985/ Largent 1996
12Je396*	Limestone-lined cellar hole and well	Late 19th/mid-20th century farmstead or rural residence	Ineligible	No further work	Stafford et al. 1985/ Largent 1996
12Je397	Nails, whiteware, brick, historic well; lithic scatter	Unknown prehistoric; Late 19th/mid-20th century historic well	Ineligible	No further work	Largent 1996
12Je398	Structure, cellar hole, refuse hole, historic artifacts	Late 19th/mid-20th century farmstead	Ineligible	No further work	Largent 1996
12Je399	Lithic scatter, charcoal	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je400**	Foundation, historic artifacts	Late 19th/mid-20th century rural residence	Ineligible	No further work	Stafford et al. 1985/ Largent 1996
12Je401**	Building material, remnants of a structure, historic artifacts	Late 19th/mid-20th century farmstead	Unknown	Preservation through avoidance	Stafford et al. 1985/ Largent 1996
12Je402	Prehistoric artifact scatter; Historic artifact scatter	Unknown prehistoric; Historic	Ineligible	No further work	Largent 1996
12Je403	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je404	Lithic scatter; Historic artifacts	Unknown prehistoric; Historic	Unknown	Preservation through avoidance	Largent 1996
12Je405	Isolated find	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je406	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je407	Lithic scatter; modern construction debris	Unknown prehistoric; Historic	Ineligible	No further work	Largent 1996
12Je408	Isolated find	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je409	Lithic scatter	Archaic?	Ineligible	No further work	Largent 1996
12Je410	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je411	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je412	Isolated find	Unknown prehistoric	Ineligible	No further work	Largent 1996

Table II-1
Preinstallation-Era Cultural Resources Recorded at the Jefferson Proving Ground

Site #/ Temporary Site #	Site Description	Temporal Affiliation	NRHP Eligibility	Recommendation	Recorder(s)/ Date recorded
12Je413*	Prehistoric isolated find; Historic building material and artifacts	Unknown prehistoric; Late 19th/mid-20th century farmstead or rural residence	Ineligible	No further work	Stafford et al. 1985/ Largent 1996
12Je414	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je415	Prehistoric isolated find; two historic glass fragments	Unknown prehistoric; Unknown historic	Ineligible	No further work	Largent 1996
12Je416	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je417	Lithic scatter; one historic glass fragment	Unknown prehistoric; Unknown historic	Unknown	Preservation through avoidance	Largent 1996
12Je418*	Lithic scatter; Historic-era building material, well feature, artifacts	Unknown prehistoric; Late 19th/mid-20th century farmstead or rural residence	Unknown	Preservation through avoidance	Stafford et al. 1985/ Largent 1996
12Je419	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je420	Lithic scatter; Historic glass fragments	Unknown prehistoric; Unknown historic	Ineligible	No further work	Largent 1996
12Je421	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je422	Isolated find	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je423*	Building material, metal objects, other historic artifacts	Late 19th/mid-20th century farmstead or rural residence	Ineligible	No further work	Stafford et al. 1985/ Largent 1996
12Je424	Brick fragment, bone fragment	Late 19th/mid-20th century	Ineligible	No further work	Largent 1996
12Je425	Brick fragment	Late 19th/mid-20th century	Ineligible	No further work	Largent 1996
12Je426	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je427*	Remains of a structure, well, historic artifacts	Late 19th/mid-20th century	Ineligible	No further work	Stafford et al. 1985/ Largent 1996
12Je428*	Concrete wall remnant, well, historic artifacts	Late 19th/mid-20th century farmstead or rural residence	Ineligible	No further work	Stafford et al. 1985/ Largent 1996
12Je429	Isolated find	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je430	One whiteware fragment	Late 19th/mid-20th century	Ineligible	No further work	Largent 1996
12Je431	Four corroded metal objects	Late 19th / late 20th century	Ineligible	No further work	Largent 1996
12Je432	Historic trash scatter	Late 19th / late 20th century	Ineligible	No further work	Largent 1996

Table II-1
Preinstallation-Era Cultural Resources Recorded at the Jefferson Proving Ground

Site #/ Temporary Site #	Site Description	Temporal Affiliation	NRHP Eligibility	Recommendation	Recorder(s)/ Date recorded
12Je433	Historic trash scatter	Late 19th / late 20th century	Ineligible	No further work	Largent 1996
12Je434	Historic trash scatter	Late 19th/mid-20th century	Ineligible	No further work	Largent 1996
12Je435	Historic brownware fragment	Late 19th / late 20th century	Ineligible	No further work	Largent 1996
12Je436	Salt-glazeware stone fragment	Late 19th / late 20th century	Ineligible	No further work	Largent 1996
12Je437	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je438	Historic metal fragments	Unknown historic	Ineligible	No further work	Largent 1996
12Je439	Prehistoric isolated find; one nail	Unknown prehistoric; historic	Ineligible	No further work	Largent 1996
12Je440	Two prehistoric flakes; one whiteware fragment	Unknown prehistoric; Historic	Ineligible	No further work	Largent 1996
12Je441	Three historic metal fragments	Late 19th / late 20th century	Ineligible	No further work	Largent 1996
12Je442	One nail	Late 19th / 20th century	Ineligible	No further work	Largent 1996
12Je443	Isolated find	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je444	Historic artifacts	Late 19th / late 20th century	Ineligible	No further work	Largent 1996
12Je445*	Historic metal, wells, foundations, historic artifacts	Late 19th/mid-20th century farmstead	Ineligible	No further work	Stafford et al. 1985/ Largent 1996
12Je446	Two flakes	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je447	Isolated find	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je448	Flake, fire-cracked rock	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je449*	Historic artifacts scatter	Late 19th/mid-20th century	Ineligible	No further work	Stafford et al. 1985/ Largent 1996
12Je450 Harlow's General store	Concrete foundation slab, window glass, asbestos, rusted metal	Late 19th/mid-20th century business	Ineligible	No further work	Largent 1996
12Je451	Foundation, well, historic artifacts	Late 19th/mid-20th century farmstead or rural residence	Ineligible	No further work	Largent 1996
12Je452	Historic artifact scatter	Early / mid-20th century trash dump	Ineligible	No further work	Largent 1996

Table II-1
Preinstallation-Era Cultural Resources Recorded at the Jefferson Proving Ground

Site #/ Temporary Site #	Site Description	Temporal Affiliation	NRHP Eligibility	Recommendation	Recorder(s)/ Date recorded
12Je453	Historic artifact scatter	Mid-20th century	Ineligible	No further work	Largent 1996
12Je454	Historic artifact scatter	Late 19th/mid-20th century trash dump	Ineligible	No further work	Largent 1996
12Je455	Historic artifact scatter	Mid-20th century	Ineligible	No further work	Largent 1996
12Je456	Lithic scatter	Unknown prehistoric	Unknown	Preservation through avoidance	Largent 1996
12Je457	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je458	Lithic scatter	Unknown prehistoric	Unknown	Preservation through avoidance	Largent 1996
12Je459*	Lithic scatter; Historic foundation, concrete pole barn piers, historic artifacts, well	Unknown prehistoric; Late 19th/mid-20th century farmstead;	Ineligible	No further work	Stafford et al. 1985/ Largent 1996
12Je460	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je461	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je462*	Prehistoric artifacts; historic foundation, well, windmill base;	Unknown prehistoric; Late 19th/mid-20th century farmstead	Ineligible	No further work	Stafford et al. 1985/ Largent 1996
12Je463 Nicklaus Vegetable Cannery	Foundation, wire, ornamental flower concentration	Late 19th/mid-20th century commercial/industrial site	Ineligible	No further work	Largent 1996
12Je464	Construction material dump	Historic unknown	Ineligible	No further work	Largent 1996
12Je465	Cellar hole, historic artifacts	Late 19th / 20th century rural residence	Ineligible	No further work	Largent 1996
12Je466	Lithic flake; foundation, concrete windmill base, historic artifacts	Unknown prehistoric; Late 19th/mid-20th century farmstead or rural residence	Ineligible	No further work	Largent 1996
12Je467	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je468	Lithic scatter; historic artifact scatter	Unknown prehistoric; Unknown historic	Ineligible	No further work	Largent 1996
12Je469	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je470	Lithic scatter	Unknown prehistoric	Unknown	Preservation through avoidance	Largent 1996

Table II-1
Preinstallation-Era Cultural Resources Recorded at the Jefferson Proving Ground

Site #/ Temporary Site #	Site Description	Temporal Affiliation	NRHP Eligibility	Recommendation	Recorder(s)/ Date recorded
12Je471	Lithic scatter; Historic isolated find	Unknown prehistoric; Historic	Unknown	Preservation through avoidance	Largent 1996
12Je472	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je473*	Lithic scatter; Historic artifact scatter	Unknown prehistoric; Late 19th/mid-20th century trash dump (purported original location of the historic Bayless cemetery)	Unknown	Preservation of prehistoric component through avoidance	Largent 1996
12Je474	Two flakes	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je475*	Historic artifact scatter	Late 19th/mid-20th century	Ineligible	No further work	Stafford et al. 1985/ Largent 1996
12Je476	Lithic scatter; Historic artifact scatter	Unknown prehistoric; Late 19th/mid-20th century;	Ineligible	No further work	Largent 1996
12Je477	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je478	Lithic scatter	Unknown prehistoric	Unknown	Preservation through avoidance	Largent 1996
12Je479	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je480	Lithic scatter	Unknown prehistoric	Unknown	Preservation through avoidance	Largent 1996
12Je481	Historic artifact scatter	Late 19th/mid-20th century	Ineligible	No further work	Largent 1996
12Je482*	Lithic scatter; Historic foundation, cellar, concrete water troughs, artifacts	Unknown prehistoric; Late 19th/mid-20th century farmstead	Unknown	Preservation through avoidance	Stafford et al. 1985/ Largent 1996
12Je483	Lithic scatter; Historic isolated find	Unknown prehistoric; historic	Ineligible	No further work	Largent 1996
12Je484	Historic trash	Early / mid-20th century trash dump	Ineligible	No further work	Largent 1996
12Je485	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je486	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je487	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Largent 1996
12Je488	Prehistoric isolated find; Historic foundation, artifacts	Unknown prehistoric; Late 19th/mid-20th century	Ineligible	No further work	Largent 1996

Table II-1
Preinstallation-Era Cultural Resources Recorded at the Jefferson Proving Ground

Site #/ Temporary Site #	Site Description	Temporal Affiliation	NRHP Eligibility	Recommendation	Recorder(s)/ Date recorded
12Je489	Foundation, historic artifacts	Late 19th/mid-20th century farmstead or rural residence	Ineligible	No further work	Largent 1996
12Jn257	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Schenian and Mocas 1993
12Jn258	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Schenian and Mocas 1993
12Jn259	Isolated find	Unknown prehistoric	Ineligible	No further work	Schenian and Mocas 1993
12Jn260	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Schenian and Mocas 1993
12Jn261	Isolated find	Unknown prehistoric	Ineligible	No further work	Schenian and Mocas 1993
12Jn262*	Lithic scatter; Historic artifacts and foundation	Unknown prehistoric; 20th century farmstead	Ineligible	No further work	Stafford et al. 1985/ Schenian and Mocas 1993
12Jn263	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Schenian and Mocas 1993
12Jn264	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Schenian and Mocas 1993
12Jn265	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Schenian and Mocas 1993
12Jn266*	Historic artifacts	Late 19th / early 20th century	Ineligible	No further work	Stafford et al. 1985/ Schenian and Mocas 1993
12Ri12	Isolated find	Mississippian	Ineligible	No further work	Guendling 1975
12Ri153	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Schenian and Mocas 1993
12Ri154	Isolated find	Late Archaic	Ineligible	No further work	Schenian and Mocas 1993
12Ri155	Isolated find	Unknown prehistoric	Ineligible	No further work	Schenian and Mocas 1993
12Ri156	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Schenian and Mocas 1993
12Ri157	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Schenian and Mocas 1993
12Ri162	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Anslinger 1993
JPG-AACI- 1	Lithic scatter; Historic artifacts	Unknown prehistoric; Late 19th/mid-20th century farmstead	Unknown	Additional testing	Hawkins and Walley 1995
JPG-AACI- 2	Lithic scatter	Unknown prehistoric	Unknown	Additional testing	Hawkins and Walley 1995
JPG-AACI- 3	Isolated find	Unknown prehistoric	Ineligible	No further work	Hawkins and Walley 1995
JPG-AACI- 4	Lithic scatter	Unknown prehistoric	Unknown	Additional testing	Hawkins and Walley 1995
JPG-AACI- 5	Lithic scatter	Unknown prehistoric	Unknown	Additional testing	Hawkins and Walley 1995

Table II-1
Preinstallation-Era Cultural Resources Recorded at the Jefferson Proving Ground

Site #/ Temporary Site #	Site Description	Temporal Affiliation	NRHP Eligibility	Recommendation	Recorder(s)/ Date recorded
JPG-AACI- 6	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Hawkins and Walley 1995
JPG-AACI- 7	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Hawkins and Walley 1995
JPG-AACI- 8	Lithic scatter	Unknown prehistoric	Unknown	Additional testing	Hawkins and Walley 1995
JPG-AACI- 9	Isolated find	Unknown prehistoric	Ineligible	No further work	Hawkins and Walley 1995
JPG-AACI-10	Isolated find	Unknown prehistoric	Ineligible	No further work	Hawkins and Walley 1995
JPG-AACI-11	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Hawkins and Walley 1995
JPG-AACI-12	Isolated find	Unknown prehistoric	Ineligible	No further work	Hawkins and Walley 1995
JPG-AACI-13	Isolated find	Unknown prehistoric	Ineligible	No further work	Hawkins and Walley 1995
JPG-AACI-14	Lithic scatter and fire-cracked rock	Unknown prehistoric	Unknown	Additional testing	Hawkins and Walley 1995
JPG-AACI-15	Lithic scatter	Unknown prehistoric	Unknown	Additional testing	Hawkins and Walley 1995
JPG-AACI-16	Isolated find	Unknown prehistoric	Ineligible	No further work	Hawkins and Walley 1995
JPG-AACI-17	Single flake from shovel probe in a rockshelter	Unknown prehistoric	Unknown	Additional testing	Hawkins and Walley 1995
JPG-AACI-18	Isolated find in rockshelter	Unknown prehistoric	Unknown	Additional testing	Hawkins and Walley 1995
JPG-AACI-19	Lithic scatter	Unknown prehistoric	Ineligible	No further work	Hawkins and Walley 1995
JPG-AACI-20	Isolated find	Unknown prehistoric	Ineligible	No further work	Hawkins and Walley 1995
JPG-AACI-21	Isolated find	Unknown prehistoric	Ineligible	No further work	Hawkins and Walley 1995
JPG-AACI-22	Foundation of a structure	Late 19th/mid-20th century	Unknown	Evaluate	Hawkins and Walley 1995
JPG-AACI-23	Foundation, dam, and wire fencing	Late 19th/mid-20th century	Unknown	Evaluate	Hawkins and Walley 1995

* Archivaly identified site. Field-located and recorded during survey by Largent 1996.

** Archival site JPG458 relocated but subdivided and recorded as three separate sites during survey by Largent 1996.

- 24 multiple component (i.e., both prehistoric and historic components) sites (including seven originally identified through archival sources).

Based on recovered data from several sites, the prehistoric period occupation likely spanned the Archaic through the Late Prehistoric periods. Research suggests that the most common types of prehistoric sites documented in Jefferson, Jennings, and Ripley counties represent short-term processing camps where people gathered and processed resources and camped during hunting, gathering, and fishing forays. More than likely these forays originated from larger base camps or villages in the area. It is also possible for nucleated Woodland or Mississippian sites to occur, for such sites have been documented in the neighboring counties (Anslinger 1993; Guendling 1975; Hawkins 1995; Munson et al. 1977; Schenian and Mocas 1993). As archeological surveys and testing efforts are initiated at the JPG, additional information regarding prehistoric cultural chronology and assemblage composition, settlement patterns, social organization, mortuary practices, and others may be collected. Survey data will begin to provide locational information, although test excavation is often required to address more complex research issues relevant to a determination of NRHP eligibility.

As of 1994, no test excavations of JPG historic sites have been conducted to determine their NRHP eligibility. A preliminary examination of the overall JPG facility made during this study indicates that there is a strong likelihood that some of the historically documented farmsteads and related sites may remain intact. While no standing structures remain and some cellars have been partially filled, it is considered likely that some of the historic sites retain most of their nineteenth- and twentieth-century cultural deposits. Likewise, historic records available from agricultural and population census data, land and probate records, newspapers, tax records, and family histories may supply a wealth of ethno-historical data that may be combined with the archeological studies to identify those sites that have the greatest information potential.

In the case of historic period sites, it may be anticipated that among JPG farmsteads, the original frontier dwellings may have been log cabins built by frontier farmers with few capital resources. These were later replaced by wood frame dwellings constructed on stone piers or masonry sill foundations as the farmers prospered and the frontier families grew. During the occupancy of the original dwellings, refuse deposits likely formed as sheet refuse in open yard areas. The construction of wells, cisterns, and masonry cellars probably represent later capital investments and improvements to the farmhouses as the families became more established during the late nineteenth century. The construction of these features is often associated with landscaping deposits that may have buried earlier yard deposits that accumulated prior to the cellar excavation. In some cases these landscaping deposits may contain sufficient clay content to create an anaerobic environment (without oxygen) that seals earlier cultural deposits and preserves floral and faunal elements. Landscaping also offered a convenient opportunity to clean house and outbuildings and dispose of quantities of refuse by simple burial. Later capital investments to the farm facilities are typically represented in the configuration of surface ruins that represent the late 1930s farm complex. This form of capital investment is expressed in the concrete improvements to cellars, barns, and outbuilding foundations that began during the late 1910s with the creation of wood and concrete silos. During the early 1900s, the U.S. Department of Agriculture promoted the use of concrete as a means to maintain more sanitary conditions in farm buildings.

Information is needed to reconstruct the evolution of the typical JPG nineteenth- to twentieth-century farmhouse, facilities, grounds, and farm properties. The history of the farmhouses can be addressed through specific problem oriented fieldwork that examines the stratigraphic profiles and architectural features that remain in the archeological record. Such studies should provide accurate assessments of the archeological potential and physical character of the JPG farmsteads.

b. Potential Archeological Sites Based on Archival Sources

Within the proving ground, Stafford et al. (1985) identified 478 potential historic sites through archival research only (Appendix K). Excluding the architectural properties Oakdale School and Old Timbers Lodge, 21 of Stafford et al.'s remaining 476 archival sites have been field located through intensive survey and formally recorded. Of the remaining 455 archivally identified sites:

- 288 are situated in the unexploded ordnance (UXO) contaminated/disturbed areas of JPG, thus inaccessible to survey;
- 167 potential sites remain to be field identified and formally recorded.

2. Architectural Resources

The architectural inventory of JPG has been completed. The present data base is based on several architectural inventories and assessments, each including HAB/HAER Level IV survey. The extant buildings and structures represent premilitary occupations in the late nineteenth/early twentieth century as well as those of the World War II and Cold War eras. Based on the inventory, 410 pre-1989 buildings (n=388) and bridges (n=22) presently remain on the facility (see Appendix J):

- Pre-World War II: 15 buildings, one dam, and 20 bridges
- World War II: 198 buildings
- Cold War: 174 buildings and 2 bridges

The premilitary buildings and structures include the one-room Oakdale School building, Old Timbers Lodge and a nearby old stone dam, 13 farmhouses used for military housing, and 20 bridges (see Figure I-3). Oakdale School (Building No. 401), built in late 1869, is the oldest surviving building on the proving ground and one of the few remaining one-room schoolhouses in the local area. Constructed of masonry, it is a good example of a highly intact architectural type unique to its historic era (BTI 1984). The school building was restored in 1992 and listed on the National Register of Historic Places in 1993. The Old Timbers Lodge (Building No. 485) is located on the northeast corner of the proving ground. The 919-m² (9,892 ft²) limestone-and-beam hunting lodge was built as a country house between 1929 and 1932 by Cincinnati industrialist Alexander Thomson (Thomson 1981). It is currently used as a recreation facility for installation personnel. Locally, the lodge is important as a historic property because it is a good example of an intact country house built in the arts and crafts tradition of the early twentieth century (BTI 1984:38). Old Timbers Lodge was placed on the Indiana State Register of Sites and Structures in April 1995.

Of the 22 bridges built on JPG prior to 1959, eight date to the late nineteenth century; 12 to the early 1900s; and two the 1950s (see Appendix J). Although the majority have been significantly altered and have lost integrity, eight of the 22 bridges retain their integrity. All are vehicle bridges of one to four spans. These bridges include: Bridge No. 17, a triple-arch span completed in 1911, on Northwest Exit Road; Bridge No. 25, a single-arch stone bridge erected 1905, on G Road; Bridge No. 27, a three-arch bridge erected 1907, on J Road; and Bridge No. 28, a double-arch stone bridge built ca. 1907, on East Perimeter/K Road. These four bridges are good examples of an intact historic engineering type and excellent examples of local masonry bridge design and construction (BTI 1984; Appendix J). The remaining four intact bridges include: Bridge No. 2 (Pratt truss erected 1897), Bridge No. 8 (Pratt truss erected 1884), Bridge No. 10 (through Pratt truss erected 1892), and Bridge No. 22 (single-span stone arch erected 1921).

The military buildings are related to the various JPG missions during both World War II and the Cold War (see Appendix J). Since the primary mission of JPG was ordnance testing, much on the extant military-era construction had to do with storage, distribution, and area safe shelters as well as infrastructure systems.

3. Native American Cultural Items and Traditional Cultural Properties

A survey of the Native American tribes that have been federally recognized for the area must be undertaken to identify those tribal groups who may wish to claim cultural affinity with any cultural items—as defined under NAGPRA—that may be within the facility boundaries. Although published material (Bundy 1992:28; Leland et al. 1956) and oral sources (Caldwell, personal communication 1995) indicate that a Native American burial ground may exist on JPG, none has at present been documented (see Figure I-3). Currently, JPG is not in possession or control of NAGPRA Section 5 materials (human remains and associated funerary objects) and, therefore, has no legal obligations under NAGPRA Section 5. If, however, such resources are identified during future investigations/activities, NAGPRA requirements will apply.

JPG may, however, be in possession of NAGPRA Section 6 cultural items (i.e., unassociated funerary objects, sacred objects, and objects of cultural patrimony) based on the summary research for the installation conducted by the U.S. Army Corps of Engineers, St Louis District. Therefore, JPG should take affirmative steps to come into compliance with NAGPRA Section 5 through consultation/communication with the appropriate federally recognized tribes (see CRMP discussion on “Compliance with Native American Graves Protection and Repatriation Act”) as evidence of compliance with NAGPRA Section 6 summary requirements.

No potential traditional cultural properties as per the NHPA and as defined in NPS National Register Bulletin No. 38 *Guidelines for Evaluating and Documenting Traditional Cultural Properties* have been identified on the facility at the present.

C. NRHP Criteria for Evaluation

The qualification of a property as significant is judged in relation to four criteria for evaluation defined by 36 CFR Part 60. These four criteria for evaluation are applied following the identification of relevant historic themes and related research questions.

The quality of significance in American history, architecture, archeology, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- Criterion A: That are associated with events that have made a significant contribution to the broad patterns of our history; or
- Criterion B: That are associated with the lives of persons significant in our past; or
- Criterion C: That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- Criterion D: That have yielded, or may be likely to yield, information important in prehistory or history [36 CFR Part 60.4].

The significance of a site is best understood through a knowledge of historic development and the relationship of the site to other similar resources. A historic context (research design elements) is the organization of information concerning the stages of prehistoric and historic development in various times and places and serves to identify the salient research issues for each period. Historic contexts or a research design for the prehistoric and preinstallation historic periods have yet to be formally developed for JPG.

The JPG is likely to contain historic properties that may be linked with a variety of thematic contexts, some of which are anticipated below. Based on the background research completed for this management plan, it is considered likely that cultural resources from any of the historic periods defined by the state may be present within the JPG. A variety of research themes is presented that may be used to evaluate archeological significance and eligibility for inclusion in the NRHP. The prehistoric and preinstallation historic overviews (see Appendices F and G) outline the current knowledge of the JPG vicinity for the prehistoric and preinstallation historic periods.

The major archeological themes recognized for the region provide an important framework for the evaluation of the prehistoric and historic period archeological sites within the JPG. Those themes that have been selected for the JPG are presented in Table II-2. The theme of "culture history" applies to all sites. However, the relevance of a particular site to a given theme does not mean that the site is significant, since many sites will provide some information related to culture history. Determination of site significance depends on the recognition of site characteristics that exhibit the potential to contribute information important to furthering an understanding of prehistory or history.

Among the most general themes considered for the prehistoric period are:

- cultural chronology—the chronological framework for the region is not clearly developed and consequently is very generalized. Sites with datable materials, particularly charcoal for radiocarbon dating, are essential to the scientific reconstruction of prehistoric cultural chronology.
- settlement patterns—due in part to the generalized chronology that is available, recognition of settlement pattern changes through time has been restricted; research into the range of aboriginal sites that occur is necessary to reconstruct the variety and evolution of past settlement systems.
- subsistence patterns—documentation of the subsistence patterns of particular time periods is inadequate at the present time, but such documentation is essential to an understanding of how and why certain subsistence systems such as maize agriculture were developed.
- environment—the paleoenvironment affected the choices made by prehistoric peoples concerning site location, subsistence patterns, and the necessary associated technology; consequently, an understanding of the changing paleoenvironmental conditions is essential to understanding changing human adaptations.

For cultural resources of the preinstallation historic period, the evaluation may be addressed through a different set of research issues. Given the relatively large, continuous body of land that has not undergone significant disturbance by post-1940s agricultural practices, such as deep plowing and the development of larger crop fields as tractors became more and more commonplace, the JPG may also represent a particularly suitable area in which to examine the archeology of rural historic landscapes, the organization of agricultural production, and the evolution of historic farm operations that existed on the preinstallation land. Specifically, the household (owner) farm, the family farm, the tenant farm, and the clustered farm community may provide the principal property types and the primary units of analysis to address the agricultural economy of the preinstallation historic period. Additional research issues that may be considered are settlement patterns and intrasite organization, site formation processes, consumer behavior, inheritance practices, and community development.

These themes and questions, in turn, define the kinds of evidence a site must possess in order to be considered a historic property. The contextual integrity of artifacts and research potential of a site are primary factors to consider regarding site significance. The following points must be considered in such a determination.

Table II-2
Selected Research Themes for Cultural Resources within the Jefferson Proving Ground,
Jefferson, Jennings, and Ripley Counties, Indiana

Prehistoric Period	Preinstallation Historic Period
Cultural Chronology	Landscape Archeology
Cultural History	Organization of Agricultural Production
Paleoenvironmental Reconstruction	Settlement Patterns
Material Culture and Technology	Intrasite Organization
Subsistence and Settlement Patterns	Inheritance Practices
Exchange	Consumer Behavior and Capital Investment
Evolution of Chiefdoms	Site Formation Processes
Mortuary Practices	Community Development
Social Organization	
Ritual Practices	

- What are the ages, arrangements, character, and integrity of the cultural deposits that are represented within the site?
- Does the site contain discrete (vertical or horizontal) components assignable to particular time periods?
- Has any portion of the site been disturbed so that the spatial relationships of the artifacts and features have been destroyed? If so, what was the nature of the disturbance?
- What portion of the site is undisturbed?

These factors are particularly important to the assessment of the archeological resources. In order to evaluate the significance of a site, it is important to understand the range of materials that are represented, their ages, functions, and interrelationships as well as considerations of the relationship of a component to other components in the vicinity. The issue of physical integrity is particularly important since some sites may have been extensively disturbed and thus have lost their research potential. The issue of cultural components that are represented is important to an assessment of both prehistoric and historic period resources. The presence of multiple, stratified cultural components would be particularly important for site interpretation.

For both archeological and architectural properties, seven aspects or qualities define contextual integrity:

location—the place where the historic property was constructed or the place where the historic event occurred;

design—the combination of elements that create the form, plan, space, structure, and style of a property;

setting—the physical environment of a historic property;

materials—the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property;

workmanship—the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory;

feeling—a property's expression of the aesthetic or historic sense of a particular period of time; and

association—the direct link between an important historic event or person and a historic property.

Although a particular archeological site may exhibit sufficient contextual integrity, there remains the question of whether or not the resource contains the data necessary for addressing particular research questions. The following characteristics must be considered for archeological sites.

- Does the site contain datable material? For prehistoric sites, although diagnostic artifacts are often relied upon, charcoal for radiocarbon dating is preferable. For historic period sites, diagnostic artifacts and historical documentation are used to identify the period of occupation.
- Is the preservation at the site such that subsistence data in the form of bone and charred plant remains will be recovered? Within the upland environment, such preservation is not always present unless midden or trash accumulation and feature contexts (e.g., hearths, storage pits, cellars, wells, etc.) have created a special environment.
- Are artifact densities sufficient for the recognition of activity areas and intersite functional differences? Ideally, short-term occupation sites may provide the clearest patterns of intrasite activity areas; however, extremely short-term sites often result in artifact densities that are too low for the recognition of activity areas or site function.
- Is the site a primary example of a particular site type or representative of a particular time period of which we have little knowledge?

These data requirements comprise some of the primary qualities in the determination of whether a given cultural resource is or is not significant, although sites do not have to meet all of these characteristics in order to be considered significant. This is especially true for the prehistoric sites where the lack of datable material and sufficient quantities of artifacts makes site interpretation very difficult. The last characteristic in the above list is particularly relevant for the historic period in which early twentieth-century sites, such as farmsteads, are frequently considered less significant than sites of an earlier period, for example the protohistoric period about which much less is known.

D. NRHP Categories of Properties at the JPG

1. NRHP-Eligible Properties

NRHP-eligible properties are cultural resources that are considered significant because they contain essential information regarding cultural heritage at the national, regional, state, or local level. For the JPG area this would include Jefferson, Jennings, and Ripley counties and the surrounding environs. It is anticipated that as additional survey and testing investigations are undertaken some newly recorded archeological sites will be considered eligible. At the present, NRHP-eligible properties include:

- Pre-World War II buildings and structures:
 - * the one-room Oakdale School (Building No. 401) is listed on the NRHP;
 - * Old Timbers Lodge (Building No. 485) and four early twentieth-century stone arch bridges (Nos. 17, 25, 27, and 28) are eligible for inclusion in the NRHP (these properties are also listed on the Indiana State Register of Sites and Structures);
 - * four additional bridges built in the late 1800s (Bridge Nos. 2, 8, and 10) and ca. 1921 (Bridge No. 22) are considered to be potentially eligible for inclusion in the NRHP.
- World War II-era buildings or structures:
 - * Specific World War II-era buildings or structures considered historically important due their association with the World War II facility and with the events of the war years are considered to be potentially eligible for NRHP inclusion under a multiple properties nomination in a proposed historic district (see Figure I-7).

Based on the current HABS/HAER Level IV inventory/evaluation of standing buildings and structures built before 1989 and on JPG's significant role in influencing the events of World War II, it is recommended that there exists on the installation a multiple properties historic district that is eligible for inclusion in the National Register of Historic Places under Criteria A (significant events) and C (distinctive characteristics of type). The proposed district would be composed of 74 specific World War II-era permanent and semipermanent buildings and structures (see Figure I-7). As indicated in Appendix J, not all World War II buildings physically located within the proposed district are considered to be contributing elements of the potential district, and 10 buildings situated outside the physical boundaries of the proposed district are considered contributing elements to the proposed district. Cold War-era buildings within and without the proposed JPG historic district do not meet Criteria Consideration G for exceptional significance that is applied to architectural resources less than 50 years in age. The preinstallation historic properties are not part of the proposed historic district (see Figure I-3).

With regard to the buildings and structures considered potentially eligible for inclusion in the NRHP and being excessed to a nonfederal entity, the Army will:

- Ensure that the instrument transferring the property incorporates the covenant designated as Attachment G in Appendix M and the covenant shall be recorded in the real estate records of Jefferson, Jennings, or Ripley counties, State of Indiana.
- If there is no acceptable offer that will conform to the rehabilitation and maintenance requirements of the *Standards*, the Army, with the approval of the SHPO, may modify the covenant to reduce the requirements, or may transfer the property without a preservation covenant.

2. Resources of Unknown (or Potential) NRHP Eligibility

Cultural resources of unknown eligibility are those resources for which NRHP evaluation has not yet been completed and, consequently, are considered potentially eligible until a final determination of eligibility has been made. These resources must be properly managed or preserved, and, pending the completion of the evaluation process, they must be accorded the same treatment as NRHP-eligible properties.

- Currently 23 recorded archeological sites are considered to be of unknown eligibility (see Table II-1):
 - * 13 prehistoric sites (JPG-AACI-2, JPG-AACI-4, JPG-AACI-5, JPG-AACI-8, JPG-AACI-14, JPG-AACI-15, JPG-AACI-17, JPG-AACI-18, 12Je456, 12Je458, 12Je470, 12Je478, 12Je480);
 - * three historic sites (JPG-AACI-22, JPG-AACI-23, 12Je401);
 - * seven multicomponent sites (JPG-AACI-1, 12Je404, 12Je417, 12Je418, 12Je471, 12Je473, 12Je482).
- Accessible archival sites dating to the historic period yet to be located (n=167) are considered of unknown eligibility, pending survey and/or testing; 288 archival sites are within the UXO contaminated area and, thus, inaccessible to survey.

3. NRHP-Ineligible Resources

Ineligible cultural resources are those resources that have been evaluated as being ineligible for inclusion in the NRHP. Ineligible resources require no further management attention. It is anticipated that once additional survey and testing have been conducted at the JPG, many other sites likely will be determined to be ineligible and will require no additional investigation. Archeological sites containing minimal information or that have been disturbed and, consequently, are of limited value and have been determined ineligible for listing in the NRHP are:

- at present, 130 of the recorded archeological sites on the JPG (see Table II-1).

Many of the World War II-era buildings are typically semipermanent storage and secondary support facilities with neither distinguishing architectural characteristics nor functional unity. All the Cold War-era (1946-1989) buildings are considered ineligible for listing in the NRHP because they do not meet Criteria Consideration G for exceptional significance that is applied to properties less than 50 years of age.

- Presently, 379 buildings (14 pre-World War II; 191 World War II; and 174 Cold War) and 14 bridges are considered ineligible for NRHP inclusion.

4. Identification of Data Needed to Complete Documentation and Evaluation of Known Resources

For the architectural resources on JPG:

The historic context that outlines the JPG World War II history and defines the appropriate architectural property types in relation to other contemporary TECOM resources for NRHP evaluation and nomination is included as Appendix H. Based on the historic context, the inventory and evaluation process has been completed, and all architectural resources have been examined sufficiently to provide a determination of NRHP eligibility. No additional data are required for NRHP-eligible architectural properties.

- In regard to the military-related architectural resources, a large number of buildings associated with the operation of the facility during World War II are recommended as eligible for inclusion in the NRHP as a proposed district under a multiple properties nomination.

For the archeological resources within the JPG:

- The 23 recorded sites of potential (unknown) eligibility have not been sufficiently examined to provide a determination of NRHP status.
- Once the known archeological cultural resources within the JPG have been more thoroughly examined through a testing program, it will be possible to complete the NRHP evaluation process.
- The data required to complete the evaluations of the recorded and archival archeological sites and recategorize them as either NRHP-eligible or NRHP-ineligible resources may be obtained through various intensive survey and/or testing actions:
 - * relocation and survey-level subsurface investigations (i.e., shovel testing) of any archeological sites whose locations are presently known;
 - * initial location and survey-level subsurface investigations (i.e., shovel testing) of those archival archeological sites whose locations and present conditions are unknown or uncertain;
 - * intensive subsurface investigations (i.e., test excavation) of those archeological sites that may have multiple horizontally and/or vertically stratified moderate to high artifact density components based on shovel test (extensive delineation) results;
 - * archival research on potential historic sites to identify those for which it may be possible to determine age, occupants, research value, and possible historical significance. The purpose of the archival research is to assist in the determination of property type by identifying the form of agricultural production of the sites (i.e., plantation, household farm, family farm, tenant farm, or clustered farm community), as well as characteristics related to household occupancy, inheritance, land tenure, agricultural census data, and property boundaries and to include the existing historic documentation in the evaluation process; and
 - * intensive subsurface investigations (i.e., shovel testing and test excavation) and more extensive archival research of potentially significant historic period farmsteads and farm communities. The fieldwork should be designed to address the internal configuration of the historic farm facilities, the distribution of cultural deposits, and the potential features in order to characterize the physical remains of the property type.

All levels of subsurface investigation are intended to yield data relating to the nature of an archeological site and its deposits. These data will provide the basis for the NRHP evaluation of the resource. Three areas of concern are addressed with data collected through subsurface investigation:

- the present physical limits of the site,
- the present physical condition and integrity of the site, and
- the age and function of the site.

Determining the present physical limits of the site involves an accurate identification of:

- the area of the site (horizontal parameters), and
- the depth of the archeological deposits (vertical distribution).

As the archeological survey continues at the JPG, it will be important that the inventory succeed in identifying (1) the general physical location of each site, (2) the physical limits, and (3) the depth and potential integrity of the archeological deposits. These data are required to isolate areas that require preservation measures and to determine how the site might be impacted by various facility activities.

Determination of the physical integrity of the site requires the collection of accurate data relating to:

- the nature of the past depositional environment,
- the nature and degree of post-depositional disturbance,
- the contextual integrity of the culture-bearing deposits,
- the degree of feature preservation within the site, and
- the character and arrangement of the cultural deposits to evaluate the internal structure of the site.

These data are necessary in order to properly evaluate the research potential of a site or component and for providing critical data that will clarify understanding of past lifeways. These data support the formulation and testing of models to interpret how the site was formed, the quality and quantity of data that are preserved on the site, and the research problems that data from the site can help elucidate. In addition, a reliable understanding of the variation in preservation and the structure of the site will enable better preservation and protection from impacts arising from facility activities.

A determination of the age and function of the site from test excavations is critical in adequately evaluating the research potential of the site and pinpointing those research problems that the site can best address. The determination of age and function is also essential so that the site evaluation is conducted relative to other sites or components within the same class or property type. The relative worth of cultural resources in relation to one another should not be a consideration when evaluating NRHP eligibility. If a cultural resource possesses the ability to provide information about historic contexts, it is eligible under Criterion D, regardless of whether another site exists that may offer more information. The relative importance of historic properties is considered, however, when developing mitigation strategies, with excavation directed toward sites believed to have the best potential to yield information.

For historic sites, additional archival research is required to clarify the present nature of the historic data base, to identify the former farm communities, and to identify which farms are best documented historically. In the case of historic resources, the site documentation may be crucial to the identification of the relevant property type and for an evaluation of site significance and NRHP eligibility. Records for frontier sites may be particularly difficult to locate.

III. MANAGEMENT PLAN REQUIREMENTS

A. Standard Operating Requirements

This chapter reviews the standard requirements for compliance with the CRMP. Chapter IV will present actual examples of how the Section 106 procedures will be applied at the JPG. The standard operating requirements for cultural resources management at the JPG will vary according to the activity involved and the present cultural resources data base available for the area of concern. Requirements presented here will apply to the following situations:

- programmatic undertakings exempted from further consultation with the SHPO/ACHP, including disposal of NRHP-ineligible resources;
- Section 106 compliance for undertakings not covered by this CRMP or PAs;
- Section 106 compliance for the alteration of land use;
- Sections 106 and 110 compliance for the excessing of lands as TECOM disposes of portions of the JPG facility acreage;
- Section 111 compliance for the leasing of property and the disposal of architectural properties.

1. Undertakings Exempted from Further Consultation with the SHPO/ACHP

Certain routine activities undertaken at JPG are exempted from further consultation with the SHPO/ACHP under stipulations cited in the MOA between the DA, the ACHP, and the Indiana SHPO concerning the closure of JPG (see Appendix M). At JPG, any of the following activities that currently (or in the future) may take place are exempted from further coordination:

- Routine maintenance work on existing features such as roads, fire lanes, mowed areas, disposal areas, and ditches (not, however, significant widening of such features).
- Agricultural leases related to the production of crops, livestock, and hay, with the condition that land use is consistent with prior use and no ground-disturbing activities are introduced on previously undisturbed land.
- Timber harvesting and/or thinning occurring in areas previously surveyed or in areas exempted from inventory under consultation with the SHPO, with the condition that all NRHP-eligible sites and sites of unknown eligibility will be avoided. (Timber harvesting and/or thinning occurring in areas not previously surveyed and/or not exempted from inventory under consultation with the SHPO, will require such inventory and assessment of archeological sites per Section 106 review.)
- Outgrants and contracting actions when the proposed use involves no active or potential construction, alteration, destruction, relocation of buildings or structures, or disturbance of the ground surface.
- Facilities maintenance activities by the Army that do not alter the building facades or interiors (alteration does not include repair of deteriorated materials or missing elements, which is exempt when they are replaced in kind or with materials that duplicate the original).

Other actions that will not require consultation with the SHPO, pending programmatic implementation of this CRMP will include:

- Activities of the JPG Natural Resources Management Program that do not require construction of new facilities, or disturbance of previously undisturbed surfaces, or any tillage of previously unplowed ground do not require SHPO consultation. *However*, those undertakings involving earth-

disturbing activities of previously undisturbed surfaces shall be subject to further coordination with the SHPO pursuant to 36 CFR 800.

- Hazardous waste remediation may vary in its impact on a given locality. Heavily contaminated areas will not be subject to archeological survey because of a need to avoid undue danger or injury to survey personnel through contact with unexploded ordnance or other hazard. Rather, the Army will ensure that personnel conducting Remedial Investigation/Feasibility Study of environmental hazards at JPG are familiar with those areas identified as archeologically sensitive and with the need to exercise care when working in those areas, with professional archeological advice available in the event of an archeological discovery (see Figure II-2; see Appendix M).
- Maintenance, renovation, or planned demolition activities affecting buildings and structures built after 1945 do not require further consultation with the SHPO.

2. Undertakings Not Exempted from the Section 106 Review Process

In the event that land usage will change, e.g., from pasture or grazing land to crop land, this activity may pose an adverse effect to historic properties and will require archeological inventory as per Section 106 prior to initiating the action. (Where land use remains constant for grazing lands and hay production and no ground-disturbing activities are undertaken, however, archeological survey is not required.)

Where timber harvesting occurs on undisturbed ground in areas that have not been previously surveyed and are not exempted from inventory under consultation with the SHPO, those lands scheduled for timber harvesting will require a Section 106 review. (When timber harvesting occurs in areas that have been previously surveyed, previously disturbed or contaminated, or when restrictions are in place to permit logging only in frozen or dry ground conditions and to prevent recontouring of the ground, the activity may proceed, with the condition that all NRHP-eligible sites and sites of unknown eligibility will be avoided.)

Some JPG lands will be excessed to another Federal agency, the state, or a nonfederal institution. In the event that the transfer is to another Federal agency, transfer of cultural resources management responsibilities would extend to the receiving agency. Transfer of lands to a State agency may also transfer cultural resources responsibilities if the receiving agency and the SHPO reach such an agreement and the ACHP concurs. Transfer of lands to private parties would require Section 106 review.

3. Section 106 Compliance

The Section 106 review process is essential for the adequate protection of historic properties. Although the available cultural resources data base and the potential impacts within each project area will vary, the basic steps of the Section 106 review process are standard once a project has been determined to be an undertaking and the APE has been established. The basic steps are as follows:

- Identify/Evaluate Historic Properties,
- Assess Effects,
- Consultation,
- Council Comment (if there is an adverse effect or difference of opinion between the Army and the SHPO), and
- Proceed.

As noted in Figure III-1, not all of these steps are necessary under certain circumstances. This discussion of the basic steps follows the format of the ACHP's (1986) publication, *Section 106, Step-by-Step*, with one exception. When the SHPO and the Army agree there is no adverse effect resulting from an undertaking, then there will be no requirement to provide documentation to the ACHP or to seek ACHP comment.

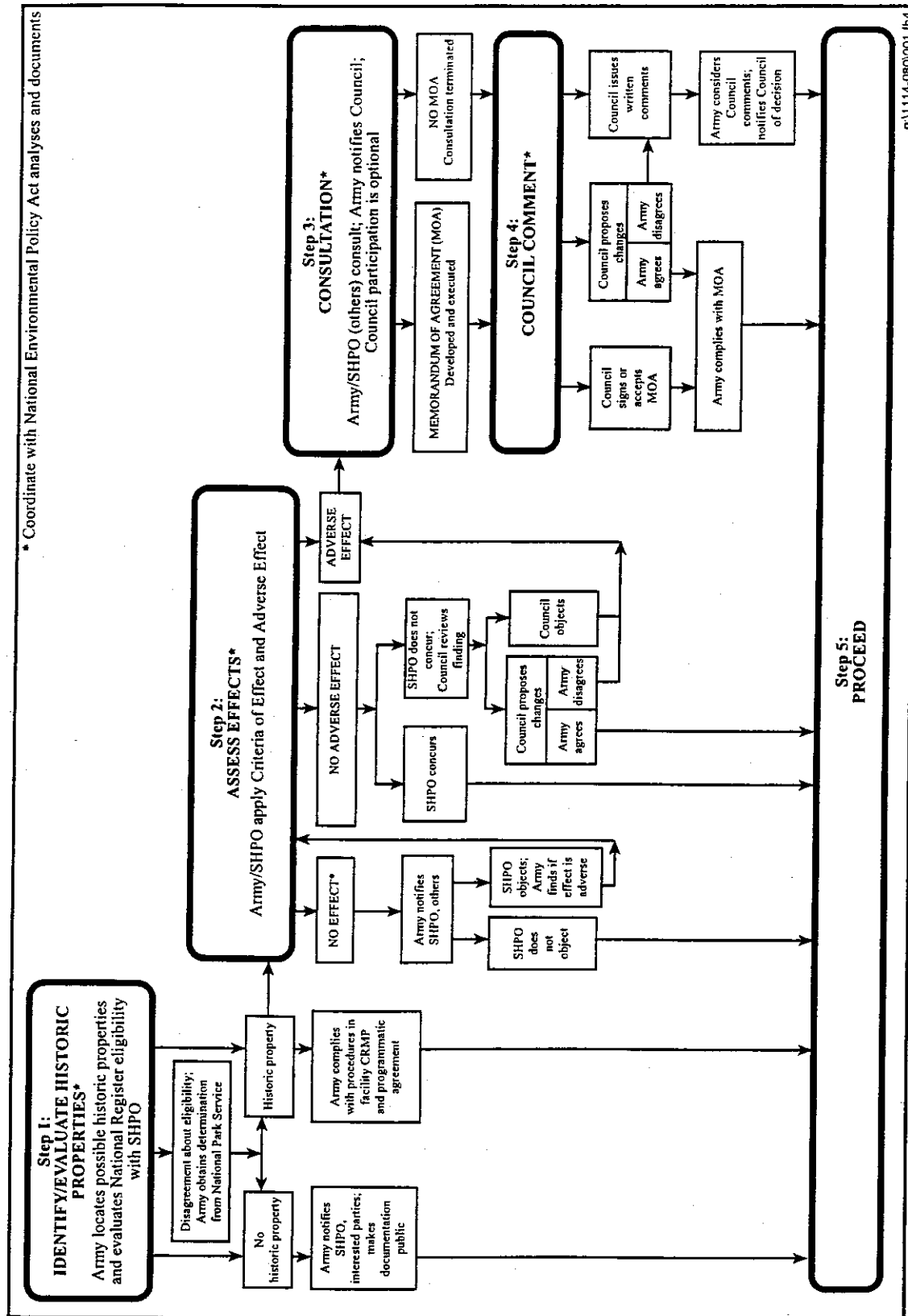


Figure III-1. Basic steps of the 106 process under the Jefferson Proving Ground (JPG) CRMP.

Step 1: Identification and Evaluation of Historic Properties

This step is directly related to Section 106 compliance.

The Army reviews all of the available information concerning historic properties within the project area.

- If the area has been surveyed and NRHP-eligible properties have been identified in coordination with the SHPO or the Keeper of the National Register, the Army may proceed to Step 2.
- If sufficient information is not available for decision-making, further identification efforts will be necessary (i.e., archeological inventory including survey and site testing). The level of these efforts should be appropriate for the type of undertaking, its potential to affect historic properties, and the kinds of effects anticipated; they must be coordinated with the SHPO.

The Army and the SHPO then apply the NRHP criteria to decide whether the properties are eligible for the NRHP and thus subject to the Section 106 review process.

- If the Army and the SHPO agree concerning eligibility status, then the property is treated as such for the purposes of Section 106.
- If they cannot agree or the Council requests, the Army must obtain a determination of eligibility from the Keeper of the Register.

Once the Army has completed the identification process, it may be that no historic properties will be affected by the proposed project. If such is the case, the Army must:

- provide documentation to the SHPO that no historic properties have been found,
- notify other interested parties concerning the findings, and
- make pertinent documentation available to the public.

Once these actions have been completed and the Army has fulfilled the requirements of the Section 106 process, it may proceed with the project.

- However, any member of the public may question the Army's findings and may request an ACHP review of those findings.
- The ACHP review will either validate the Army's findings or cause the Army to reconsider its findings.

If NRHP-eligible properties are judged to be within the project area, then the Army moves to Step 2 (Assess Effects).

Step 2: Assess Effects

Once the NRHP-eligible properties have been identified, the Army must determine if the proposed project will affect the property in any way. As before, the views of the SHPO and interested parties are considered. The judgement of the Army will be based on the criteria of effect and adverse effect as outlined in the ACHP's regulations [Section 800.9].

- **Criteria of Effect—Section 800.9(a)**
“An undertaking has an effect on a historic property when the undertaking may alter characteristics of the property that may qualify the property for inclusion in the NRHP. For the purpose of determining effect, alteration to features of a property's location, setting, or use may be relevant depending on a property's significant characteristics and should be considered.”

- Criteria of Adverse Effect—Section 800.9(b)

“An undertaking is considered to have an adverse effect when the effect on a historic property may diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association. Adverse effects on historic properties include, but are not limited to:

 - * Physical destruction, damage, or alteration of all or part of the property.
 - * Isolation of the property from or alteration of the character of the property’s setting when that character contributes to the property’s qualification for the NRHP.
 - * Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting.
 - * Neglect of a property resulting in its deterioration or destruction.
 - * Transfer, lease, or sale of the property.”
- Exceptions to the Criteria of Adverse Effect—Section 800.9(c)

“Effects of an undertaking that would otherwise be found to be adverse may be considered as being not adverse for the purpose of these regulations:

 - * When the historic property is of value only for its potential contribution to archeological, historical, or architectural research, and when such value can be substantially preserved through the conduct of appropriate research, and such research is conducted in accordance with applicable professional standards and guidelines.
 - * When the undertaking is limited to the rehabilitation of buildings and structures and is conducted in a manner that preserves the historical and architectural value of affected property through conformance with the Secretary of the Interior’s *Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings*.
 - * When the undertaking is limited to the transfer, lease, or sale of a historic property, and adequate restrictions or conditions are included to ensure preservation of the property’s significant historic features.”

If the undertaking is interpreted as changing in any way the characteristics that qualify the property as an NRHP-listed or NRHP-eligible property, it is considered to have an effect.

If the undertaking is determined as diminishing the integrity of the property, it is considered to have an adverse effect.

If human remains are encountered by any undertaking, non-Native American remains are assessed as any other resource, with significance and historic association completed. If the human remains are of Native American affiliation, then NAGPRA [P.L. 101-601] will apply. NAGPRA, however, is not part of the Section 106 compliance.

When applying the criteria of effect and adverse effect, there are three possible findings:

- NO EFFECT: there is no effect of any kind, either harmful or beneficial, on the historic property;
- NO ADVERSE EFFECT: there could be an effect, but the effect will not be harmful to those characteristics that qualify the property for inclusion in the NRHP; and
- ADVERSE EFFECT: there could be an effect that will damage the integrity of the characteristics which qualify the property for inclusion in the NRHP.

If the finding is NO EFFECT, the Army must:

- notify the SHPO and any interested parties of that finding,
- compile supporting documentation, and
- make that documentation available for public inspection.

If the SHPO does not object to this finding within 15 days, the Army may proceed with the project.

If the Army determines that there is an effect or if the SHPO objects to the finding of NO EFFECT, the Army must consider whether the effect is adverse in consultation with the SHPO. If there is effect, but the effect is NOT ADVERSE, the Army may do one of the following:

- obtain the SHPO's concurrence with the finding of NO ADVERSE EFFECT and keep a record of that consensus (this documentation must be available for public inspection),
- or*
- submit the finding of NO ADVERSE EFFECT directly to the ACHP for a 30-day review period and notify the SHPO of this action. Specific documentation outlined in Section 800.8(a) of the regulations must accompany this submittal.

The former choice differs from 36 CFR Part 800.5(d)(1)(I) in that concurrence concerning no adverse effect determinations requires summary documentation be submitted to the ACHP for review and comment. The implementation of this document and the associated PA, however, provides for such modification of the regulations.

If the Army chooses to subject the finding of NO ADVERSE EFFECT directly to the ACHP upon failing to reach consensus with the SHPO, it is necessary to send the following documentation:

- a description of the undertaking, including photographs, maps, and drawings, as necessary;
- a description of the historic properties that may be affected;
- a description of the efforts used to identify historic properties;
- a statement of how and why the criteria of ADVERSE EFFECT were found inapplicable; and
- the views of the SHPO, affected local governments, Native American tribes, Federal agencies, and the public, if available. A description of the means used to solicit such views will also be presented.

If the ACHP fails to object to the determination of NO ADVERSE EFFECT within 30 days after it receives full documentation of the project, the Army will have satisfied its Section 106 responsibilities. The Army may then proceed with the project.

If the ACHP does object, it may propose changes in or conditions to the Army findings.

- If the Army accepts ACHP proposed conditions or changes and implements these conditions or changes, it will have satisfied the Section 106 requirements.
- However, if the Army does not accept the proposed changes or if the ACHP objects to the finding without proposing changes, the effect is considered adverse. The Army then moves to Step 3 of the Section 106 process.

Step 3: Consultation

Consultation is initiated by the Army

- when the proposed undertaking will have an ADVERSE EFFECT, or
- when there is disagreement concerning the finding of NO ADVERSE EFFECT.

The Army notifies the ACHP that consultation between the Army and the SHPO is beginning; ACHP participation is optional.

Interested parties must be invited to join the consultation if the consultation concerns issues within their jurisdiction or area of public concern. Interested parties who must be invited to consult include:

- applicants for and holders of grants, permits, or licenses involved in the undertaking; and
- other interested persons, when the Army official, SHPO, and the ACHP (if a consulting party) jointly judge it appropriate.

The interested public may include:

- local historical societies,
- local academic professionals,
- historic preservation groups,
- civic associations, and
- traditional cultural groups.

The regulations specifically identify Native Americans as interested parties when historic properties of significance to such persons are involved.

The consultation process is designed to bring together all interested parties in order to determine a strategy so that the goals of the Army may be accomplished without unnecessarily damaging historic properties at the JPG. Alternative project designs, alternative project sites, and the alternative of not carrying out the project must be examined in relation to the severity of the impacts. Mitigation of the adverse effects includes several options. Treatment options are appropriate when the resources will remain in situ. When resources will be relocated, demolished, partly demolished, or heavily altered, then mitigation will likely include some level of documentary recordation.

In order to implement the consultation process, the Army must supply specific documentation to each consulting party. ACHP regulations [Section 800.8(b)] provide the following guidelines for documentation:

- a description of the undertaking, including maps, photographs, and drawings, as necessary;
- a description of the efforts to identify historic properties;
- a description of the affected historic properties, using materials compiled during evaluation process; and
- a description of the effect of the undertaking on historic properties.

In addition to involving interested persons, the Army must provide an opportunity for the public to receive information and provide comment concerning the preservation issues related to the undertaking. Army officials may use the procedures that are already in place for soliciting public comment.

Ideally, the consultation process should result in an MOA, which is a legal document stipulating how the undertaking will be carried out in order to avoid or mitigate the adverse effects.

- If the ACHP is involved in the consultation process, the execution of the MOA concludes the Section 106 process.
- If the ACHP is not involved in the consultation process, the process proceeds to Step 4.

If the consulting parties cannot agree on terms for an MOA, the consultation process may be terminated.

- Any of the primary consulting parties (the Army, the SHPO, or the ACHP) may state that further consultation will not be productive, therefore terminating the consultation process.

If this happens, the process proceeds to Step 4.

Step 4: ACHP Comment

As stated above, ACHP comment may occur in one of two ways:

- with an MOA or
- without a developed MOA.

With an MOA between the SHPO and the Army, the Army is required to submit the following documentation to the ACHP for review:

- the signed MOA,
- copies of the basic descriptive data developed for the initial consultation,
- a description and evaluation of any proposed mitigation measures or alternatives that were considered, and
- a summary of the views of the SHPO and interested parties.

ACHP review of the MOA submitted by the Army will result in one the following:

- Within 30 days after receiving the above documentation, the ACHP accepts the MOA and informs all consulting parties, thereby concluding the Section 106 process.
- Within 30 days after receiving the above documentation, the ACHP advises the Army of changes that would make the MOA acceptable to the ACHP.
 - * If the Army and the SHPO agree to such changes, the Section 106 process is concluded.
 - * If there is no agreement concerning the changes, the Army notifies the ACHP, and the ACHP provides written comments to the Army within 30 days of receiving such notice.
- Within 30 days after receiving the above documentation, the ACHP advises the Army that it will comment directly on the undertaking rather than reviewing the MOA.
 - * The ACHP will issue written comments within 60 days after receiving the MOA documentation.

If consultation has been terminated and no MOA has been developed, the Army may request ACHP comments directly. However, the documentation requirements are extensive:

- a description of the undertakings, with maps, photographs, and drawings, as necessary;
- a description of the efforts to identify historic properties;
- a description of the affected properties with information on the significant characteristics of each property;
- a description of the effects of the undertaking on historic properties;
- a description and evaluation of any alternatives or mitigation measures that the Army proposes to lessen the impact of the project;
- documentation of consultation with the SHPO concerning the process of identification, evaluation, assessment of effect, and discussion of alternatives or mitigation measures;
- a description of the efforts of the Army to obtain and consider the views of the interested public;
- the planning and approval schedule for the undertaking; and
- copies or summaries of any written views submitted to the Army concerning the effects of the undertaking on historic properties and the viable alternatives.

Step 5: Proceed

If the ACHP has commented by executing or accepting an MOA, the Army may proceed with its undertaking.

- By carrying out the terms of the MOA, the Army fulfills its Section 106 responsibilities.

Without an MOA, the Army must consider the ACHP's written comments and then make a decision concerning how, or whether, to proceed with its undertaking.

- The Army notifies the ACHP of its decision before work on the undertaking begins. This outcome concludes the Section 106 review process.

4. Section 110 Compliance

Section 110 primarily addresses the identifications, and if appropriate, NRHP or National Historic Landmark (NHL) nominations, of federally owned or controlled properties; and the management of such properties, including issues of demolition and excess transfer also considered undertakings under Section 106.

5. Section 111 Compliance

Section 111 addresses leasing and exchange of federally owned properties. Leasing is also an undertaking under Section 106. AR 420-40 also addresses federally owned properties, describing two potential effects. The first concerns demolition, ruination, or transfer/sale to private ownership. The second involves lease or use—in which case, Section 106 applies via Section 111.

B. Types of Treatment

Standards pertaining to the treatment of historic properties located on the JPG are taken from:

- the proposed guidelines of the Department of the Interior, National Park Service, entitled *Recovery of Scientific, Prehistoric, Historic, and Archeological Data: Methods, Standards, and Reporting Requirements* (1977; 36 CFR Part 66);
- the Secretary's *Standards and Guidelines for Archeology and Historic Preservation* [48 FR 44716-44740];
- the Secretary's *Standards for Historic Preservation Projects* [36 CFR Part 68]; and
- the DA's AR 420-40, entitled *Historic Preservation*.

These guidelines were developed in order to standardize treatments of historic properties within and among Federal lands and installations. DA regulations state that the significance of all historic properties, including cultural landscapes and lifeways, must be weighed against other public considerations and the military mission. Some cultural resources are real property such as structures, archeological sites, and culturally significant landscapes and are eligible for inclusion in the NRHP. The primary standard for significance is a property's eligibility for nomination to the NRHP. The following treatment plan for architectural resources is presented according to the BRAC PA.

1. Architectural Treatment Plan

The APE of the action to close JPG includes the entire facility. The plan to close JPG will have an adverse effect on architectural historic properties. Because JPG is considered historically important for its association with the events of World War II, a historic context has been developed (see Appendix H) and an architectural survey has been conducted for the facility. Specific pre-war NRHP-eligible historic buildings and structures as well as a potential World War II historic district have been identified. No JPG buildings, structures, or objects dating to the Cold War (post-1945) meet Criteria Consideration G for exceptional significance that

is applied to properties less than 50 years in age. The 84 buildings and structures that have been identified as eligible or potentially eligible for NRHP inclusion include:

- 74 contributing buildings of the potential multiple properties World War II historic district; and
- 10 pre-war buildings and structures:
 - * Oakdale School (Building No. 401—currently listed on the NRHP);
 - * Old Timbers Lodge (Building No. 485);
 - * eight bridges (Bridge Nos. 17, 25, 27, 28—eligible; and Bridge Nos. 2, 8, 10, 22—potentially eligible).

Currently, the sale of JPG property, including buildings, is subject to the conditions and stipulations as set forth in an MOA, with historic preservation covenants attached. Management responsibilities for historic properties may be negotiated within the text of the covenant to be included with the final instrument of transfer.

The Secretary's Standards and Guidelines for archeology and historic preservation provide guidance for detailed treatments for architectural historic properties that include rehabilitation, preservation, reconstruction, and restoration standards among others as part of Department of the Interior regulations. These treatment actions pertain to historic buildings of all materials, construction types, sizes, and occupancy, and encompass the exterior and the interior of historic buildings. The Standards address related landscape features and the building's site and environment as well as attached, adjacent, or related new construction.

Some of the standards that may be relevant to the preservation and protection of Army-controlled architectural historic properties are presented in Table III-1. Only nontemporary buildings and structures built 1946 or earlier shall be subject to coordination under the NHPA when they will be affected by a planned demolition project, or significant alteration of their character due to maintenance or renovation activities (MOA concerning closure of JPG; see Appendix M). The following definitions apply to the management plan, which is a critical element of the overall CRMP.

- Rehabilitation—the act or process of returning a property to a state of utility through repair or alteration that makes possible efficient contemporary use while preserving those portions or features of the property that are significant to its historical, architectural, and cultural values.
- Restoration—the act or process of accurately recovering the form and details of a property and its setting as it appeared at a particular period of time by means of removal of later work or by replacement of missing earlier work.
- Preservation—the act or process of applying measures to sustain the existing form, integrity, and material of a building or structure and its site features. It may include initial stabilization as well as ongoing maintenance of the historic building materials.
- Stabilization—the act or process of applying measures to reestablish a weather-resistant enclosure and the structural stability of an unsafe or deteriorated property while maintaining the present essential form of the building.
- Maintenance—the act or process of preventing deterioration through regular cleaning, servicing, replacement of worn or deteriorated materials, and minor repair while not altering the building's essential character and form.
- Repair—the act or process of fixing a building element that is broken or deteriorated while retaining the essential character and form of the building.
- Lay-away—the act or process of removing a building from active use and protecting it from deterioration and damage.

Table III-1
Standards for Treatment of Significant Architectural Resources
after the Secretary's *Standards and Guidelines for Archeology and Historic Preservation* [48 FR 44716]

Preservation is defined as the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.

Standards for Preservation

1. A property shall be used as it was historically, or be given a new use that maximizes the retention of distinctive materials, features, spaces, and spatial relationships. Where a treatment and use have not been identified, a property shall be protected and, if necessary, stabilized until additional work may be undertaken.
2. The historic character of a property shall be retained and preserved. The replacement of intact or repairable historic materials or alteration of features, spaces, and spatial relationships that characterize a property shall be avoided.
3. Each property shall be recognized as a physical record of its time, place, and use. Work needed to stabilize, consolidate, and conserve existing historic materials and features shall be physically and visually compatible, identifiable upon close inspection, and properly documented for future research.
4. Changes to a property that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.
6. The existing condition of historic features shall be evaluated to determine the appropriate level of intervention needed. Where the severity of deterioration requires repair or limited replacement of a distinctive feature, the new material shall match the old in composition, design, color, and texture.
7. Chemical or physical treatments, if appropriate, shall be undertaken using the gentlest means possible. Treatments that cause damage to historic materials shall not be used.
8. Archeological resources shall be protected and preserved in place. If such resources must be disturbed, mitigation measures shall be undertaken.

Rehabilitation is defined as the act or process of making possible an efficient compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values.

Standards for Rehabilitation

1. A property shall be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.
2. The historic character of a property shall be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property shall be avoided.
3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historical properties, shall not be undertaken.
4. Changes to a property that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.
6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and, where possible, materials. Replacement of missing features shall be substantiated by documentary and physical evidence.
7. Chemical or physical treatments, if appropriate, shall be undertaken using the gentlest means possible. Treatments that cause damage to historic materials shall not be used.
8. Archeological resources shall be protected and preserved in place. If such resources must be disturbed, mitigation measures shall be undertaken.
9. New additions, exterior alterations, or related new construction shall not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and shall be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.
10. New additions and adjacent or related new construction shall be undertaken in a such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Restoration is defined as the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project.

Standards for Restoration

1. A property shall be used as it was historically or be given a new use which interprets the property and its restoration period.
2. Materials and features from the restoration period shall be retained and preserved. The removal of materials or alteration of features, spaces, and spatial relationships that characterize the period shall not be undertaken.
3. Each property shall be recognized as a physical record of its time, place, and use. Work needed to stabilize, consolidate and conserve materials and features from the restoration period shall be physically and visually compatible, identifiable upon close inspection, and properly documented for future research.
4. Materials, features, spaces, and finishes that characterize other historical periods shall be documented prior to their alteration or removal.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize the restoration period shall be preserved.
6. Deteriorated features from the restoration period shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and, where possible, materials.
7. Replacement of missing features from the restoration period shall be substantiated by documentary and physical evidence. A false sense of history shall not be created by adding conjectural features, features from other properties, or by combining features that never existed together historically.
8. Chemical or physical treatments, if appropriate, shall be undertaken using the gentlest means possible. Treatments that cause damage to historic materials shall not be used.
9. Archeological resources shall be protected and preserved in place. If such resources must be disturbed, mitigation measures shall be undertaken.
10. Designs that were never executed historically shall not be constructed.

Reconstruction is defined as the act or process of depicting, by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location.

Standards for Reconstruction

1. Reconstruction shall be used to depict vanished or non-surviving portions of a property when documentary and physical evidence is available to permit accurate reconstruction with minimal conjecture, and such reconstruction is essential to the public understanding of the property.
2. Reconstruction of a landscape, building, structure, or object in its historic location shall be preceded by a thorough archeological investigation to identify and evaluate those features and artifacts which are essential to an accurate reconstruction. If such resources must be disturbed, mitigation measures shall be undertaken.
3. Reconstruction shall include measures to preserve any remaining historic materials, features, and spatial relationships.
4. Reconstruction shall be based on the accurate duplication of historic features and elements substantiated by documentary or physical evidence rather than on conjectural designs or the availability of different features from other historic properties. A reconstructed property shall re-create the appearance of the non-surviving historic property in materials, design, color, and texture.
5. A reconstruction shall be clearly identified as a contemporary re-creation.
6. Designs that were never executed historically shall not be constructed.

The presence of hazardous materials and material residues may impact considerations for preservation and mitigation. Coordination will be required.

a. Continued Operations, Maintenance, and Repair

Maintenance and repair activities, to the greatest extent possible, should seek to preserve the integrity of historic properties. The Secretary's *Standards and Guidelines* for archeological and historic preservation offers general and useful guidelines for the treatment of significant buildings (see Table III-1). The maintenance levels for eligible buildings and structures under the control of the Army must provide the

necessary actions to preserve and enhance the qualities that make the property eligible for inclusion in the NRHP, and no construction, alteration or remodeling be undertaken that would affect the integrity of the historic property without the prior written permission of the SHPO. Recommended maintenance and repair procedures establish:

- that the defining elements, such as the building exterior and interior, be protected and treated with the appropriate maintenance standards as required by the Secretary's *Standards and Guidelines* (see Table III-1).
- that the building be maintained in weather-tight condition.
- that the building be maintained in such a way that it does not violate the historic integrity or damage the character-defining elements in a manner that would preclude eligibility for listing in the NRHP.
- that alterations to the building shall not destroy elements that define the historic character. Such alterations must be reversible and preserve the character-defining features to convey the importance of the properties.
- that repair of historic features (rather than their replacement in kind) matches the old in design, color, texture, and other visual qualities.

b. Preservation Maintenance

Preservation of eligible buildings and structures under Army control may include initial stabilization as well as ongoing maintenance of the historic building materials. Preservation maintenance is dependent upon regular cleaning, servicing, replacement of worn or deteriorated materials, and minor repair. The following may be applicable to eligible buildings and structures currently under Army control and to those ultimately managing JPG historic properties.

- *Professional Qualifications*—Field assessment and evaluation of proposed replacements and repairs should be undertaken by a qualified professional who meets the professional qualification standards for history and historic architecture as defined in 48 FR 44738-44739.
- *Record Keeping*—Organized record keeping is essential to the efficient maintenance and repair of historic structures and to achieve compliance with applicable regulations. Each building and structure should have a file for use by the entity that has authority for maintenance and repair activities. The file should include historical materials, photographs, maintenance records, and HABS Level IV inventory sheets. Additionally, a copy of the repair and maintenance checklist should be included. Files should be reviewed prior to and in conjunction with maintenance, repair, and development activities. It is recommended that the facility records be placed in a single location for management purposes.
- *Maintenance Record Review*—Maintenance records provide useful information about building conditions, inherent design problems, and the sources of changes in the fabric of a building. Out-of-date maintenance records for historic properties should be included in an evaluation of selected archivally preserved documents.
- *Building Inspections*—Buildings may be inspected by the SHPO to ascertain that the maintenance procedures are being observed.

c. Demolition

Demolition of NRHP-eligible buildings constitutes an adverse effect that may be mitigated through HABS/HAER documentation. The appropriate level of documentation should be determined through consultation with the SHPO and the National Park Service.

A subset of this treatment is that associated with the disposal of World War II Temporary Mobilization Buildings. A special case for the treatment of architectural properties relates to the disposal of World War

II Temporary Mobilization Buildings on military installations. As the result of a congressional mandate to the DOD to demolish World War II Temporary Mobilization Buildings, the recognition that these buildings were not intended to be permanent as well as the determination that many of these buildings may meet the criteria for inclusion in the NRHP and that the program of demolition may have an effect on their qualities of significance, the DOD, the ACHP, and the NCSHPO negotiated a Programmatic Memorandum of Agreement (PMOA) to take into account the effect of the undertaking on historic properties. This completed PMOA stipulates the treatment of World War II Temporary Mobilization Buildings which should be carried out prior to their disposal or demolition. No further Section 106 consultation is required for World War II temporaries.

2. Archeological Treatment Plan

a. Procedures for the Treatment of Recorded and Predicted Resources

A full cultural resources survey of the JPG area has not been completed. Out of a total 55,264 acres at JPG,

- 33,645 acres have been excluded from intensive survey:
 - * 28,800 acres because of ground-surface disturbance (see Figures II-1 and II-2) and
 - * 4,845 acres that have already been surveyed (see Figure I-4).
- Presently, 21,619 acres at the facility remain to be intensively surveyed.
- Currently, 153 archeological sites have been recorded (see Table II-1).
 - * 23 recorded archeological sites are considered to be of unknown eligibility and are recommended for preservation through avoidance:
 - 13 prehistoric sites (JPG-AACI-2, JPG-AACI-4, JPG-AACI-5, JPG-AACI-8, JPG-AACI-14, JPG-AACI-15, JPG-AACI-17, JPG-AACI-18, 12Je456, 12Je458, 12Je470, 12Je478, 12Je480);
 - three historic sites (JPG-AACI-22, JPG-AACI-23, 12Je401);
 - seven multicomponent sites (JPG-AACI-1, 12Je404, 12Je417, 12Je418, 12Je471, 12Je473, 12Je482); and
 - * 130 sites have been evaluated as being ineligible for NRHP inclusion.
- Of the 478 archivally identified sites on JPG,
 - * 288 are inaccessible;
 - * two are buildings that have been evaluated as eligible (archival #426—the Oakdale School—and archival #478—Old Timbers Lodge);
 - * 188 sites are in locations that are accessible:
 - 21 have been located, recorded, and evaluated (included among the recorded sites above; see Table II-1)
 - 167 remain to be located and are currently of unknown eligibility.

Treatment options may be recommended at this time even though complete evaluation of the sites of unknown eligibility is dependent upon future testing and documentation:

- sites of unknown eligibility must be treated as potentially eligible;
- impacts to any cultural resource judged to be either eligible for inclusion in the NRHP or requiring further evaluation prior to a final determination of eligibility should be avoided;
- NRHP-ineligible resources have been judged to contain little or no significant data and thus are not of archeological or historical importance; therefore, avoidance of ineligible properties is not necessary.

b. Archeological Treatment Alternatives

The DA regulations state that the significance of all archeological resources, both prehistoric and historic, must be weighed against other public considerations and the military mission. Once the significance has been determined, the treatment options are either:

- protection—to apply measures designed to prevent any further physical damage to, or loss of, a cultural resource, and to save the property for future research or restoration; or
- mitigation—taking a remedial action to document fully the resource in such a way that little or no information is lost if protection or avoidance is not possible.

Four treatment measures for archeological properties are defined in AR 420-40.

- **Avoidance**—In most cases, projects proposed in areas containing an archeological historic property (NRHP-listed or NRHP-eligible) can be adjusted to avoid impact to that resource. This is especially true, for example, of wetland restoration/creation, forest management, wildlife habitat improvements, and agricultural activities. Projects such as construction of installation facilities, roads, placement of utility line right-of-ways, new tree plantation development, soil erosion control, landscaping, and borrow pit excavation usually can be designed to avoid areas of archeological historic properties when these areas are defined before or during the initial project design stage.
- **Physical Protection**—If it is necessary to disturb or construct in an area containing archeological historic properties, it is usually possible to protect those resources from inadvertent impact by temporarily fencing, berming, burying, or marking off the area with fluorescent flagging tape and notifying military commanders, security personnel, and contractors of the presence of these resources. These methods, in conjunction with verbal instructions to those involved in the disturbance of the area, are usually sufficient to protect the archeological historic properties from impact and inadvertent vehicular traffic. Of course, the inclusion of specifications concerning the protection measures the contractor must follow during construction activities in the contract or permit would further enhance the contractor's awareness of such stipulations. When avoidance and fencing is impossible, such as for a roadway, or installation construction in an area with a large archeological site or where the resource is positioned in the interior of the proposed construction area, another form of physical protection may be used. In these cases, it is sometimes possible to seal the resource with sterile soil (that is, soil that contains no historic or prehistoric archeological remains). Although this method removes the archeological property from immediate access by deeply burying it beneath soil, the remains are sealed, and the site is preserved.
- **Monitoring**—Archeological historic properties that have been avoided or physically protected need periodic monitoring to assess the effectiveness of the protection measures. If it is determined during construction that avoidance is impossible or that the physical barriers placed around the archeological historic property are insufficient, other protective means may be necessary. In extreme cases, monitoring may determine that protection is impossible, and mitigation is required. Monitoring of construction is also necessary if the construction is being done in an area known or suspected to contain important historic or prehistoric archeological site information that may be buried beneath more recent sediments (i.e., landscaping or alluvial overbank deposits). Monitoring also may be required during construction in an area where the loss of a portion of an archeological historic property has been mitigated through data recovery but the remainder of the property is intact. Monitoring is necessary to ensure that vehicular traffic and construction activities remain within the mitigated area.
- **Protection of a Valid Sample**—Within a defined area, several occupation episodes and site types may be represented, both for the historic and prehistoric periods. In addition, there also may be several archeological historic properties for each represented occupation. Each property should be evaluated for the possibility of intact deposits and for its chronological, functional, and cultural importance in relation to what is already known for the region. Representative historic properties

should be avoided during project planning or physically protected and regularly monitored during construction episodes. A periodic reevaluation of the relative importance of all the sample historic properties should be conducted regularly as new information is gathered.

The standard mitigation treatment for archeological historic properties (NRHP-listed or NRHP-eligible) is data recovery of the property, generally in the form of archeological excavation and/or documentation.

- **Data Recovery (Excavation)**—mitigation of an archeological historic property or portions of an archeological property will be undertaken when the resource cannot be avoided or physically protected and will be destroyed through construction or other activities. Data recovery in the form of excavation and documentation must meet certain Federal standards as outlined in the Secretary's *Standards and Guidelines: Archeology and Historic Preservation* (48 FR 44716-44740) and in the proposed guidelines of the Department of the Interior, National Park Service (1977), entitled *Recovery of Scientific, Prehistoric, Historic, and Archeological Data: Methods, Standards, and Reporting Requirements* [36 CFR Part 66].
 - * First, each excavation will be conducted by a professional archeologist who meets the minimum qualifications of degree programs (as set forth in 36 CFR Part 61 and AR 420-40) and experience in the region.
 - * Second, each excavation must have a site-specific mitigation plan. This plan will state the importance of the archeological property not only to the researcher but in relation to the regional pattern of occupation of which the resource is a part. The plan also will contain a set of research questions to be considered. Furthermore, the data recovery should be executed with the appropriate research and recovery techniques to recover a wide range of data, not just that which would answer certain research questions.
 - * Third, a data recovery program will schedule an adequate number of qualified personnel to undertake the site excavation and to provide research questions and new ideas to the program.
 - * Fourth, proper excavation and documentation techniques will be used not only to assure that a wide range of data will be recovered, but that all documentation and recovered materials are recorded in a standardized way so that future researchers may be able to understand and employ the data to answer new questions. Preservation and curation of recovered materials and pertinent documents fall under this category as well, as it is the responsibility of the researchers to disseminate the recovered information to other interested parties in the form of published reports and scientific papers.
 - * Fifth, the data recovery program will be flexible in design to cope with unforeseen discoveries and problems.

c. Cemeteries

Although two cemeteries—Old St. Magdalene's and the Sheppard—may possibly still exist within JPG, there is scant evidence of either cemetery, and both are located inside areas where existing or future impacts are very remote. It is likely, however, that additional unmarked family plots or unmarked isolated burials are present on the facility. In the event that human remains are encountered during construction or archeological investigations, work should be stopped in the vicinity of the find and the supervisor should immediately inform management, who will in turn relay the information to post security to determine whether action on the remains should be directed to county officials or whether the remains represent archeological deposits. If the remains are Native American, NAGPRA will apply.

Cemeteries represent a special class of sites that does not fall within the above categories. Nevertheless, whether eligible or not, these properties, as repositories of human remains, should be avoided and protected from construction in the surrounding areas.

C. Other Requirements

1. Excessing Lands

Real property for which there is no foreseeable requirement may be excessed in accordance with AR 405-90, *Real Estate—Disposal of Real Estate*. As per Technical Note (TN) 405-80-2(3-1)(b), all actions for disposal of real property will comply with environmental, historical, and cultural protection requirements as stated in AR 200-1, AR 200-2, and AR 420-40. The Army will not approve any action that may have an adverse effect on an NRHP-eligible or NRHP-listed property, including any action to transfer, sell, demolish, or substantially alter such a property, until the ACHP has been provided an opportunity to comment on the proposal. Under AR 405-90 4-3(b), the Army will perform protection and maintenance to prevent vandalism and the development of unsafe conditions, to maintain property values, and to promote good public relations.

It is important to note that the procedures given in Army TM 5-801-1, *Historic Preservation Administrative Procedures*, Section 8-8, "Transfer of Property," apply, with modification of the "Transfer to Private Ownership" paragraphs. Written in 1975, TM 5-801-1 does not acknowledge the inclusion of historic preservation covenants in the disposal of Army real estate; today such covenants are standard practice as protection for NRHP-eligible or NRHP-listed properties transferred from the Federal government to the private sector, when sales can be made with such covenants attached. If JPG is disposed of to any other Federal agency for conservation purposes, historic preservation obligations shall be deemed to pass to that other agency. If, however, the installation is excessed to another Federal agency for purposes other than conservation, then the Army shall determine what, if any, additional measures are needed to achieve compliance with historic preservation regulations under Federal regulations 36 CFR 800. Land transfers and appropriate covenants will occur within the rules governing NHPA and BRAC.

a. Excessed Archeological Properties

- In the event the Army disposes of land containing eligible archeological resources to a nonfederal entity, the Army shall ensure that preservation covenants are included in the conveyance document; or ensure that the archeological sites are subjected to archeological data recovery prior to transfer. The preservation covenant shall be recorded in the real estate records of Jefferson, Jennings, or Ripley counties, Indiana.
- If the Army proposes to transfer to a nonfederal entity any identified historic or prehistoric archeological site that is considered potentially eligible for inclusion in the NRHP, such property will be identified in the transfer documents with standard preservation covenants attached; or will be subjected to archeological data recovery prior to transfer.
- If the Army proposes to transfer to a nonfederal entity any areas of JPG where historic or prehistoric sites are likely to occur in lands where there is low contamination and little disturbance, the Army will ensure that such lands are identified in the transfer documents with standard preservation covenants incorporated. Should the proposed recipient of such lands be unwilling to accept such conditions, the Army, with consultation with SHPO, will conduct surveys to identify, evaluate, and recover data from specific archeological sites within the area to be transferred.

b. Excessed Historic Standing Structures

- If the Army proposes to transfer to a nonfederal entity any standing structures built prior to 1946 that are listed on or eligible for listing in the NRHP, the Army must ensure that the instrument transferring the property incorporates the covenant designated as Attachment G in Appendix M.

That covenant shall be recorded in the real estate records of Jefferson, Jennings, or Ripley counties, Indiana.

- In the event there is no acceptable offer that will conform to the rehabilitation and maintenance requirements of the Secretary of the Interior's *Standards and Guidelines for Architectural and Engineering Documentation* [48 FR 44730-34], the Army, with the approval of the SHPO, may modify the covenant to reduce the requirements or may transfer the property without a preservation covenant.
- Prior to the transfer of such property, the Army shall ensure that it is recorded in accordance with a recordation plan that is consistent with the Secretary of the Interior's *Standards and Guidelines for Architectural and Engineering Documentation* [48 FR 44730-34] and approved by the SHPO. The recordation plan shall be provided to the SHPO for a 30-day comment period.
- If the Army proposes to transfer to a nonfederal entity any identified structure or building that is not eligible for the NRHP, the Army may transfer such property without preservation covenants.

If a disagreement arises between consulting parties for the JPG, the Army, the Indiana SHPO, the ACHP, the proposed recipient of the property, and other interested parties, the Federal agency will follow the procedures established in accordance with 36 CFR 800.6. Under these regulations, the SHPO may determine that the federal agency may not excess such lands unless the deed specifies that the new owner will protect and preserve the NRHP-eligible property as deemed appropriate to its historic character.

2. Curation of JPG Records, Drawings, Photographs, and Other Materials

As required by the Federal Records Act [44 U.S.C. Sections 21-35] and 36 CFR 1228, the DA is required to establish and maintain programs to manage, preserve, and maintain permanent records and to properly dispose of those records scheduled as temporary. Likewise, the National Archives and Records Administration (NARA [36 CFR Part 1228]) requires Federal agencies to establish records disposition programs to ensure efficient reductions in the quantity of records and to provide for records maintenance.

AMC facilities, including JPG, have accumulated a body of records that documents the history, architecture, engineering, and operational development of each facility. Examples of the facility records to be considered for curation include basic information maps; tabulation of existing facilities; land-use plans; documents on the planning construction and design of specific projects or properties; design specifications and agenda; original tracings; "as built" drawings; shop drawings; progress photographs; film; negatives; regional maps; reservation maps; post layouts; architectural, mechanical, and structural building plans; files that describe building and equipment function; and utility plans. These records are irreplaceable records and require a commitment for appropriate long-term curation lest they become irretrievably lost. It is recommended that the Army review the installation records and make a determination as to which records relevant to the PA should be removed for safe-keeping.

The Deputy Chief of Staff for Information Management, Headquarters AMC, is responsible for the proper disposition of official records, forms, publications, and materials of kind upon notification of a base closure, realignment, or discontinuance of an activity or function. Records administrators and managers are required to supervise the transfer/disposition of records, forms, and the materials. Records management officials should be included in the process transition planning and should be retained until final disposition of all records is accomplished. Those records should be transferred to a records holding area for retention and eventual disposition under Records Number 335. Eventually, records should be transferred to the gaining organization, or its higher headquarters. According to AR 25-400-2, the records should be identified, maintained, stored, retired, or destroyed according to the Modern Army Record Keeping System (MARKS), if JPG complies with MARKS. If a records holding area is not available or is being discontinued, transfer of records should be made to the appropriate Federal records center.

3. Granting Archeological Investigation Permits

Procedures for granting archeological investigation permits are covered in detail in ARPA of 1979 [P.L. 96-95] and its implementing regulations. This act established definitions, standards, and procedures to be used by all federal land managers in providing protection for archeological resources. Regulations allow the ARPA review to be accomplished as part of the contracting process as long as the standards established in the ARPA regulations are followed.

A separate permit is not required for a government contractor carrying out the installation's archeological resources management responsibilities under a contract or similar instrument. An ARPA permit, however, is required for any other type of work—such as research excavations—on the installation. In such cases, the Army will coordinate with the U.S. Army Corps of Engineers District Planning and Real Estate Divisions to grant an ARPA permit.

- The Federal land manager, in considering whether to grant a permit, takes into account whether the archeological investigation will conflict with established policy or management plans and if it is in accordance with the other public uses of the land in question.
- If the project may result in harm to or destruction of any Native American tribal, religious, or cultural properties, the Federal land manager must notify any Native American tribe which may consider the site as having religious or cultural importance.
- Once it is determined that the proposed archeological investigation will conflict with existing land management priorities, the qualifications of the individual or institution need to be considered.
 - * Individual qualifications include a graduate degree in archeology or anthropology or equivalent experience, the demonstrated ability to carry out the work in question as well as to carry the research to completion, at least 16 months of specialized training or professional experience, and at least one year of historical archeology experience in order to conduct historic investigations.
- The institution must show evidence of access to an adequate curatorial facility and certify that all required materials will be delivered no later than 90 days after the final report is submitted to the Federal land manager.

After the permit is granted, the Federal land manager may suspend or revoke it if the individual or institution has failed to meet the terms and conditions of the permit or violated ARPA. The individual or institution may appeal this decision. Grounds for evaluating any possible penalties are set forth in ARPA.

4. Compliance with Native American Graves Protection and Repatriation Act

The NAGPRA of 1990 [P.L. 101-601] applies to federally recognized Native American tribal groups and has two main requirements:

- that Federal agencies are required to locate and inventory human remains and associated artifacts in existing collections previously collected by Federal projects on Federal lands; and
- to provide a summary of unassociated funerary objects, sacred objects, and objects of cultural patrimony located on Federal and tribal lands.

Following the final NAGPRA regulations printed in the *Federal Register* [43 CFR Part 10, 3 January 1996], the intentional excavation of human remains or cultural items may proceed at JPG only if:

- proof of consultation or consent with the appropriate federally recognized Indian Tribe(s) is obtained through letters or documentation;

- the disposition of the objects is consistent with their ownership (the individual or Indian Tribe that has the closest lineal or cultural affiliation); and
- the objects are excavated in accordance with applicable legal requirements, including, when required, a permit issued pursuant to ARPA.

The applicable legal requirements are best represented by the ARPA permit requirements that include:

- the identification of the type of permit requested (survey, limited testing, or data recovery excavations);
- a description of specific lands the permit will cover including a map of those areas in which the work will be conducted;
- a description of the nature and extent of the work proposed and the purpose of the project the work is being completed for;
- the name(s) and address(es) of the institution(s) conducting the work and the name(s) of the individual(s) responsible for conducting the work;
- the name(s) of the individual(s) responsible for carrying out the terms and conditions of the permit;
- the dates of the work to be completed and period of performance;
- the name of the curatorial facility and copy of curation agreement by the repository where the material will be stored (if the Indian owners do not wish to assume custody);
- the proposed outlet for public written dissemination of the work results; and
- evidence of the applicant's capacity to initiate, conduct, and complete the proposed work including evidence of logistical support and laboratory facilities.

NAGPRA requires Federal agencies to engage in active consultation with Native Americans of federally recognized tribes and/or lineal descendants who may be culturally affiliated with collections gathered through archeological investigations within the facility. Initial consultation should be conducted on a government-to-government basis. NAGPRA [P.L. 101-601] provides specifics that are required for Native American consultation and the legal definitions of items subject to NAGPRA.

A survey of federally recognized Native American groups must be undertaken to identify any potential cultural items as defined by NAGPRA (i.e., certain Native American human remains, funerary objects, sacred objects, or objects of cultural patrimony). Although many groups within the region have petitioned for Federal recognition, legal status at the present time for some groups either has not been finalized or the petitions have been denied; thus these tribal groups do not presently fit the legal description of tribes as defined for NAGPRA purposes. Currently, 15 tribes have been federally recognized and may be considered for cultural affiliation with collections from JPG. These tribal groups include:

Absentee-Shawnee Tribe of Indians of Oklahoma
 Cherokee Nation of Oklahoma
 Citizen Band Potawatomi Indian Tribe of Oklahoma
 Delaware Tribe of Western Oklahoma
 Eastern Shawnee Tribe of Oklahoma
 Forest County Potawatomi Community of Wisconsin Potawatomi Indians, Wisconsin
 Hannahville Indian Community of Wisconsin Potawatomi Indians of Michigan
 Kickapoo Tribe of Kansas
 Kickapoo Tribe of Oklahoma
 Kickapoo Traditional Tribe of Texas
 Miami Tribe of Oklahoma
 Peoria Tribe of Oklahoma
 Pokagon Potawatomi Indians of Michigan
 Prairie Band of Potawatomi
 Stockbridge-Munsee Community of Mohican Indians of Wisconsin

It is in the interest of the DA to establish a PA or a Memorandum of Understanding (MOU) with the appropriate federally recognized Native American tribe(s) to specify procedures for the excavation, treatment, and disposition of human remains or cultural items that may be encountered on the facility. Such agreements may be developed to outline procedures for both intentional excavations and inadvertent discoveries. These agreements should address all of the JPG land management activities that could result in the excavation of human remains or cultural items. Consultation with the tribes should lead to:

- the establishment of a process for effectively implementing the requirements of NAGPRA; and
- the treatment and disposition of human remains or cultural items that have been recovered.

Inadvertent discovery of Native American burials or other cultural items on JPG not anticipated shall require the project or mission to:

- cease activities in the area of discovery, make an effort to protect the resources, provide notification to the caretaker staff/TECOM, who will inform the Federal land manager; and
- provide notification of the discovery to the appropriate federally recognized Native American group(s) or tribal group(s) with possible affinity to the discovery.

Activities are prevented from continuing in the area of discovery for 30 days after the appropriate tribal group(s) has been officially notified. If avoidance is impossible, then the removal of such remains and/or cultural items is only permissible if:

- the caretaker staff/TECOM obtains an ARPA permit;
- consent of the appropriate tribal group is received;
- ownership and right of control of such items is not in dispute; and
- proof of consultation and notification is documented by written correspondence with the appropriate tribes.

As part of obtaining the ARPA permit, the caretaker staff/TECOM should solicit comments from interested parties and the appropriate Native Americans to develop an MOU concerning the notification and data recovery procedures, and policies for the disposition and treatment of cultural items and human remains. If established prior to the discovery of the remains, the MOU may serve to eliminate the costly 30-day delay created under normal NAGPRA procedures.

Planned excavations under Section 106 requirements of the NHPA must also meet the requirements of the NAGPRA legislation regarding the treatment and disposition of human remains and other cultural items discovered during the conduct of planned mitigation measures. Appropriate disposition of the excavated remains must be established through consultation with the affiliated federally recognized Indian tribal group(s).

IV. STANDARD OPERATING PROCEDURES

The MOA between the DA, the ACHP, and the Indiana SHPO concerning the closure of JPG has addressed the fact that the closure of JPG may affect historic properties and therefore has established management procedures for routine maintenance and specific treatment or management plans for historic properties prior to closure. The following section sets forth procedures to follow while the facility is under Army control and specifies agreed-upon actions between the Army and the SHPO that can be incorporated into a PA for JPG which will not require coordination or review by the SHPO for Section 106 compliance. For actions not covered within this section, reference should be made to the Section 106 review presented in Section III of this CRMP.

The HPC—appointed by the installation commander in compliance with AR 420-40—should take coordination responsibilities for all projects that will involve ground-disturbing activities, as long as the HPC is a functioning position at JPG. Absent the HPC, the responsibilities in the following examples of procedures will be assumed by the caretaker staff/TECOM while the facility is under Army control. The use of the term “historic property” in the following sections means all cultural resources listed on the NRHP as well as cultural resources eligible for or potentially eligible (of unknown eligibility) for inclusion in the NRHP.

A. Procedures to Review and Monitor Field Activities, Construction, and Other Undertakings to Ensure Compliance with CRMP

The procedures to review and monitor activities at JPG include caretaker staff/TECOM participation in, for example, installation-wide master planning, real estate management, and natural resources management. The caretaker staff/TECOM will serve as the central point of review for all proposed undertakings and will serve as the central point of contact for consultant/subcontractors. The caretaker staff/TECOM will review the proposed project against the cultural resources data base to determine whether the APE has been surveyed and whether cultural resources are present within the project area. In the event that the area has not been surveyed and the APE has not been previously disturbed, the caretaker staff/TECOM should seek consultation with the SHPO to determine if further 106 review is required.

- When a site visit is made to determine what work is required, it may be beneficial to include the SHPO in the visit.
- Upon receipt of SHPO and/or ACHP comments, the caretaker staff/TECOM takes comments into consideration and forwards the applicable comments to the appropriate manager.
- The caretaker staff/TECOM works with the respective managers to provide correspondence regarding changes/ modifications resulting from comments of the review agencies.
- Copies of all correspondence concerning coordination efforts should be retained in the project file.

Monitoring of any activity that may directly or indirectly impact a historic property involves two phases.

- First, the caretaker staff/TECOM (or the designee of the caretaker staff/TECOM) should serve as monitor.
 - * The caretaker staff/TECOM and a field supervisor of the third-party consultant/subcontractor visit the project area, evaluate the site context in relation to planned activities and decide how the property may be best protected (marked, fenced, sterile overburden), and may seek advice from outside archeologists.
 - * The caretaker staff/TECOM should place a brief descriptive summary of the protection plan within the project file.

- Second, the caretaker staff/TECOM will decide on a schedule of regular site visits in order to properly supervise the protection of the historic property.
- * Any damage to the historic property as a result of the undertaking should be documented through photographs and a written assessment of the damage. The caretaker staff/TECOM may seek advice from outside archeologists to accomplish this task.
- * Steps taken to ensure that no further damage occurs should also be documented.

B. Step by Step Examples of Section 106 Review at the JPG

Federal actions listed in the JPG Natural Resources Management Plan and in other sources that may constitute an adverse effect to historic properties under Army control include such projects as facility construction, utilities and pipeline construction, borrow pit excavations, hazardous waste remediation, soil erosion control, landscaping, tree plantation development, right-of-way easements, and excessing lands to nonfederal parties. These are the types of projects with which the caretaker staff/TECOM must be most concerned regarding the management of cultural resources. The previous chapter reviewed the general procedures for review. For actions not specifically addressed in this section, refer back to the topic as covered in Section III. The following procedures present actual examples of procedures to be followed by the caretaker staff/TECOM for various activities that may currently apply or may be applicable in the future as long as the facility is under Army control. These procedures will serve to determine if there is no effect, no adverse effect, or an adverse effect to historic properties under the control of the Army.

1. General Actions

Step 1: Caretaker staff/TECOM and Project Manager will determine impact of project on historic properties; assessment of impact may require professional assistance from historic preservation specialists.

- If sufficient information is not available for decision-making, consult with the SHPO to determine if survey is required.
- If the area has been surveyed and no historic properties are present, proceed with the project.
- If historic properties are present, caretaker staff/TECOM and Project Manager will determine if historic properties may be avoided and protected from direct or indirect impacts.
 - * If NRHP-eligible properties are present within the APE and those properties can not be avoided, the caretaker staff/TECOM will seek consultation with the SHPO to develop a mitigative treatment.
 - * If cultural resources of unknown NRHP eligibility exist within the project area, the caretaker staff/TECOM can develop a testing program to complete the NRHP eligibility evaluation of those resources and will report the findings to the SHPO.
 - * If NRHP-eligible properties or cultural resources of unknown eligibility exist within the APE and the caretaker staff/TECOM, Project Manager, and Design Engineers can develop a plan to facilitate avoidance of and protection for those resources, the project may proceed following concurrence by the SHPO.

Step 2: Inform contracting officer of specifications that must be included within contracts.

Step 3: Implement protection measures.

These measures may include:

- marking and avoidance of site boundaries,
- fencing and avoidance of site, or
- sealing site with sterile fill dirt.

Step 4: Familiarize consultant/subcontractor with historic property locations and protection measures.

Step 5: The Caretaker staff/TECOM and/or Project Manager will monitor contracted activities to ensure the protection of the historic properties.

2. Forest Management

Step 1: Timber Manager will determine if the operation is ground-disturbing.

- If ongoing timber management programs do not recontour land nor disturb the ground surface and are conducted under dry or frozen ground conditions, logging may proceed in areas not surveyed.
- If the logging process will cause ground disturbance within an area that is unsurveyed and is on undisturbed ground, the caretaker staff/TECOM will require a survey of the APE.
- If the area has been surveyed, the caretaker staff/TECOM will determine locations of historic properties. If historic properties are present, then proceed to Step 2. If no historic properties are present, the harvesting may proceed.

Step 2: Caretaker staff/TECOM will determine treatment options applicable to each site.

- Direct impacts to historic properties—as well as to a 50-foot buffer extending out from marked site edges—resulting from tree-planting areas or harvesting skid trails and loading and logistical staging areas will be avoided.

Step 3: The caretaker staff/TECOM and the Timber Manager will mark locations of historic properties.

- Boundaries will be marked with easily identifiable markers such as fluorescent paint and/or flagging tape.

Step 4: Inform contracting officer of special requirements related to historic properties.

Step 5: Familiarize consultant/subcontractor with locations of historic properties and their treatment options.

Step 6: The caretaker staff/TECOM and/or the Timber Manager for the installation will monitor any such tree removal in order to ensure the protection of the historic properties.

3. Agricultural Leases

Step 1: The caretaker staff/TECOM will be apprised as to whether or not the land use will change, resulting in ground-disturbing actions (e.g., from hay production or grazing land to crop land), and will determine whether the area has been surveyed.

Step 2: The caretaker staff/TECOM will determine treatment options applicable to each historic property.

- Agricultural use of the historic property will be permitted, with the proviso that such use will be consistent with the previous utilization of the property and will not involve significant disturbance of surface sediments. The use of the historic property as pasture is an example of permitted use.
- Alteration in the land use of the historic property from untilled pasturage to crop land involving tillage of previously undisturbed land or stock pond construction are examples of actions that will require Section 106 review.

4. Unexpected Cultural Resources Discovered During Implementation of an Undertaking

The accidental discoveries of cultural resources during an undertaking can include but are not limited to:

- undiscovered/undocumented structural and engineering features; and
- undiscovered/undocumented archeological resources such as foundation remains, artifacts, or other evidence of human occupation.

When such cultural resources are discovered, the facility will proceed with the treatment of such resources in accordance with the following Discovery Plan.

Step 1: Work shall cease in the area of the discovery.

- The resource is to be treated as eligible and avoided until an eligibility determination is made. The Army will continue to make reasonable efforts to avoid or minimize harm to the resource until NHPA and ARPA requirements are met.
- If Native American remains or associated funerary objects are involved, NAGPRA will apply. Notification to the appropriate federally recognized Indian Tribe will follow specific requirements set forth in NAGPRA; the SHPO and the ACHP have no statutory role in such an action. In cases of suspected Native American burials or associated funerary objects, see the following section for procedures regarding the recovery of human remains and the requisite NAGPRA regulations.

Step 2: In compliance with NHPA and ARPA requirements, within 24 hours of the discovery, the consultant/subcontractor or the facility representative shall notify the caretaker staff/TECOM who, in turn, will notify, if necessary, the SHPO.

- The caretaker staff/TECOM may elect to involve the ACHP.
 - * When the Army elects to directly involve the ACHP in an emergency discovery coordination, the SHPO and the ACHP shall be notified at the earliest possible time, and comments shall be requested. The ACHP shall provide interim comments to the Army within 48 hours of the request and final comments to the Army within 30 days of the request pursuant to 36 CFR Part 800.11(c)(2).
- or*
- The caretaker staff/TECOM may contact the SHPO or other interested parties of the discovery within 72 hours.
 - * The Army will develop and implement actions that take into account the effects of the undertaking on the property to the extent feasible and the comments from the SHPO pursuant to 36 CFR Part 800.11(c)

Step 3: In the unlikely event that no consensus can be reached on the significance of a discovered resource, the Secretary's Keeper of the National Register will be requested to provide a determination.

5. Procedures for the Recovery of Human Remains

If human remains are encountered during construction, maintenance, or archeological test excavations, Federal laws must be considered.

Step 1: Project Manager, the construction supervisor, or project archeologist will:

- cease activities in the immediate area of discovery,
- make an effort to protect the resources, and
- provide notification to the caretaker staff/TECOM.

Step 2: The Army will be responsible for site security pending resumption of the operations or resolution of site mitigation.

If the remains are determined to be of aboriginal origin, specific NAGPRA regulations must be followed pursuant to 43 CFR Part 10.4. The regulations require among other stipulations that upon an unexpected discovery of Native American human remains, funerary objects, sacred objects, or objects of cultural patrimony further construction or archeological activities in the area of discovery cease for 30 days after the appropriate federally recognized tribes and/or lineal descendants have been officially notified.

Step 3: Removal of Native American human remains may proceed when NAGPRA regulations have been met and:

- the consent of the appropriate federally recognized tribal group is obtained,
- ownership and right-of-control of such items is not in dispute, and
- proof of consultation and notification is documented.

The Army should establish procedures and agreements with the Native American tribe(s) for the treatment of unmarked burials in the event of an unexpected discovery. Anticipating such a possibility, a PA or an MOU may be established with the appropriate tribe(s) that may expedite the review process and override the mandated 30-day work stoppage. NAGPRA compliance does not, however, include Section 106 compliance.

6. Unintentional Partial Damage to an Eligible Archeological Site or Site of Unknown Eligibility

Step 1: Caretaker staff/TECOM will be notified of damage.

Step 2: Caretaker staff/TECOM will document damage both photographically and in a written summary report.

Step 3: Caretaker staff/TECOM, in consultation with a qualified prehistoric or historic archeologist (dependent upon type of site), will determine if limited excavations should be conducted to collect available data or if site context may be stabilized.

- If disturbance was the result of construction plans that did not account for a known site and such construction will further damage the site, caretaker staff/TECOM will ensure that no further damage occurs until consultation with the SHPO concerning appropriate mitigation actions is finalized.
- If disturbance is limited and no further disturbance is anticipated, stabilization of the site context should be accomplished with sterile (artifact free) fill dirt and appropriate erosion control measures.

Step 4: Caretaker staff/TECOM and a qualified archeologist will develop a plan for limited data recovery and/or stabilization.

Step 5: Caretaker staff/TECOM submits the plan to the SHPO for review and concurrence.

- If SHPO does not concur, follow Section 106 compliance procedures.
- If SHPO concurs, the project may proceed.

Step 6: Caretaker staff/TECOM will inform contracting officer of appropriate specifications that must be included within the contract or subcontract.

Step 7: Project Manager will familiarize consultant/subcontractor with significant features of historic property and protection measures.

Step 8: Caretaker staff/TECOM and/or Project Manager will monitor contracted activities to ensure the integrity of the historic property.

Step 9: Caretaker staff/TECOM will submit photographs of the historic property taken upon completion of the project to the SHPO to document compliance.

Step 10: Caretaker staff/TECOM shall retain documentation of limited data recovery and/or stabilization, including work write-ups and photographs, as part of the permanent project records.

7. Maintenance and Repair of Architectural Historic Properties

Maintenance and repair may damage the character and integrity of architectural historic properties if proper procedures are not followed. Therefore, in order not to alter the character or integrity of the property, the following procedures should be followed:

- distinctive features or characteristics of the building, structure, or object should not be removed;
- the same or similar materials must be used for repair;
- if replacement is necessary, the new feature will match the old in design, color, texture, and—where possible—materials;
- replacement of features will be documented through records and photographs; and
- chemical or physical treatments should not be allowed to damage the historic materials.

Step 1: Project Manager will submit project plan to caretaker staff/TECOM for review.

Step 2: Caretaker staff/TECOM will determine if the area/facility has been inventoried.

- If NO, go to Section 106 compliance procedures.
- If YES, determine locations and nature of historic properties.

Step 3: Caretaker staff/TECOM will determine if project can be accomplished in accordance with the maintenance and repair plan and thereby have no effect.

- If NO, go to Section 106 compliance procedures.
- If YES, the project may proceed.

Step 4: Caretaker staff/TECOM and Project Manager will inform contracting officer of special requirements for contracts related to maintenance and repair of historic properties.

Step 5: Project Manager will familiarize consultant/subcontractor with maintenance and repair procedures.

Step 6: Caretaker staff/TECOM and/or the Project Manager will monitor maintenance or repair activities to ensure the protection of the historic properties.

8. Renovation/Rehabilitation of Facilities

Step 1: Caretaker staff/TECOM and Project Manager in consultation with qualified Historic Architect will determine impact of project on historic properties.

- If no historic properties are present, proceed with the project.
- If historic properties are present, caretaker staff/TECOM and Project Manager will determine if properties may be treated in such a manner as to avoid an adverse effect.
- If NO, go to Section 106 compliance procedures.
- If YES, caretaker staff/TECOM, Project Manager, and Design Engineers will develop a plan to facilitate avoidance and protection.

Step 2: Caretaker staff/TECOM will submit a letter of notification concerning the above plan to the SHPO as a check within the system.

This letter will outline:

- the proposed activity,
- the area of impact,
- the known historic properties within the project area, and
- the efforts implemented to avoid or protect the historic properties.

Step 3: Caretaker staff/TECOM will inform contracting officer of specifications that must be included within contract.

Step 4: Implement protection measures.

Step 5: Familiarize consultant/subcontractor with significant features of historic property and protection measures.

Step 6: Caretaker staff/TECOM and/or the Project Manager will monitor contracted activities to ensure the protection of the historic properties.

In the case of renovation/rehabilitation of historic properties where caretaker staff/TECOM agrees to conduct all work in accordance with the recommended approaches in the *Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings*, the following procedures should be followed:

Step 1: Caretaker staff/TECOM, Project Manager, and a qualified Historic Architect will develop a plan for each rehabilitation project, including architectural specifications and photographs.

Step 2: The plan is submitted for review and concurrence of the SHPO.

- If SHPO does not concur, go to Section 106 compliance procedures.
- If SHPO concurs, the project may proceed.

Step 3: Caretaker staff/TECOM will inform contracting officer of specifications that must be included within contract.

Step 4: Familiarize consultant/subcontractor with significant features of historic property and protection measures.

Step 5: Caretaker staff/TECOM and/or the Project Manager will monitor contracted activities to ensure the protection of the historic properties.

Step 6: Caretaker staff/TECOM will submit to the SHPO photographs of the property taken upon completion of the rehabilitation.

Step 7: Caretaker staff/TECOM shall retain documentation of rehabilitation, including work write-ups and photographs, as part of the permanent project records.

9. New Construction: Building/Facility/Utilities

New construction of a building/facility/utilities is potentially damaging to cultural resources within or adjacent to the construction zone. Typically, construction includes the removal of soils from the site and provision for parking facilities and access roads that could destroy the integrity of archeological deposits in near-surface soils. In the case of architectural properties, which include buildings, structures, and objects, such construction may involve visual impacts to the surrounding historic properties or cultural landscapes.

Step 1: Caretaker staff/TECOM and Project Manager will determine impact of project on historic properties; assessment of impact may require professional assistance from historic preservation specialists.

- If no historic properties are present, proceed with the project.
- If historic properties are present, caretaker staff/TECOM and Project Manager will determine if properties may be avoided and protected from direct or indirect impacts.
 - * If NO, go to Section 106 compliance procedures.
 - * If YES, caretaker staff/TECOM, Project Manager, and Design Engineers will develop a plan to facilitate avoidance and protection.

Step 2: Caretaker staff/TECOM will submit a letter of notification concerning the above plan to the SHPO as a check within the system.

This letter will outline:

- the proposed activity,
- the area of impact,
- the known historic properties within the project area, and
- the efforts implemented to avoid or protect the NRHP-eligible properties and those of unknown NRHP eligibility.

Step 3: Caretaker staff/TECOM will inform contracting officer of specifications that must be included within contract.

Step 4: Implement protection measures.

For archeological historic properties these measures may include:

- avoidance of historic properties through project design;
- protection of the site during construction;
- monitoring the status of the site throughout the construction process; or
- mitigation of the loss of the site through data recovery.

For architectural historic properties, options include:

- design of the new construction so that it is compatible with the surrounding buildings; or
- establishment of visual screens between the new entity and adjacent historic properties.

Step 5: Familiarize consultant/subcontractor with historic property locations and protection measures.

Step 6: Caretaker staff/TECOM and/or the Project Manager will monitor contracted activities to ensure the protection of the historic properties.

10. Hazardous Waste/Materials Assessment

Hazardous waste assessment usually includes core borings or the placement of small-diameter monitor wells within the locality of suspected contamination and, thus, affects below-ground resources. These activities are potentially damaging to a historic property context; care should be taken to avoid damage to archeological historic properties or change to the immediate grounds—which may include lawns, trees, sidewalks, and appropriate street furniture such as lamp posts—of architectural historic properties.

Step 1: Caretaker staff/TECOM will determine treatment options applicable to each historic property.

- Historic property will be totally avoided, if possible.
- If property cannot be avoided, activities should be limited to coring only during dry soil conditions.

Step 2: Caretaker staff/TECOM and Hazardous Waste Manager will mark locations of historic properties.

- Boundaries of known archeological historic properties should be marked with conspicuous markers such as fluorescent paint and/or fluorescent flagging tape.

Step 3: Inform contracting officer of special requirements related to historic properties.

Step 4: Familiarize consultant/subcontractor with locations of historic properties and treatment options.

Step 5: Caretaker staff/TECOM and/or the Hazardous Waste Manager will monitor contracted activities to ensure the protection of the archeological historic properties.

11. Hazardous Waste/Materials Remediation

Hazardous waste remediation may vary in its impact on a given locality. However, whether the operation is designed to recycle and filter the ground water or remove the soil matrix, such remediation typically affects only resources below ground. Any activities involving the remediation process should take cultural resources into consideration. Although the major areas of concern are those activities that might affect basements or unrecorded archeological sites, the manager in charge of hazardous waste management should, if possible, avoid known historic properties.

Step 1: Caretaker staff/TECOM will determine treatment options applicable to each historic property.

- The historic property will be totally avoided, if possible.
- If the property cannot be avoided, low impact activities, such as coring, should be conducted only during dry soil conditions.
- No mechanical clearing may be done.

Step 2: Caretaker staff/TECOM and Hazardous Waste Manager will mark locations of historic properties.

- Boundaries of known archeological sites should be conspicuously marked with fluorescent paint and/or fluorescent flagging tape.

Step 3: Inform contracting officer of special requirements related to historic properties.

Step 4: Familiarize consultant/subcontractor with locations of historic properties and treatment options.

Step 5: Caretaker staff/TECOM and/or the Hazardous Waste Manager will monitor contracted activities to ensure the protection of historic properties.

12. Borrow Pit Excavation

New borrow pit excavations and horizontal expansions of existing pits are particularly damaging to archeological resources since these actions are designed to remove the soil in which archeological deposits are found. The use of existing borrow pits, *if not expanded horizontally*, will have no additional impact on historic properties and will require no action in regard to cultural resources coordination.

Step 1: Caretaker staff/TECOM will determine treatment options applicable for each historic property.

- If historic properties may be avoided and protected from direct or indirect impacts, go to Step 3.
- If properties cannot be avoided, go to Section 106 compliance procedures.

Step 2: Caretaker staff/TECOM will mark locations of historic properties.

- Boundaries of known archeological sites should be conspicuously marked with fluorescent paint and/or fluorescent flagging tape prior to borrow pit excavation, so that they will indeed be avoided.

Step 3: Inform contracting officer of special requirements related to historic properties.

Step 4: Familiarize consultant/subcontractor with locations of historic properties and treatment options.

Step 5: The caretaker staff/TECOM will monitor contracted activities to ensure the protection of historic properties.

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APPENDIX A
ABBREVIATIONS USED

ABBREVIATIONS USED

ACHP	Advisory Council on Historic Preservation
ADA	Americans with Disabilities Act of 1992
AIRFA	American Indian Religious Freedom Act of 1978
AMC	Army Materiel Command
APE	Area of Potential Effect
AR	Army Regulation
ARPA	Archeological Resources Protection Act of 1979
BRAC	Base Closure and Realignment Act of 1988
CCC	Civilian Conservation Corps
CFR	Code of Federal Regulations
CRMP	Cultural Resources Management Plan
DA	Department of the Army
DARCOM	Development and Readiness Command
DOD	Department of Defense
GIS	<i>Geographic Information System</i>
GMI	Geo-Marine, Inc.
HABS	Historic American Buildings Survey (National Park Service)
HAER	Historic American Engineering Record (National Park Service)
HPC	Historic Preservation Coordinator
JPG	Jefferson Proving Ground
MARKS	Modern Army Record Keeping System
MOA	Memorandum of Agreement (per 36 CFR Part 800)
MOU	Memorandum of Understanding
NAGPRA	Native American Graves Protection and Repatriation Act of 1990
NCSHPO	<i>National Conference of State Historic Preservation Officers</i>
NEPA	National Environmental Policy Act of 1969, as amended
NHL	National Historic Landmark
NHPA	National Historic Preservation Act, as amended through 1992
NPS	National Park Service
NRHP	National Register of Historic Places
OSHA	Occupational, Safety, and Health Administration
PA	Programmatic Agreement
PI	Principal Investigator
PL	Public Law
PMOA	<i>Programmatic Memorandum of Agreement</i>
Secretary	Secretary of the Interior
SHPO	State Historic Preservation Officer
TECOM	Test and Evaluation Command
TN	Technical Note
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USGS	United States Geological Survey
UXO	Unexploded Ordnance

APPENDIX B
GLOSSARY OF TERMS

GLOSSARY

ADAPTATION

The process of change to better conform with environmental conditions or other external stimuli.

ADVERSE EFFECT

An undertaking or activity that reduces the significance for which a property meets or may meet the criteria of the National Register of Historic Places.

ADVISORY COUNCIL ON HISTORIC PRESERVATION

The independent agency set up under the National Historic Preservation Act (Title II) to advise the President and the Congress on cultural resources preservation; to advise on the dissemination of information on such activities; and to encourage public interest in cultural resources preservation. Under the National Historic Preservation Act (Section 106), the Advisory Council on Historic Preservation will be afforded an opportunity to comment on federal, federally assisted, or federally licensed undertakings that may have an effect on cultural resources properties.

ARCHEOLOGICAL RESOURCE

"[A]ny material remains of past human life or activities which are of archeological interest, as determined under uniform regulations promulgated pursuant to ARPA. Such regulations shall include but not be limited to: pottery, basketry, bottles, weapons, weapon projectiles, tools, structures or portions of structures, pithouses, rock paintings, rock carving, intaglios, graves, human skeletal materials, or any portion or piece of any of the foregoing items. No item shall be treated as an archeological resource under ARPA regulations unless such item is at least 100 years of age" [ARPA 16 U.S.C. § 470bb].

AREA OF POTENTIAL EFFECT (APE)

"[T]he geographic area or areas within which an undertaking may cause changes in the character of or use of historic properties, if any such properties exist" [36 CFR Part 800.2(c)]. The determination is based not on knowledge of specific properties, but on what effects might be created if historic properties do exist in the undertaking's APE. The APE is defined before identification actually begins, so it may be not be known whether any historic properties actually exist within it.

ASSEMBLAGE

A group of artifacts related to each other based upon their recovery from a common archeological context. Assemblage examples are artifacts from a single site or feature.

CATEGORY

A subset of the cultural resources included in an inventory and defined by the level of cultural resources significance in relation to the criteria for nomination to the National Register of Historic Places.

Category I - of national significance

Category II - of regional or local significance

Category III - presently ineligible, but contributing and subject to future reevaluation

Category IV - ineligible

Category V - detrimental—to be removed

CLASS

Cultural resources that have similar, distinct, historic, chronological, scientific, or cultural characteristics.

CONSULTATION

The act of seeking and considering the opinions and recommendations of the State Historic Preservation Officer, the Advisory Council on Historic Preservation, and appropriate parties on undertakings affecting National Register of Historic Places-listed or -eligible properties. Consultation is required per the National Historic Preservation Act, as amended through 1992; 36 CFR Part 800; and/or a Memorandum of Agreement or Cultural Resources Management Plan.

CONTEXT or ARCHEOLOGICAL CONTEXT

The physical setting, location, and cultural association from which archeological materials are recovered. Usually the meaning of archeological materials cannot be discerned without information about their setting. One example is determining how old an object is, given that the age of objects excavated from a site varies with their depth in the ground. Unless the depth of an object is carefully recorded against a fixed point of reference, it may be impossible to relate objects to the dimension of time.

CONTINGENCIES

Changed orders and new mission requirements that may have an effect on cultural resources in a way that was not anticipated in the Cultural Resources Management Plan or Memorandum of Agreement. This may also include treatment of cultural resources that have been damaged by fire or natural disasters, as per 36 CFR Part 800.12.

CULTURE

A system of behaviors, values, ideologies, and social arrangements. These features, in addition to tools and elements such as graphic arts, help in the interpretation of the human universe as well as dealing with features of the natural and social environments. Culture is learned, transmitted in a social context, and modifiable. Synonyms for culture include "lifeways," "customs," "traditions," "social practices," and "folkways."

CULTURAL PATRIMONY

An object or place having ongoing historical, traditional, or cultural importance central to the Native American group or culture itself.

CULTURAL LANDSCAPE (see Rural Historic Landscape)

CULTURAL RESOURCES

Buildings, districts, structures, objects, and sites as defined by 36 CFR 60.3, cultural items as defined in the Native American Graves Protection and Repatriation Act; American Indian, Eskimo, Aleut, or Native Hawaiian sacred sites for which access is protected under the American Indian Religious Freedom Act; archeological resources defined by the Archeological Resources Protection Act; archeological artifact collections and associated records defined under 36 CFR Part 79.

CULTURAL RESOURCES MANAGEMENT PLAN (CRMP)

The installation's cultural resources protection and compliance document, formerly known as a Historic Resources Management Plan (HRMP).

CULTURAL RESOURCES MANAGEMENT PROGRAM

Activities conducted under the authority of Army Regulation 420-40 to comply with federal and Army regulations and including:

- a. DA cultural resources preservation policy and guidance.
- b. Army National Guard (ARNG) guidance.
- c. Major Command (MACOM) assistance.
- d. Installation CRMPs and projects.

CULTURAL RESOURCES MANAGEMENT PROJECT

Activities to carry out a cultural resources management plan. Projects include the following:

- a. Field surveys, archival documentation, and inventory projects.
- b. Investigations, evaluations, and rehabilitation.
- c. Adaptive use, data recovery, preservation, and maintenance.
- d. Any other field or analytical activity needed to locate, inventory, evaluate, or manage cultural resources.

DISCOVERY

To find cultural resources in an unexpected location or circumstance, or of a class not covered by previous review under the National Historic Preservation Act, as amended through 1992, Section 106.

DOCUMENTATION

A documentary, photographic, and graphic record of a historic property. Buildings and structures are documented according to the guidelines of the National Park Service (Historic American Building Survey/Historic American Engineering Record) for deposit in the Library of Congress.

EFFECT

The word "effect" is broadly defined. Effects can be direct or indirect and the word covers any foreseeable change when "the undertaking may alter characteristics of the property for inclusion in the National Register." For the purpose of determining effect, alterations to features of the property's location, setting, or use may be relevant depending on a property's significant characteristics and should be considered [36 CFR Part 800.9(a)].

FEATURE or ARCHEOLOGICAL FEATURE

Many archeological elements are portable, such as fragments of bone, pottery, and stone tools. Archeological sites, however, frequently contain features: manmade constructions that are not portable and are part of the earth itself. Examples of such features are hearths, bedrock mortars, fireplaces, foundations of buildings, storage pits, grave pits, and canals.

HISTORIC LANDSCAPE (see Rural Historic Landscape)

HISTORIC PROPERTY

"Any prehistoric or historic building, district, site, structure, or object included in or eligible for inclusion in, the National Register. The term includes artifacts, records, and remains that are related to and located within such properties" [36 CFR 800.2(e)].

- a. **DISTRICT.** A geographically definable area, urban or rural, with a concentration, linkage, or continuity of cultural resources properties that are united by past events, or aesthetically by plan or physical development. A district may also be composed of areas that are separated by space but are linked by history or style.
- b. **SITE.** The location of a prehistoric or historic
 1. event, occupation, or activity; or
 2. structure, whether represented by standing ruins or by other surface or subsurface evidence, when the location, regardless of the value of existing structures, contains the historical or archeological value.
- c. **BUILDING.** A structure created to shelter any form of activity, such as a house, stable, church, barracks, hospital, or similar structure. Buildings may refer to a functionally related complex, such as a courthouse and jail, a house and barn, or a barracks, a mess hall, and a chapel.
- d. **STRUCTURE.** An edifice, often an engineering project, designed to aid human activities, such as bridges, canals, or aqueducts.

- e. **OBJECT.** An artifact of functional, aesthetic, cultural, historical, or scientific value that may be, by nature or design, movable yet related to a specific historical activity, event, district, site, setting, or environment.

INDIAN TRIBE

The governing body of any Indian tribe, band, nation, or other group that is recognized as an Indian tribe by the Secretary of the Interior and for which the United States holds land in trust or restricted status for that entity or its members. Such term also includes any native village corporation, regional corporation, and native Group established pursuant to the Alaska Native Claims Settlement Act [43 U.S.C. 1701 et seq.].

INTERESTED PERSONS

Those organizations and individuals that are concerned with the effects of an undertaking on historic properties. Certain interested parties—e.g., local governments, federal applicants, Indian tribes, and the public—may be invited to participate in preservation planning as consulting parties by the SHPO, ACHP, and the agency official. Participation of other interested persons—e.g., academic institutions, local preservation organizations, historical or archeological commissions, and others who promote historic preservation, and the public—is defined under Section 110 guidelines [53 FR 4727-46].

INVENTORY

The product and the process of locating cultural resources and identifying or documenting them well enough to judge whether they meet the criteria for inclusion in the National Register of Historic Places as per 36 CFR Part 60. The inventory process usually includes problem-oriented literature review, field surveys, archival documentation, and other data recovery and analysis efforts needed to acquire enough information to determine the presence or absence of National Register of Historic Places values.

MATERIAL REMAINS / ARTIFACTS

Material remains (or artifacts) consists of "physical evidence of human habitation, occupation, use, or activity" [43 CFR 7.3 (a)(2)]. These remains consist of any object or site that shows evidence of manufacture, use, or modification by humans. Examples of artifacts/material remains may include but are not limited to tools, implements, weapons, ornaments, clothing, and containers created variously from bone, ivory, shell, wood, metal, hide, feathers, pigments, chipped/pecked/ground stone, pottery/ceramics, and cordage/basketry/weaving; as well as organic debris or by-products/waste products such as burned animal bones or vegetal remains resulting from food preparation activities; works of artistic or symbolic representation such as rock paintings and carvings; and human remains.

MEMORANDUM OF AGREEMENT

- a. A document signed by the State Historic Preservation Officer, Advisory Council on Historic Preservation, and the Army listing what the installation will do to meet the requirements of the National Historic Preservation Act, as amended through 1992, Section 106.
- b. It is prepared—
 - 1. In coordination with the preparation of an installation CRMP.
 - 2. When a specific undertaking will have an adverse effect on a historic property listed on or eligible for listing in the National Register of Historic Places.
- c. It contains—
 - 1. Items or stipulations to be addressed in a Cultural Resources Management Plan.
 - 2. Ways to avoid or reduce adverse effects.
 - 3. Calendar for meeting the stipulations.

MIDDEN

A layer of soil which contains the byproducts of human activity as the result of the accumulation of these materials on a living surface or in a primary dump. For prehistoric sites, a layer of soil that is stained to a dark color by the decomposition of organic refuse which also contains food, bones, fragments of stone tools, charcoal, pieces of pottery, or other discarded materials. For historic sites, a similar layer of soil but with appropriate historic material remains often in a much thinner deposit.

NATIONAL HISTORIC LANDMARK

Properties named by the Secretary of Interior, per the Historic Sites Act of 1935, as having exceptional significance in the Nation's history [36 CFR Part 65]. National Historic Landmarks are listed in the National Register of Historic Places. They are reviewed per the National Historic Preservation Act, as amended through 1992, section 110(f). The National Historic Preservation Act, as amended through 1992 [16 U.S.C. 470 et seq.] sets national historic preservation policy and requires each federal agency to develop a program to locate, inventory, and nominate to the Secretary of the Interior all cultural resources under the agency's control that may meet the criteria of the National Register of Historic Places. In addition, every federal agency having any undertaking that may have an effect on a historic property (i.e., meeting the criteria of the National Register of Historic Places) will afford the Advisory Council on Historic Preservation an opportunity to comment on the undertaking. Federal agencies are directed to assume responsibility for preservation of historic properties they own or control.

NATIONAL REGISTER OF HISTORIC PLACES (NRHP)

A listing of districts, sites, buildings, structures, and objects significant on the national, regional, or local level in U.S. history, architecture, archeology, engineering, and culture. It is maintained by the Secretary of the Interior per the Historic Sites Act and the National Historic Preservation Act, as amended through 1992. The term "eligible for inclusion on the National Register" includes both properties formally determined as such and all other properties that meet the National Register of Historic Places criteria as defined by 36 CFR Part 60.4.

OUTBUILDINGS

A term used to refer to all nonresidential structures at a historic site. These include outhouses, barns, garages, smoke houses, granaries, cribs, and other structures for storage or protection of animals or property.

OVERVIEW

A report based on the collection and analysis of existing information that summarizes known information regarding the cultural resources on an installation, suggests the likelihood of additional cultural resources, and provides recommendations for meeting the compliance requirements of Army Regulation AR 420-40. It is the basis for a Cultural Resources Management Plan and a Memorandum of Agreement.

PRESERVATION or HISTORIC PRESERVATION

The "identification, evaluation, recordation, documentation, curation, acquisition, protection, management, rehabilitation, restoration, stabilization, maintenance and reconstruction, or any combination of the foregoing activities" [16 U.S.C. § 470w(8)].

PRESERVATION MAINTENANCE

Protection through preventive maintenance of existing historic fabric and building elements.

PROGRAMMATIC AGREEMENT

A document executed between a facility and advisory agencies which may take the place of multiple Memoranda of Agreement when actions are programmed, repetitive, or are perceived to have similar impacts on cultural resources.

PROJECTILE POINT

A hand-crafted, chipped, pointed artifact generally made of stone, but also may be of shell, bone, wood, or metal, hafted to the tip of an arrow, atlatl dart, spear, or lance shaft to facilitate penetration. Projectile points are generally divided into "dart" (early) and "arrow" (late) points on the basis of size and morphology. Various stylistic characteristics of projectile points are used as diagnostic temporal markers.

REHABILITATION

The alteration or repair of a building to permit an efficient and continued use while maintaining or restoring elements that define the character of the building or are associated with its historic significance.

RESTORATION

Actions taken to return a building, elements of a building, or a site to an earlier appearance.

RURAL HISTORIC LANDSCAPE

A geographical area that historically has been used by people, or shaped and modified by human activity, occupancy, or intervention, and that possesses a significant concentration, linkage, or continuity of areas of land use, vegetation, buildings, and structures, roads and waterways, and natural features. *Landscape characteristics* are the tangible evidence of the activities and habits of the people who occupied, developed, used, and shaped the land to serve human needs; they may reflect the beliefs, attitudes, traditions, and values of these people.

STATE HISTORIC PRESERVATION OFFICER (SHPO)

The official within each state who has been designated and appointed by the state governor to administer the state historic preservation program, pursuant to Section 101(b)(1) of the NHPA.

SUBSISTENCE ECONOMY

The means by which a group obtains the food and shelter necessary to support life.

TRADITIONAL CULTURAL PROPERTY

A property "that is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community" (*Guidelines for Evaluating and Documenting Traditional Cultural Properties* 1992:1). Examples include

- "a location associated with the traditional beliefs of a Native American group about its origins, its cultural history, or the nature of the world;
- a rural community whose organization, buildings and structures, or patterns of land use reflect the cultural traditions valued by its long-term residents;
- an urban neighborhood that is the traditional home of a particular cultural group, and that reflects its beliefs and practices;
- a location where Native American religious practitioners have historically gone, and are known or thought to go today, to perform ceremonial activities in accordance with traditional cultural rules of practice; and
- a location where a community has traditionally carried out economic, artistic, or other cultural practices important in maintaining its historical identity" (*Guidelines for Evaluating and Documenting Traditional Cultural Properties* 1992:1)

TREATMENT

The way an installation maintains, repairs, uses, protects, excavates, documents, or alters cultural resources.

APPENDIX C

FORM LETTERS FOR CONSULTATION WITH THE ADVISORY COUNCIL ON HISTORIC PRESERVATION

UNDERTAKING

"Any project, activity, or program that can result in changes in the character or use of historic properties, if any such historic properties are located in the area of potential effect. The project, activity, or program must be under the direct or indirect jurisdiction of a federal agency or licensed or assisted by a federal agency. Undertakings include new and continuing projects, activities, or programs and any of their elements not previously considered under Section 106" [36 CFR Part 800.2(o)].

UNDERTAKING'S AREA OF POTENTIAL EFFECT

The geographical area within which direct and indirect effects caused by the undertaking reasonably could be expected to occur. The potential to change the historical, architectural, archeological, or cultural significance possessed by a Category I, II, or III historic property.

This format is to be used for Section 106 coordination of a determination of NO ADVERSE EFFECT when the SHPO and the facility ARE NOT in Agreement.

Date

[Name]
[Address]

[Name]
Chief, Eastern Office of Project Review
Advisory Council on Historic Preservation
Old Post Office Building Suite 803
1100 Pennsylvania Avenue, NW.
Washington, DC 20004

Dear [Name]:

The [facility name] is [planning/considering/other] the [name of undertaking] at its installation located in _____ County, _____. In consultation with the _____ State Historic Preservation Officer (SHPO), we have applied the criteria of effect and adverse effect found in 36 CFR Part 800.9 of your regulations to this undertaking and determined that it will have no adverse effect on historic properties. The following documentation is attached for your review:

- a description of the [name of undertaking], including [specify maps, photographs, etc.];
- a description of the historic [property/properties] that [will/may] be affected, including [specify National Register forms or other descriptive documents, photographs, etc.];
- a description of the efforts we made to identify historic properties in the undertaking's area of potential effects, including [specify survey report, etc.];
- a description of how we applied the criteria of adverse effects, and why we found each criterion to be inapplicable to this undertaking; and
- a description of the means we used to solicit the views of the SHPO and [specify affected local governments, Indian tribes, federal agencies, elements of the public, if any], together with [identify written comments or other documentation of views provided, if any].

[Note: use one or more of the following paragraphs only if relevant.]

Since our determination that this undertaking will have no adverse effect is based on the special exception set forth in 36 CFR Part 800.9(c) [specify subsection (1), (2), or (3)], we are also enclosing [specify research design or scope of work for data recovery under subsection (1), plan for rehabilitation under subsection (2), or covenant or other restriction under subsection (3)].

In making our determination, we have agreed with the SHPO to carry out the following actions to ensure that adverse effect will be avoided:

[list actions agreed to]

By copy of this letter we are notifying the SHPO of our determination. Please review the material enclosed and contact [name and telephone number of contact person] if you have any questions. If we do not hear from you within 30 days after your receipt of this letter, we will assume that you do not object to our determination, and will proceed with [the undertaking/our planning process/our review of the application/etc.], subject to [the agreement noted above, or other action] and the provisions for treating historic properties discovered during implementation of an undertaking contained in 36 CFR Part 800.11.

Sincerely,

[Name]
[Title]

This format is to be used for Section 106 coordination of a determination of ADVERSE EFFECT.

Date

[Name]

[Address]

[Name]

Chief, Eastern Office of Project Review
Advisory Council on Historic Preservation
Old Post Office Building Suite 803
1100 Pennsylvania Avenue, NW.
Washington, DC 20004

Dear [Name]:

The [facility name] is [planning/considering/other] the [name of undertaking] at its installation in _____ County, _____. In consultation with the _____ State Historic Preservation Agency (SHPO), we have applied the criteria of effect and adverse effect found in 36 CFR Part 800.9 of your regulations to this undertaking and determined that it will have an adverse effect on historic properties. In accordance with 36 CFR Part 800.5(e), the [facility name] requests the Advisory Council to consider participation in the consultation process. Due to this determination of an adverse effect, we are initiating formal consultation between the [facility name], the SHPO, and the following interested parties: [i.e., traditional cultural groups, local preservation groups, applicants for permits].

The following documentation is provided for each consulting party:

- a description of the [name of undertaking], including [specify maps, photographs, etc.];
- a description of the efforts we made to identify historic properties in the undertaking's area of potential effects, including [specify survey report, etc.];
- a description of the historic [property/properties] that [will/may] be affected, including [specify National Register forms or other evaluative documents (testing report, photographs, etc.)];
- a description of the effect of the undertaking on the historic [property/properties].

In addition, we propose the following means of soliciting the views of the SHPO and the following interested parties [specify affected local governments, Indian tribes, federal agencies, elements of the public, if any]. [Describe means of soliciting public comment.]

It is to be hoped that this consultation process will result in a Memorandum of Agreement among the [facility name] _____ SHPO, and other interested parties [designate interested parties considered for actual signing of MOA] which will result in the avoidance of significant properties or reduce the effects of this undertaking on significant properties.

Sincerely,

[Name]

[Title]

This format is to be used for Section 106 coordination of a determination of NO EFFECT.

Date

[Name]
State Historic Preservation Office
Division of Historic Preservation and Archeology
Department of Natural Resources
402 Washington St., Rm W-274
Indianapolis, IN 46204

Dear [Name]:

In consultation with [Name] of your staff and [list other parties if any], we have assessed whether the [name of undertaking] will affect the following historic properties, which as you know from our previous correspondence are located within the undertaking's area of potential effects.

[list of historic properties]

Having applied the criteria of effect found at 36 CFR Part 800.9, we have concluded that the undertaking will have no effect on the historic properties located within the area of potential effects. Our rationale for this determination is as follows*:

[Note: the following are only examples]

[1. The only historic structure within the area of potential effects is Building 123. A decision has been made to retain this building in its current use, while realigning the functions of the 456th Intelligence Division to Building 789, which is not eligible for inclusion in the National Register of Historic Places. Accordingly, the current action will have no effect on Building 123. Documentation is provided in the accompanying report of the investigations.]

[2. Archeological site ##Xx### is the only archeological site identified by field investigation and background research within the area of potential effects (see accompanying report). The range complex that was originally expected to affect this site has been relocated to avoid it; the site will remain in open space and be protected from vandalism.]

[3. Three archeological sites and six buildings are within the area of potential effects. Evaluation of these resources revealed that none are eligible for inclusion in the National Register of Historic Places (see accompanying report of investigations). Accordingly, the current action will have no effect on historic properties.]

If you do not object to our determinations within 15 days, we will assume your concurrence. We would appreciate documentation of your concurrence, however. For your convenience, you may concur with our determinations by simply signing the concurrence line below and returning a copy of this letter to me. Copies of this letter and its enclosures are being provided to the [list other parties].

Please contact [POC name] of this office at [telephone no.] if you need further information or wish to discuss our request.

Sincerely,

[Name]
[Title]

I am in concurrence with the determination of no effect: _____
[State] Historic Preservation Officer Date

[*Another alternative is the discovery of no historic properties; state that no historic properties exist within the area of potential effects and reference accompanying report documenting the survey and evaluation methods and conclusions.]

APPENDIX D

REFERENCES SOURCES FOR FEDERAL LAWS, GUIDELINES, AND REGULATIONS AVAILABLE TO INSTALLATION CULTURAL RESOURCES MANAGERS

The following is a listing of the agencies from whom copies of specific laws, guidelines, and regulations may be obtained.

FEDERAL AGENCIES

Headquarters / Department of the Army / Washington, D.C.
Environmental Programs Directorate
Attn.: DAIM-ED-R
600 Army Pentagon
Washington, D.C., 20310-0600
Tel: (703) 697-2828

- Army Regulation 420-40: *Historic Preservation*

National Park Service
U.S. Department of the Interior
P.O. Box 37127
Washington, D.C., 20013-7127
Tel: (202) 343-4101 Archeological Assistance Division
Tel: (202) 343-4101 Curatorial Services Division

Archeological Assistance Division

- *Section 106 Guidelines*
- *Section 110 Guidelines*
- *Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines*
- *Identification of Historic Properties: A Decisionmaking Guide for Managers*
- *Public Participation in Section 106 Review: A Guide for Agency Officials*
- *Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Buildings*
- *Public Law 101-601: Native American Graves Protection and Repatriation Act*
- *43 CFR Part 10: Native American Graves Protection and Repatriation Act Regulations*
- *Federal Archeology* (Quarterly Journal)
- *Technical Briefs: [Examples]*
 - * *Intentional Site Burial: A Technique to Protect against Natural or Mechanical Loss* (No 5)
 - * *Federal Archeological Contracting: Utilizing the Competitive Procurement Process* (No.7)
 - * *The Soft Approach to Archeological Site Stabilization* (No. 8)

National Register of Historic Places

- *National Register Bulletins* (Technical information on comprehensive planning, survey of cultural resources, and registration in the National Register of Historic Places): [Examples]
 - * *How to Apply the National Register Criteria for Evaluation* (No. 13)
 - * *Guidelines for Restricting Information About Historic and Prehistoric Resources* (No. 29)
 - * *Guidelines for Evaluating and Documenting Traditional Cultural Properties* (No. 38)
 - * *Guidelines for Evaluating and Registering Cemeteries and Burial Places* (No. 41)

Advisory Council on Historic Preservation
1100 Pennsylvania Ave. NW Suite 809
Washington, D.C., 20004
Tel: (202) 606-8505

- 36 CFR 800: *Protection of Historic Properties*

REGIONAL AGENCIES

Office of the State Archeologist
Department of Natural Resource
402 West Washington
Indiana Govt Ctr So RM W256
Indianapolis IN 46204
Tel: (317) 232-4020
Fax: (317) 232-8036

State Historic Preservation Office
Division of Historic Preservation and Archeology
Department of Natural Resources
402 Washington St., Rm W-274
Indianapolis, IN 46204
Tel: (317) 232-1646

- *State Guidelines for Conducting and Reporting Archeological Fieldwork*
- *State Historic Preservation Plan and Historic Themes and Contexts for Evaluating Cultural Resources*

APPENDIX E
ENVIRONMENTAL SETTING
JEFFERSON PROVING GROUND

by
Stephen K. Mbutu

TOPOGRAPHY

Jefferson Proving Ground (JPG) lies on the Till Plains Section of the Central Lowland Physiographic Province, also known as the Muscatatuck Regional Slope (U.S. Army Corps of Engineers [USACE] 1995:4-24; Hawkins and Walley 1995:II-1). Kansan and Illinoian-age till deposits blanket a gently rolling limestone plateau, which is cut by deep rocky valleys. The northern half of the installation is characterized as a gently rolling upland, while the southern half is generally flat and swampy. Several streams, both intermittent and perennial, traverse JPG, flowing to the west and southwest (Figure E-1). The headwaters of numerous streams (including those of two major stream systems, Harbert's and Middle Fork creeks) originate within the facility (Stafford et al. 1985:2-1, 2-2); nearly all of the installation's land drains toward the southwest into the Muscatatuck River (Hawkins and Walley 1995:II-8). The streams traversing the facility include, from north to south, the Otter Creek system, the Graham/Little Graham creek system, the Big Creek system, the Middle Fork Creek system, and Harbert's Creek and its tributaries (see Figure E-1).

Dissection caused by the larger streams has resulted in extensive topographic relief in some areas that approaches 61 m (200 ft); local relief rarely exceeds 15 m (50 ft; Stafford et al. 1985:2-1). In the north and northwest, the streams have cut deeply into underlying bedrock creating steep bluffs, and karstic features such as sinkholes and solution caverns are present. Furthermore, a recent project has located several caves on JPG (Knouf, personal communication 1995), and the 1994 chert survey conducted by Algonquin Archeological Consultants, Inc., located two rockshelter archeological sites on the facility (Hawkins and Walley 1995:IX-9). The topography is considerably more gentle to the east and south, where the streams appear to be less well-entrenched. In addition to the streams, two significant manmade reservoirs are also present on JPG. Both were constructed for recreational purposes by JPG personnel.

Old Timbers Lake (165 ac), created by damming Little Otter Creek, runs generally north-south in the northeastern portion of the installation. Krueger Lake, a smaller lake created as "practice" for the damming of Old Timbers Lake (Knouf, personal communication 1995), lies near the southeastern corner of the installation, (see Figure E-1).

GEOLOGY

JPG lies on the western limb of the Cincinnati Arch, a plunging, broad, low anticline whose north-northwest trending axis lies approximately 100 km east of the project area, near the Indiana-Ohio state line. The structural geology of the region took form during the Ordovician period, when the sedimentary strata of southern Indiana were tipped southwestward by geological uplifting of the Cincinnati Arch (Hawkins and Walley 1995:II-1). The subsurface bedrock consists of sequences of interbedded Silurian, Ordovician, and Devonian carbonate units, mostly limestones. The Silurian-age formations include the Louisville Limestone, Salamonie Dolomite, and Brassfield Limestone. The Maquoketa Group, Trenton and Black River Limestones, and Knox Dolomite derive from the Ordovician period. The Muscatatuck Group is Devonian in age (USACE 1995:4-24).

Most of the outcropping rocks in the project area are associated with Salamonie Dolomite. All of the facility is underlain by Silurian bedrock, with two exceptions: shales and limestones of the Ordovician Maquoketa Group are exposed along some area creeks, and a small area on the southwestern part of the installation (north of the airfield) is underlain by Devonian dolomite. The fine-grained Laurel member of the Salamonie Dolomite cap the Silurian bedrock in many areas. It is the source of Laurel chert, a common tool stone in prehistoric lithic contexts throughout southern Indiana; it also had many historic uses (Hawkins and Walley 1995:II-5). According to Hawkins and Walley (1995: II-5), Laurel chert "is available in southern Indiana both in bedded form and from glacial till"; field observation within the project area confirmed this statement. Where the Salamonie Dolomite is eroded in some stream drainages to the east of JPG (and in Otter and Little Graham creeks on the facility), outcrops of thinly bedded limestones and shales associated with the

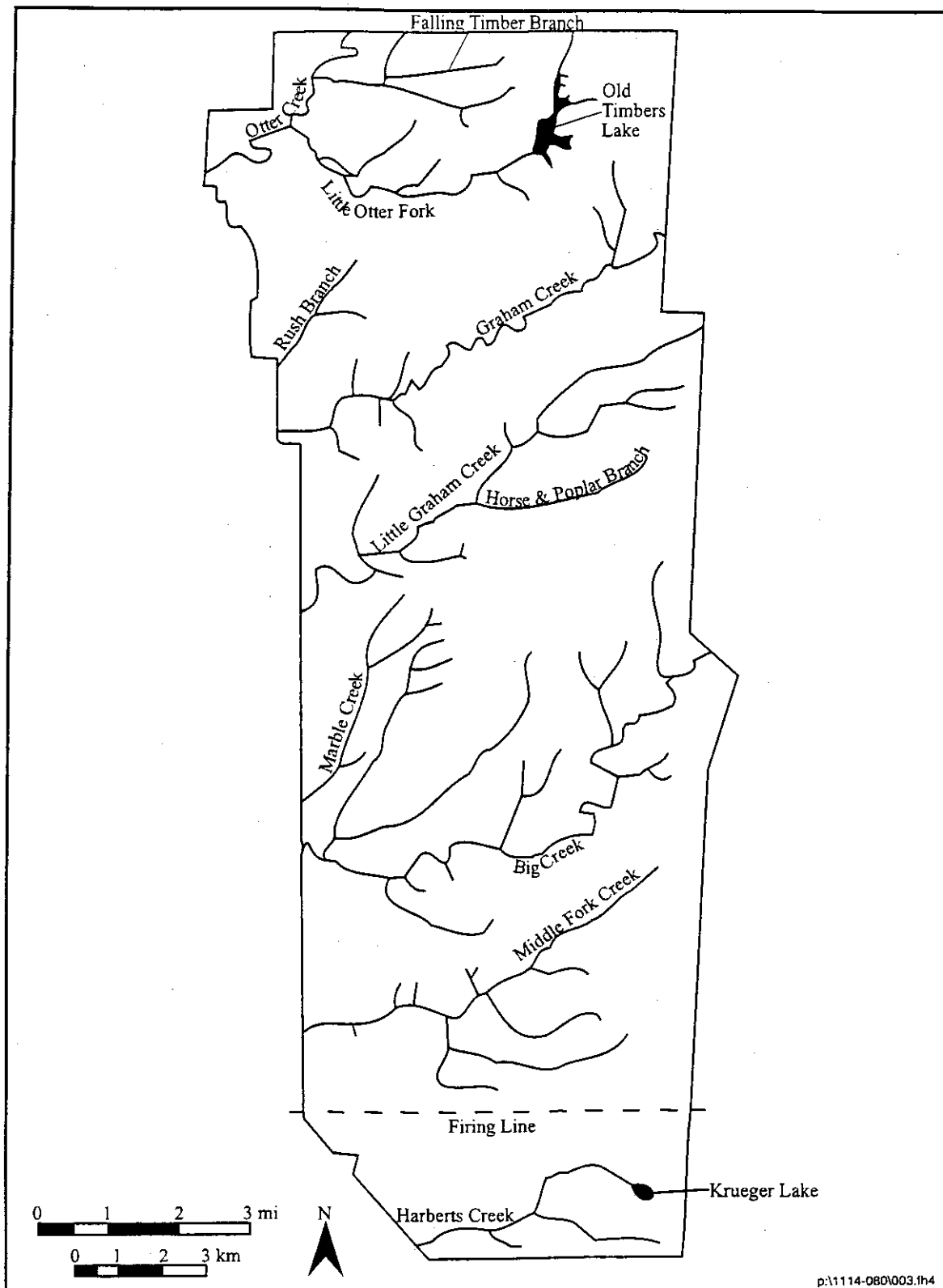


Figure E-1. JPG surface water.

Maquoketa Group are exposed. Up to 50 percent of the Maquoketa Formation is limestone bedded in gray calcareous shale (USACE 1995:4-24). The Jessup Formation, described by Stafford et al (1985: 2-2) as an Illinoian-age till mixed with some ice-contact stratified drift (see also Gray 1972), overlies the bedrock, and the Wisconsin Peoria loess overlies the Illinoian drift (Stafford et al. 1985:2-2). JPG lies approximately 16 km (9 miles) south of the nearest Wisconsin glacial border, the possible source of the loess.

SOILS

According to an environmental impact statement produced by the U.S. Army Corps of Engineers in 1991, "[t]he soils of JPG originate from glacial till and outwash, lacustrine deposits, limestone and shale residuum, windblown alluvium, and loess. The soils are strongly weathered, leached, and acidic" (USACE 1991:3-8). Two major soil associations are found within the project area: the Cincinnati-Rossmoyne-Hickory association and the Cobbsfork-Avonburg association. These upland soils developed in situ, in thin loess and in the loamy glacial tills that underlay the loess (Anslinger 1993:3).

The Cincinnati-Rossmoyne-Hickory soils occur on gentle to moderately steep slopes (0-35 percent) along the facility's drainages. These deep, moderate- to well-drained soils exhibit a slow permeability factor and are susceptible to flooding and extensive erosion, particularly on ridgetops and hill sides (Hawkins and Walley 1995:II-8). The well-drained Cincinnati soils occur primarily on narrow ridgetops and moderately to steeply sloping side slopes; typically, they consist of a thin mantle of dark brown silty loam underlain by yellowish-brown clay loam. Rossmoyne soils are found "on summits, shoulder slopes, and back slopes" (Nickell 1985); the surface layer in this case also tends to be a thin cap of dark brown silt loam, overlying a yellowish-brown silt loam. The moderately sloping to very steep, well-drained Hickory soils are described as occurring on summits, shoulder slopes, and back slopes. The dark grayish brown surface layer averages less than 5 cm thick, and blankets yellowish-brown to dark yellowish brown silt and clay loams.

Cobbsfork-Avonburg soils, which cover more than 40 percent of the installation, tend to be poorly drained to somewhat poorly drained (USACE 1995:4-26). These upland soils are nearly level, with slopes ranging from 0 to 4 percent. A firm and dense fragipan prevents adequate drainage and creates a high perched water table from December through April and high moisture content of surface and near surface soils (USACE 1991:3-8), which limit their use for agricultural, road construction, and other purposed development (Nickell 1985; USACE 1991:3-8). Avonburg soils occur on broad, flat to gently sloping tabular surfaces and backslopes of interfluvies and are often saturated with water, due to the presence of a fragipan within the upper 127 cm (50 in). A moderately thick layer of dark grayish-brown silt, averaging 25 cm thick, overlies a yellowish-brown and light brownish-gray silty clay and silty clay loam subsoil (Nickell 1985). Cobbsfork soils are grayer, lack the fragipan, and generally occur near the centers of tabular divides (Nickell 1985). The general wetness of the Cobbsfork-Avonburg soils makes them undesirable for development, although their presence has not halted development in the region.

CLIMATE

Studies of pollen from east-central Indiana and west-central Ohio indicate that the climate in this region has undergone several changes in the last 23,000 years (Englehardt 1960, 1965; Hawkins and Walley 1995:II-8; Ogden 1966). During the peak of the Wisconsin glacial interval between 23,000 and 14,000 B.C., the project area experienced cold, dry conditions. The climate became progressively warmer and more humid as the glacial margin retreated between 14,000 and 9000 B.C. (Table E-1). The period from 9000 to 8000 B.C. is characterized by a warmer, drier interval which continued until 6000 B.C.; the intensely warm and dry period known as the Hypsithermal lasted in the project area from 6000 B.C. to 3000 B.C. Following the Hypsithermal, the climate became cool and wet, a trend that reached a peak between ca. A.D. 500 and

Table E-1
Summary of the Environmental History of the Jefferson Proving Ground Area
(from Griffin 1961; Hawkins and Walley 1995; Stafford et al. 1985)

Date	Inferred Climate
Before 14,000 B.C.	Late glacial climate; spruce forest with fir and tamarack; few oak and other deciduous trees
14,000 to 9000 B.C.	Warming climate, black ash, ironwood, some spruce
ca. 9000 to 8000 B.C.	Rapidly warming, drier climate; jack pine, white pine, and birch briefly present
8000 to 6000 B.C.	Slowly warming climate; tree composition much like present, except for absence of beech
6000 to 3000 B.C.	Maximum warmth/dryness; oak and hickory reach maximum abundance but beech migrates into region to occupy wetter habitats
3000 B.C. to Present	Cooler/wetter climate; western mesophytic forest essentially unchanged up to time of Euro-American contact (includes Little Ice Age, 1400-1600).

700 (Griffin 1961; Hawkins and Walley 1995:II-9). A warm and moist climate followed and lasted until about A.D. 1400, when temperatures fell precipitously, creating what has been referred to as the "Little Ice Age" (Hawkins and Walley 1995:II-9); this climatic minimum was essentially over by A.D. 1600.

Climatic conditions have changed little in south-central Indiana since the 1600s. Today JPG experiences a continental climate characterized by widely variable daily and seasonal temperatures and humidity. In the summer, daily temperatures average 76° F (24° C); the maximum temperature on record occurred on July 15, 1954, when the mercury registered 108° F (42° C). In the winter, temperatures average 35° F (2° F), with a low temperature of -12° F (-24° C) recorded at Madison on February 2, 1951 (Nickell 1985:1). The growing season averages some 170-180 frost-free days per year. Southwesterly prevailing winds blow over JPG for 10 months of the year. The wind changes directions for about two winter months, when the northwesterlies are prevalent. The average annual precipitation is approximately 107 cm (42 in), fairly evenly distributed throughout the year; about 52 percent of this falls between April and September. Thunderstorms occur on perhaps 50 days each year, and may spawn damaging tornados (Nickell 1985:2). Although there has never been a significant drought in historic times, Stafford et al (1985:2-3) caution that "one or two dry periods can be expected each summer." Snowfall is uneven from year to year, but averages perhaps 33 cm (13 in) annually (Nickell 1985).

FLORA

Between the last glacial advance and the first European settlement of the JPG area, climatic variations have caused distinct floral shifts through time. A tundra vegetation associated with the last glacial advance may have covered southern Indiana and northern Kentucky between 23,000 and 14,500 B.C. (Hawkins and Walley 1995:II-9). As the climate warmed, the tundra vegetation was replaced by a boreal spruce and fir forest encroaching from the south. A variety of floral communities are found in association with the varied topography of southeastern Indiana.

The Deams classification of the botanical areas of Indiana places the project area within the Flats of the Ohio valley region (Lindsey 1932:97-98; Stafford et al. 1985:2-3). The vegetation of these flats is dominated by a sweetgum red maplebeech association, as defined by Potzger (1950, 1953; Stafford et al. 1985:2-4). American elm (*Ulmus americanus*), swamp white oak (*Quercus bicolor*), white oak (*Quercus albus*), black gum (*Nyssa sylvatica*), and hickory species (*Carya* spp.) are also found in the Flats (Keller 1946; Stafford et al. 1985:2-4). In southeastern Indiana, a mixed mesophytic forest with a luxuriant herbaceous layer covers the dissected slopes along drainageways (Braun 1950; Stafford et al. 1985:2-4). The diverse forest composition is dominated by beech (*Fagus* spp.). Also found in the plant community are species of white oak, white ash (*Fraxinus americana*), tulip tree (*Liriodendron tulipifera*), black walnut (*Juglans nigra*), sugar maple (*Acer saccharum*), and basswood (*Tilia americana*; Stafford et al. 1985:2-4). Floodplain studies conducted elsewhere suggest that JPG's bottomlands would have supported silver maple or black maple (*Acer nigra*), red maple (*Acer rubra*), sugar maple, American elm, white ash, beech, and hackberry (*Celtis occidentalis*) in prehistoric times (Beals and Cope 1964; Lee 1945; Stafford et al. 1985:2-4).

A description of some of the plants and animals encountered by the early settlers is provided by Muncie (1932). According to Muncie (1932:106-107), early settlers were attracted to JPG area creeks for several reasons:

The character of the soil, the natural drainage, the proximity of the limestone rock, were other reasons which appealed to the settler. And we may believe, too, that the beauty of Big Creek, with its profusion of spring flowers, its magnificent forest, attracted the settler. Here the warmth and richness of the soil fostered a luxuriant and early growth of flowers and herbs. Many of these—ginseng, the puccoon, the snake-root, and others, were esteemed for their medicinal qualities. Here, too, were wild berries and forest fruits, trees upon the nuts of which the hogs fattened in half wild state, woods teeming with game and streams alive with fish. Deer, bears, turkeys, pheasants, and many other forms of game abounded; periodically the very skies were darkened by the flight of passenger pigeon. Among the most interesting of the reminiscences [sic] of the older men was the story of one who told of these pigeons. He said that scientists had estimated that two and one half billions of birds had passed over their camp in the space of two hours. Their flight was not only swift, but far, for my informant had shot on Big Creek birds with rice in their crops. They lived on the acorns and beechnuts of the forest, and fed also on the grain, wheat, oats and rice that they found unprotected. This man told of sowing three acres of oats and while he brought up his team to harrow them in, the pigeons descended taking every grain in a few minutes time.

FAUNA

Large mammals native to cold northerly climates, such as barren ground caribou (*Rangifer terandus*), moose (*Alces alces*), and elk (*Cervus elaphas*), may have been present in the project area during the glacial and periglacial times. Changes in floral communities resulted in corresponding shifts in the faunal communities. Prior to the initiation of the Hypsithermal climatic interval (ca. 6000 B.C.), faunal communities in the region had assumed essentially modern compositions; prairie species, however, may have intruded as conditions became increasingly warmer and drier during the Hypsithermal. After 3000 B.C., both floral and faunal communities returned to their pre-Hypsithermal equilibria. The woodland bison (*Bison bison*), a significant food source for the peoples of the region, was apparently not present in the project area until the Late Prehistoric period (i.e., after 1200 A.D.; Hawkins and Walley 1995:II-12).

During prehistoric times, the JPG terrestrial fauna community was apparently dominated by forest and forest-edge species, with some wetland species in riparian areas. Records dating back to the contact period record the presence of various large animal species such as white-tailed deer (*Odocoileus virginianus*); black bear (*Ursus americanus*); the gray wolf (*Canis lupus*); mountain lion (*Felis concolor*); and bobcat (*Felis rufus*). Smaller animals common to the area would have included several species of rabbit (*Sylvilagus* spp.) and

squirrel (*Sciurus* spp.); porcupine (*Erethizon dorsatum*); badger (*Taxidea taxus*); and opossum (*Didelphus virginiana*). The riparian areas also hosted many highly valued fur-bearing species, including red and gray fox (*Vulpes vulpes* and *Urocyon cinereoargenteus*); river otter (*Lutra canadensis*); mink (*Mustela vison*); muskrat (*Ondatra zibethicus*); and beaver (*Castor canadensis*). No doubt a variety of aquatic resources flourished in the numerous creeks that traverse the installation.

During a recent survey, 103 species of birds were observed as breeding pairs on the JPG. Among those avian species present are numerous varieties of ducks and geese (family Anatidae); red-tailed and red-shouldered hawks (*Buteo jamaicensis* and *B. lineatus*); the mourning dove (*Zenaida macroura*); the ruby-throated hummingbird (*Archilochus colubris*); the house sparrow (*Passer domesticus*); and the turkey vulture (*Cathartes aura*). An extensive great blue heron (*Ardea herodias*) rookery, reported as one of the largest in Indiana, is located in the northeast portion of the facility (USACE 1995:4-28).

Reptilian species common to the area include the northern ringneck snake (*Diadophis punctatus edwardsii*); northern copperhead (*Agkistrodon contortrix mokasen*); eastern hognosed snake (*Heterodon platirhinos*); the five-lined skink (*Eumeces fasciatus*); the eastern box turtle (*Terrepenne carolina*); and the common snapping turtle (*Chelydra serpentina*). Amphibians include the Barbour's Spotted and Jefferson salamanders (*Ambystoma barbouri*, *A. maculatum*, and *A. jeffersonianum*, respectively); the red-spotted newt (*Notopthalmus viridescens*); and the mudpuppy (*Necturus maculosus*). Common fish species include longnose gar (*Lepisosteus osseus*); bowfin (*Amia calva*); several varieties of catfish (*Ictalurus* and *Ameiurus* spp.); and various species of perch (*Etheostoma* and *Percina* spp.) and sunfish (*Lepomis* and *Ambloplites* spp.). Largemouth, smallmouth, and spotted bass (*Micropterus* spp.) are also common.

After European settlement, many native species were extirpated. At JPG, however, several species that had previously been exterminated, including turkey (*Meleagris gallopavo*) and beaver, have returned or have been reintroduced successfully since government acquisition of the land. The 1995 turkey harvest, for example, yielded 42 birds, several over 25 pounds (11.4 kg; Knouf, personal communication 1995). Recently, coyote (*Canis latrans*) have been observed on the installation.

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APPENDIX F

**PREHISTORIC CULTURAL SETTING
JEFFERSON PROVING GROUND**

PREVIOUS INVESTIGATIONS

A limited amount of archeological research has been conducted within the boundaries of JPG since 1975; most of it has been conducted in connection with the imminent base closure and timber management. Previous archeological work conducted at the JPG itself consists only of four Phase I small-scale project-specific surveys (Anslinger 1993; Guendling 1975; Hawkins and Walley 1995; Schenian and Mocas 1993:i). See Table II-1 for a summary of the cultural resources recorded during these surveys. In addition to the four previous surveys, an archeological overview and management plan was drafted for the facility in 1985 (Stafford et al. 1985); no fieldwork was involved in this case. The following chapter summarizes this and other research in the region, followed as well as the general cultural chronology of the project area, as it is currently understood.

In 1975, the Glenn A. Black Laboratory conducted a Phase I survey of 150 acres in the north-central part of JPG (see Figure I-4). An isolated find consisting of a single fragmentary projectile point diagnostic of the Late Woodland/Mississippian was recovered (Guendling 1975). This site, 12Ri12, is not considered eligible for listing in the NHRP (Guendling 1975).

In 1985, Woodward-Clyde Consultants drafted an archeological overview and draft management plan for Jefferson Proving Ground. Although no fieldwork was conducted, the existing archeological site records were examined (at the time, Gruendling's 12Ri12 was the only prehistoric site recorded for the facility), as were old plat books and maps illustrating the locations of pre-installation homesteads. Not surprisingly, the overview focused on historic cultural resources: locations of 478 potential historic archeological sites were identified.

In 1992, the Archeology Service Center at Murray University, Kentucky, completed a Phase I survey of 212 acres in two timber management areas of JPG (Schenian and Mocas 1993; see Figure I-4). Fifteen sites were recorded during this survey. Four of the sites were prehistoric isolated finds: one was a Late Archaic projectile point, and the cultural affiliation of the other three could not be determined. Nine of the sites were small lithic artifact scatters whose prehistoric affiliation could not be determined. Of the historic sites recorded during this survey, one is a mid-twentieth-century residential site containing a limited number of artifacts. The other is a multicomponent site where a late nineteenth to early twentieth century farmstead had disturbed a prehistoric site of an unknown cultural affiliation. All the sites recorded during this survey are considered ineligible for listing in the NRHP (Schenian and Mocas 1993:ii).

In 1993, Cultural Resources Analysts, Inc., conducted archeological survey of 120 acres on JPG (see Figure I-4). The survey recorded four sites: two prehistoric, one historic farmstead, and one multicomponent site. The multicomponent site contained prehistoric and historic artifacts (Anslinger 1993:17). None of these sites is eligible for listing in the NRHP (Anslinger 1993:ii).

In 1994, Algonquin Archeological Consultants, Inc., conducted a survey for chert sources along nearly 91 km of stream valley covering 2,802 acres of JPG (see Figure I-4). In addition, Algonquin conducted an archeological survey in several designated tracts within the chert survey segments (Hawkins and Walley 1995). The archeological survey covered 79 acres of JPG land. Twenty-three archeological sites were located and recorded. Two of the sites are historic homesteads, one is a prehistoric lithic scatter and a historic artifact scatter associated with a farmstead outside the survey area, and the remaining 20 are prehistoric sites. Of the 20 prehistoric sites, two are located in rockshelters and the rest include isolated finds (n=7) and lithic scatters (n=11). Nine prehistoric sites whose eligibility for listing in the NRHP could not be determined require a Phase II significance evaluation (Hawkins and Walley 1995:VIII-1 to VIII-46). Additional testing of the prehistoric component and an evaluation of the historic component should be made at the multicomponent site JPG-AACI-1 (Hawkins and Walley 1995:VIII-11). The two historic sites (JPG-AACI-22 and JPG-ACCI-23) should be evaluated (Hawkins and Walley 1995:ii).

The topography of JPG has been described as "conducive to prehistoric activity" (U.S. Army Corps of Engineers [USACE] 1991:3-46), and this is amply demonstrated within similar topography in the area surrounding the facility, where a large number of sites has been recorded. An archeological survey prior to the installation of the Texas Gas Pipeline in south-central Indiana recorded over 200 sites in a 100-mile corridor through topography similar to that characteristic of JPG. Most of the sites occur near or overlooking a water source or on an area of good drainage. Over 190 sites have been recorded in Jefferson County and over 100 sites have been recorded for each of Jennings and Ripley counties (USACE 1991). Most of these sites occur within 500 m of water sources, such as springs or streams, and on slopes or crests of upland flats overlooking the water sources. East of JPG in counties along the Whitewater and Ohio rivers, a number of earlier studies were conducted (Black 1934, 1936; Kellar 1960).

Interest in the prehistory of southern Indiana goes back to the initial settlement in the area. Early settler George Rogers Clark had a keen interest in the prehistory of the area around the Falls of the Ohio (greater Louisville/New Albany area), and was involved in the debate over the origins of the numerous mounds located in the Ohio and Mississippi river valleys, correctly attributing their origin to Native Americans (Janzen 1972:307). Following Clark, others took an interest in the prehistory of the area: Constantine S. Rafinesque conducted an archeological survey in Kentucky between 1820 to 1824, E. T. Cox directed a geological survey in Indiana in the 1870s (Cox 1874) that included descriptions of archeological sites, and Gerard Fowke surveyed in 1902 for prehistoric chert quarries in Harrison County, Indiana. After the turn of the century, effort was directed toward large mound sites and speculation regarding sites such as the stone fort on Devil's Backbone in Clark County, with neglect of the smaller but equally important sites more typical of the region.

The early surveys and other historic accounts mention numerous prehistoric sites in the region, but by the end of the first third of the twentieth century, W. S. Webb and W. D. Funkhouser were only able to locate 16 sites in the five Kentucky counties surrounding the Falls of the Ohio (Janzen 1972:316), only one site for every 24,281 ha (93.75 sq mi). On the Indiana side of the Falls, E. Y. Guernsey conducted a survey and excavated a number of sites in 1934 and 1935, including the Clark's Point and Elrod sites in Clarksville (both later destroyed) and the Prather site in Clark County. Guernsey also reported the Koons, Willey, Spangler, and Battle Creek sites as well site 12Cl16, all in Clark County. Unfortunately, Guernsey never fully published the results of his survey (Lilly 1937:27) and did not keep formal field notes describing his work (Janzen 1977:127). Guernsey recognized three cultural sequences for the area: a Late Archaic component similar to the Green River Archaic typified by the Indian Knoll site in Kentucky, a Middle Mississippian component, and finally a Fort Ancient component (Janzen 1972:316-318, 1977:127; Lilly 1937:99-101). Guernsey's Fort Ancient component, however, has not been verified. No further work was conducted in the Falls of the Ohio area until 1969, when Donald Janzen directed a research project involving both excavation and survey (Janzen 1972, 1977). While the goals of the project were concerned primarily with the Archaic period, Woodland and Mississippian period sites received some attention (Janzen 1977).

These previous surveys have provided a body of data that facilitates reconstruction of the culture history of the Ohio valley region in southern Indiana. The scope of this project, however, allows a discussion of the topic only on a very general level. Discussion is arranged chronologically from the earliest inhabitants of the region to the time when Euro-American settlers displaced aboriginal populations.

CULTURAL CHRONOLOGY

Prehistoric Culture History of the Ohio Valley

Humans have continuously occupied southeast Indiana since the end of the Pleistocene epoch, approximately 12,000 years ago (10,000 B.C.). Based on previous research, the aboriginal cultural history of the region

may be subdivided into five broad temporal periods: Paleo-Indian (10,500 - 7,500 B.C.), Archaic (7,500 - 1,500 B.C.), Woodland (1,500 B.C. - A.D. 1,000), Upper Mississippian/Fort Ancient (A.D. 1000 - 1700), Historic Native American (A.D. 1675 - 1773). A generalized cultural chronology for the region is summarized in Table F-1.

Table F-1
Native American Cultural Sequence for the Central Ohio Valley and Southeastern Indiana
(after Stafford et al. 1985)

Temporal Period	Date
<i>Paleo-Indian Period: 10,500 to 8000 B.C.</i>	
<i>Archaic Period: 8000 to 1500 B.C.</i>	
Early Archaic	8000- 6000 B.C.
Middle Archaic	6000 - 3500 B.C.
Late Archaic	3500 - 1500 B.C.
<i>Woodland Period: 1500 B.C. to A.D. 1000</i>	
Early Woodland	1500 - 500 B.C.
Middle Woodland	500 B.C. - A.D. 650
Late Woodland	A.D. 600 - 1000
Late Woodland/Mississippian Transition	A.D. 900 - 1050
<i>Upper Mississippian/Fort Ancient Traditions: A.D. 1000 - 1700</i>	
<i>Historic Native American Period: A.D. 1675 to 1773</i>	

In the past the JPG area has received very little attention by professional archeologists (Stafford et al. 1985), forcing a reliance on information from surrounding regions. The above five major aboriginal periods are devices used to enable a structured discussion of the past; the divisions between the periods are at times difficult to explain and hard to distinguish. At times a technological innovation, such as ceramics, allows us concrete criteria to demarcate a transition, while at other times the transition is arbitrary and marks a change of degree rather than type. To further complicate matters, the dates marking the change from one period to the next vary from region to region and in some regions an older tradition can persist while surrounding regions have moved on to the next stage. A discussion of the more common and familiar temporal system follows, although a classification system based on adaptation is discussed first to emphasize the continuous nature of adaptation and subsistence that existed during the prehistoric period.

Adaptive Types

The prehistoric period of the eastern United States is marked by four adaptive types, designated by Stoltman and Baerreis (1983) as the Pioneering Ecosystem, the Foraging Ecosystem, the Cultivating Ecosystem, and the Agricultural Ecosystem types. The Pioneering Ecosystem type is represented by the early Paleo-Indian period, with subsistence based on the exploitation of megafaunal resources, such as mammoth, caribou, and bison. The Foraging Ecosystem type starts in the late Paleo-Indian period, with a shift from megafauna (which were extinct by this time) to a wider exploitation of the environment including the increasing utilization of floral resources. This adaptation type persists in general from the late Paleo-Indian period to the Late Archaic period, continuing in some areas to the Late Woodland or beyond. During the Archaic period there is a refinement of this adaptation type and a general increase in the intensity with which it is

applied to the local environment. The transition to the Cultivating Ecosystem type is marked by the appearance of the first cultigen (tropical cucurbits, i.e., squash and related species) in the archeological record in the midcontinent during the third millennium B.C., followed by the cultivation of native seeds after 2000 B.C. (Stoltman and Baerreis 1983:257). The Cultivating Ecosystem type is not distinguished by a major dependence on cultivated foods, but by the addition of cultivated foods to a broad-based exploitation of wild resources. The Agricultural Ecosystem type, typical of the Mississippian and Fort Ancient cultures, is the final stage. Well-established by 900 B.C., this adaptive type is heavily dependent on cultivation, including both maize and beans as well as cucurbits, with utilization of a narrow range of wild resources.

These four adaptation types are not exclusive, with even the Pioneering Ecosystem type persisting (or re-emerging) in historic times in the form of the bison hunters on the Great Plains. In general, however, there has been a progression within the Ohio and Mississippi River valleys from one type to the next, with variation in rate of change and in application within different regions. The adaptive types crosscut the periods that are primarily temporal units. The above classification system was presented to emphasize the continuous nature of adaptation and subsistence that existed during the prehistoric period. The discussion that follows deals with the temporal classification system, which has the advantage of being more universal in usage, but is at the same time more inflexible and arbitrary.

Paleo-Indian Period (10,500 - 8000 B.C.)

The evidence for the initial human occupation of the Ohio River valley is sparse in southeastern Indiana. The primary evidence consists of surface finds of fluted projectile points (Munson et al. 1977; Stafford et al. 1985:2-14). Approximately 80 km (50 mi) southwest of JPG, in Clark County, two types of projectile points have been identified, a concavo-parallel-sided point similar to Clovis points and a fishtail form classified as a Cumberland point (Swartz 1973:9). The largest find of fluted points in the region was a cache of points found on Clark County site 12Cl391 (Janzen 1977:127; Tankersley 1990:17-18). A total of 11 fluted projectile points was found at what might be a Paleo-Indian habitation site.

The similarity of Clovis-like points in Indiana to those projectile points from the Plains and Southwest that have been recovered in association with Pleistocene megafauna leads to the assumption that eastern hunters were also exploiting megafauna (Swartz 1973:9). However, as there is no direct evidence of the dietary regime of these earliest inhabitants (Muller 1986:52), little can be said about the hunting methods and subsistence practices during this period. It is premature to imply that the presence of these early projectile points indicates specialized megafauna exploitation (Driskell et al. 1979:19). However, the tool kit of the Paleo-Indian period east of the Rocky Mountains does reflect activities involving hunting, butchering, hide processing, and bone or wood working, with no convincing evidence of fishing or plant processing (Stoltman and Baerreis 1983:254), which may reflect an overall similarity in subsistence practices over this wide area, i.e., a reliance on hunting megafauna.

In southern Indiana, the Paleo-Indian sites occur as low density lithic scatters on bluff tops, terraces, and uplands (Anslinger 1993:4; Kellar 1993:26; Munson et al. 1977:79; Stafford et al. 1985:2-14). The late Paleo-Indian period is slightly better known. Projectile points similar to Folsom points are present on the Prairie Peninsula area in western Indiana but have not been found in the lower Ohio River valley. Points related to the Dalton complex have been found in southern Indiana. Initially, the Dalton complex may have applied the subsistence practices developed for the exploitation of late Pleistocene megafauna to the exploitation of white-tailed deer in the expanding deciduous forests (Stoltman and Baerreis 1983:255); if this interpretation is correct, the Dalton complex represents the transition between the Pioneering Ecosystem type and the Foraging Ecosystem type. By the end of the Paleo-Indian period the subsistence of the Dalton complex had shifted to a broader base of resources, with increasing exploitation of floral resources. Evidence from a number of Dalton complex sites, located downriver in northeastern Arkansas, indicates that a wide variety of riverine and forest resources were being exploited with increasing efficiency during the

later stages of this complex (Muller 1986:54). By the final stages of the Dalton complex, the transition to a foraging subsistence adaptation had taken place, marking in part the transition to the Archaic period.

The Indiana Paleo-Indian lithic tool kit includes fluted points and general purpose tools. Typical projectile points include Clovis, Cumberland, Dalton, Quad, Scottsbluff, Eden, and Plano styles (Stafford et al. 1985:2-14). Dalton points, as well as Meserve, Plano, and other nonfluted or semifluted points, dated from the late Paleo-Indian period (Kellar 1993:28). In the immediate area of JPG, five fluted points have been reported from Jefferson County (Anslinger 1993:4; Tankersley 1990:9; Anslinger 1993:4). The small size, disturbed nature, and poor preservation at most sites dating from Paleo-Indian times combine to limit the ability to identify and inventory sites from this period.

Archaic Period (8000 - 1500 B.C.)

The Dalton complex is sometimes classified as Early Archaic because its later subsistence economy is similar to that practiced by Archaic cultures. However, environmental rather than cultural change is the significant marker for the beginning of the Archaic period (Muller 1986:56; Stoltman and Baerreis 1983). From 10,000 to 7000 B.C. the spruce-dominated boreal forest retreated north, replaced first by pine and then deciduous forest. Faunal resources during the Paleo-Indian period were abundant, with big game such as caribou, musk-oxen, mastodons, and long-horned bison present, while edible floral resources in the coniferous forest were sparse (Stoltman and Baerreis 1983:253). The postglacial transition to deciduous forests was marked by a decrease in the availability of large game animals balanced by an increase in floral resources. Due to this environmental change, subsistence by the Early Archaic had shifted to a dependence on deer, turkey, and squirrel with increasing exploitation of wild plant foods, especially nuts (Muller 1986:56-57).

By 8000 B.C., environmental changes had caused a significant impact on the inhabitants of the Ohio River Valley and on their subsistence economy, and 8000 B.C. is used here as the start of the Archaic period. As mentioned above, some place the beginning of the Archaic period during the preceding Dalton complex, while others place the start of the Archaic period as late as 6000 B.C. (Wohlgemuth 1980:III-2).

This period can be broken into three temporal subperiods: the Early Archaic, dating from 7,500 to 6000 B.C.; the Middle Archaic, from 6000 to 3500 B.C.; and the Late Archaic, from 3500 to 1500 B.C. The transition from one subperiod to the next is often difficult to delineate, as are the transitions from the preceding Paleo-Indian period and into the following Woodland period. The Archaic period represents a continuum of subsistence-settlement patterns and other cultural practices that extends into the Early Woodland period (Munson et al. 1977:83).

Early Archaic Period (7500 - 6000 B.C.)

Few Early Archaic sites have been investigated in southeastern Indiana. Three excavated sites in Kentucky, the Deep Shelter rock shelter in Rowan County, the Lawrence site in Trigg County, and the Longworth-Gick site in Jefferson County, contain a significant amount of material relating to the Early Archaic period, while other sites contain only minimal evidence (Collins 1979). Unfortunately, little in the way of faunal and floral evidence has been recovered to aid in an understanding of the subsistence economy in the project area. What little evidence we have indicates that the subsistence economy relied on a wide variety of resources with settlement consisting of small, short-term camp sites that generally lack fire-cracked rock, pit features, and middens. Close to the project area along the Ohio River, well-preserved Early Archaic deposits have been reported for the Haag site in Dearborn County, Indiana (Reidhead and Limp 1974:7; Tomak et al. 1980:28-58); Swan's Landing (12Hr304) in Harrison County, Indiana (Smith 1986); and site 12Sw89 in the Mexico Bottoms of Switzerland County, Indiana (GAI 1984). In addition, an intact Early Archaic component was

recently identified at the Simpson site (12Hr403) in Harrison County (Anslinger 1993:5; Stafford and Cantin 1992).

Typical projectile points from the Early Archaic period of the mid-Ohio valley are generally large, flat, corner-notched and/or stemmed types including Kirk, Thebes, Palmer, Kessel, MacConckle, and Kanawha styles (Bennet 1988:14-15; Justice 1987; Kellar 1993:28; Muller 1986; Stafford et al. 1985). Smaller, stemmed points with bifurcated bases become more common during later portions of the period (Driskell 1979:21). Thebes, Bristol Diagonal Notched, and Kirk Corner-notched points have been found in Clark County (Limp 1976; Noel 1986), while bifurcated points have been located across the Ohio River in Jefferson County, Kentucky (Collins 1979:566). The general tool kit represents an expansion of subsistence activities, with fishing gear present as well as hunting and woodworking tools (Bennett 1988:15; Stoltman and Baerreis 1983:255). Ground stone use increased during this period (Stafford et al. 1985:2-14).

Middle Archaic Period (6000 - 3500 B.C.)

The beginning of the Middle Archaic period is not marked by environmental change or cultural innovations; it is instead a period of continuation and intensification of the changes started in the preceding periods. Population increased slightly. The hunter-gatherers occupied small seasonal or base camps in riverine and forest areas. Specialization in the exploitation of local resources, reduced mobility, increasing sedentism, and increasing reliance on plant resources are all indicated by the archeological record, with the possibility of increasing populations playing a role in changes in subsistence and settlement (Muller 1986:57-58). Two complexes have been defined for this period within the lower Ohio River valley, the Faulkner and the Carrier Mill. Both of these complexes are located in the westernmost portion of the Ohio River valley, well outside the project area. Few sites dating to the Middle Archaic are known for the Ohio River valley as a whole, but there is insufficient data to determine whether this signifies an actual decrease in utilization of this area during this period or if the lack of sites is due to archeological bias (Bennett 1988:15). There does appear to be little evidence for traditional Middle Archaic sites within the Falls of the Ohio region, southwest of the project area (Collins and Driskell 1979:1030), but it cannot be determined if earlier subsistence practices and cultures continued in this area between 6000 and 4000 B.C., if Late Archaic cultures and practices started before 4000 B.C. in this area, or if there is a real decline in utilization during this time span.

Sites from this period tend to be located along the Ohio River and its major tributaries, or on prominent, well-drained elevations in close proximity to two or more environmental niches. A wide variety of site types has been identified, including base camps, hunting camps, nut collection/processing stations, lithic workshops, and fishing/mussel gathering stations. These sites are often in excess of one acre in size, have heavy midden deposits, and large numbers of functionally diverse pit and nonpit features. Fire-cracked rocks as well as human and dog interments are often found. The large and functionally diverse artifact assemblages are composed of domestic tools and implements and some ornaments. The tool industry is characterized by extensive use of chert, ground stone, bone, antler, and shell. Expansion of the tool kit reflects the diverse array of resources available, as well as the development of new technologies and food processing methods (Anslinger 1993:5).

Increasing regional variation in tool and point types occurs during the Middle Archaic, with typical projectile points dating from this period including the Raddatz, Faulkner, Big Sandy II, Morrow Mountain, Tablerock, and Stanley types, as well as other side-notched, stemmed, and corner-notched points (Bennett 1988:15; Stafford et al. 1985:2-14). The tool kit now included an increasing array of ground stone tools, such as mortars, pestles, manos, metates, and nutting stones, indicating an increasing reliance on plant food processing, as well as ground stone axes, celts, pendants, and atlatl weights (Bennett 1988:15; Kellar 1993:30). Bone tools such as fishhooks, pins, awls, and knapping tools supplemented the stone tool kit (Driskell 1979:22). Exotic materials also begin to appear on sites dating from this period, with marine shell

from the Gulf of Mexico and copper from Lake Superior indicating the initiation of interregional exchange (Muller 1986:66).

Outside the Ohio River valley, there are indications of the incipient domestication of plant resources during the Middle Archaic, but no evidence of domestication within the valley itself has been recovered (Muller 1986:61). This incipient domestication marks the initial move to the Cultivating Ecosystem type.

Late Archaic Period (3500 - 1500 B.C.)

There is little agreement as to the date dividing the Middle from the Late Archaic, with the transition in the general eastern portion of the valley placed before 3500 B.C., while the date is placed at 3000 B.C. in the western portion (Muller 1986:66). Placing the date at 4000 B.C. would correspond to the beginning of the late-Holocene interval, which marks the general shift toward the modern vegetation pattern; however, during the preceding mid-Holocene interval, the vegetation types in the central Ohio River valley were already similar to modern types (Delcourt and Delcourt 1981:133). Certain traits characteristic of the Late Archaic, such as increasing elaboration of burials, expanding exchange systems, domestication of local flora, increasing localized adaptations, and increasing regional variation, all had their origins in preceding periods.

A number of different cultural units can be defined for the central Ohio River valley and the adjoining regions. The Riverton phase in the Wabash valley, the Shell Mound Archaic from the lower Green River (also called the Green River Archaic), the Cave Archaic in Kentucky, and the Maple Creek Archaic from the Falls of the Ohio to southwestern Ohio have all been defined (Muller 1986:70-80; Munson et al. 1977:85). Sites of the Shell Mound culture have been located in the Falls of the Ohio region, with the Old Clarksville, Reid, Ferring Landing, and Hornung sites all containing Shell Mound complex artifacts (Janzen 1977).

The Late Archaic peoples were more oriented toward valley settings, and their occupations were more permanent than those during the Middle Archaic. Sites from this period are known from rockshelters, along small and large stream valleys, and on the terraces and floodplain ridges of the Ohio River (Munson et al. 1977:85). A number of large bottomland sites have been investigated in the Falls area, revealing a heavy dependence on shellfish and other riverine and bottomland resources. Upland sites and the use of upland resources remain poorly known, and the upland sites that have been investigated have undergone only limited excavation or have been nearly destroyed prior to archeological investigations (Muller 1986:80-81). Positive evidence is lacking concerning both the diet of the upland Late Archaic populations and the relationship of these upland sites to the bottomland sites.

During the 1970s Donald Janzen (1977) conducted a project that focused primarily on bottomland Archaic sites. The Late Archaic alluvial valley sites that were investigated indicate a reliance on white-tailed deer, nuts, and mussels, with thick shell middens often 2-4 m (6-12 ft) deep. These sites are typically located at the junction of at least two physiographic provinces, with access to several microenvironments. Janzen postulates a semisedentary, wandering settlement pattern, whereby the Archaic inhabitants utilized the wide variety of resources available in these environments to minimize seasonal movements. Evidence indicates a multiseasonal use of the alluvial valley sites, forcing the rejection of a shifting settlement pattern model. Late Archaic upland sites investigated during the 1970s lacked the mussel shell, brown midden stains, thick deposits, and large quantities of fire-cracked rock that are typical of alluvial sites (Driskell et al. 1979:25; Kellar 1993:29).

Late Archaic projectile point styles include both stemmed and side-notched points, with awls, scrapers, abraders, sewing and weaving tools, graters, and drills also present, as well as "cloud blower" pipes, bone beads, shell pendants, flutes, and turtle shell rattles (Tuck 1978:37). Projectile points belonging to the Matanzas and Merom clusters, as well as Karnak stemmed, Karnak unstemmed, Brewerton, and Rowlett

styles, have been found in the region (Baltz 1985a, 1985b, 1986; Kellar 1993:33; Limp 1976; Wohlgemuth 1980). Side-notched points are gradually replaced by a variety of stemmed forms (Anslinger 1993:6). The bone tools from the Ohio valley include fish hooks, awls, hairpins, needles, beads, atlatl hooks, and some engraved bone similar to that found on the McCain site in Dubois County, Indiana (Janzen 1977:137). In addition, "exotic" material such as copper has been recovered from Late Archaic burials, suggesting an increase in social complexity (Anslinger 1993:6).

During the latter portion of the Late Archaic, settlements were geared toward exploitation of valley and river resources. Technological change during the Late Archaic is evident in sites of the Riverton culture (Anslinger 1993:6). Riverton culture sites are characterized by a micro-tool industry, including points, bifaces, and perforators which are characteristically smaller than their counterparts dating to the earlier Archaic subperiods (Anslinger 1993:6). In these micro-tool industries, tools were expediently manufactured from local lithic sources with little or no desire shown for selection of higher quality material. This was a significant departure from the earlier Late Archaic raw material preference that relied on higher grade raw materials, some of which were foreign to the sites (Anslinger 1993:6). Riverton culture hunter/gatherers appear to have experimented with horticulture (Anslinger 1993:6). Two circular houses were identified at the Late Archaic Wint site (12B95) in Bartholomew County to the northwest of the project area (Anslinger 1993:6).

In summary, the Archaic period was marked by the increasing utilization of floral resources, by increasing specialization in local resources with specialization in a limited range of these resources by the Late Archaic, by increasingly restricted mobility or at least a restriction of the range of mobility, and if not the actual domestication of wild plant foods, the initial utilization of those plants that would eventually be cultivated. By the end of the Archaic period, the Cultivating Ecosystem type was fully developed in a number of areas.

Woodland Period (1500 B.C. - A.D. 1000)

There is a continuation of these trends in the Woodland period, with an increase in the extent of the Cultivating Ecosystem Type and a move toward sedentism. However, the beginning of the Woodland period is marked by a technological innovation, the introduction of ceramic vessels to the aboriginal material culture, making the delineation between the Archaic and the Woodland periods more definite than the divisions between their individual subperiods.

Like the preceding Archaic period, the Woodland period is divided into three subperiods. The Early Woodland dates from 1500 B.C. to 500 B.C., the Middle Woodland from 500 B.C. to A.D. 650, and the Late Woodland from A.D. 600 to A.D. 1000 (Stafford et al. 1985:2-13). A short transitional Late Woodland/Mississippian period (A.D. 900 - 1050) is also recognized.

Early Woodland Period (1500 - 500 B.C.)

As mentioned above, the primary delineation between the Late Archaic period and the Early Woodland is the introduction of ceramic vessels (Kellar 1993:35). The starting date of 1500 B.C. is somewhat arbitrary, however, since ceramic vessels first appear on the south Atlantic coast at approximately 1500 B.C., in the Northeast at 900 B.C., and finally in the Midwest at 600 B.C. (Muller 1986:90-93). There was very little in the way of drastic change in subsistence and settlement patterns between the two periods (Muller 1986:91; Tuck 1978:41) other than the introduction of ceramics, and a decrease in the reliance on shellfish as a food resource (Munson et al. 1977:86). Increased experimentation with horticulture continued, and the use of weedy annuals increased.

The Woodland tradition marks the introduction of a new technology and the development, in some areas, of an elaborate burial practice (Kellar 1993:36). The tradition is not well-understood in the area surrounding JPG. In greater southern Indiana, however, two distinct ceramic traditions are represented. The first and chronologically earlier one (Fayette Thick) is characterized by thick-walled barrel-shaped vessels (jars) with flat bases. The second tradition is the Adena; Adena vessels are thinner than those of the Fayette tradition. Most Adena ceramics from Indiana are recovered from burial/mound contexts (Anslinger 1993:6; Kellar 1993:37).

Some Early Woodland complexes, such as the Adena in southern Ohio, northwest West Virginia, and northeast Kentucky, practiced elaborate mortuary practices and constructed earthworks and burial mounds. Their most visible characteristic takes the form of specialized mortuary sites which include earth mounds. Primary burials, cremations, and "exotic" burial goods occur at these sites. The Adena complex, however, is essentially a mortuary complex practiced by a number of different societies (Tuck 1978:41) with each following a subsistence and settlement system adapted to the local environment. The Adena complex was originally thought to extend west into Illinois, but the western boundary is now considered to be in the Whitewater and upper White valleys in eastern Indiana east of the Falls of the Ohio region (Kellar and Swartz 1970:122). The Nowlin Mound, one of the largest prehistoric structures in the state of Indiana, is located southeast of the project area in Dearborn County (Anslinger 1993:6). When excavated by Glenn Black in 1934-35, the mound was found to contain seven accretional tombs. The tombs were associated with shell beads, stemmed and corner-notched points, bone awls, a plain sandstone tablet, and a C-shaped copper bracelet (Anslinger 1993:7; Kellar 1993:39). Another mound of Adena affiliation, the C.L. Lewis Stone Mound, was excavated by Black and Kellar in Shelby County, northwest of the project area. The remains of 36 individuals, many of them partial, were recovered. Grave goods included C-shaped copper bracelets, copper beads, and bone combs. A single radiocarbon date of 2030 B.P. was obtained (Anslinger 1993:7).

In general, the pottery typical of the Early Woodland consists of thick-walled, conical vessels that often have flat bottoms. Vessels in the later Early Woodland and the Middle Woodland periods are thinner-walled and more globular in shape, possibly indicating an increase in the use of boiling for the preparation of small seeds (Muller 1986:91). Projectile point types are generally stemmed with square to round bases. Typical projectile points of the period include Kramer, Adena stemmed, Adena leaf-shaped, and other stemmed styles (Kellar 1993:41). Various types in the Kramer, Wade, and Turkey-tail categories occur early in the period, while the Adena stemmed variety is most common in the late Early Woodland (Anslinger 1993:6; Kellar 1993:34). Robbins and Kramer points have been found in Clark County (Baltz 1985b; Limp 1976). Early Woodland points are generally made of high quality cherts.

Middle Woodland Period (500 B.C. - A.D. 650)

During the Middle Woodland period, the midcontinental region of North America was dominated by the Hopewell cultures. Like the Adena culture that preceded it, the Hopewell was a system of shared mortuary practices (Muller 1986:95-96). The Hopewell homeland in Ohio and the Havana Hopewellian cultures in western Illinois are considered to be the primary centers, with other variants, the Wabash Hopewellian in western Indiana for example, located over a wide geographic area (Kellar 1993:43).

The Hopewell period is marked by an intensification of the elaborate Adena burial practices, extensive exchange networks involving exotic, nonutilitarian materials, and the construction of burial mounds and earthworks. Hopewellian mounds, constructed over single tombs, replaced the Adena accretional tomb mounds. Large amounts of goods, including items of copper, obsidian, mica, marine shells, and high quality cherts and quartz crystals, are often found in association with Hopewellian burials (Anslinger 1993:7). The investment of labor necessary for the construction of elaborate mounds in the Ohio River valley region suggests a more complex level of social organization than in the preceding period (Swartz 1973:22).

The subsistence economy for the Middle Woodland period was a continued refinement of the Early Woodland systems, with a basis in riverine-forest resources (Munson et al. 1977:88). Upland areas continued to have a heavy dependence on nuts, with cultivation of domestic species developing in the lowlands (Muller 1986:124). There is a general trend away from oily seeds such as sunflower and sumpweed and a corresponding increase in the use of starchy seeds such as *Chenopodium* spp., which would have required modifications in cooking techniques reflected in the thinner-walled vessels developed during this period (Muller 1986:103). Cultivation was most likely at its greatest extent in the bottomlands occupied by the Ohio Hopewell populations (Swartz 1973:22).

The finer Hopewellian pottery is quite elaborate, but utilitarian wares are very much like those found during the Early Woodland period (Muller 1986:96), with the trend toward thinner-walled vessels continuing. The Ohio Hopewell pottery found to the east of the project area is cordmarked with plain rim zoning and with an elongated form and rounded to flat bases (Swartz 1973:22). To the west, the Wabash Hopewellian pottery is similar to pottery found in the southeast, with deeply impressed cordmarked pottery (Allison phase) followed by simple, check-stamped pottery of the La Motte phase (Swartz 1973:22). Approximately two-thirds of nonmortuary pottery from the Wabash Hopewellian Mann site was cordmarked, with most of the remainder being plain (Muller 1986:106). Temper was grog, grit, and limestone. Projectile points associated with Hopewellian sites include the Lowe Flared Base point and Tamms expanding stem point from the Wabash valley region, Ross ceremonial points from burial mounds in Ohio, and the Snyder point from the western Hopewellian areas (Kellar 1993:44). In the project area, stemmed points remained common during the early Middle Woodland. By the beginning of the Common Era, the notched (Snyders) and the expanded stem (Lowe Flared Base) styles were replacing the stemmed points.

In southern Indiana, Middle Woodland sites have not received much professional investigation. Nevertheless, large important sites with midden and feature deposits are known to exist along the Ohio River near Lawrenceburg (Anslinger 1993:7). Munson et al. (1977:89) state that there is an undefined Middle Woodland complex in the Falls of the Ohio region. One mound site in Clark County, Indiana, the Prather site (12C114), dates to the Middle Mississippian period (Janzen 1972), while the mounds reported at 12C114 (on the Devil's Backbone) may also date to this period. Unfortunately there is no longer any remaining evidence of these mounds or any artifactual material on Devil's Backbone (Janzen 1977:313).

The Baumer and Crab Orchard complexes may be an analogy for Middle Woodland sites within the Falls of the Ohio region. While these complexes do include some indications of contact with the Hopewellian Interaction Sphere (particularly the Crab Orchard phase), to a large extent these complexes represent a conservative continuation of Early Woodland traits into the Middle Woodland period. Exotic exchange goods, elaborate burials, and indications of rank are missing from Baumer sites, with a subsistence economy that appears to be more "Archaic" than that of the Hopewellian Woodland people (Muller 1986:109). It is possible that Middle Woodland populations located along the middle Ohio River valley between the Wabash Hopewellian populations and the Ohio Hopewell also may have retained a more conservative economic system than their neighbors in adjoining regions. The narrow floodplains of the middle Ohio River valley with their more limited bottomland resources, as compared to the more extensive floodplains located in the major Hopewell and Hopewellian centers, may have had a strong negative influence on the development of Hopewell-like cultures in this area.

Late Woodland Period (A.D. 600 - 1000)

The Late Woodland period was at one time considered to be a sort of prehistoric "Dark Ages", characterized by a decline in cultural sophistication and in population. Mound building continued but on a lesser scale, populations were more dispersed, complex burial practices declined, the amount of grave goods decreased or disappeared entirely, and the "fine arts" of the Middle Woodland period vanished (Kellar 1993:48-49; Muller 1986:123-128). Limited burial mound construction continued, but the use of stone slabs in the

construction became common (Anslinger 1993:7; Kellar 1993:49). The Late Woodland period can, in some ways, be considered a return to the lifestyle of earlier, pre-Woodland periods (Bennett 1988:18).

It is no longer believed that the Late Woodland period represents a true Dark Ages. While the pottery became artistically less complex, ceramic technology continued to advance. The cultivation of domesticated crops, native and exotic, increased in importance, eventually resulting in a maize-based horticultural system that would become the major source of subsistence in the subsequent Late Woodland/Mississippian Transitional phase. The exotic goods exchange network of the Hopewellian period was no longer functioning, but the uniform character of Late Woodland ceramics may indicate an intensification of widespread cooperative networks (Muller 1986:128). As compared to the preceding Hopewellian cultures and the following Mississippian cultures, the Late Woodland cultures are materially less complex. However, it is inappropriate to assume that the period is analogous to the very real decline in European cultures during the same centuries (although it seems possible that the global cooling trend which peaked between A.D. 600 and 700 may have affected both areas).

The Late Woodland period is characterized by the exploitation of a wide variety of wild foods sources, with a decline in the use of bottomland resources as compared to the preceding period. While cultivation continued, and became increasingly important by the end of the period, subsistence was extensive rather than intensive (Swartz 1973:22). Populations were organized into small groups, dispersed into and exploiting many different environments, with sites located in rockshelters, on upland hilltops, and on bottomlands (Muller 1986:129).

A number of different phases have been defined for the Late Woodland period, with names such as Lewis, Albee, Dillinger, Yankeetown, and Douglas. In southeast Indiana many Late Woodland period sites have produced points and pottery associated with the early Newton phase. Although the Newton phase is better represented east of the project area in portions of southern Ohio and northeastern Kentucky, Newton components have been identified at the Haag and Bratfish sites in Dearborn County, Indiana, in close proximity to the project area (Anslinger 1993:7). Expanding points of the Lowe Flared Base variety have been recovered from Newton phase sites. Small Woodland points such as Jack's Reef and Raccoon side-notched occur throughout the region (Anslinger 1993:7). These points are commonly classified as belonging to the Albee phase, and are found in association with cordmarked jars with wedged rims in Late Woodland sites in Indiana (Anslinger 1993:7). One Jack's Reef projectile point, dating to the Middle/Late Woodland transition, has been recorded for Clark County (Munson et al. 1977).

In the Shawnee Hills region of southern Illinois are a number of stone structures often referred to as "forts." Related to the Lewis and Raymond phases (A.D. 600 to 900), these structures are located on hilltops surrounded by high cliffs. Irregular piles of rough stones have been placed across the paths of easiest access, with internal areas of .5 to 2 ha (1.24-5 ac) closed off (Muller 1986:150-151). Some of the structures were associated with mounds or stone cairns, and some have habitation areas within their confines. These stone constructions appear to be similar to the stone "fort" that once existed on the Devil's Backbone north of Fourteen Mile Creek. The original description of this site by Cox (1874) is probably an exaggeration, and was dismissed as a fraud by Gerard Fowke in 1902 (Janzen 1972:314). However, the description of stones placed across the path of easiest access with five mounds contained within the enclosure is similar to the structures located in southern Illinois. Prehistoric material reported from the site by Lilly (1937:52) included chert debitage, triangular projectile points, ground stone tools, and other lithic artifacts. Unfortunately, even in Cox's time the site was under cultivation, and by the 1930s the site was completely destroyed. One account of this site is based on observations made both in the 1880s and 1920s. Herman Rave visited the stone fort in the early 1880s, finding a stone construction similar to Cox's description (Anonymous n.d.:13). Excavations of the mounds failed to recover any material other than a three-cornered stone. No artifacts were discovered within the fort itself, although material was reported from the base of the bluffs. Rave revisited this site in the 1920s, reporting that it had been destroyed, with all of the walls having been removed

and quarrying activity taking place at the location of the great wall that cut off access along the ridge (Rave n.d.:25-26).

Late Woodland/Mississippian Transition (A.D. 900 - 1050)

By the end of the Late Woodland period there was a move back to exploitation of bottomland resources and a shift to maize-based horticulture in many areas (Muller 1986:154), with corresponding changes in ceramic technology and settlement patterns. This ill-defined period, about which little is known at this time, has been termed the Late Woodland/Mississippian transition. It exhibits a mixture of the traits of both the Woodland and subsequent Mississippian cultures; like the Dalton phase, which represents an intrusion of Archaic technology into a basically Paleo-Indian lifestyle, the Late Woodland/Mississippian transition is a period of ongoing subsistence changes, which although the previous lifestyle was more or less retained nevertheless heralds a significant change in lifeways of the region. Sites from this period are similar to sites from the Late Woodland period, consisting mostly of small seasonal base camps, habitation sites, and mortuary sites; the large nucleated villages and platforms of the later Mississippian period have not yet made an appearance. The major difference between this phase and the Late Woodland is a heavy dependence on maize agriculture as a source of subsistence. Common material remains include Madison points and the Yankeetown pottery sequence (Stafford et al. 1985).

Upper Mississippian/Fort Ancient Tradition (A.D. 1000 - 1700)

There were two major cultural manifestations in the upper Ohio River valley during the Mississippian period. These included the Fort Ancient culture in Ohio, Kentucky, southeastern Indiana, and West Virginia, and the Middle Mississippian culture in the central Mississippi River valley and lower Ohio River valley. The Fort Ancient culture has been referred to as Upper Mississippian, a term also applied to the totally unrelated Oneota cultures of the upper Mississippi River valley and western Great Lakes regions. In between these two areas are a number of other regional Middle Mississippian variants such as the Kincaid-Angel, the Green River, the Vincennes, and the Falls Mississippian (Muller 1986). While there is considerable variation between these different complexes, even to the point that to apply the single term "Mississippian" may be inappropriate, historically these groups as well as others to the south and north have been referred to under this classification.

In general, the Middle Mississippian culture can best be defined as an adaptive system, a system characterized by the intense utilization of the bottomland environment for the cultivation of tropical cultigens, the restriction of wild resource utilization to the most abundant, dependable, and most easily obtained flora and fauna, and by a ranked social organization (Muller 1986:172-173). Middle Mississippian societies are found in areas with wide floodplains containing extensive and renewable alluvial deposits. The settlement pattern for the Ohio valley region was dispersed farmsteads with some nucleated sites (Muller 1986:174). Perhaps the most known "classic" Mississippian site in Indiana is Angel Mound State Memorial, located a few miles east of Evansville in Vanderburg County, adjacent to the Ohio River (Kellar 1993:52).

By contrast, the Fort Ancient culture inhabited a region where the Ohio River runs within a narrow gorge with limited alluvial deposits but more readily available upland resources¹. While cultivation of tropical cultigens was of major importance, a wide variety of wild foods was exploited, including nuts, berries, seeds, elk, bear, raccoon, and large quantities of deer (Griffin 1978:552). Fort Ancient societies lacked the high degree of social stratification characteristic of Middle Mississippian culture but often exceeded many

¹ The term Fort Ancient in itself is something of a misnomer, considering that the Fort Ancient earthworks from which the name is derived are actually the remains of an earlier Hopewell construction (Griffin 1978:551).

Mississippian cultures in the degree of nucleation, with significant portions of the population living in centralized towns (Muller 1986:259).

In southern Indiana, the area around the Falls of the Ohio marks the boundary between the Fort Ancient tradition, which occurs upstream to the east, and the Mississippian tradition which occurs downstream to the west (Anslinger 1993:8; Griffin 1978:551; Munson et al. 1977). The project area lies completely within the Fort Ancient culture area. Fort Ancient sites have been reported in Dearborn County southeast of the project area (Anslinger 1993:8; Black 1934; Griffin 1943), and the Bratfish site (12Dr74), located near the confluence of Laugherty Creek and the Ohio River, produced a spatially restricted early Fort Ancient occupation (Anslinger 1993:8). The occupation is characterized by triangular points, plain shell-tempered jars, and a feature cluster consisting primarily of hearths and refuse pits. The multicomponent Haag site located along the lower reaches of the Miami in the extreme southeast Indiana contained a Late Woodland Newton and a Fort Ancient component (Anslinger 1993:8).

Historic Native American Period (A.D. 1675 - 1773)

The Historic Native American period is poorly understood, and little can be said regarding the utilization of the project area by historically known tribes. Although direct evidence is lacking for a historic occupation sequence by the aboriginal Native Americans, the Fort Ancient aspect (Griffin 1943) of southern Ohio, northern Kentucky, and Indiana may represent the precursors of the Shawnee. In addition to the indigenous groups living in the area, beginning in the seventeenth century Native American groups migrated or were forced westward and southward into what is now Indiana (Brasser 1978:84; Hunter 1978:590; Peckham 1978:1). Largely as a result of pressures brought on by the fur trade and encroaching European immigration, the Wyandot (Huron), Miami, Fox, Ottawa, Kickapoo, and Potawatomi descended from the north, while the Iroquois, Delaware, and Shawnee entered Indiana from the east (Hunter 1978:590). Collectively these tribes reoccupied areas of the Ohio valley depopulated by the Iroquois wars of the mid-1600s. The Native American groups encountered by the French in the Ohio valley subsisted on hunting, gathering, agriculture, and trading (Hunter 1978:589). They lived in summer agricultural villages on the banks of the Ohio, where they cultivated maize, beans, squash, pumpkins, and melons, and in temporary winter hunting/trapping camps. Today, archeological remains of Native American sites of the period include agricultural villages with house remains, log structures (late in the period), pit structures, middens, special activity camps, stone tools, and European goods such as metal knives and axes, glass beads, brass kettles, and silver ornaments (Stafford et al. 1985:2-12).

Ethnographic accounts by early travelers on the Ohio River indicate that there were Indian populations in the JPG area before the Euro-Americans settlers arrived. A boatman traveling up and down the Ohio River reported sighting smoke from Indian campfires at the site of Madison long before the first Europeans settled there (Muncie 1932:46). Ethnographic accounts by early settlers of the JPG area indicate that by the early 1800s Indians, whose chief's name was "White Eyes," were "present in considerable numbers" along the Big Creek (Muncie 1932:110). The Indians often came to Madison to trade with the Euro-American settlers there and to buy "firewater" (Muncie 1932:46). At the regional level, from the late sixteenth century to the early 1800s, the primary influence on settlement patterns was the state of war existing between the European powers and the displacement of eastern aboriginal populations to the west (Muller 1986:263). The end result was a fluid, transient use of the lower Ohio River valley.

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APPENDIX G

PRE-1940 HISTORIC SETTING JEFFERSON PROVING GROUND

HISTORIC OCCUPATION OF THE OHIO VALLEY

Munson et al. (1977:12) divide the history of the Ohio River valley in southern Indiana into four principal subperiods: the Colonial era (1660-1800), the Pioneer era (1800-1860), the Agricultural era (1860-1920), and the Industrial era (1920-present). Jefferson, Jennings, and Ripley counties, portions of which contain Jefferson Proving Ground, share a similar history. Table G-1 provides a generalized chronology for the Euro-American presence in the region.

Table G-1
Euro-American Cultural Sequence for the Central Ohio Valley and Southeastern Indiana
(after Munson et al. 1977)

Temporal Period	Date
Colonial Era	1660 - 1800
Pioneer Era	1800 - 1860
Agricultural Era	1860 - 1920
Industrial Era	1920 - present

The Colonial Era (A.D. 1660 - 1800)

Until Indiana became a territory in 1800, the majority of its residents were Native Americans (Munson et al. 1977:12). The French were the first known Europeans to set foot in the future Hoosier State; the area was penetrated by French *voyageurs* as early as A.D. 1675, and by 1679 the explorer Sieur Robert Cavalier de La Salle had reached the site of what is today the city of South Bend (Hawkins and Walley 1995:III-11). In the last years of the seventeenth century, French fur traders and Jesuit missionaries, blocked from southward expansion by the Iroquois and their British allies, circumvented hostile territory by traveling west and then south down the Ohio River. Part of the territory they roamed through which they considered a portion of New France would, more than a century later, become Indiana. Euro-American activity in the region remained exclusively a French enterprise for some time (Stafford et al. 1985:2-12).

By 1700, French traders had established a strong presence in the area and were involved in hunting, gathering, and trading; many came from bases along the Great Lakes and the St. Lawrence River. A few English traders may also have entered the area by that time (Stafford et al. 1985:2-15). The French presence was heaviest along the Wabash River, along which they established fortified settlements at Vincennes, Miami, and Ouiatenon "to defend the Maumee Portage route and the lower Ohio valley against British incursions" (Munson et al. 1977:13; Stafford et al. 1985:2-15). In the wake of this initial settlement, the French settlers and the Native Americans began a long, lucrative relationship, punctuated occasionally by bitter rivalry over control of trade and fur. During the early decades of the eighteenth century, the French, citing friendship with the Shawnee, made claims over the Ohio valley. Similarly, the British, citing alliance with the Iroquois, made corresponding claims over the same area (Hunter 1978:590). Archeological remains from this period might include temporary campsites, cache pits, faience ceramics, hand-blown glass containers, glass beads, kettle brass, iron knives and axes, gun parts, and flints (Stafford et al. 1985:2-12).

The years between 1749 and 1783 were characterized by European competition throughout the region (Stafford et al. 1985:2-11). Although their relationship was generally a friendly one, rivalry over control of trade and fur had kept the association between the French and the Native Americans somewhat strained.

By taking advantage of this rivalry, the British made great inroads into the area during the early decades of the eighteenth century. In 1749, Celoron de Blainville responded to the British pressure by fortifying the Ohio valley; in an attempt to shore up French territorial sovereignty, he built a series of outposts with which he hoped to deter British entrance into the area via the Allegheny passes (Stafford et al. 1985:2-16). By the 1750s the French had occupied several forts and settlements west of the Appalachian mountains (Rawlyk 1975:41-59; Figure G-1).

In 1754, disputes between the French and the British over the Ohio valley resulted in the so-called French and Indian War (Baird 1909:23), a local manifestation of the globe-spanning Seven Years' War (Morgan 1993). The French and their native allies were eventually defeated by the British, the colonists, and their allies, but only after a protracted struggle. Ownership of the Ohio valley officially passed to Great Britain with the first Treaty of Paris in 1763. The treaty ceded all land east of the Mississippi to England, and resulted in the withdrawal of France from the continent.

Despite their success at the European bargaining table, the British failed to procure peace with most of the area's Native American groups. It did not take long for the Native Americans, opposed to the British hegemony on the continent, to rise up in Pontiac's Rebellion of 1763, capturing eight forts that Britain had just taken from the French (Alberts 1975:9). Despite its early successes, however, the Native American uprising failed to deter either British military occupation or settlement (Hunter 1978:592).

During the same year, the British who by this time were tired of fighting the Indians issued a proclamation that closed the Indian lands to Euro-American settlers. The newly arrived European settlers in southern Indiana were defiant toward English rule and continued to arrive. In 1774, the British made a second attempt to stem the tide of Anglo-American settlements by enacting the Quebec Act, "incorporating the territory north of the Ohio into the Province of Quebec and allowing for protection of Indians and Catholicism by exclusion of Americans" (Madison 1986:21). The Act was openly defied: for example, the British governor of Virginia retorted that Americans "acquire no attachment to a place; but wandering about seems engrafted in their nature; they do not conceive that Government has any right to forbid their taking possession of vast tract of country either uninhabited or which serves only as a shelter for a few scattered tribes of Indians" (Alberts 1975:223). For the next half-century the American settlers continued to squat on the lands north of the Ohio River in spite of British and Native Americans claims over the territory.

The first official Anglo-American settlement in what is today Indiana was established as a consequence of the Revolutionary War (1775-1783). Between 1778 and 1779, George Rogers Clark, from the colony of Virginia, led an expedition to capture British posts at Kaskaskia, Cahokia, and Vincennes. After defeating the English and Indians at Vincennes on February 25, 1779, Clark established headquarters at the Falls of the Ohio (today's greater Louisville/New Albany area). Subsequently, the colony of Virginia laid claim on the region of Indiana in 1778, and until 1781 Indiana was considered part of Illinois County, Virginia. In 1781 Virginia ceded most of her western claims to the new national government. Indiana became part of the so-called Northwest Territory, consisting of the vast territory east of the Mississippi, north of the Ohio, and south and west of the Great Lakes and west of Pennsylvania (Muncie 1932:1), which until then had been occupied only by Native Americans, a few French settlers, French and English traders, squatters, and military personnel.

In 1783 the second Treaty of Paris ended the Revolutionary War, and the U.S. government assumed full sovereignty over the Northwest Territory (Stafford et al. 1985:2-16). During the same year, the first Congress gave George Rogers Clark and his band of Virginians 150,000 acres of the Northwest Territory for their extraordinary feat in defeating the English. Clark's Grant of 1783 became the first Euro-American settlement in Indiana Territory; it is located in the current counties of Clark, Floyd, and Scott. Clarksville, the first authorized American settlement in the Northwest Territory, was platted in 1784 at the southwest corner of Clark's Grant and was settled largely by Virginians and Pennsylvanians; immigrants from other colonies began arriving soon afterwards. This area lies just 80 km southwest of JPG, where today's Interstate 65 crosses the Ohio River into Louisville, Kentucky.

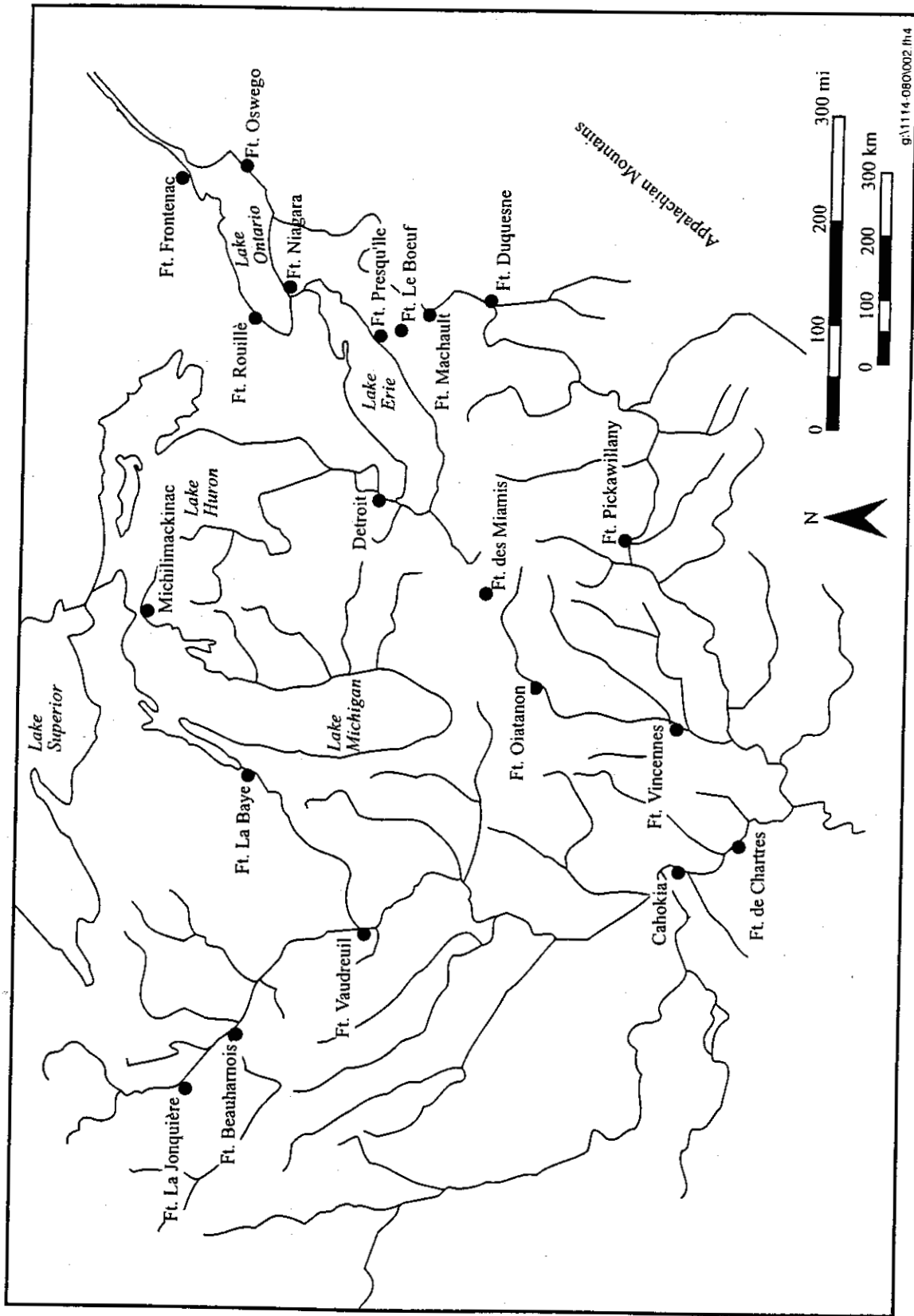


Figure G-1. Forts and settlements in the Ohio and Illinois country in the 1750s.

As the settlers continue to trickle into the region, issues of land ownership prompted the Continental Congress to enact the Northwest Ordinances (Muncie 1932:1). The two Ordinances had a profound effect not only upon the surface of the land but also on the lives of the settlers. The Land Ordinance of 1785 provided for an elaborate and sophisticated system of land survey and sale, the basis of which is still used. The orientation of the landholdings and today's roads that crisscross JPG are a result of the township systems established under this Ordinance. Each township system includes 36 sections, which are (ideally) one square mile in area. The Northwest Ordinance of 1787 formally established the Northwest Territory and the system of government for the Territory "North West of the River Ohio." The Ordinance instituted the three-step process by which three to five states would emerge from the territories. By the provisions of the Ordinance, the territory was authorized a legislature and a delegate to Congress as soon as its population reached 5,000 voters (i.e., adult white males). Statehood could be attained with a minimum of 60,000 people total (Muncie 1932:2). The 1787 Ordinance also ordained the famous and precedent-setting prohibition of slavery, as well as a Bill of Rights (Peckham 1978:30). In addition, the Ordinance stipulated that the Indians should be treated fairly even though the land was considered to be property of the Congress. The settlers could no longer squat on the land: they had to pay for it. But first, the Indians had to be removed in a fair manner. As a result, the Native Americans were pressed to give up their lands northwest of the Ohio River; subsequently, in 1795, the Shawnee were forced out of the Ohio valley and resettled in northern Indiana (Peckham 1978:40). A few years later, between 1803 and 1809, the government "bought" large amounts of land from Native American tribes in an attempt to force the tribes out of Indiana Territory altogether (Madison 1986:37).

Indiana Territory was created by an Act of Congress on May 7, 1800 (Muncie 1932:2). At first the boundaries of Indiana Territory included the Territory of Michigan; however, the latter was removed from the proposed territory on June 30, 1805, and was organized as a separate territory (Muncie 1932:3). When Indiana Territory was established, there were no Euro-American settlements on the land that later became Jefferson, Jennings, and Ripley counties. The land that is JPG today was acquired from the Native Americans as part of the Grouseland Purchase of 1811 (Hawkins and Walley 1995:III-12); Euro-American settlement of the JPG and its vicinity can be traced back to that year (Baker 1990:7).

The new settlers came from the Carolinas, Maryland, Virginia, Tennessee, and Kentucky (Baker 1990:7; Munson et al. 1977:13). Although many arrived by river, some traveled overland, by route of Cincinnati and Columbus, Ohio. Many of the early settlers were veterans of the Revolutionary War. Following the War of 1812, a new wave of settlers entered southern Indiana, most from the upland south. Early settlement quickly met with resistance from the Native American groups, principally the Delaware, Shawnee, and Miami. The resistance was short-lived. Subsequently, the Native American groups retreated to government-owned lands in northern Indiana (Baker 1990:7-8).

In spite of the Treaty of Paris in 1783, the British continued to defiantly maintain posts on American territory. The Native Americans, who were not signatories to the Treaty of Paris and who probably were unaware that it existed, continued to move through southern Indiana farming, hunting, and fishing. To complicate matters for the young American national government, Euro-American settlers began squatting on lands within the newly created Indiana Territory in the early 1800s and met continued resistance from the Native American groups. Between 1811 and 1818, settlers in the vicinity of the land that is now JPG responded to the assaults by erecting a series of defensive blockhouses; each barrier structure was built of vertically joined logs (Muncie 1932). This protective fence, with towers in each corner, provided a line of fire that was delivered upon the attackers. Locally, one blockhouse was located on the Alfred Goley Orchard in Madison, another was located next to Mr. Charles Risk Bentley's home at the southwestern edge of the proving ground, and a third one was located at Vernon (Moore, personal communication 1995). The defeat of the British and their Indian allies by Harrison's army at the Thames River in 1813 removed the last barrier to frontier expansion, and migration into Indiana increased substantially. In 1813, the territorial capital was relocated from Vincennes to Corydon (Munson et al. 1977:16). By 1816, Indiana had attained the necessary

population level (60,000) required for statehood, and Indiana entered the Union as the nineteenth state, with Jonathan Jennings as its first governor. The state capital was moved from Corydon to Indianapolis in 1825.

The state of Indiana was constructed in a piecemeal manner by a series of Indian treaties beginning with George Rogers Clark's grant in 1783, through the last Indian treaty, the Wabash Treaty of 1840. By 1818, the process of removing the Indians to reservations west of the Mississippi River had been initiated (Hawkins and Walley 1995:III-12). The Delaware Indians left the area in the 1820s, followed by the Potawatomi in the 1830s and the Miami in the 1840s (Hawkins and Walley 1995:III-12). The Congress wanted to use Indian lands to retire the debt owed to patriots of the Revolutionary War, so as each Indian tribe left an area the white settlers expanded into the vacated parts of the state. Although today remnants of both the Miami and Potawatomi groups live within the state, there are no federally recognized tribes residing as a group within Indiana boundaries. Archeological remains representative of this period include small, crude log structures, fortified encampments, cache pits, gunflints, metal knives and axes, hand-blown bottles, hand-forged nails, kettle brass, faience earthenware, and English salt-glazed and creamware ceramics (Stafford et al. 1985:2-11).

The Pioneer Era (A.D. 1800 - 1860)

With the exceptions of Clark's Grant, Vincennes, and the Swiss Colony at Vevay, in the early years of the nineteenth century Indiana was entirely Indian country. When the interior was opened to settlement, "major rivers and Indian trails or game paths were still the only efficient means of transportation into the area" (Hawkins and Walley 1995:III-12). Settlers arrived by traveling down or across the Ohio River. Inland settlements proceeded most rapidly along major tributaries of the Ohio, such as the Wabash. Land surveys were inaugurated as early as 1800 (Hawkins and Walley 1995:III-12). Early roads were dirt and were sometimes crudely paved with roughhewn planks or logs.

After the creation of Indiana Territory in 1800 and the establishment of the state of Indiana in 1816, a wave of immigrants came to the land now occupied by JPG. As before, most immigrants reached Indiana by water, but some arrived overland via Cincinnati and Columbus, Ohio (Anslinger 1993:9). As with the rest of Indiana, the early settlers were mainly of southern extraction (McClurg and Rosenberg 1968:1-3), many from Kentucky, Ohio, and Maryland; but the majority came from North Carolina and Virginia. Some settlers may have come from as far as Connecticut and Vermont (Muncie 1932). Few settlers from the East Coast ventured to Indiana; generally, they were contemptuous of the sand dunes and swamps of the northern part of the state, and thought the forests in the south were impenetrable. So they by-passed Indiana and left it to the adventuresome, poorer, illiterate backwoodsmen who came from the south. Afraid of Native Americans, settlers built many small villages and hamlets along the Ohio and the Wabash rivers which later became towns and cities.

Before 1811, the land from which Jefferson, Jennings, and Ripley counties were carved was part of Clark and Dearborn counties. From 1810 until Indiana achieved statehood in 1816, the form of government practiced in these counties was that outlined by the Territorial laws (Muncie 1932:12). According to Muncie, "[t]he territorial government of Indiana ended November 7, 1816, and Indiana was admitted to the Union December 11, 1816" (Muncie 1932:17). The first Legislature of the State of Indiana convened at Corydon on Monday, November 4, 1816 (Muncie 1932:45).

Of the three counties on which JPG lies, Jefferson County was the first to be settled; proximity to the Ohio River and the economic success of Madison eventually attracted settlers to Jennings and Ripley counties as well. Jefferson County was created out of Clark and Dearborn counties by a Territorial Legislative Act which also named Madison as the seat of justice for the county. The county officially came into existence on February 1, 1811 (Muncie 1932:4). The county was named in honor of President Thomas Jefferson, "probably because of the personal interest he had taken in the campaign of George Rogers Clark, for ex-

soldiers of Clark's command formed the nucleus of the pioneers of Jefferson County, one of whom, John Paul, suggested the name, having as original proprietor of Madison, which was made the seat of Justice, named the city for the President in office when it was founded" (Muncie 1932:5). Captain George Logan, who arrived from near Lexington, Kentucky, just after the War of 1812, is documented as the first Euro-American settler in the county outside of Madison (Muncie 1932:102).

Over the next decade, several counties were created out of portions of oversized Jefferson County: Switzerland County was the first to be carved out on September 7, 1814, followed by Ripley County on December 27, 1816, and Jennings County, which was created from portions of Jefferson and Jackson counties in 1816. Then came Scott County, which was formed from portions of Jefferson, Clark, Jackson, Jennings, and Washington counties by an Act of Legislature dated January 12, 1820. Creation of these counties reduced the size of Jefferson County to 380 square miles (Muncie 1932:5-6).

Many immigrants had settled on the future JPG lands by the time Indiana became a state in 1816. The earliest immigrants into Jefferson County settled in Madison. John Henry Wagner, a blacksmith from Chambersburg, Pennsylvania, built the first cabin there in 1808 (Muncie 1932:48). Madison, near the confluence of the Kentucky and Ohio rivers, nine miles south of JPG, was the earliest settlement in the area that was to become Jefferson County. In relating the early history of Madison, Muncie (1932:46) wrote:

The name of Madison at first was "Wakefield." John Paul changed the name to Madison and named the county Jefferson. The early history of the town is hard to get hold of as there were no county records up to 1812. The increase of population of Madison was after the first sale of lots in 1811. That year June 4th, Dawson Blackmore, a hatter by trade, came to Madison and built a log house on Walnut Street between Second and High, which was intended for and was used as a fort. It had loopholes pierced through the logs from which to shoot if attacks were made. At that early date Indians were quite numerous in the locality. One flat boatman from Ohio, who afterwards moved to Madison, said that early in the 1800s, before anyone had settled here, the smoke could be seen coming from camp fires of Indians by the passing boatman on his way to New Orleans. The Indians remained in the vicinity for sometime after the white settlers came. There was an Indian camp opposite to where the Glue Factory now stands. The Indians would come to Madison to trade at a little log store on the corner of Main (Jefferson) and Third streets, kept by Silas Ritchie. They would fill themselves with "firewater" and then were taken back to camp by two who remained sober. The next trip the two sober ones would become intoxicated with firewater and two others be delegated to take the drunk ones home.

The population of Madison grew rapidly after 1810. The first courthouse was built in 1811, and the first drug store was opened in 1813 by Dr. Drake and Company. On May 26, 1813, the first issue of the Madison newspaper, the *Western Eagle*, was published by Williams Hendricks. Hendricks went on to become a leading figure in Indiana state politics, eventually being elected governor of the state and serving as a member of the United States House of Representatives and Senate. The *Western Eagle* was the third newspaper printed in the state, after the *Indiana Gazette* (1804) and *Western Sun* (1807); the latter two were published at Vincennes (Muncie 1932:49-50). A second newspaper, the *Indiana Republican*, was first published in Madison on April 8, 1817 (Muncie 1932:54). Between 1810 and 1824, when Madison was incorporated, the government of the city was the same as that of Jefferson County (Muncie 1932:52).

Although Jennings County (named after the first governor of Indiana) did not come into existence as a political entity until 1816, settlement there may have begun as early as 1810. The earliest recorded settler was John Vauter, who platted the town of Vernon in 1815. Other early towns in the county include Paris, settled in 1816, and Harrodsburg and Six Mile, settled in 1817. More than 100 families lived in the county by 1817, and several corn-grinding grist mills were in operation. Ripley County was established in 1817. It was named after General Eleazer W. Ripley, a veteran of the War of 1812. Daniel and Henry Wooley were the earliest Euro-American settlers in what is now Ripley County: they settled at Shelby township in

1814. Versailles was platted and became county seat in 1818; the first courthouse was built in 1821 (Baker 1990; Hawkins and Walley 1995:III-12 to III-13).

Of all the states of the Northwest, Indiana attracted the fewest foreign-born immigrants. Germans constituted the largest number of foreign-born immigrants during this period, while immigrants from Ireland made up the second largest group. This was true for the JPG area as well. Of the early settlers of Jefferson County, Muncie (1932:101) wrote:

The first known white man to set foot upon the soil of Jefferson County was Capt. George Logan. As early as 1801 young Logan, in partnership with a friend, bought up a lot of country produce with the intention of floating it down to New Orleans. They procured two barges, lashed them together, and with a crew of four men started down the Kentucky river. This was as early as 1801. A small village marked the present site of Carrollton but between that point and Clarksville (Jeffersonville or Louisville), there was not to be seen the hut or encampment of a single white man. Mr. Logan says he frequently saw Indians hunting along the shore and occasionally a camp with a fire where the squaws were cooking. The country was utterly wild. There was nothing but heavy timber upon the flats and hills. No person had settled where Madison now stands; it was all covered with woods. Deer and buffaloes were plenty and at night wolves kept up a dismal howling.

A list of Euro-Americans who settled in Jefferson County before 1812 is provided by Muncie (1932:103-105); before 1808, most made their homes on the tops of hills (Muncie 1932:47). Muncie (1932:106-119) also provides an account of the early settlers of upper Big Creek, most of which is today located within JPG, in parts of Ripley and Jefferson counties. According to Muncie (1932:106-107), early settlers in and around JPG were attracted to areas near creeks due to their natural beauty, easy access to water, and abundance of wild game and plant resources.

One of the earliest settlers along Big Creek was one Jesse Spann, a veteran of the Revolutionary War who arrived in 1816. The population on Upper Big Creek increased considerably between 1832 and 1835. "Many of the settlers came from the south. Some had been slave holders. Others came from the East, from Vermont, Pennsylvania, Connecticut. This intermingling of communities had important results on the institutional life of the community, when the Civil War came on" (Muncie 1932:110). The early settlers on upper Big Creek (including JPG) met with little resistance from the local Native Americans. Muncie (1932:110) observes that:

In many respects, [the settlers] were fortunate in their choice of location. The Indians, while present in considerable numbers, were never hostile. Mr. Spann characterized them as "tame Indians, who would eat out of your hand." Beggary and petty thieving were the only respects in which they troubled the whites. Abundant traces of their camps are found up and down Camp Creek, caches of arrow heads, hatchets, and the like while there is a persistent tradition of Indian treasure concealed on the Bland farm. The chief of the Indians was "Old White Eyes," and he and his bands seemed to have been annoyingly persistent ABOUT CLAIMING hospitality, establishing themselves by settler's fires and remaining for meals without the formality of invitation. But there were no massacres, no betrayal by the Indians. Early in the nineteenth century they drifted away, like the passenger pigeon, never to return.

By 1832-1835, settlement had increased to the point that, sometime in the period, the first horse-powered grist mill in the vicinity was constructed by Jacob Houghton (Muncie 1932:109). During the years that followed, water-mills became common (Muncie 1932:109). Early industries on upper Big Creek included those of the woodsman and farmer. Large fields of flax were common. The flax was manufactured in the home where it was turned "not only into the coarse clothing worn by men in the summer, but into linens of a considerable degree of fineness and whiteness" (Muncie 1932:111). The Old Paper Mill south of Marble Valley, on JPG, manufactured a coarse wrapping paper from the crude flax. The road on which this mill was located is still called the "Paper Mill Road," even though the mill burned in 1828; Paper Mill Road

remains one of the major north-south thoroughfares within the JPG. Other early cottage industries included the cleaning, carding, spinning, and weaving of wool. The cloth provided material for the "blue jeans" worn by men in the winter and the home-spun flannels worn by the women. Journeyman cobblers made shoes using leather from the local tan-yard (Muncie 1932:112).

"Outside of Madison, and possibly Hanover, some of the first villages, churches, mills and school houses in Jefferson County were established along Big Creek. Among the first churches was the Middlefork Baptist Church . . . [founded] about 1820" (Muncie 1932:113). Muncie (1932:114) describes the typical schoolhouse of this period by stating that:

while the roads were still only blazed trails in the forest, the early school-houses were built, and the children were gathered for such instruction as was available. The school-houses were, of course, of the often described pioneer type log buildings, with one log left out the full length on the east side. Beneath this opening, which furnished all the light, was a wide board placed in position for a writing desk, with a bench made of a mill-slab before it. Other similar benches completed the furnishings of the room.

The earliest Euro-American families in Jefferson, Jennings, and Ripley counties were subsistence farmers. In all three counties, small-scale agriculture was the dominant activity during the first half of the nineteenth century. In addition to growing corn, beans, wheat, squash, hemp, and flax, farmers raised livestock.

Early industries in the three counties included saw mills, grist mills, tanneries, distilleries, tobacco processing, and the manufacture of saddles and other leather items. By 1814 a grist mill built by Col. John Paul was in operation on Crooked Creek at the head of Mill Street in Madison (Muncie 1932:57). Muncie (1932:68) lists additional grist mills in operation in the vicinity of Madison between 1831 and 1882. The first Madison industry was a saw mill built by John Paul "on a little fall in Crooked Creek opposite to what is now St. Joseph's Cemetery" (Muncie 1932:57). The first metal foundry "was carried on by Edward Shield and Brother and was on the northwest corner of Vine and Hugh streets nearly opposite the Lanier Memorial. The motive power was one blind negro. The work consisted of a few plain castings and mouldboards for plows" (Muncie 1932:57).

Other early industries in Madison included woolen mills, oil mills, a castor oil mill, cotton mills, breweries, shipyards, starch factories, and stove foundries (Muncie 1932:68-73), as well as tanneries, and brick and lime kilns. In addition, many home industries existed in Jefferson and neighboring counties. Hand-manufactured looms were common in homes and "a number of farmers had carpenter shops and blacksmith shops on their premises which were practically manufacturing plants" (Muncie 1932:73). These home industries produced chairs, trundle beds, tongs, shovels, andirons, nails, yokes, cloth, linen and wool, and bedspreads. According to Muncie (1932:73):

near Paris in Jefferson County, was a silk mill. It belonged to Mr. Zenor, grandfather of Hon. Hiram Foster of Deputy. Mulberry trees were planted. Silk worms procured from abroad. Quite a bit of silk was made. Each daughter in the family had two silk dresses made from silk,[sic] Mr. Foster has some of the silk in his possession today.

In the early days whiskey stills were popular in Jefferson County, where corn was a common crop. "In fact, in some localities they were found every five or ten miles. At one time whiskey was used as a medium of exchange" (Muncie 1932:74). Early settlers on the land that is now JPG also manufactured lye, hominy, cheese from calf rennet and milk, soap from lye and grease, maple sugar from tree sap, baskets from willows and reeds, and dye from butternut bark, goldenrod, and walnut hulls (Muncie 1932:74). Churches, houses, and roads were often constructed of stone quarried from local sources. According to Muncie (1932:75), "horse power grist mills were common." Saw mills and primitive mills for making cider were also abundant, and were sited along convenient waterfalls (Muncie 1932:75). "The first clothes pins ever made or used west of the Alleghenys were made by R.C. Meldrum, who as a boy made them at a bench, tied them

up in half dozens and sold them to the ladies at 25 cents per dozen" (Muncie 1932:75). The earliest refrigeration was provided by spring houses and local caves.

As early as September 1814, the Farmers' and Mechanics Bank of Indiana, one of two Indiana banks, was chartered in Madison (Muncie 1932:57). The act to incorporate Madison was approved on December 22, 1823 (Muncie 1932:66). By the mid-nineteenth century, Madison had developed into a major center of commerce and culture. In summing up the growth of Madison, Muncie (1932:60) wrote:

in the first fifty years of the last century, there were but few of the men of prominence in this country or foreigners traveling for instruction or pleasure who did not make Madison a point of visit. Many men who were afterwards of national fame were citizens of the old town. The bar of our city in those days stood head and shoulders above any other in the state, and was the peer of any in the country. In legal attainment as counselors and advocates, none surpassed its member. In the political arena, Madison has produced many names of honor and worth of state and national fame.

Muncie (1932:133) went on to state "from about 1850 to 1855 was the period of the greatest intellectual activity of Madison, the bar and medical profession having many brilliant members and many elegant society men among the merchants."

Indiana's population doubled in the first decade of statehood, then redoubled between 1820 and 1840. Travelers passing through Indiana during the early period often commented on the rough ways of the settlers and the tough living conditions, yet this was soon to change. By the 1820s, the federal government had started work on the National Road, an east-west road through Indianapolis, and approved a grant of land for a road from the Ohio River through Indianapolis to Michigan. The road was completed during the 1830s. The National Road (east-west) and the Michigan Road (north-south) and several canals, built in 1830s and 1840s, opened Indiana's hinterland to development. Construction of the Kentucky-Ohio canal at the Falls in 1830 stimulated extensive growth of nearby Ohio River ports such as New Albany and Jacksonsville. Early transportation included steamboats, which appeared on the Ohio as early as 1812. Steamboat travel on the Ohio was greatly facilitated by the completion of the Louisville and Portland Canal in 1830. This canal allowed ships to bypass the Falls of the Ohio, increasing the ease and safety of navigation up and down the Ohio River. A boom in riverboat building would occur in the Falls of the Ohio region in the nineteenth and early twentieth centuries, and shipbuilding has become one of the oldest industries in Madison (Hawkins and Walley 1995:III-14; Stafford et al. 1985:2-16).

Canals were, however, quickly superseded by railroads in the 1840s and 1850s (Hawkins and Walley 1995:III-14; Munson et al 1977:17). Interior towns such Indianapolis began to overtake the older Ohio River communities in growth, population, and commerce. As a result, household industries began to decline ca. 1845. By the middle of the century roads and railroads extended through most of the state. By 1850, the population in southeastern Indiana had stabilized. More than 100 years later, according to the census of 1960, the town of Madison had almost the same population that year as it had in 1850 (Munson et al. 1977:17).

By the middle of the nineteenth century, pork packing had grown into a major industry in Jefferson and neighboring counties. The industry was enormous in Madison from 1847 to 1857. The importance of the pork industry in Jefferson County during the second quarter of the nineteenth century is underscored by the number of hogs packed during one season, as reported in the *Daily Banner* of January 30, 1849 (Muncie 1932:88; Table G-2). During the same period, flour mills flourished in Madison. One, a large mill run by Captain David White, produced large quantities of kiln-dried corn meal, some of "which was shipped to Ireland during the great Irish famine" (Muncie 1932:79). Iron foundries also thrived in Madison: "The trade of Madison with the South in cotton and steamboat engines was very large" (Muncie 1932:80). Foundry products included patent car wheels and railroad cars; the Madison Marine Railway and Shipyard was built about 1850. The following advertisement (as quoted by Muncie 1932:175) in the *Daily Banner* of June 21, 1848, underscores the prosperity of the foundry industry at the time:

Table G-2
Number of Hogs Packed by Each Business in Jefferson County in 1849
(after Muncie 1932:88)

Business name	Number of hogs packed
D. White & Company	24,512
Shrewsbury and Price	8,900
White & Stevens	8,010
Mitchell & McNaughton	6,208
Culver Woodman	5,400
Samuel More	5,234
James Morton	5,000
N. Powell	3,600
A. W. Pitcher and Company	3,310
A.W. Flint	3,000
T.J. Goldman & Son	3,000
William C. Wharton	2,700
Blackmore and Jenkins	1,232
<i>Total</i>	80,106

Farnsworth, Honore and Durham would inform the public that the foundry, engine and machine shops are now in full operation and that they are prepared to fill all orders for steam engines, grist, and sawmill gearing, sawmill irons, mill spindles, and every other article in their line of business for a grist or saw mill. Also, plough moulds, wagon boxes and irons, gudgeons, and everything of the kind.

Road construction in southern Indiana reached new proportions by the mid-nineteenth century. "The plank road mania prevailed about 1850 and roads were built to Lexington, Greensburg, and Cross Plains The Madison and Indianapolis Railroad was one of the earliest built in the west and Madison was for years the only outlet for this portion of the state thus enabling Madison to do a large forwarding commission and jobbing trade" (Muncie 1932:81-83).

Farms and forests continued to be sources of raw materials, while the Ohio River continued to facilitate transportation. A variety of businesses flourished in Madison, including a brewery, a gunsmith, a tannery, lumbering, a furnisher, a steam copper shop, carriage makers, hatters, tailors, booksellers, and tobacco and cigar sellers. However, agriculture, principally the raising of hogs and corn, continued to dominate the economy. Industries were primarily those associated with agricultural commerce such as mills and distilleries (Muncie 1932:80-86).

Architecture of this period still exists in Madison. Characteristic architecture of the period includes dogtrot cabins, round and hewn log structures, post-and-beam structures (early), balloon-frame structures (late), and I-house and T-house architectural styles. Archeological remains from this period reflect English ceramics (pearlware, whiteware, blue and green shell-edge, hand-painted, slip-banded, English flatware), hand-wrought nails, machine-cut nails (late), hand-blown glass containers, and kettle brass (Stafford et al. 1985).

In the period immediately preceding the Civil War, life in Indiana had progressed from taming the wilderness to family subsistence farming. The John Deere steel plow was in extensive use by 1845 (Hawkins and Walley 1995:III-13). By this time, the population consisted of second generation southerners mixed with groups of immigrants from Protestant North Ireland and the Catholic German provinces along the Rhine River. Population growth continued rapidly in Jefferson County, as evidenced by census records (Muncie 1932:41; Table G-3).

Table G-3
Population of Jefferson County Between 1820 and 1870

Date	Jefferson County	Madison
1820	8038	—
1830	11465	—
1840	16614	3798
1850	23916	8012
1860	25036	8135
1870	29741	1070

Although no African-American settlement has been reported in Jefferson County, a few African-Americans were living in riverport towns such as Madison (Cord 1993:100; Muncie 1932:164). An African-American settlement reported in Jennings County was located west of JPG (Cord 1993:104). Other African-American settlements in eastern Indiana were located in 17 other counties in Indiana; at least one, a settlement in Randolph County, provided stations on the Underground Railroad (Cord 1993:100-101). Harsh anti-slavery laws and legislative measures designed to keep African-Americans from the state limited the flow of African-Americans into Indiana; the Northwest Ordinance and the Indiana state constitution prohibited slavery. However, slavery was permitted under the guise of indenture, at least into the 1830s (Peckham 1978:38). Some of the southern immigrants brought their slaves with them (Baker 1990:8). Beginning in 1807 a series of racist legislations were enacted that prohibited African-Americans from having any servants other than those of their own complexion. In addition, the laws stipulated that neither African-Americans nor Native Americans could act as witnesses in any legal action involving whites (Rawick 1977:254). An 1818 law prohibited African-Americans from testifying in court or marrying whites, and in 1831 a law was enacted stating that all new African-American immigrants to the state must post a bond of \$500 as security against becoming public charges (Madison 1986:107). The first constitution of Indiana prohibited slavery and indenture, without releasing those already indentured (Madison 1986:51); however, several slave owners ignored the law. The second Indiana constitution contained a provision prohibiting African-Americans from settling in the state (Madison 1986:139-140). In Indiana, lynching of African-Americans occurred during both the nineteenth and twentieth centuries: as many as 20 lynchings took place in the state between 1865 and 1930 (Madison 1986:170-171). Despite intended suppression of African-American migration to Indiana, during the 1850s many slaves from Kentucky fled across the Ohio River into the state (Rawick 1977:ix, 232). According to Cord (1993:99), "Indiana prior to the Civil War developed into a haven for the resettlement of free blacks and recently manumitted slaves."

Some residents of Jefferson, Jennings, and Ripley counties were sympathetic to the plight of the slaves. On the JPG, "homes of the ardent anti-slavery faction became stations on the eastern route of the Underground Railroad" (Baker 1990:8), which traversed through JPG from south to north (Baker 1990:8; Muncie 1932).

A cave and a house site used as stations on the eastern route of the Underground Railroad have been identified on JPG (Michael Moore, personal communication 1995). Several known stations in Jefferson County include one at the mouth of Eagle Hollow, two miles above Madison; one at the mouth of Clifty Creek about the same distance below the city; one on the Robert Elliot farm in Monroe Township; and one on Mr. Carr's farm on Ryker's Ridge. The Underground Railroad stations existed approximately every 10 miles along the route (Muncie 1932:159). One of the more notable operators on the Underground Railroad was an African-American resident of Madison named Delia A. Webster. Prior to coming to Madison, Miss Webster lived across the river in Kentucky. About Delia Webster, Muncie (1932:164) recorded:

Joseph G. Marshall once defended Delia A. Webster, charged with helping slaves escape. Miss Webster then lived across the river from Madison on the Kentucky side of the river. Previous to her residence there, she had served a term in the Kentucky state prison for assisting slaves to escape and the Kentuckians looked on her with suspicion. Several slaves in the neighborhood escaped and investigation proved that she had prompted their leaving. For this she was indicted in the Trimble Circuit Court but before being caught she crossed the river to Madison. She was arrested on a requisition from the Governor but before the officer could get her away, Mr. Marshall had her brought before the Judge on a writ of habeas corpus. In his speech at the trial, he so maddened the people that they drove the Kentucky officers from the court house and from the state. Indeed, they had to run for their lives so frenzied were the people.

According to historian Xenia Cord (1993:100), "[b]y 1860, there were more than twenty separate settlements of free blacks in Indiana." Later, after the Civil War, large numbers of African-Americans seeking work crossed over the Ohio River into Indiana from Kentucky (Muncie 1932).

Agricultural Era (A.D. 1860 - 1920)

By 1860 there were 1,350,428 settlers in Indiana (Thornborough 1965:536). When the Civil War started, some residents of Jefferson, Jennings, and Ripley counties were sympathetic with the cause of the South; among them were members of the Knights of the Golden Circle (Baker 1990:8), an organization which predates the modern Ku Klux Klan. Some of the staunchest supporters of the Union cause, however, lived in the vicinity of JPG (Muncie 1932:165). In the city of Madison, 10 miles south of JPG, the state-owned Lanier House Historic Landmark is a constant reminder of the role J.F.D. Lanier played during the conflict. Lanier made loans to the state of Indiana totaling \$640,000 to finance its part in the Civil War (Muncie 1932:169). The original loans plus interest amounted to about \$1,140,000 by war's end. The following are the circumstances leading to the loans, as quoted by Muncie (1932:165-168) from a small book Lanier wrote for his family that was printed in 1877:

The war found the state almost wholly without means for arming, equipping or sending into the field the quota of troops required for it. It had no money in its treasury, and in the general distrust which prevailed, and in the universal scramble for money, for all loyal states, as well as the Federal Government were in the market for it, it was found impossible to sell the bonds, or to provide in season, from its own resources, the means required. In this dilemma Gov. Morton applied to me for a loan of money to arm and equip the quota of troops required of his state. I complied with his request and continued such advances as were required till the whole amount reached \$400,000. With this sum he was enabled to arm and equip his quota in a most satisfactory manner, and despatch it to the field more promptly than that of any other Western State. Indiana at all times was nearly divided upon the subject of war. Whatever consequently tended to inspire the confidence and raise the spirit of the Union party within it greatly strengthened the hand of the Executive, and had a most important and favorable influence upon the great contest.

In 1862, owing to the reverses that had befallen the Union arms, the election in many of the states went adversely to the National Cause. In Indiana, a majority of the members returned to the Legislature for that year were bitterly opposed to the war, and to all measures necessary for its vigorous prosecution. They were determined if possible, to take the State out of the Union ranks and place it in direct antagonism to the Government at Washington. The success of their disloyal schemes might have proved fatal to the great cause, none understood better than themselves. Indiana was not only one of the leading states of the West but in many respects, it occupied a position of first rate importance. It was centrally situated and extending from Lake Michigan to the Ohio, it would, in disloyal hands, have been in apposition to cut off all communication between the west and the East. Its southern border rested upon the territory where the great mass of the people were strongly infected with the spirit of rebellion. This state, consequently, became emphatically the battleground of the contest in the north. If its influence had been arrayed against the Union, the infection might have spread to other states, as there was abundant materials eager to take advantage of any event that might embarrass or defeat the action of the Government. A united front on the part of all the northern states was absolutely essential to success. Such a front happily, was preserved throughout the whole war.

The plan adopted by the disloyal members of the Legislature of Indiana was to divest the Governor of all power over the militia, and vest the control of the same in a committee of their own creatures. They refused to pass the necessary appropriation bills till their schemes should become law. To defeat their plans the only course left to the loyal members was to retire from the Legislature which they did. That body, consequently, was left without a quorum. Their retirement put an end to the iniquitous projects, but left the Governor without the means of preserving the credit of the state. It was held by the Supreme Court of the State that without a special act he could not pay the interest accruing on the State debt, although it had been previously supposed that the constitution of the State had provided for such a payment without any special law. In this emergency, Gov. Morton most anxious to preserve the honor and credit of the state, applied to me to advance the sums necessary for the purpose. Unless this could be done, he felt that he could not justify before his own State and the country the position which his friends in the Legislature had taken through his counsel and advice. The application was made at the darkest period of the whole war. I could have no security whatsoever, and could rely for reimbursement only on the good faith of a Legislature to be chosen at a future and distance day, and upon the chances of its being made up of more upright and patriotic members than those composing the one then in existence. If the great contest should turn out disastrously to the cause of the Union and of freedom, I could never expect to be repaid a dollar. I felt, however, that on no account must the debt of a great State be discredited, nor the position of its Chief Magistrate, the ablest and most efficient of all the loyal Governors, and who of all contributed most to our success be compromised or weakened. No alternative was left to me but to advance the sums required.

During the Civil War, 208,637 Indianans participated in the fighting; numerous men from the land that now belongs to JPG joined the Union Army. The story of the "Fighting Baxters," seven brothers from the JPG area, who fought in the Union Army and survived the war, is fondly told in this area. One of the more dramatic events of the Civil War in southern Indiana occurred in early July 1863. The Confederate general John Hunt Morgan led 2,500 cavalymen across the Ohio River from Kentucky into Indiana, in flagrant disregard of standing orders. "During two breathtaking days the rebels galloped from Dupont across the Proving Ground area to Bryantsburg" (Baker 1990:9). On the proving ground, Morgan's men followed the meandering Big Creek (see Figure E-1) and crossed Jinestown Road, Paper Mill Road, and the road which extended north to Marble Corner. As they traversed through the proving ground, the soldiers "behaved themselves as rascally gentlemen . . . prowled every farm, barn and pasture in an area five miles wide across Monroe Township to Bryantsburg demanding provisions and fresh horses" (Baker 1990:9). The Michigan Calvary went through JPG in pursuit of the Morgan's men (Baker 1990:10). Near Marble Corner, three of Morgan's men who became separated from the main column were captured by George Baxter and John Mayer, both Union soldiers home on furlough. The captives were taken to jail in Madison.

Throughout this period, the local economy continued to rely on agriculture. Corn was the principal crop, and Indiana was a national leader in hog production and packing (see Table F-2). Wheat, oat, rye, hay, potatoes, vegetables, tobacco, and orchard fruits (the last two concentrated in but not limited to the southern counties) were also grown (Stafford et al. 1985:2-9). Agriculture remained dependent largely on water and muscle power, but this began to change as steam power resulted in increased mechanization. New practices, such as manuring, fallowing, and crop rotation, geared toward soil renewal began to be practiced, and farmers moved from grain cultivation to mixed husbandry and crop diversification. In the decades between 1870 and 1900, many of the state's remaining forests fell to the axe, and were replaced with agricultural fields. The agricultural focus of the state shifted from pure self-sufficiency toward commercial enterprise, with increased investment and more substantial returns (Thornborough 1965: 362-403).

The Civil War stimulated agricultural production, which was followed immediately by an economic boom and a corresponding economic slump in 1873 (Thornborough 1965:704-712). The economic and political ascendancy enjoyed by southern Indiana throughout the first half of the century began shifting northward in response to changes in agriculture, transportation, and population. In addition, between 1850 and the beginning of the twentieth century the volume of traffic on the Ohio declined. As the railroad became the dominant mode of transportation, the hilly counties of southern Indiana proved "less suitable for construction of transportation facilities than the flatter counties to the north" (Munson et al. 1977:17).

In the JPG area, "as the war ended in 1865 and the soldiers returned, life for all the area families settled into a comfortable routine centered around home and family and the business of farm life" (Baker 1990:14). The decades between 1880 and 1920 were years of significant agricultural change: they would "encompass most of the significant political, economic, and social changes in the transition of Indiana from a primarily rural-agricultural society to a predominantly urban-industrial commonwealth" (Phillips 1968:v). New farm equipment was introduced and an effective catalyst for change was provided by Purdue University, whose influential School of Agriculture opened in 1879. The 1880s were also the beginning of the era of commercial dairying. Stafford et al. (1985:2-9) characterize this as the early industrial period. Agricultural innovations that accompanied this change no doubt affected the farmers of the area that is now JPG. In the 1880s, newly introduced equipment included the sulky plow, the walking cultivator, the disc harrow, the riding gang plow, disk plow, manure spreader, twine binder, fertilizer drill, side-delivery hay rake, and two-row corn cultivator (Phillips 1968:138-140). Windmills for pumping water became common. The corn binder and corn picker were introduced between 1910 and 1920. During the same period, steam engines began to be used for threshing (Phillips 1968:139-140). Beginning in the 1880s, programs sponsored by the School of Agriculture of Purdue University encouraged Indiana farmers, including those on the present-day JPG, to adopt new farming techniques.

A large farm-to-city migration began during the early years of the twentieth century (Madison 1986:235). Many of Purdue's agricultural programs were aimed at discouraging young people from abandoning farming. Purdue established two experimental farms in Jennings County, one in 1911 and the other in 1920 (Hawkins and Walley 1995:III-13).

As transportation systems and routes continued to develop and improve, Indiana's population, commerce, and industry continued to shift northward. Steam-powered rail systems had become the preeminent type of transportation by 1880 (Stafford et al. 1985: 2-9; Thornborough 1965). Commerce and industry ebbed in Jeffersonville and New Albany, once major river ports (Stafford et al. 1985:2-17), while those river ports with railroads like Madison maintained a booming trade. Industrial development boomed with the discovery and development of natural gas (used then for lighting) in the 1880 and 1890s. From the 1880s on, industry expanded rapidly, as demonstrated by an advertisement that appeared in the *Madison Courier* on February 7, 1882 (quoted from Muncie 1932:94):

The Madison shipyard during the past year enjoyed one of the most successful business seasons ever known in its eventful and checkered history. It is an institution far more important to the life of Madison

than our people suppose. In fact it is of more real benefit to Madison than any other manufacturing establishment in our midst.

Since the present firm started in 1878, they have built twenty-six new steamboats and barges and repaired eighty steamboats, the work amounting to a quarter million dollars.

After 1900, the iron and steel industry, as well as manufacturing, was concentrated in the northwest corner of the state. The manufacturing of automotive vehicles and parts, rubber tires, mill and dairy machinery, lawn mowers, windmills, vacuum cleaners, glass-making and clayworking machinery, electric apparatus, musical instruments, bookbinding, refineries, publishers, shipbuilding, munitions and explosives, cement, brick, tile, cigars, pharmaceuticals, and mining grew in importance (Stafford et al. 1985:2-9). Limestone quarrying continued to be important to the economy of Jefferson County; from its establishment, Jefferson County had been a center of limestone quarrying activity. High-quality limestone from Deputy was used in constructing the first large bridge across the Ohio River in Cincinnati, as well as the Cincinnati custom house. Several bridges that have been nominated for listing in the NRHP at JPG are constructed of local limestone. Since 1915, the Frane quarry at North Vernon in Jennings County has produced an average of 250,000 tons of ground limestone each year to flocculate and reduce acidity and compactness in area soils (Hawkins and Walley 1995:III-13).

By the time World War I began, the Indiana farmers already were developing ties to the world economy. For that reason the farmers had an economic stake in the cause of the Allies (Phillips 1968:594). For example, when the demand for and price of food went up during the war (Phillips 1968:174, 179), it had a positive economic impact on Indiana's farmers. By the end of World War I, there were agents in 83 Indiana counties providing agricultural advice (Madison 1986:150). The principal crops remained corn, wheat, oats, and hay while cattle and hogs continued to dominate the livestock industry (Phillips 1968:151, 161-162). To better manage production and marketing of increased farm products, farmers organized. The Indiana Corn Growers Association was formed in 1900 (Madison 1986:149-151) and the Indiana Farm Bureau was founded in 1919 (Madison 1986:265). In the JPG area, the Jennings County Farm Bureau was formed in 1918 (Hawkins and Walley 1995:III-13). Agriculture production continued to improve with increased mechanization. In 1920, 4.3 percent of Indiana's farmers owned tractors (Madison 1986:264).

By 1920 the "gap between value of industrial and agricultural production" had closed (Stafford et al. 1985:2-10). The industrial trend was characterized by large-scale factory production, corporate ownership, and diversification. Most industries were built in urban areas, but a few were in selected rural locations. Archeological remains representative of this period include English white ironstone ceramics at the beginning of the period, American ceramics dominating at the end of the period, semi-automatic mold-blown bottles, canning jars with metal rims and glass liners, wire nails, and clay marbles (Stafford et al. 1985).

Late Industrial Era (A.D. 1920 to Present)

By the 1920s Indiana's urban population had surpassed its rural population for the first time in the history of the state. As technological/scientific advances progressed, manufacturing processes began to be broken into smaller steps that were performed by unskilled workers on a moving assembly line. Eventually, concentration of heavy industries shifted to Calumet, Indianapolis, Fort Wayne, and South Bend in the north and Evansville in the south (Stafford et al. 1985:2-9).

During the 1920s more people began to travel by cars, trucks, and buses instead of by train. The decline in rail traffic was accompanied by an improvement in river traffic on the Ohio River (Madison 1986:272). Nevertheless, southeastern Indiana continued to be oriented to out-of-state urban centers, such as Louisville, Kentucky, and Cincinnati, Ohio. Significance of historic cities along the Ohio is reflected in the Indiana Chamber of Commerce ranking. By 1977, Evansville and New Albany were classified as second-class cities

(35,000 - 250,000), Jeffersonville was classified as a third class city (20,000 - 35,000), Madison was classified as a fourth class city (10,000 - 20,000), and seven cities, Aurora, Cannelton, Lawrenceburg, Mt. Vernon, Rising Sun, Rockport, and Tell City, were classified as fifth class cities (1,500 - 10,000).

In the rural areas, increased mobility lessened isolation of farmsteads and smaller communities and promoted cultural homogeneity. Although today only one-third of the population is considered rural, Indiana remains a significant farming state. The principal agricultural commodities include corn and soybeans as well as hog, cattle, poultry, eggs, and dairy products. Agricultural production has increased due to mechanization, and the rural population has decreased.

The JPG area remained largely agricultural. Although small family-operated farms continued to decline, overall farm production increased. By 1940, 25 percent of the farms on the land that became JPG were occupied by tenant farmers. Like the rest of the nation, the JPG farmers were affected by the stock market crash of 1929 and the subsequent Great Depression. Efforts to improve agricultural production continued. In 1933, the Civilian Conservation Corps (CCC) was established in Jennings County in an attempt to control runaway erosion that was causing gulying and loss of topsoil. The CCC combated the problem by constructing check dams and planting trees (Hawkins and Walley 1995:III-13). Hybrid corn was introduced in 1937 (Madison 1986:264).

In 1940, the portions of Jefferson, Jennings, and Ripley counties that together form JPG were characterized by dispersed farmsteads, schools, churches, cemeteries, and small crossroad communities. From the earliest settlement to the commissioning of JPG in 1940, at least 17 schools, 10 churches, and 17 cemeteries had existed within the boundaries of the present-day facility¹.

The education system in southern Indiana has its roots in the pioneer days. "By the Ordinance of 1787, the sixteenth section of each congressional township was set aside for school purposes When Indiana became a state, its constitution reserved Section XVI in each township for school purposes and also set aside one entire township for seminary of learning" (Muncie 1932:37). The earliest, Jefferson County's Liberty School, was established in 1817 (Baker 1990:43), as the early settlers were eager to have their children educated. During the early part of the nineteenth century, the one-room school was a common feature on the land that is now JPG; in southeast Indiana, the school rooms were mostly hewn-log structures. These schools were supported by parents through subscription fees, "often forcing children of large families to attend in the relay system" (Baker 1990:42). The younger children attended in the spring or summer; their older siblings went to school in the winter, when they were not needed as much on the farm. Subscription fees were abolished in 1852, and township-financed schools eventually replaced subscription schools; attendance soared. By the 1860s, sturdier schoolhouses, made of native limestone, had replaced the log structures (Baker 1990:42). By the early twentieth century most teenagers were attending and graduating from high school. Prior to the commissioning of the proving ground in 1940, at least 17 schools had existed on the land that is JPG. Many of the schools had long since stopped functioning by 1940, and others had been consolidated to create larger township schools.

Church history on JPG began in earnest with the circuit riders of the early nineteenth century. Judge Sparks preached the first sermon in a house in the town of Madison in 1811 (Muncie 1932:48). According to Baker, ". . . each nineteenth century congregation anxiously awaited the circuit rider. The itinerant Methodist or Presbyterian clergymen performed marriage ceremonies, prayed over the recently buried in the graveyard, and, despite the weather conditions, baptized the faithful in the closest creek Through the years the many Proving Ground area churches and their members encountered both division and consolidation and by

¹ A description of some of the schools, churches and cemeteries may be found in Sue Baker's 1990 book, *Echoes of Jefferson Proving Ground*.

1940 had evolved into eight, or perhaps nine groups, which held services" (Baker 1990:19-20). Most churches maintained cemeteries.

Some 30 cemeteries once existed on JPG lands (Baker 1990). All but two, St. Magdalene's old cemetery and the Sheppard cemetery, were relocated off the facility immediately after government acquisition (Stafford et al. 1985:4-1). Overall, 3,500 burials (Baker 1990:67), several of which date prior to 1850, were reburied. Earlier in the nineteenth century, the deteriorated and unreadable tombstones from St. Magdalene's first cemetery (1830-1860) had been removed and incorporated, in 1861, into the foundation of a new church. The cemetery was then leveled and a large cross, which is still standing over the site, was erected. It has been suggested that the burials from this cemetery were not removed after government acquisition, as they were not easily identifiable (Baker 1990; Hawkins and Walley 1995:III-14).

According to local historian Sue Baker, "after home, church, and school, the general store followed in social importance. In such villages as St. Magdalene, Marble Corner, Ridpath, Marble Valley, Big Creek, Faulkner-Jinestown, Mud Lick, Bethel, and Bennville the stores were centers of social activity as well as mercantiles" (Baker 1990:17). Additional centers, identified by historian Michael Moore at JPG, include Burkes Corner, the Elizabeth Cunliffe general store, Harlow's General Store (relocated during the current survey), and New Carrolton. Often the post office of a community would be tucked into one corner of a store, and in later years gasoline pumps towered outside the store. The stores sold everything, "from the smallest needle to the largest farm wagon" (Baker 1990:17).

Lack of cities or extensive industrial development, low population density, and accessibility through national transportation networks made the area attractive for a weapons testing facility once United States entrance into World War II became imminent (Baker 1990:1). In early December 1940, Congress commissioned the formation of JPG in portions of Jefferson, Jennings, and Ripley counties. On December 6, the government notified 2,000 landowners and residents to vacate the future proving ground. Although initially the farmers were given 30 days to relocate, the process actually took several months longer; still, however, "the transformation from quiet, rural neighborhoods to the rumble of the first 75 MM test round took only 155 days" (Baker 1990:1-2). Thirteen of the better farmhouses were moved from their original locations to the southern portion of the facility for use as family housing (Building Technology, Inc. 1984:13); they remain in use today.

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APPENDIX H

HISTORIC CONTEXT/OVERVIEW JEFFERSON PROVING GROUND 1940-1989

by

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INTRODUCTION

Objectives

The purpose of this project was two-fold: to produce a historic context/overview of the Jefferson Proving Ground (JPG) in Madison, Indiana, covering the years 1940 through 1989 and to produce a HABS Level IV inventory/evaluation of standing building/structure types built before 1989, including those buildings/structures constructed prior to the military use of the area. Historic context discussion is limited to the World War II and the Cold War eras.

Method

Research for this report was conducted primarily in the files at JPG. The JPG Headquarters vault contained the 13 volumes of installation history dating to 1940. Information was obtained from these volumes about the initial construction of the base and the various activities that occurred within the Proof Division, which was responsible for the testing of ammunition received at JPG. The level of detail available in these histories declined and finally ceased after 1975. Additional installation history was found in the Completion Report available in the National Archives (Suitland, Maryland). The Completion Report also contained copies of early installation maps and photographs. No entry for the Jefferson Proving Ground was found in the Architectural and Cartographic Branch of the National Archives (College Park, Maryland) where research was conducted for installation maps and drawings. Additional context information was taken from historic context reports produced for the U.S. Army Corps of Engineers by Geo-Marine, Inc., and Christopher Goodwin and Associates. Additional information (such as early newspaper articles) was obtained from files in the Madison Public Library.

Information was also determined to be available in the history office at Aberdeen Proving Ground in Maryland and in the Regional Archives in Chicago. The history office at Aberdeen Proving Ground was not available for research during the field work stage of this project, and no authorization was given for a field trip to Chicago. No personal interviews (except with Facilities Engineering and Real Property personnel) were conducted as the installation had released most of its employees and was operating its 55,264-acre base on a skeleton crew of about 120. Most of the buildings surveyed were empty and devoid of personnel.

Information used to compile the building inventory was more varied. Prior to the start of field work a list of all facilities on JPG was obtained from the Real Property office. From this list all buildings and structures were highlighted for survey. Facilities not selected for survey included everything constructed after 1989 and nonbuilding/structure facilities such as steam pipes, sidewalks, roads, in-ground sewage structures, signage, light posts, etc. This list was ultimately distilled to 410 buildings/structures, of which 16 were constructed before 1940, 198 between 1940 and 1949, 174 between 1950 and 1989, as well as 22 bridges originally erected before 1989.

Each of the 410 facilities received a site visit. Only one example of each facility type encountered on the base was actually recorded for the inventory. For example, although there were several 106-square-foot Distribution System buildings, only one was actually recorded since each was identical. During the site visit, a field inventory form was completed that provided a checklist for basic information such as building materials, fenestration types, a footprint sketch, general descriptive notes, and photographic information (shot locations and roll/frame numbers).

Literary information for the building inventory was obtained from several locations. The Real Property office possessed real property cards for almost each of the facilities inventoried. However, the cards were 1964 updates of the original. As a result, although information such as size and construction date was

available, information about modifications made prior to 1964 was not. Blueprints or photocopies of selected original construction drawings were obtained from the Print Room. The available drawings provided more detailed information about the construction of the facility, its size, and sometimes the name of the architect. Original inventory cards for some of the facilities were found in the National Archives in Suitland, Maryland. These cards appear to have been completed right after the initial 1941-1942 phase of construction. These cards provide good information about the original exterior finish materials and, more importantly, a historic photograph dated February 1942.

JPG also provided copies of a 1993 asbestos inspection report that was conducted on some of the inventoried buildings. These reports contained sketch floor plans and detailed room finish descriptions. A few of the surveyed buildings were also inventoried at HABS Level IV by Building Technology, Incorporated, in 1983. The information obtained from this inventory was limited and very basic in nature. Information specific to a few of the commanders' houses and other premilitary structures was found in Sue Baker's book *Echoes of Jefferson Proving Ground* which focused on the residents that were forced by the government to give up their homes and relocate in 1941. Some military building information was extracted from the quarterly and semi-annual histories. Most of the histories discussed JPG activities by division and rarely mentioned the building in which these activities took place.

HISTORY OF THE JEFFERSON PROVING GROUND

JPG is located about 85 miles southeast of Indianapolis, situated on approximately 55,264 acres in Jefferson, Ripley, and Jennings counties. Presently part of the U.S. Army Test and Evaluation Command, the installation was built as an ordnance testing facility, a key component of the mobilization plan which sought to develop an American ammunition industry virtually overnight after the German Army invaded France in the summer of 1940. Designed specifically to evaluate different types of ammunition to make sure that they met government specifications before being sent to U.S. Army troops, JPG was an integral part of the American logistical system that simply overwhelmed the Axis powers by war's end. Land acquisition for the Proving Ground began in 1940, and construction began in 1941, with the installation in active use by the end of that year. By 1945, 149 of its 332 buildings had been erected, with maintenance, administration, test firing, and assembly facilities, as well as the air field, built on the south end of the installation, and observation bunkers built to the north, uprange in the test firing area (Building Technology, Inc., [BTI] 1984:12). At the end of World War II, the proving ground was deactivated and its buildings mothballed, only to be reactivated in 1949, shortly before the outbreak of the Korean War. The Korean War precipitated a second wave of construction at the installation. Between 1951 and 1953, some 107 new structures were constructed (BTI 1984:12). For the most part these consisted of additional test firing and storage facilities, with improvements to the infrastructure as well. The end of the Korean War brought about deactivation of JPG once again, but in 1961 the installation was reactivated and has remained in continuous use until recently. In 1988, the Defense Department Commission on Base Realignment and Closure (BRAC) announced plans to transfer JPG's mission to Yuma Proving Ground in Arizona, hoping to shut JPG down completely by the end of 1995.

The present Test and Evaluation Command (TECOM) is one of seven subordinate commands under the direction of the Army Materiel Command (AMC) which has the responsibility for wholesale logistics for the Department of the Army. AMC history can be traced back to the Ordnance Department, which was established by a Congressional Act in 1812 and had the responsibility for the development, production, storage, and maintenance of Army weapons and ammunition (Cannan et al. 1994:19). Throughout the nineteenth century, the Ordnance Department operated a small number of arsenals and armories to produce and maintain small arms and artillery. With the United States entry into World War I, the department's mission suddenly expanded well beyond previous expectations. Since government arsenals in existence at that time were not large enough to produce the quantity of munitions needed for a war, the Ordnance Department had planned on American industries to fill military supply orders. But as the U.S. prepared to

enter World War I, it found that the American munitions industry had already expanded to near capacity in order to fill the orders coming in from England, France, and Russia. Since replacing those foreign orders with its own would severely hamper the Allied war effort, the Ordnance Department was faced with establishing a new industrial program to produce ammunition for war within a matter of months (Cannan et al. 1994:23). Out of necessity, early in 1917, the Ordnance Department engineered a plan whereby the government would contract private companies to build and operate industrial plants at government expense.

Heeding the lessons of World War I, President Franklin Roosevelt took steps to prepare the nation for war in the summer of 1940 following the German invasion of France and well before any overt American intervention. Congress implemented the Munitions Program in June 1940, some 18 months before the Japanese attack on Pearl Harbor. As of May 1940, government arsenals did not have the capacity to produce large quantities of ammunition, and the United States lacked enough ammunition to supply its forces in the war in which the country would be involved less than two years later. One important outcome of the Munitions Program was the development of an ammunition industry, through which existing Army arsenals were to be enlarged and new government-owned and contractor-operated munitions facilities were to be established. Before the first four of these plants were completed, Ordnance officials realized that more facilities were needed; thus, expansion programs at these plants and the construction of three additional plants were authorized before the end of 1940. Roosevelt declared an unlimited national emergency on 27 May 1941. Before the end of 1941, 25 new ordnance facilities were established, with yet another wave of ordnance facility construction occurring after the United States entered the war in December 1941 (Cannan et al. 1994:39). The ammunition facilities built during these years helped give the Allied Powers their logistical superiority which contributed greatly to the eventual Allied victory.

In addition to the production of ammunition, the United States required ammunition testing facilities to monitor the quality of the products produced at the munitions facilities. Prior to 1940, the U.S. Army operated only one facility that could monitor ammunition quality. Subsequent to the end of World War I, the Aberdeen Proving Ground in Aberdeen, Maryland, had performed both the government's acceptance testing and its development testing. Acceptance testing involved taking established models of equipment or types of ammunition and testing them to see if they met government specifications. Development testing consisted of trying new models of equipment, or simply performing tests to obtain data for improved designs. The avalanche of activity that accompanied World War II rapidly overwhelmed Aberdeen, and, as a result, the Army reactivated Erie Proving Ground (Ohio) and authorized construction of two new proving grounds: Jefferson (Indiana) and Southwestern (Arkansas). Aberdeen remained the center for developmental testing.

Efficiency, safety, utility, and speed in design and construction were characteristics exemplified by the industrial structures erected during World War II (Cannan et al. 1994:33). The design of World War II industrial buildings and complexes drew upon prototypes developed in the private sector. American industrial architecture in the first decades of the twentieth century emphasized practical and functional factory designs in which style was secondary to utilization considerations. Designers and theorists explored a new aesthetic emphasizing building structure, volume, and ornamentation. Steel and reinforced concrete were employed as building materials in both engineer-designed industrial structures and innovative architect-designed buildings. These new materials were found to be cost effective, resistant to sway, and capable of supporting heavy loads. Reinforced concrete and steel structural systems replaced the massive load-bearing masonry walls that frequently characterized factories for most of the nineteenth century. A new type of building, the daylight factory, was developed, which incorporated large banks of windows for light and circulations (an example of this type is JPG's Building No. 105). The new building materials and technologies also made possible the uninterrupted clear spans associated with modern industrial buildings.

Among the most influential industrial architects in terms of both design and design approach was Albert Kahn. The design approach developed in Kahn's office was tailored to the unique requirements of the industrial programs. Design concepts were generated by a panel of industry experts. Projects were initiated with a meeting attended by Kahn, the client, and members of the design team. Flow charts were developed

during the initiation meeting which depicted the overall plan of the plant as determined by the industrial process. Kahn's staff then translated general concepts into architectural design. Project management proceeded rapidly from the flow charts and was made possible by a high level of efficient and integrated management. Kahn's office pioneered the interdisciplinary team approach to the design of industrial buildings, which provided a general model for the execution of complex projects in compressed schedules (Cannan et al. 1994:36-37). Kahn's work provided models that were widely applied during the World War II mobilization effort. This can be seen in the way that areas of plants and works were physically separated according to function, with these areas, in turn, sometimes further subdivided into smaller areas for more specific functions. It has been noted that when it came to the design of mobilization facilities, the functions were laid out first and then the buildings were designed to house them (Kane 1994:113).

Though function played a preeminent role in the design of the mobilization facilities, the choice of architect-engineer still had a significant impact upon the particular facility layouts and upon the design of particular buildings and structures. Even when faced with similar design problems, different architect-engineering firms often developed distinctive design solutions. Limitations of time and materials probably made the biggest impact on the design and construction of mobilization buildings though. During the World War II mobilization era, defense construction went on at an unprecedented rate and then accelerated during the first two years of the war. Construction activity was coordinated within the Construction Branch of the Quartermaster Corps. In order to speed up mobilization, the construction process was departmentalized into separate specializations. Land acquisition and contractor review, for example, were organized as separate divisions and a system of cost-plus-a-fixed-fee contracts replaced competitive bid contracts to streamline the negotiation process. Speed was also the main reason for the Ordnance Department's preference for using large, experienced companies as contractors, the use of established industrial centers as the sites for facilities, and the high regard it gave to preferences voiced by contractor-operators in site selection and facilities planning.

In the first phase of authorized construction, facilities were to be made of permanent materials which would last approximately 20 years. Administrative buildings and storage facilities for example were constructed of masonry and reinforced concrete. By early January 1941, however, the Ordnance Department had accumulated \$100 million of cost overruns (Kane 1994:115). To worsen matters, shortages of building materials (particularly steel) began to set in. Economy, which had already been a primary concern when mobilization construction began, suddenly became critical. As a result, the Chief of Ordnance, Levin Campbell, began issuing orders to cease the use of permanent building materials and techniques. The first to go were such amenities as air-conditioning, tile in bathrooms in staff housing, and high cost features like slate roofs. Soon thereafter, Campbell decided that administration buildings could no longer be brick nor more than one story tall. He also ordered the Construction Division to cut costs wherever possible so long as it did not cause delays, even if that meant changes in layouts or design. By 1942, permanent building material shortages had become so acute that the emergency construction program converted almost entirely to the use of temporary building materials, reserving masonry to set apart buildings housing potentially explosive materials. These measures had a profound impact upon the architectural and engineering design of the physical plant at the new World War II mobilization facilities. The changes affected the appearance of facilities and the sturdiness of construction, probably affected the comfort level of facility users, and may well have affected how these buildings and structures functioned (Kane 1994:116).

Safety was also a consideration which largely affected the design of mobilization era facilities. The inherent dangers in manufacturing and testing ammunition was a primary consideration in the layout of ordnance facilities and the planning and construction of individual buildings and structures. Safety was more important to Ordnance Department personnel than an initial savings in time or money. A safe facility was less likely to be destroyed, to adversely affect munitions production goals, and to require costly reconstruction. Safety measures prevented needless injury and death; moreover, the Ordnance Department anticipated that it would be difficult to find people to work at the facilities if they had bad accident records (Kane 1994:120). Facility planning reflected this concern for safety. Buildings housing hazardous functions were separated from other

structures and were often buffered by earthworks to avoid the spread of fire and lessen the threat of explosion. The large buffer zone around these facilities was intended as a precaution against destruction of lives and property outside the facility in the event of accident or attack (Kane 1994:120). Buildings themselves were designed so that they were separated into various compartments by brick or concrete walls in order to minimize the risk of an explosion spreading to an adjoining part of the building. Some were designed to be of "blow out" construction, like those at the Indiana Ordnance Works, for example, whose roofs were little more than tacked on in order to direct explosions upward (Kane 1994:120-121).

In December 1940, the Army selected the 55,264-acre site for JPG to test fire ammunition for the huge Indiana arsenal being built in nearby Charlestown (the largest smokeless powder plant in the world). The site was fan-shaped, 17 miles long, three miles wide at the southern end, and seven miles wide at the northern tip (see Figure I-2). It was chosen because of favorable weather conditions for test firing, the availability of labor, and good access to nearby industrial, rail, and water transportation facilities. Bounded on the east by Indiana Route 29, on the west by Indiana Route 7, on the south by Route 107, and on the north by U.S. Route 50, the site was also close to the Baltimore and Ohio and Pennsylvania Railroad lines which passed its western boundary. Further, the area was sparsely settled and much of the land had already been cleared since it was primarily agricultural. Land acquisition began in the last weeks of 1940, with the Paul L. McCord Real Estate firm of Indianapolis acting as agent for the federal government. Construction began immediately, with the first test shot being fired on 10 May 1941.

Plans for JPG were made by the War Plans Division of Aberdeen Proving Ground. These plans were delivered in sections and were still being received during construction, as construction had begun before the plans could be completed. A design services contract was awarded to the firm of William Earl Russ and Merritt Harrison of Indianapolis for the buildings which would be located at the southern end of the proving ground and a joint cost-plus-fixed-fee contract was signed with the J.L. Simmons Co., Inc., of Indianapolis and the J.C. O'Conner Co. of Fort Wayne for general construction at the installation. The Construction Quartermaster, Captain Frank Maguire, arrived on 20 December 1940, and the Assistant Construction Quartermaster, First Lieutenant Samuel P. Davalos, arrived two days later (Kast 1942:4). Construction of the installation began on 19 December 1940, though official written notice was not received until 23 December, with work on 14 miles of new rail lines and additions to the county road system beginning shortly thereafter.

The contractor's organization consisted of the General Manager under whom the Project Manager directly worked. The Project Manager in turn controlled the General Superintendent, the Auditing, Purchasing, Estimating, and Heavy Construction departments. The General Superintendent was in charge of all operations in the field, both heavy and light construction. He was responsible for checking in and certifying all material delivered, the construction of all parts of the project (whether by his workers or by subcontract), keeping time for all field employees, hiring all field labor, and various other functions related to field work on a construction site. The Auditing Department took care of all payrolls for the contractor, the procurement of funds for reimbursables, materials bills, and subcontract invoices, as well as handling insurance and other pertinent records. The Estimating Department was in charge of all shop and design drawings, compiling materials lists for purchasing, preparing specifications for submission to bidders, managing the proposals on material and subcontracts, and acting as liaison between the architect-engineer and the contractor. The Purchasing Department wrote out all purchase orders, secured quotations on all items not handled by the Estimating Department, made out all subcontracts, and handled buying (Completion Report 1943:10-11).

Madison, Indiana, normally a town of 6,000 people, proved to be a difficult place in which to secure adequate office space for the personnel of the Army, architect-engineers, and the contractors. Temporary offices were set up in the Madison Hotel until an old school could be converted. All employees, including construction personnel, were finger-printed, photographed, and given identification badges bearing their identification number and picture before they were permitted on base. Labor checked in at the main entrance and were then transported by means of trucks to the various facilities (Completion Report 1943:12). Because

of the immediate need to begin ammunition testing, priority was given to the firing line. Construction proceeded rapidly on the firing facilities, which consisted primarily of reinforced concrete safe houses and firing points along the firing line. By June, construction on the firing line was practically finished, with small reinforced concrete, earth-covered observation structures known as "bomb proofs" erected uprange. Testing could thus begin before all of the other facilities were completed.

The majority of buildings constructed on the installation were of typical factory construction: foundations and floors were concrete; exterior walls were brick and usually of the nonload-bearing type; trusses and supporting columns were steel, except in such cases where concrete was more appropriate. Roof decks were wood or occasionally steel with asbestos shingles and sheet metal covering and copper flashing. Some of the administrative buildings were wood with asbestos shingles and siding, with either plaster or interior wall board finish. Some of the first administrative buildings included the Guard Headquarters, Post Exchange, Infirmary, Administration Building, Officers' Quarters, and Barracks. Plans for these buildings were delivered without directive specifications and often up to four months late. To forestall increases in prices and delays in delivery of construction materials for which contractors had no plans, contracts were awarded on all structural and reinforcing steel, bricks, asbestos shingles, steel sash, sand, gravel cement, and other items on a unit price basis (Kast 1942:5).

Ground and soil conditions at JPG were factors which did result in increased construction costs. It was found that the soil was very muddy and unstable except for the months between late spring and early fall. The muddy condition necessitated increases in footing spreads and depth. Delays resulted due to the necessity of taking load tests in order to determine the size of footings needed and whether or not piles would be required as well. As it turned out, piles were only needed for one facility. The mud made moving equipment virtually impossible and led contractors to employ the use of large wooden mats to keep their equipment from sinking (Completion Report 1943:9). Despite the muddy soil, water was not in ready supply at the site and had to be transported by truck from a stream in the vicinity to the construction site, thereby slowing down concrete work. Further delays were encountered due to the fact that heating and plumbing plans lagged three months behind the general construction drawings and often did not reflect changes that had to be made during construction. This, coupled with the low priority rating that JPG got for delivery of materials and specialized equipment, exacerbated delays (Completion Report 1943:16). Because there were numerous applications on file before construction of the installation was begun, it was assumed that finding labor would not be a problem. However, this assumption, unfortunately, proved to be wrong as the work progressed and also led to delays. The main problem seemed to be the laws of supply and demand. With work progressing simultaneously at the enormous Charlestown arsenal and on other nearby projects, it was difficult to secure experienced construction workers, especially with the competing wages (Kast 1942:6).

Before the proving ground was complete, official word was sent to Washington that the installation was in a position to test fire powder for 75-mm guns. Representatives from the Ordnance Department, including special guest Major General Levin H. Campbell, Chief of Ordnance, assembled on 10 May 1941 for the test firing of the first round. The first powder test was fired on 12 May. The 75-mm gunpowder was manufactured by the Indiana Ordnance Works at Charlestown, which was itself still under construction. At that time, the velocity recording apparatus was also housed in a temporary building close to the firing range, with the JPG assembly plant consisting of nothing more than an old farm house equipped with six domestic refrigerators rewired to maintain a constant 70 degrees for storing the ammunition (Kast 1942:32).

Construction of JPG continued into 1941, hampered further by an unusual amount of rainfall. At its peak in May of that year, the construction of the installation employed 3,105 persons (*Madison Courier* [MC] 6 May 1941). Eventually the Administration Building and Officers' Quarters were occupied, with Lieutenant G. H. Kast being the first officer to move into his quarters on 30 August 1941 (Kast 1942: 8). The entire Proof Department was temporarily housed in the Administration Building until their various requisite facilities could be finished along the firing line. As of 31 December 1941, total expenditures on JPG amounted to \$13,892,243. Of that total, \$3,300,000 were expended on land acquisition; \$1,928,680 on

construction of the airport runways; \$913,324 on clearing and grading site; \$705,012 on improvements to the railroads; \$850,084 on roads and walks; \$1,313,733 on construction of sewers and water mains; \$1,264,423 on installation of electricity, heat, and power; \$3,328,469 on construction of permanent buildings; and \$221,340 on surplus materials and equipment. Army inventories show that by that date, 189 permanent buildings had been constructed, including the Administration Building, various barracks, warehouses, and magazines (Kast 1942:8). Among the earliest of these structures were a row of eight warehouse, maintenance, and assembly facilities (Building Nos. 202, 204, 212, 216, 219, 223, 227, and 231) built south of the firing range. Although their size, function, and window treatment vary, several distinguishing features tie these building together as a unit; all are one story in height and have gable roofs, 12- to 14-inch-thick load-bearing brick walls laid in six-course common bond, and concrete tie bands running below the roof line. Other buildings of similar design scattered along the south end of the base also from this first phase of construction include the radar maintenance shop (Building No. 311), an ammunition demolition facility (Building No. 322), a general purpose magazine (Building No. 266), facility engineering shops (Building Nos. 106 and 119), a telephone exchange building (Building No. 112), and a fire station (Building No. 125).

In December 1941, the first plane arrived at the JPG airport. Soon, the airport had two B-25 bombers, one A-17 plane, and one C-54 cargo plane. There were also five Air Corps officers and 75 enlisted men. The airport itself consisted of four runways—one north-south, one east-west, one northwest-southeast, and one northeast-southwest—varying in length from 4,500 to 5,000 feet long (Anonymous 1989:6). After the attack on Pearl Harbor catapulted the country into a full-scale war, the proving ground was expanded during 1942 since more buildings and testing facilities were needed to accommodate the increased activity. New construction included the 20-mm Group and Armor Plate ranges, both closed and open, a new east-west runway, and a complete night lighting system for the airport. On 24 February, Russ and Harrison, the original architecture-engineering firm responsible for the initial construction drawings, were contracted to draw the plans for \$5,000. The plans were complete by 24 April of that same year. On that same day, the Area Engineer's Office was opened and began soil tests. On 14 May, bids were opened for the 20-mm Group and Armor Plate ranges and the construction was awarded to the Pearson Construction Company, Inc., for \$1,000,000. Work began on 19 May and was scheduled for completion by 1 September 1942 (Figure H-1). On 6 July, bids were opened for the new runway, with the award going to W.H. Ringwald & Sons Company for \$295,000. The job for the new night lighting system was undertaken by the personnel of JPG on 18 April and was completed on 9 October 1942 (Kast 1942:10).

On 8 September 1942, Colonel I. A. Luke, Commanding Officer of JPG, received a teletype which informed him that his post was the recipient of the Army-Navy "E" award for its progress and efficiency in construction and organization. The award ceremony was held in front of the Administration Building (Building No. 100) at 12:00 P.M. on 1 October 1942, and was attended by various Ordnance Department representatives and local guests.

With the construction and organization of the proving ground progressing so efficiently, JPG was in full operation by 1942 (Figure H-2). Throughout World War II, JPG functioned as it was intended, serving as a testing laboratory for determining the quality of ammunition manufactured by both government arsenals and by private industry under government supervision. JPG's contribution to the war effort was significant. During the war, 7,423,657 rounds were tested and reported on. These tests translated into great savings in money, but more importantly, in American lives. By procuring the ammunition and testing it before any items were distributed to the troops in service, the Ordnance Department made sure that whatever went out into the field was safe to use, could be stored safely, and would function in the manner in which it was intended. It has been estimated that nearly 35 percent of the German shells fired at the Battle of the Bulge were duds, as compared to only four percent fired by Americans. The difference, experts have said, was due to the Americans' careful testing of ammunition before it was shipped to the front lines (*Louisville Courier Journal* [LCJ] 29 April 1951:7), a difference many agree made a significant impact on the outcome of the war.

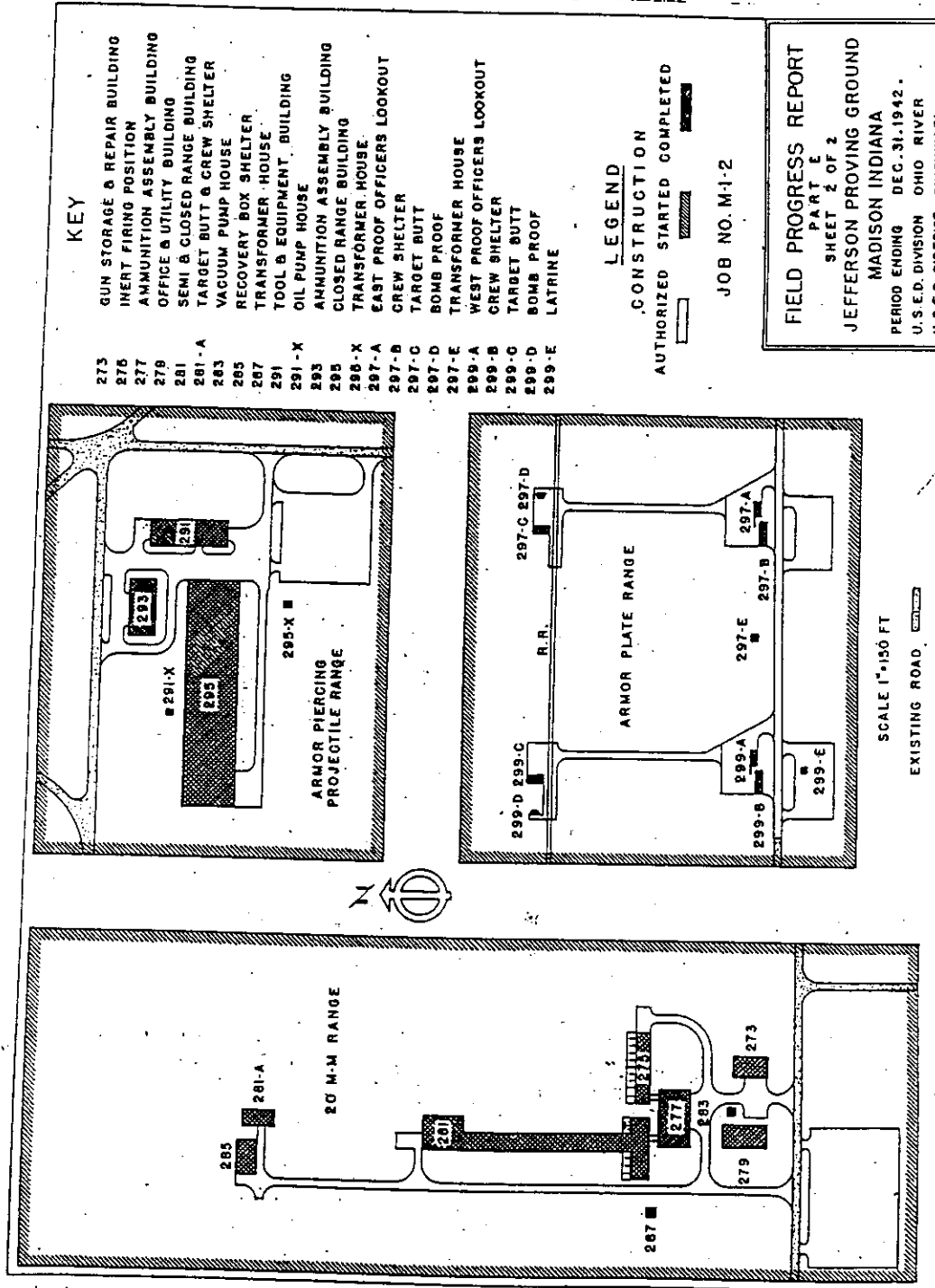


Figure H-1. Armor plate and 20-mm group.

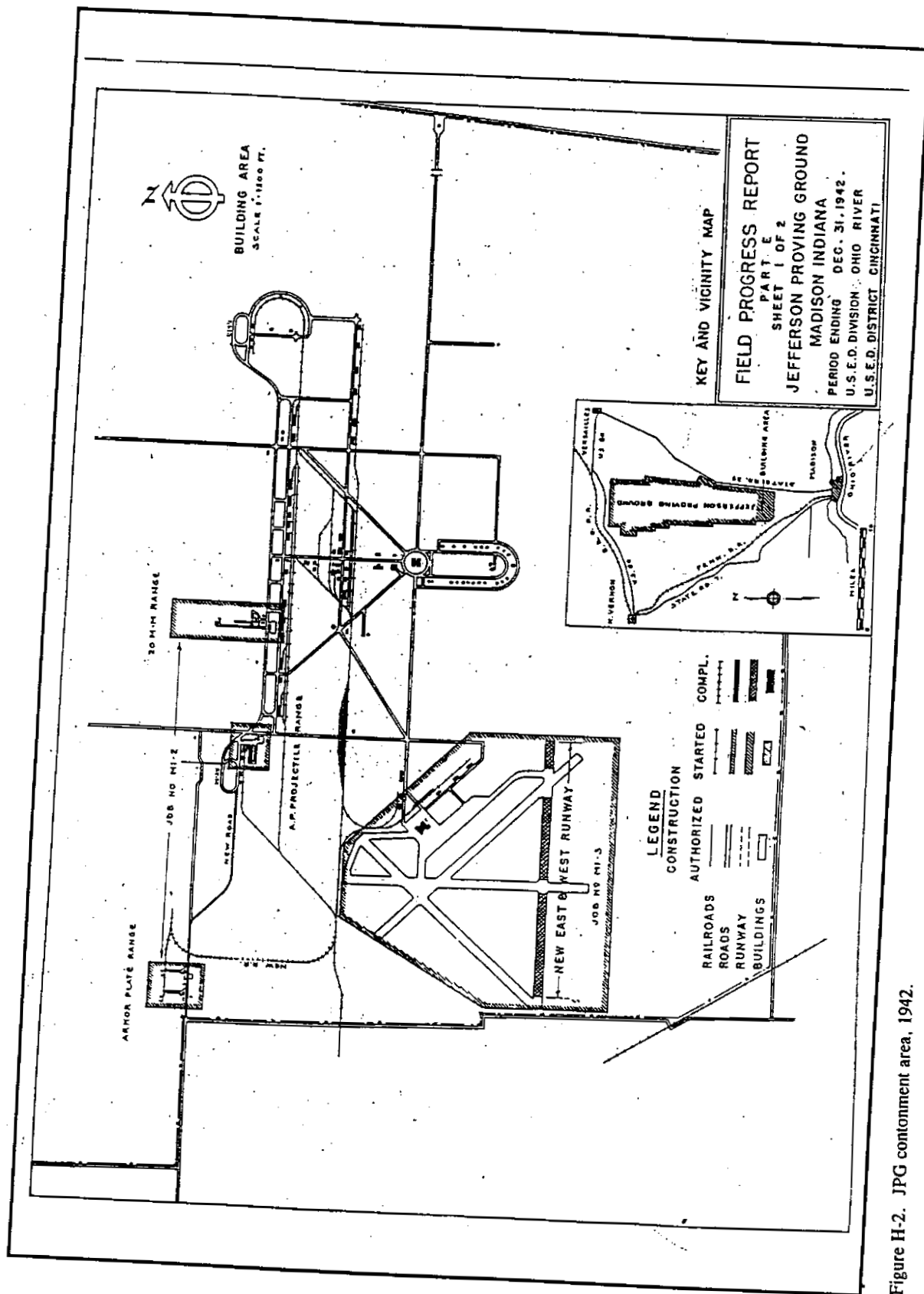


Figure H-2. JPG contonment area, 1942.

The general testing program carried out at JPG included individual tests of the component parts of any particular kind of ammunition, including mobile field guns, anti-aircraft guns, bombs, and pyrotechnics, as well as assembled ammunition. The guns themselves were not the subjects of the tests; rather, the primers, the boosters, the projectiles, the cases that contain the powder that hurls the projectile forward, and the shells themselves all were. To facilitate the testing process, ammunition manufacturers identified all of the components that they produced by labeling them with the name of the manufacturer as well as the lot number. The lot number was an identification number assigned to each batch of a component produced in a single run, typically in a day or in an 8- to 10-hour shift. Testing of random samplings of each lot were carried out at JPG and the identification numbers allowed the Ordnance Department to recall whole lots when any of the random samplings proved to be bad. For example, if a plant in Joliet, Illinois, were making fuzes, samples of a particular lot would be picked from the assembly line by Army inspectors and sent to the proving ground. Once there, the fuzes would be assembled into a complete shell and test fired. If the fuzes tested successfully, their lot would be approved by the Ordnance Ammunition Center. Those fuzes would then be permitted to be assembled into shells at plants all over the country. But the testing would not be complete yet. Random samples of the assembled shells, too, would be picked from the assembly lines and sent to the proving ground where their tests would also have to be successful before they could be shipped to the troops in service (*LCJ* 29 April 1951:6).

The organization of structures and buildings at JPG reflected its testing mission. All of them could be grouped roughly into four categories: administration and quarters; air field; industrial; and firing line buildings. All four types were built along the southern edge of the installation. Army personnel who staffed the installation worked in the administrative buildings and lived in the quarters. The air field and its related structures enabled the facility to receive the ammunition that it tested. In the industrial buildings, components to be tested were assembled for test firing; also included in the industrial complex were the maintenance and shop buildings which serviced the rest of the installation. The firing line buildings were located just to the north of all other types of buildings on the base and were where the ammunition was actually test fired. The firing line extended a mile from east to west with concrete shelters built on either end. These shelters were where the guns were placed when firing highly explosive ammunition. They were equipped with lanyards running through the walls so that the guns could be fired with the test crews outside of the barricade. The only structures to the north of the firing line actually in the firing range were "bomb proofs" (now known as "safe shelters"). The firing range consisted of 19 cleared fields, ranging from 500 to 16,000 yards (five miles) from the firing lines. In each of these fields, bomb proofs were built of reinforced concrete with specially designed view slits so that workers could observe the actual bursts of the explosives in absolute safety (*MC* n.d.).

It was the Office of the Chief of Ordnance in Washington that decided which ammunition was to be tested. Directives from Washington were sent to JPG describing which components were to be tested and which specifications were to be used. The directive listed the production number, the size of the lot, and the ordnance identification number. The Ordnance Department District Office then notified Army inspectors and manufacturers that they had to ship samples to JPG. When the samples arrived, they were checked in by the Ammunition Distribution section which sent them on to the Assembly Plant and notified the appropriate Proof Section of the sample's status. It was the responsibility of the Assembly Plant to prepare the samples for testing, assembling sample components into control shells, mortars, etc. The sample assemblies were then sent to the Ammunition Loading Section where the shells were loaded for powder tests, with the shell being brought to its desired weight by the use of sulphur. It was the responsibility of the Proof Officer in charge to give the instructions on the weight of the powder charges and whether the rounds should be magnetized if velocities were to be recorded. The head of the Proof Section that was to test fire the ammunition informed the gun crew foreman to prepare a particular model and caliber gun. If velocities were to be taken, a set of electrical coils were set in place to measure the speed of the magnetized charge as it broke through the electrical field. The Proof Officer then notified the Range and Safety Observation Section that there would be a firing. This section would then issue observers to the specified recovery fields and issue a clearance

for firing once the Proof Officer contacted the central control tower on the field. It was only then that the shell could be test fired (Kast 1942:32-34).

Though primarily concerned with acceptance testing, JPG was occasionally involved in development testing as well, particularly as it pertained to testing procedures and equipment. One interesting example of this was the development of projectile photography by the Photographic Section at JPG. JPG personnel became interested in photographing projectiles in flight during November 1943 when Dr. Harold E. Edgerton of the Massachusetts Institute of Technology visited the installation to demonstrate the use of his microflash. He had developed a flash which lasted for only $2/1,000,000$ of a second and was bright enough to be used at night. One of the applications of this particular microflash was projectile photography, which allowed people involved with testing projectiles to see how they behaved right after they were fired (Reed 1943:39).

Projectile photographs were first made by setting up the camera and microflash unit perpendicular to the line of flight of the projectile, about 50 feet away from the muzzle of the gun. The microflash was synchronized with the projectile and the shutter on the camera was left open as the round was fired and then closed by hand afterwards. With the camera shutter left open so long, projectile photography necessarily had to be conducted at night. JPG personnel, however, built upon this technology and developed a system that enabled them to photograph projectiles in flight during the daytime. A box was set up with adjustable legs, a pressure switch, and a synchronizing device for activating the shutter on the camera. The box contained both the camera and microflash, as well as a microphone, and was set up about 300 feet in front of the gun. A pressure contact switch that hung about 15 feet in front of the box would be closed by the pressure of the sound waves emitted as the projectile passed over the switch. The closed switch in turn would activate the synchronizing device which triggered the camera and microflash and allowed them to take a picture of the projectile as it passed over the box (Reed 1943:40). Different set-ups were also devised so that projectiles could be photographed from other angles and eventually as they were fired from guns fixed on planes. The projectile photography technology developed at JPG provided the proving ground with valuable information about how projectiles performed in flight and also about factors that influenced projectile flight. This information was used both for acceptance testing as well as for further projectile development.

Demonstrations for high-ranking Army personnel were not unusual at JPG during the war, nor were demonstrations and conferences for ammunition manufacturers. JPG not only tested ammunition but also sought to disseminate pertinent information about the behavior of particular ammunition. One of the more dramatic demonstrations of the capabilities of a particular ordnance occurred on 18 July 1944. It was conducted by the Complete Rounds Branch for approximately 100 high-ranking Army officials and ammunition manufacturers in order to stimulate interest in the manufacture of 4.5-inch rockets. The rockets were launched from both land and air. As visitors looked on, 4.5-inch rockets were fired at 30-foot targets from a P-47 aircraft, two medium M4 tanks, and a one-and-one-half ton truck. Simulating rocket performance in actual battle, the great firepower and speed of the rockets were immediately apparent to everyone present (Reed 1944:88).

The construction of the proving grounds had a profound impact on the people in Jefferson, Ripley and Jennings counties. The effects came swiftly in 1940 when the U.S. War Department chose the 55,264 acres of flat prairie farms, rolling wooded pasture, and groves of timber and orchards for the site of its new JPG. The transformation from quiet rural neighborhoods to a rumbling ammunition test range took less than 155 days—less time than it takes to grow a crop of corn (Baker 1990b:16). The parcel of land on which the government had set its sights was home to some 500 families, some of whom owned ancestral farmland granted in the earliest days of Indiana settlement. Settlers had come to the area from the Carolinas, Virginia, and Kentucky and plunged into settling the wild Indiana frontier. Some of these first settlers were veterans of the Revolutionary War and the War of 1812, conflicts fought to claim the very land on which they had built.

News of the defense project was an utter surprise to the 2,000 residents whose lives would be altered forever. The original announcement ordered all of the residents in the affected area to sell their land and leave their homes within 30 days, though the relocation would end up taking about three months instead. Although most had never imagined leaving their communities, there was surprisingly little protest. Most saw it as their civic duty in this time of war and sacrifice. In December 1940, representatives from the War Department met with residents and gave detailed plans for relocation. The government would be offering compensation for the lands at "fair" rates based upon appraisal. The Farm Security Administration oversaw the land transactions to prevent speculation in attaining the 600 individual properties affected by the project. The Paul McCord Realty Company of Indianapolis was hired to act as agents for the War Department and began optioning the land that same month. The procedure for setting a price was a fair one on paper. The owner was to place a value on his land, conforming to current market prices and productivity of the acreage. The value was to include buildings, fences, wells, and other improvements—all immovable objects. The government representatives were to do the same with orders to "lean backward in reaching a fair deal." Bargaining began immediately. The government's typical price of \$90 per acre seemed generous. But residents complained about the government's failure to distinguish between good and poor soil and especially about receiving unfair market value for farmhouses and outbuildings. But faced with the alternative of prolonged condemnation suits, most landowners capitulated (Baker 1990a:57-62).

Relocation was made even more difficult for the landowners affected since virtually overnight nearby Madison, Indiana, had become a boom town and the farmland all around the proving ground site had risen in value by almost double. Landowners could not afford to buy new farms of comparable size and improvement. They were forced to either buy smaller farms or move out of the area (Baker 1990a:55). In 1940, homes were not the only things to be affected in the whirlwind decision to build the proving ground. Five schools and nine churches also stood in the way, and a legion of dead had to join the living in the exodus from the area in the name of national defense. Twenty-nine cemeteries, encompassing 3,500 graves, had to be relocated (Baker 1990a:67-73).

After all of the land had been purchased and everyone had been moved out, some of the buildings that were left behind were put to use by the proving ground. Nineteen of the nicer houses were moved to a single location and arranged around a horseshoe-shaped lawn to serve as officers' housing (BTI 1984:13). Thirteen houses remain on the horseshoe today. JPG's commanding officer, Colonel DeRosey Cabell, chose the residence of Dr. Charles Denny of Bellview for his own quarters (Completion Report 1943:3). Other houses were used as temporary facilities until permanent ones could be built—for example, the old farm house that during the proving ground's earliest days of operation was used as a temporary assembly plant for ammunition to be test fired. Some of the other abandoned structures were sold to private contractors who moved them off the installation or salvaged them. Still others were used to test fire bombs like those which were later dropped on Japanese cities by B-29 fortresses during night raids in the latter months of the war.

Other impacts on the area were felt in the local economy. As mentioned, the tiny river town of Madison, Indiana, was transformed into a boom town virtually overnight and housing developments began to spring up in the agricultural communities all around JPG as about 500 displaced families looked for new homes and streams of federal employees began to arrive to staff the proving ground. Space was so scarce that temporary offices for the Army, architect-engineers, and contractors had to be set up in the Madison Hotel, where they remained until one of the abandoned school buildings could be converted (Kast 1942:4). In the following months, Madison continued to grow with the added revenue of a forty- to fifty-thousand-dollar weekly payroll of federal employees to spur it on. As the proving ground began operations, rents in town were reported to be three times their normal value. Madison was not alone, however, since much of southern Indiana was experiencing this sudden wartime growth. Charlestown, 30 miles down the Ohio River from Madison, had become the site of another new defense project, a \$51,000,000 smokeless powder plant to be operated by the Du Pont Chemical Company. A year later, another 55,000 acres of Indiana farmland was swallowed up by the federal government in Bartholomew, Johnson, and Brown counties to make way

for a training camp for mechanized troops. Southern Indiana was indeed playing a role in the national defense (Baker 1990a:58-60).

One of the biggest challenges facing the American industrial mobilization was the enormous demand for labor. The ammunition industry experienced constant labor shortages. Concerns over working conditions, safety, absentee workers, and labor unrest were also issues that affected the World War II domestic labor force. Government-sponsored publicity emphasized the importance of working together in war production industry and down-played problems such as strikes and accidents. One result of the shortage in civilian labor was the introduction of segments of the work force in areas from which they had traditionally been excluded, especially as the war progressed and the labor shortage intensified. One of the most publicized developments of wartime production was the introduction of large numbers of women into industrial jobs, as exemplified in the popular icon "Rosie the Riveter." The employment of such large numbers of women as factory workers was a new wartime experience (Cannan et al. 1994:55-6).

The situation in southern Indiana, and for JPG in particular, was no different. JPG had already experienced difficulty in finding adequate labor for construction of the installation with the competition from the Du Pont smokeless powder plant also going up only 30 miles away in Charlestown. JPG found itself competing with Charlestown to fill its some 1,200 positions as well (Kast 1942:3). These positions were charged with various responsibilities. Not all of the JPG workers test fired ammunition or examined the results. A large mechanical force, for example, cared for the guns used in test firing, cleaning them and rebuilding them if need be. There was also a large electronics force which cared for the delicate gadgets used in photographing and recording projectile flights, with much of the equipment used in these tests actually made on site. There was even a whole building devoted to salvaging shell cases, straightening out dents, and cleaning them so that they could be used again. A small army of patrols was also employed to police the base and maintain a constant radar vigil of the airspace above the proving ground during firing hours so that aircraft could be warned away. This small army, however, was nothing compared to the force of people required to handle the records kept on every piece of ammunition that was sent to JPG for testing (CJ 29 April 1951:55-6).

The daily lives of people living in southern Indiana were dramatically affected as thousands migrated into the area to fill the new jobs and the primary industry of the region was transformed from agriculture to defense. The employment of greater numbers of women as the war progressed also occurred at JPG as well. For example, before 1943 and the federal policy of replacing men called by the selective service with women, women accounted for approximately 10 percent of the total 567 workers in the Proof Division. They would account for 67 percent only a few months later (Reed 1942:4). Women replacements were not confined to the Proof Division, however. They also worked as Assembly Plant operators, telephone operators, members of gun crews, and took on other miscellaneous duties.

As wartime activities continued to grow, so did the JPG physical plant. New equipment and additional testing responsibilities necessitated numerous additions and some new construction. Additions were made to the Machine Shop, the West Artillery Repair Building, and the East Artillery Storage Building. New guard towers, two guard posts, and two new ammunition storage buildings were constructed, as were two new warehouses measuring 32-x-96 ft. Additional powder storage igloos were also needed. Three of the standard 80-ft type were built, modified from those built at various defense plants throughout the country. Construction also began on a new 37-x-84-ft Conference Hall, modified from a standard temporary building type. The building was begun across from the Post Exchange in June 1943. It consisted of an auditorium with a seating capacity of approximately 150, a stage, three offices, a projection room, and rest rooms. It was specified to be finished in white asbestos shingle siding and green asbestos roof shingles to conform with the other buildings in the immediate area (Reed 1942:24).

During 1945, the volume of ammunition tested at JPG diminished as a result of federal government cutbacks in ammunition orders. From the time of the unofficial announcement of victory over Japan, testing activities dropped sharply and continued to drop until they completely ceased on 10 September 1945 (Anonymous,

1945:1). Upon instructions from the U.S. Division of Engineers, all construction work at the installation was stopped immediately. JPG was to proceed as quickly as possible to stand-by basis, retaining only enough personnel to accomplish the necessary maintenance of the grounds. Strenuous efforts were made to place as many laid-off workers as possible with other Civil Service installations in the surrounding area as the workforce, which had at one time been as large as 1,300, was reduced to a nucleus of 51. These included 14 fire fighters who also served as guards, 18 maintenance men, seven supply workers, one artillery surveillance man, and 11 general laborers (Anonymous 1989:25). Buildings were mothballed and several thousand acres of the installation's property were subleased to local farmers for grazing and planting crops. It is estimated that there were 1,200 head of sheep and 500 head of cattle on JPG grounds at one time.

In April 1946, JPG was officially deactivated and was made a subinstallation to the Indiana Arsenal in Charlestown, Indiana (BTI 1984:49). With JPG's role in World War II officially at an end, it could be said that the installation had made a significant contribution to the war effort, and all without serious incident. Its wartime activities, however serious, were recalled by some with a chuckle. In retrospect, some of the accidents that had occurred at the proving ground were quite humorous. One such accident occurred with the scheduled testing of ten 100-pound photoflash bombs. These bombs were designed to burst high in the air and to create an enormous amount of light to expose enemy positions. The pilot of the plane carrying the bombs was supposed to target a set of proving ground lights. Instead, he mistakenly took the lights of a farm as his signal and let the bombs go over the farmer's chicken house. Nine of the bombs functioned perfectly, lighting up the entire area. One, however, detonated on the ground, blowing out all of the windows in the chicken house and defeathering every chicken that the farmer owned (Anonymous 1989:12).

But JPG was not to remain on stand-by status for long. In February 1949, inquiries were initiated to determine the feasibility of reactivation. The next month, 12 employees were hired for proof testing of ammunition. These employees reactivated files for proof records, reconditioned and installed instrumentation equipment, and placed the weapons in service that would be necessary for limited proof testing of ammunition. On 6 June 1949, the hostilities that broke out between North and South Korea led the Army to issue orders to reactivate JPG with a renewed testing mission, testing ammunition already stored on the grounds. On 1 October 1950, the installation's status was changed from a stand-by post of the Indiana Arsenal to an active Industrial Class II installation. All of the buildings, grounds, railroad systems, etc., were called back to full service immediately. The airport and interior firing range would remain on stand-by status for a few months longer, though. By December of that year, employment was up to 338 civilians, six officers, and one enlisted man. By June, it stood at a total of 700.

During 1950, \$423,675 were granted for the partial rehabilitation of facilities. On 29 January 1951, \$1,465,700 were granted for further rehabilitation and construction. Another grant of \$2,646,300 came on 2 March 1951, along with the permission to expand facilities to permit the full utilization of the proving ground. New construction included barricades for the East, West, and Rocket Assembly plants; two 80-ft igloos; the Temperature Conditioning Building; the Assembly Plant Group for Major Caliber Positions; the relocation of impact fields and the construction of eight observation bomb shelters; the Proof Office Control Tower; a fuel storage facility; and lighting for the firing positions. Although slowed in 1952, construction still continued with the addition of seven new towers to be used on new firing positions, and as involvement in the Korean War continued, employment also grew. In January 1952, JPG employed 813 people. By June, the figure had climbed to 1,170, reaching a peak of 1,325 employees by the end of the year. In 1952, the number of rounds fired reached 120,000. In September, Colonel E.G. Mathews was made the new commanding officer of JPG. It was he who presided at JPG when 37 ammunition experts from 10 NATO countries visited the installation as part of a plan to increase and improve ammunition production in all Allied countries through the pooling of technical information (Anonymous n.d.b:28).

For the Post Engineer Division, and particularly for the Firefighters Branch, 1952 also proved to be a busy year. JPG firefighters battled an unusually high number of fires that year, due in large part to the fact that the weather during the summer of 1952 was one of the hottest and driest on record. Between 1 July and 31

In addition to the four main artillery ranges, JPG also had very extensive small arms and armor defeating ammunition test ranges in operation by the end of the 1950s as well, with observation facilities located at various distances up to 3,500 yards (Anonymous 1959:1). With the end of the Korean War, the work load diminished at JPG. On 22 January 1957, the first reduction in forces notices were received with the loss of over 100 people. At that time there had been about 1,000 people still actively employed. By July, there were just 770, and word came on 21 August 1957 that all hiring had officially been stopped. Buildings and sections were also closed down or consolidated. The Night Firing Section was abolished and all work was transferred to the day crew. The Ballistics branch, the Special Test and Bomb Field sections, and the Components and Propellant sections were all consolidated and moved to different buildings. Production machinery was disassembled, cleaned, dried, and preserved. On 20 March 1958, the last round was test fired. On 31 March, official word came that JPG had once again been placed on stand-by status.

During JPG's second period of stand-by status, several of its buildings were leased to private industry. On 16 February 1959, Standard Glass and the Massoud Upholstering Company each leased one building on the base. In August, the Randall Company leased three buildings and 10 acres of land, including roads and parking lots. The city of Madison also leased some vacant areas at JPG. In October, the city leased a 638-acre tract of land, four runways, the hangar, garage, and heating plant, as well as several other miscellaneous buildings nearby. The lease was for a 20-year period, with a recapture clause which gave the Army the right to reclaim the property in the event of a national emergency (Anonymous 1943:41).

The new tenants of JPG, however, would not be permitted to stay for long. By mid-1961, events across the world, including the construction of the Berlin Wall, had heightened the Cold War. On 8 September 1961, JPG received official word that its status had once again been changed to active and that proof testing would resume by December. On 2 October 1961, the first round was test fired ahead of schedule, and by 1962, the reactivation was well underway. Twenty facilities were reopened by August of that year, including the Weapons Maintenance Building and Instrumentation Building. It was in August 1962 that the command of JPG was reorganized under the Test and Evaluation Command (TECOM), one of seven subordinate commands established under the authority of the Army Materiel Command (AMC), the organization given the responsibility for the wholesale logistics for the Department of the Army.

With the continued involvement in the Vietnam Conflict, the work load at JPG slowly rose. In January 1964, there were 388 employees, and by 1968, the peak of U.S. involvement, there were 956. JPG made several contributions to the Vietnam effort besides testing ammunition. In 1964, personnel from Wright-Patterson Air Force Base conducted extensive infrared photography testing at JPG for use in Vietnam to identify targets. Bicycles, thatched huts, push carts, weapon emplacements, etc., were positioned in wooded areas on the base and along roads in the northern area to be photographed by high altitude planes. In 1968, JPG also tested a mobile gun platform for use in the rice paddies and mud of Vietnam. The platform was designed to be flown in by helicopter and to hold a 105-mm howitzer, ammunition, and crew. Such platforms were flown in by helicopter at JPG and placed in manmade mud fields. Guns were set up on the platforms and then test fired to assess the reliability of the weapons when such a platform was used (Anonymous 1943:44).

During the 1970s, the workload at JPG decreased but remained relatively steady well into the 1980s. Reductions in workload led to reductions in staff, with the total number in personnel hovering around 400. As a result, two test shifts were combined, with testing scheduled for between 7:30 A.M. and 4:00 P.M. On 3 April 1974, a devastating tornado struck several cities in southern Indiana. JPG personnel were temporarily released from duty to assist in the cleanup. Employees directed traffic, set out flares, and cleared trees and debris that blocked roads. JPG used its radio to send messages to the governor's office and supplied generators to the sheriff's office, the National Guard Armory, and the Madison and Hanover post offices. Bulldozers, cranes, trucks, saws, and wreckers were also used by JPG to clear debris, and the installation itself was used as a staging area for supplies being sent to the disaster victims.

After 1956, the JPG physical plant did not grow much, with only 36 buildings being constructed on the base after that date. A notable exception was the new air target range which was built on the northern end of JPG in 1977 at a cost of \$250,000. This target range was to be used by Air National Guard and Air Force Reserve fighter bomber pilots from Indiana, Ohio, Illinois, Pennsylvania, Missouri, and Michigan to fire 20-mm aircraft guns at specified targets. Besides this new mission, JPG continued its ammunition testing. From 1977 until just recently, JPG testing activities made it a key component of ammunition production in the United States, with around 90 percent of the ammunition received by the U.S. Army being tested and approved by JPG. During the 1980s, the number of rounds test fired per month slowly began to diminish, though this did not translate into a reduced work load since the ammunition being tested was becoming increasingly sophisticated and required more complex and time consuming tests. In 1990, the workload at JPG increased 15 percent as 321 lots, including 120-mm tank ammo and components, 155-mm smoke rounds, and 155-mm stick propellant, were tested for the Gulf War.

Despite the increased test firing activity, other operations at JPG began to slow in 1990. This was due to a decision that had come down from the Defense Department Commission on Base Realignment and Closure in December 1988. The Committee had recommended that JPG be closed by 1995 and its mission transferred to Yuma Proving Ground in Arizona. By 1994, shut-down was nearing completion, with the last round ever to be test fired at JPG occurring on 30 September (Anonymous n.d.a). With the closure of JPG, the history of ammunition testing in southern Indiana comes to an end, as do more than 50 years of vital contributions to the national defense. Through its activities in acceptance testing, JPG has served as a vital link in the production of ammunition, and thereby in the national defense. The logistical superiority of the Allies that simply overwhelmed the Axis powers during World War II would not have been possible had it not been for the work done at JPG, work which helped to ensure that American troops received high quality ammunition that performed the way that it was supposed to, helping to reduce American casualties as well as hasten the end of the war. JPG continued its acceptance testing during the Korean and Vietnam conflicts, as it also did during the Gulf War. Work done at JPG has continued to ensure the production of high-quality ammunition, thereby providing an element of safety to the armed services that have used the ammunition since the installation opened in 1941. The data gathered from testing various types of ammunition at JPG have also been beneficial in the development of better weapons technology. Demonstrations and conferences held there have helped influence military ammunition production as well as educate ammunition producers. When all is said and done, it must be agreed that JPG had a profound impact on the region as well. It changed the face of the quiet rural countryside and changed the lives of the people who resided there. It gave a largely agricultural local economy an industrial base and brought new elements of the populace into the work force.

DEVELOPMENT OF HISTORIC CONTEXTS AND APPLICATION OF REGISTRATION CRITERIA¹

According to the Secretary of the Interior, "decisions about the identification, evaluation, registration and treatment of historic properties are most reliably made when the relationship of individual properties to other similar properties is understood." The U.S. Department of the Interior states that "contexts describe the significant broad patterns of development in an area that may be represented by historic properties" (Peter et al.1994).

The Indiana State Historic Preservation Office has listed 12 broad thematic contexts for the identification and evaluation of properties throughout the state. Among these is: Military—1600-present, Investigation of organized militias, armed forces and other efforts at defense. The State Historic Preservation Office

¹ This discussion on the development of historic contexts and NRHP criteria is taken from Myers and Freeman 1994.

recognizes that military organizations and activities have played significant roles in the development of the state and that historic properties relating to those organizations or activities reflect those roles.

According to John S. Garner (1993), base planning and architecture on military installations usually conformed to uniform standards or specifications but the special requirements of munitions-related buildings resulted in some unique buildings. Some innovative design was created for these principally utilitarian facilities by architects and engineers like Albert Kahn and Associates and Stone and Webster. Usually such design was unique, not for aesthetic purposes, but in response to the particular technological challenged of the process or work to be accomplished at the site. Garner (1993) states:

In evaluating historic buildings and structures within AMC's installations, special emphasis should be given to explaining their wartime use, production, operation, and construction. The evaluation should also entail an outline history of the advanced materiel that the installations were commissioned to test, manufacture, and store. The task, however, of describing the architecture of a manufacturing plant, composed of several highly specialized and integrally related structures, is in many ways more challenging than describing conventional buildings, such as those found in an administrative headquarters or a housing complex that often followed standard plans.

This is certainly the case at JPG where all 55,264 acres were geared to one function: the testing of ammunition. The task here is to (1) establish the historic context within which JPG was constructed and operated, (2) identify groups of properties by function, (3) relate them, when possible, to other contemporaneous property types or plants of a similar mission to establish their significance within the AMC, (4) relate them to other contemporaneous installations within the state or region to establish their significance at the state or local level, (5) develop registration requirements for National Register consideration, (6) evaluate buildings associated with the established context according to the requirements, and (7) recommend those that qualify for inclusion in a comprehensive cultural resources management plan.

OUTLINE OF PROPERTY TYPES, JEFFERSON PROVING GROUND

Administrative

Description

Administrative buildings at JPG are concentrated on the southern edge of the 55,264-acre installation, primarily along Niblo and Meridian roads. Administrative buildings include the semipermanent wood buildings as well as smaller brick buildings. All these buildings have gable roofs and are generally one story high. In the first phase of authorized construction, facilities were to be made of permanent materials and would last approximately 20 years. Administrative buildings and storage facilities for example were constructed in masonry and reinforced concrete. By early January 1941, shortages of building materials (particularly steel) began to set in. As a result, the Chief of Ordnance, Levin Campbell, began issuing orders to cease the use of permanent building materials and techniques. Soon thereafter, Campbell decided that administrative buildings could no longer be brick nor more than one story in height. By 1942, permanent building material shortages had become so acute that the emergency construction program converted almost entirely to the use of temporary building materials, reserving masonry to separate facilities housing potentially explosive materials.

Significance

Administration buildings at JPG are eligible for inclusion in the National Register of Historic Places under Criterion A because of their symbolic association with JPG's ammunition testing operations during World War II. JPG's testing program directly contributed to the superior logistical capabilities of the Allies by providing ammunition that functioned more correctly than that produced by the Axis powers.

Registration Requirements

Properties identified with administrative functions at JPG should be significant within the historic context of Jefferson Proving Ground from 1940-1945 and should date from the World War II period. They should retain integrity and principal architectural elements from their period of significance. Additions and alterations should be compatible with the original structure in materials, detail, and scale or be reversible. Additions or alterations of a permanent nature may be incongruous with the historic architectural design and may be grounds for disqualification.

Housing

Description

Housing at JPG consists of officers' quarters and their associated garages. The housing at JPG is somewhat unusual in that each building was originally built by area residents and then moved to its present site along a horseshoe-shaped parade ground after the land was purchased by the U.S. government. The houses date from the late nineteenth century to the early twentieth century and consist of typical rural farmhouses, grander Queen Anne style houses, and small bungalows built not too long before government acquisition. They all had wood siding, and some had slate roofs. The government contracted Russ & Harrison of Indianapolis to remodel the houses into staff residences. Alterations made in 1941 consist mostly of the addition of closets and bathrooms. The garages are either one- or two-car types and are of typical wood frame construction.

Significance

Housing facilities at JPG are considered ineligible for inclusion in the National Register of Historic Places even though they housed the decision-makers of the installation. This housing represents a secondary use of buildings constructed in the nineteenth century and then removed from their primary context.

Registration Requirements

Housing should be significant within the historic context of Jefferson Proving Ground from 1940-1945 and have been built and utilized between 1940 and 1945. Housing is probably not significant under any premilitary context as each housing facility on JPG has been moved from its original location and was remodeled in 1941. Additions and alterations that postdate 1941 should be evaluated in relation to the general effect such changes have had on the buildings since that date. Removal, alteration, or obscuring of typical architectural features or detailing on these buildings may be grounds for their disqualification. Reversible alterations such as the application of aluminum siding over original siding may not be sufficient grounds for their disqualification.

Firing Line/Impact Zone Structures

Description

Firing Line/Impact Zone Structures consist primarily of structures such as safe shelters, drop test stands, and observation towers directly related to the actual firing and observation of ammunition tests. These structures tend to be of heavy reinforced concrete construction to accommodate explosions. Some observation towers are of wood, but they are raised and sheathed in metal as a protective measure. These structures occur at the northern edge of the built-up area of the installation and include the safe shelters scattered in the northern (Impact Zone) area of the base. Ammunition being tested was fired from the south side, where the concrete construction shielded artillery operators. Safe shelters in the Impact Zone were half buried in the earth with minimal openings for the observation of explosions.

Significance

Firing Line/Impact Zone Structures are eligible for inclusion in the National Register of Historic Places under Criterion A because their construction and use directly supported JPG's contribution to the World War II effort. Although these structures are not architecturally complex, they represent the focal point of activity at JPG. The importance of these structures is further enhanced by the fact that they were built in early 1941, before the other buildings, so that testing could begin as soon as possible. They may also be eligible under Criterion C because they embody the distinctive characteristics of heavy concrete construction for explosive blast protection.

Registration Requirements

Firing Line/Impact Zone Structures should be significant within the historic context of Jefferson Proving Ground from 1940-1945 and date to World War II. They should retain integrity of location and the principal architectural elements that identify them as Firing Line/Impact Zone buildings. Additions and alterations should be evaluated in relation to the general effect such changes have had on the buildings since the 1940s. Removal, alteration, or obscuring of typical architectural features or detailing on these buildings may be grounds for their disqualification. Reversible alterations such as the addition of thin wood walls/doors into openings may not be sufficient grounds for their disqualification.

Support Facilities for Ammunition Testing

Description

Buildings related to Support Facilities for Ammunition Testing consist primarily of the various shops that repaired, maintained, and assembled ammunition for testing at the Firing Line/Impact Zone. These buildings are primarily one-story brick structures with a gable roof, many of which are identical and others that appear to be variations upon the same basic design. Buildings that housed potentially explosive functions were separated by large barricades—heavy timber walls filled with earth. These barricades worked to contain explosions and, in the event of an explosion, to prevent damage from spreading. Wood/earth barricades were used instead of earthen berms due to the close spacing of the support facilities.

Significance

Support Facilities for Ammunition Testing are eligible for inclusion in the National Register of Historic Places under Criterion A because their construction resulted from JPG's support of military activities on a regional or national scope such as testing the ammunition supplied to front line troops during World War II. They may also be eligible under Criterion C because they embody the distinctive characteristics of World War II standardized plans for industrial structures.

Registration Requirements

Support Facilities for Ammunition Testing should be significant within the historic context of Jefferson Proving Ground from 1940-1945 and date to World War II. They should retain integrity of location and the principal architectural elements that identify them as Support Facilities for Ammunition Testing. Additions and alterations should be evaluated in relation to the general effect such changes have had on the buildings since the 1940s. Removal, alteration, or obscuring of typical architectural features or detailing on these buildings may be grounds for their disqualification. Reversible alterations such as replacement windows or doors may not be sufficient grounds for their disqualification. The wood/earth barricades should also be considered with respect to the buildings they protected.

Storage and Shipping Facilities

Description

The primary Storage and Shipping Facilities at JPG comprise a variety of building types and materials. They range from underground reinforced concrete igloo magazines to standard brick warehouse buildings. Small wood frame structures that housed weighing scales for trucks and trains are examples of secondary Storage and Shipping Facilities.

Significance

Primary Storage and Shipping Facilities at JPG are eligible for inclusion in the National Register of Historic Places under Criterion A for they served a primary role in support of ammunition testing on a regional or national scope during World War II. The secondary Storage and Shipping Facilities are considered ineligible for they did not serve a direct role in the ammunition testing process.

Registration Requirements

Properties identified as primary Shipping and Storage Facilities at JPG should be significant within the historic context of Jefferson Proving Ground from 1940-1945 and date to World War II. They should retain integrity of location and the principal architectural elements that identify them as Storage and Shipping Facilities. Additions and alterations should be evaluated in relation to the general effect such changes have had on the buildings since the 1940s. Removal, alteration, or obscuring of typical architectural features or detailing on these buildings may be grounds for their disqualification. Reversible alterations such as replacement windows or doors may not be sufficient grounds for their disqualification.

Support Facilities for Workers

Description

Support Facilities for Workers at JPG include change houses, the clinic, barracks, restaurants/clubs, and recreation facilities such as the gymnasium and picnic shelters. With the notable exception of the change houses that were located near buildings that housed explosives, many of the other property types were of semipermanent wood construction. All buildings under this property type are, however, one-story structures with gable roofs of standard design and detail. As with administrative buildings, shortages in 1941 and 1942 resulted in widespread use of temporary materials for nonindustrial buildings. The one exception is the limestone ashlar building Old Timbers Lodge, designed by local architect Gustav Elzner for Ohio Industrialist Alexander Thomson between 1930 and 1932, which is used as a recreational facility.

Significance

With the exception of Old Timbers Lodge, Support Facilities for Workers at JPG are eligible for inclusion in the National Register of Historic Places under Criterion A. Support Facilities for Workers construction was the result of JPG's support of military activities on a regional or national scope, such as testing the ammunition supplied to front line troops during World War II. Old Timbers Lodge, however, is eligible under Criterion C as an outstanding example of local stone and wood design and construction.

Registration Requirements

Support Facilities for Workers should be significant within the historic context of Jefferson Proving Ground from 1940-1945 and date to World War II. They should retain integrity of location and the principal architectural elements that identify them as Support Facilities for Workers. Additions and alterations should be evaluated in relation to the general effect such changes have had on the buildings since the 1940s. Removal, alteration, or obscuring of typical architectural features or detailing on these buildings may be grounds for their disqualification. Reversible alterations such as replacement windows or doors may not be sufficient grounds for their disqualification.

Airfield Operations Facilities

Description

Airfield Operations Facilities consist primarily of the Hangar (Building No. 301). Other facilities in the area can also be categorized as separate property types such storage/shipping, recreational buildings, and infrastructure. Building No. 301, the only hangar on JPG, was designed by the Indianapolis architecture-engineering firm of Russ and Harrison. It is a classic World War II hangar with a vaulted steel truss hangar space flanked by one-story shop space and two-story brick towers at each corner. An unusual feature is the one-piece overhead door that faces the airfield and is original to the building.

Significance

Airfield Operations Facilities are eligible for inclusion in the National Register of Historic Places under Criterion A as they resulted in JPG's involvement in or support of military activities on a regional or national

scope during World War II. The airfield operations at JPG were the largest (if not the only) airfield facility in southeastern Indiana during World War II. Building No. 301 is also eligible under Criterion C as it embodies the distinctive characteristics of a World War II hangar.

Registration Requirements

Airfield Operations Facilities should be significant within the historic context of Jefferson Proving Ground from 1940-1945 and date to World War II. They should retain integrity of location and the principal architectural elements that identify them as Airfield Operations Facilities. Additions and alterations should be evaluated in relation to the general effect such changes have had on the buildings since the 1940s. Removal, alteration, or obscuring of typical architectural features or detailing on these buildings may be grounds for their disqualification. Reversible alterations such as replacement windows or doors may not be sufficient grounds for their disqualification.

Utilities and Infrastructure

Description

Utilities and Infrastructure at JPG include water, electricity and gas facilities, sewer lines and drainage systems, roads and bridges, airfield runways, and railroad spurs. Although some elements of a rural infrastructure, such as a number of historic bridges, predate the development of the proving ground, they were not purposefully incorporated into the design of JPG. Utility buildings were typically of brick-bearing wall construction, with the larger ones often distinguished with emphasized corners, resulting in their resemblance to miniature brick castles.

Significance

Primary Utilities and Infrastructure buildings are eligible for inclusion in the National Register of Historic Places under Criterion A if such properties served a critical function in support of the testing activities at Jefferson Proving Ground. They are eligible under Criterion C if they embody the distinctive characteristics of a type and period of construction. Eligible buildings include two Heating Plants (Building Nos. 103 and 310), the Fire Station (Building No. 125), and an electrical substation (Building No. 102).

Registration Requirements

Properties identified as Utilities and Infrastructure should be significant within the historic context of Jefferson Proving Ground from 1940-1945 and date to World War II. They should retain integrity of location and design that identifies their functions during a specific period of significance. Properties associated with this type could be expected to change frequently as demands upon utilities increased or decreased or as technology changed. Therefore, additions and alterations should be evaluated in relation to the general effect such changes have had on the buildings during the primary period of significance. Reuse and subsequent evolution of utility structures is common, and alterations made as a result (such as updated machinery) may be compatible with the original structure in materials, details, and scale. On the other hand, changes that obscure the function of the property or that alter the features that identify its function at the time of significance may be grounds for National Register ineligibility.

RECOMMENDATIONS

An evaluation of the significance of JPG is partially dependent on the importance of the facility to the total war effort during World War II. JPG was not the only proving ground functioning during World War II. Jefferson, Southwestern, Erie, and Dugway joined Aberdeen Proving Ground in testing a variety of ordnance types during World War II.

At about the same time [late October 1940], Ordnance selected a 50,000-acre site for a new proving ground near Madison, Indiana, in the heart of the ammunition-producing area. Named Jefferson, it was to proof fire all types of ammunition, ranging from small 20-mm. rounds up to heavy 240-mm. shells, from hand grenades to giant bombs. The first shot was fired at Jefferson on 10 May 1941, just a short time before construction began on another 50,000-acre proving ground near Hope, Arkansas. Named Southwestern, it had the mission of proof testing primers, fuzes, boosters, cartridge cases, propellants, bombs, pyrotechnics, and, late in the war, rockets. It fired its first shot on New Year's Day 1942. As these three new proving grounds [the first mentioned was the Erie Proving Ground, established during WWI] came into service Aberdeen did less acceptance testing and devoted more time to research and development tests (Thomson and Mayo 1991:327).

Each proving ground specialized in the testing of particular munitions; for example, at Erie Proving Ground at Lacarne, Ohio, 70 percent of the mobile artillery and armor plate used was processed, assembled and proof-acceptance-tested. Dugway Proving Ground, on the other hand, was the major installation for the field testing, proof firing, and surveillance of chemical agents and munitions. JPG was essential to the proof firing of a wide range of ammunition produced by Indiana Ordnance Works and other similar facilities in the eastern United States, for the function of Aberdeen Proving Ground shifted to research and development as Jefferson and Southwestern came on-line. Therefore, JPG was an essential element in the supply of viable ordnance to United States and Allied troops during World War II. Given the association of JPG with the mobilization of the United States during World War II, it is recommended that multiple properties within the main cantonment area (see Figure I-7) be considered eligible as a National Register District under Criterion A of 36 CFR 60.4. Certain properties within the cantonment (see previous discussion of property types) may be eligible also under Criterion C. The primary significance of the proposed National Register District, however, is its association with the mobilization effort of World War II and its essential contribution to the Allied victory. The proposed National Register District represents a relatively unaltered landscape and footprint of the World War II-era cantonment. Only the addition of a limited number of Cold War-era buildings has impacted the original footprint. Since similar facilities at Southwestern Proving Ground and Dugway Proving Ground either no longer exist (Southwestern) or have been altered or demolished (Dugway), the cantonment at JPG is representative of the construction design and footprint of World War II-era proving ground facilities.

The proposed historic district consists of 74 World War II-era buildings: 64 within a contiguous area and 10 additional World War II-era buildings located elsewhere within the southern portion of Jefferson Proving Ground (see Figure I-7). The defining characteristics of these buildings are found entirely within the primary structural elements of the buildings and the exterior facades. Interior features have been altered through the years and are no longer significant. Seven of these World War II-era buildings are World War II Temporary Mobilization structures that are recognized as eligible for inclusion in the National Register of Historic Places under the Programmatic Memorandum of Agreement (PMOA) among the Department of Defense (DOD), the Advisory Council on Historic Preservation (ACHP), and the National Council of State Historic Preservation Officers (NCSHPO). As such, these temporary buildings may be demolished without further consultation with the Indiana SHPO. However, rehabilitation or movement of a building will require Section 106 consultation.

The remaining 77 buildings situated within the proposed historic district—but ineligible—comprise the following property type groups: (1) Worker Support (n=2); (2) Maintenance and Test Support (n=7); (3)

Office and Administration (n=1); (4) Utilities and Infrastructure (n=32); (5) Storage/Shipping (n=14); (6) Firing Line/Impact Zone (n=21); (7) Housing (n=0); and (8) Airfield Facilities (n=0).

The later Cold War buildings (1946-1989) which have been added in the area of the proposed National Register District are typically semipermanent storage and secondary support facilities with neither distinguishing architectural characteristics nor functional unity. They do not meet Criteria Consideration G (Exceptional Significance) for buildings less than 50 years of age.

Several premilitary buildings and structures not within the proposed district boundaries are either listed on the National Register or are eligible for listing (see Figures I-6 and I-8). Most of the nonlisted structures are historic bridges, many of which have never been surveyed prior to this project. Oakdale School (Building No. 401), was placed on the National Register in May 1993 (see Figures I-6 and I-8). Old Timbers Lodge (Building No. 485) is presently not on the National Register but is eligible as it is an excellent example of local stone architecture (see Figures I-6 and I-8). There are 22 bridges that were originally built prior to 1989 on JPG. However, the majority of them have been significantly altered and have lost integrity. The eight that are recommended as eligible for listing in the National Register include: Bridge No. 2 (through Pratt truss erected 1897), Bridge No. 8 (Pratt truss erected 1884), Bridge No. 10 (through Pratt truss erected 1892), Bridge No. 17 (triple-span stone arch erected 1911), Bridge No. 22 (single-span reinforced concrete erected 1921), Bridge No. 25 (single-span stone arch erected 1905), Bridge No. 27 (triple-span stone arch erected 1908), and Bridge No. 28 (double-span stone arch erected 1907) (see Figures I-6 and I-8).

If the JPG cantonment area is to be exceded, the Army will ensure that the instrument transferring the property incorporates a preservation covenant that no construction, alteration, or remodeling shall be undertaken or be permitted to be undertaken that would affect the integrity or the appearance of the buildings without the express prior written permission of the Indiana State Historic Preservation Officer. If the property cannot be exceded with such restrictions, then a recordation plan to mitigate the adverse effects of such a transfer should be developed. Such a mitigation plan should include HAER documentation of the proposed JPG historic district through photographs and drawings. This should include: (1) photographic documentation of the building types within the district in relation to their respective activity area (e.g., firing line and safe shelters) and (2) explanatory drawings depicting the ammunition testing and firing procedures at JPG.

When sections of JPG are finally exceded, primary records such as drawings, property cards, and installation histories, should not be disposed of, but rather transferred to a proper facility (such as the National Archives or the installation charged with the responsibility for administering JPG).

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APPENDIX I

**DATA FOR RECORDED ARCHEOLOGICAL SITES
JEFFERSON PROVING GROUND**

12Ri12

1. Site Number: 12Ri12
2. Location: USGS Holton Quadrangle, Section 33, T 7N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: 1975 (Guendling 1975)
5. Tested? No
6. Site Size and Depth: Not Applicable
7. Site Content: Isolated Find
8. Contextual Integrity: Surface
9. Environmental Context: Upland
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: Glenn A. Black Laboratory, Indiana University, Bloomington
15. Recommendation: No further work

12Ri153

1. Site Number: 12Ri153
2. Location: USGS Holton Quadrangle, Section 17, T 7N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: 11/92 (Schenian and Mocas 1993)
5. Tested? Shovel tested
6. Site Size and Depth: 9 m²; depth (?)
7. Site Content: Lithic scatter
8. Contextual Integrity: disturbed
9. Environmental Context: Upland
10. SCS soil series classification: Cincinnati silt loam
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: No further work

12Ri154

1. Site Number: 12Ri154
2. Location: USGS Holton Quadrangle, Section 17, T 7N, R 10E
3. Period of Site: Terminal Late Archaic
4. Date and Original Recorder: 11/92 (Schenian and Mocas 1993)
5. Tested? Shovel tested
6. Site Size and Depth: Not applicable
7. Site Content: Isolated find
8. Contextual Integrity: disturbed
9. Environmental Context: Upland
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: No further work

12Ri155

1. Site Number: 12Ri155
2. Location: USGS Holton Quadrangle, Section 17, T 7N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: 11/92 (Schenian and Mocas 1993)
5. Tested? Shovel tested
6. Site Size and Depth: Not applicable
7. Site Content: Isolated find
8. Contextual Integrity: disturbed
9. Environmental Context: Upland
10. SCS soil series classification: Rossmoyne silt loam
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: No further work

12Ri156

1. Site Number: 12Ri156
2. Location: USGS Holton Quadrangle, Section 15, T 7N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: 11/92 (Schenian and Mocas 1993)
5. Tested? Shovel tested
6. Site Size and Depth: 9 m²; depth (?)
7. Site Content: Lithic scatter
8. Contextual Integrity: disturbed
9. Environmental Context: Upland
10. SCS soil series classification: Rossmoyne silt loam
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: No further work

12Ri157

1. Site Number: 12Ri157
2. Location: USGS Holton Quadrangle, Section 14, T 7N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: 11/92 (Schenian and Mocas 1993)
5. Tested? Shovel tested
6. Site Size and Depth: 54 m²; depth (?)
7. Site Content: Lithic scatter
8. Contextual Integrity: disturbed
9. Environmental Context: Upland
10. SCS soil series classification: Rossmoyne silt loam
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: No further work

12Ri162

1. Site Number: 12Ri162
2. Location: USGS Rexville Quadrangle, Section 36, T 6N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: 11/93 (Anslinger 1993)
5. Tested? Shovel tested
6. Site Size and Depth: 782 m²; depth (?)
7. Site Content: Lithic scatter
8. Contextual Integrity: disturbed
9. Environmental Upland flat
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: University of Kentucky, Lexington
15. Recommendation: No further work

12Jn257

1. Site Number: 12Jn257
2. Location: USGS Holton Quadrangle, Section 24, T 7N, R 9E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: 11/92 (Schenian and Mocas 1993)
5. Tested? Shovel tested
6. Site Size and Depth: 180 m²; depth (?)
7. Site Content: Lithic scatter
8. Contextual Integrity: Disturbed
9. Environmental Context: Upland
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: No further work

12Jn258

1. Site Number: 12Jn258
2. Location: USGS Holton Quadrangle, Section 24, T 7N, R E9
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: 11/92 (Schenian and Mocas 1993)
5. Tested? Shovel tested
6. Site Size and Depth: 130 m²; depth (?)
7. Site Content: Lithic scatter
8. Contextual Integrity: Disturbed
9. Environmental Context: Upland
10. SCS soil series classification: Rossmoyne silt loam
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: No further work

12Jn259

1. Site Number: 12Jn259
2. Location: USGS Holton Quadrangle, Section 25, T 7N, R 9E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: 11/92 (Schenian and Mocas 1993)
5. Tested? Shovel tested
6. Site Size and Depth: Not applicable
7. Site Content: Isolated find
8. Contextual Integrity: Disturbed
9. Environmental Context: Upland
10. SCS soil series classification: Cincinnati silt loam
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: No further work

12Jn260

1. Site Number: 12Jn260
2. Location: USGS Holton Quadrangle, Section 25, T 7N, R 9E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: 11/92 (Schenian and Mocas 1993)
5. Tested? Shovel tested
6. Site Size and Depth: 60 m²; depth (?)
7. Site Content: Lithic scatter
8. Contextual Integrity: Disturbed
9. Environmental Context: Upland
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: No further work

12Jn261

1. Site Number: 12Jn261
2. Location: USGS Holton Quadrangle, Section 19, T 7N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: 11/92 (Schenian and Mocas 1993)
5. Tested? Shovel tested
6. Site Size and Depth: Not applicable
7. Site Content: Isolated find
8. Contextual Integrity: Disturbed
9. Environmental Context: Upland
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: No further work

12Jn262

1. Site Number: 12Jn262
2. Location: USGS Holton Quadrangle, Section 19, T 7N, R 10E
3. Period of Site: Unknown prehistoric and Early to mid-20th century farmstead
4. Date and Original Recorder: 11/92 (Schenian and Mocas 1993)
5. Tested? Shovel tested
6. Site Size and Depth: 2,400 m² (historic); 7,500 m² (Historic); depth (?)
7. Site Content: Lithic scatter and historic artifacts
8. Contextual Integrity: Disturbed
9. Environmental Context: Upland
10. SCS soil series classification: Rossmoyne soil association
11. Site Function: Unknown prehistoric; Historic homestead
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: No further work

12Jn263

1. Site Number: 12Jn263
2. Location: USGS Holton Quadrangle, Section 19, T 7N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: 11/92 (Schenian and Mocas 1993)
5. Tested? Shovel tested
6. Site Size and Depth: 240 m²; depth (?)
7. Site Content: Lithic scatter
8. Contextual Integrity: Disturbed
9. Environmental Context: Upland
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: No further work

12Jn264

1. Site Number: 12Jn264
2. Location: USGS Quadrangle, Section 19, T 7N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: 11/92 (Schenian and Mocas 1993)
5. Tested? Shovel tested
6. Site Size and Depth: 144 m²; depth (?)
7. Site Content: Lithic scatter
8. Contextual Integrity: Disturbed
9. Environmental Context: Upland
10. SCS soil series classification: Rossmoyne silt loam
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: No further work

12Jn265

1. Site Number: 12Jn265
2. Location: USGS Quadrangle, Section 19, T 7N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: 11/92 (Schenian and Mocas 1993)
5. Tested? Shovel tested
6. Site Size and Depth: 9 m²; depth (?)
7. Site Content: Lithic scatter
8. Contextual Integrity: Disturbed
9. Environmental Context: Upland
10. SCS soil series classification: Rossmoyne silt loam
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: No further work

12Jn266

1. Site Number: 12Jn266
2. Location: USGS Quadrangle, Section 19, T 7N, R 10E
3. Period of Site: Late 19th or Early 20th century
4. Date and Original Recorder: 11/92 (Schenian and Mocas 1993)
5. Tested? Shovel tested
6. Site Size and Depth: 80 m²; depth (?)
7. Site Content: Historic artifacts and evidence of main building and outer building
8. Contextual Integrity: Disturbed
9. Environmental Context: Upland
10. SCS soil series classification: Rossmoyne silt loam
11. Site Function: Farmstead
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: No further work

12Je367

1. Site Number: 12Je367
2. Location: USGS San Jacinto Quadrangle, Section 14, T 5N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: 11/1993 (Anslinger 1993)
5. Tested? yes; shovel tested
6. Site Size and Depth: Not applicable
7. Site Content: Isolated find
8. Contextual Integrity: surface
9. Environmental Context: Upland
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory Association
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: University of Kentucky, Lexington
15. Recommendation: No further work

12Je368

1. Site Number: 12Je368 (Vestal site)
2. Location: USGS San Jacinto Quadrangle, Section 14, T 5N, R 10E
3. Period of Site: Early 20th century farmstead
4. Date and Original Recorder: 11/93 (Anslinger 1993)
5. Tested?
6. Site Size and Depth: 5,278 m²; depth (?)
7. Site Content: Historic artifacts
8. Contextual Integrity: Disturbed
9. Environmental Context: Upland
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory Association
11. Site Function: Farmstead building
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: University of Kentucky, Lexington
15. Recommendation: No further work

12Je369

1. Site Number: 12Je369
2. Location: USGS Clifty Falls Quadrangle, Section 14, T 5N, R 10E
3. Period of Site: Unknown prehistoric and historic
4. Date and Original Recorder: 11/93 (Anslinger 1993).
5. Tested? No
6. Site Size and Depth: 3,496 m²; depth (?)
7. Site Content: Isolated find and Historic artifacts
8. Contextual Integrity: Disturbed
9. Environmental Context: Upland
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory Association
11. Site Function: Unknown prehistoric; historic farmstead
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: University of Kentucky, Lexington
15. Recommendation: No further work

JPG-AACI-1

1. Site Number: Temporary Field Number: JPG-AACI-1
2. Location: USGS Holton Quadrangle, Section 19, T 7N, R 10E
3. Period of Site: Unknown prehistoric and 19th to mid-20th century farmstead
4. Date and Original Recorder: Fall/1994 (Hawkins and Walley 1995)
5. Tested? yes, shovel tested
6. Site Size and Depth: 2,125 m²; depth (?)
7. Site Content: Prehistoric lithic scatter and Historic lithic artifacts
8. Contextual Integrity: Disturbed
9. Environmental Context: River terrace remnant
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Unknown prehistoric; historic homestead
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Unknown
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: Phase II test excavation

JPG-AACI-2

1. Site Number: Temporary Field Number: JPG-AACI-2
2. Location: USGS Holton Quadrangle, Section 25, T 7N, R 9E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Fall/1994 (Hawkins and Walley 1995)
5. Tested? yes, shovel tested
6. Site Size and Depth: 875 m²; depth (?)
7. Site Content: Lithic scatter
8. Contextual Integrity: Disturbed
9. Environmental Context: River terrace
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Unknown
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: Phase II test excavation

JPG-AACI-3

1. Site Number: Temporary Field Number: JPG-AACI-3
2. Location: USGS Holton Quadrangle, Section 17, T 7N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Fall/1994 (Hawkins and Walley 1995)
5. Tested? yes, shovel tested
6. Site Size and Depth: 1 m²; depth (?)
7. Site Content: Isolated find
8. Contextual Integrity: Disturbed
9. Environmental Context: Upland slope
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: No further work

JPG-AACI-4

1. Site Number: Temporary Field Number: JPG-AACI-4
2. Location: USGS Holton Quadrangle, Section 19, T 7N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Fall/1994 (Hawkins and Walley 1995)
5. Tested? yes, shovel tested
6. Site Size and Depth: 1950 m²; depth (?)
7. Site Content: Lithic scatter
8. Contextual Integrity: Disturbed
9. Environmental Context: Terrace remnant
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Unknown
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: Phase II test excavation

JPG-AACI-5

1. Site Number: Temporary Field Number: JPG-AACI-5
2. Location: USGS Holton Quadrangle, Section 19, T 7N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Fall/1994 (Hawkins and Walley 1995)
5. Tested? yes, shovel tested
6. Site Size and Depth: 400 m²; Depth (?)
7. Site Content: Lithic scatter
8. Contextual Integrity: Disturbed
9. Environmental Context: Floodplain
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Unknown
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: Phase II test excavation

JPG-AACI-6

1. Site Number: Temporary Field Number: JPG-AACI-6
2. Location: USGS San Jacinto Quadrangle, Sections 7 and 12, T 6N, R 9E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Fall/1994 (Hawkins and Walley 1995)
5. Tested? yes, shovel tested
6. Site Size and Depth: 122 m²; depth (?)
7. Site Content: Lithic scatter
8. Contextual Integrity: Disturbed
9. Environmental Context: Upland bench
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: No further work

JPG-AACI-7

1. Site Number: Temporary Field Number: JPG-AACI-7
2. Location: USGS San Jacinto Quadrangle, Section 12, T 6N, R 9E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Fall/1994 (Hawkins and Walley 1995)
5. Tested? yes, shovel tested
6. Site Size and Depth: 725 m²; depth (?)
7. Site Content: Lithic scatter
8. Contextual Integrity: Disturbed
9. Environmental Context: Upland
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: No further work

JPG-AACI-8

1. Site Number: Temporary Field Number: JPG-AACI-8
2. Location: USGS Rexville Quadrangle, Section 1, T 6N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Fall/1994 (Hawkins and Walley 1995)
5. Tested? yes, shovel tested
6. Site Size and Depth: 225 m²; depth (?)
7. Site Content: Lithic scatter
8. Contextual Integrity: Disturbed
9. Environmental Context: Terrace
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Unknown
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: Phase II test excavation

JPG-AACI-9

1. Site Number: Temporary Field Number: JPG-AACI-9
2. Location: USGS Rexville Quadrangle, Section 1, T 6N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Fall/1994 (Hawkins and Walley 1995)
5. Tested? yes, shovel tested
6. Site Size and Depth: 1 m²; depth (?)
7. Site Content: Isolated find
8. Contextual Integrity: Disturbed
9. Environmental Context: Terrace
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: No further work

JPG-AACI-10

1. Site Number: Temporary Field Number: JPG-AACI-10
2. Location: USGS San Jacinto Quadrangle, Section 12, T 6N, R 9E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Fall/1994 (Hawkins and Walley 1995)
5. Tested? yes, shovel tested
6. Site Size and Depth: 1 m²; depth (?)
7. Site Content: Isolated find
8. Contextual Integrity: Disturbed
9. Environmental Context: Upland
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: No further work

JPG-AACI-11

1. Site Number: Temporary Field Number: JPG-AACI-11
2. Location: USGS San Jacinto Quadrangle, Section 7, T 6N, 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Fall/1994 (Hawkins and Walley 1995)
5. Tested? yes, shovel tested
6. Site Size and Depth: 375 m²; depth (?)
7. Site Content: Lithic scatter
8. Contextual Integrity: Disturbed
9. Environmental Context: Upland
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: No further work

JPG-AACI-12

1. Site Number: Temporary Field Number: JPG-AACI-12
2. Location: USGS San Jacinto Quadrangle, Section 7, T 6N, 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Fall/1994 (Hawkins and Walley 1995)
5. Tested? yes, shovel tested
6. Site Size and Depth: 1 m²; depth (?)
7. Site Content: Isolated find
8. Contextual Integrity: Disturbed
9. Environmental Context: Upland
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: No further work

JPG-AACI-13

1. Site Number: Temporary Field Number: JPG-AACI-13
2. Location: USGS San Jacinto Quadrangle, Section 7, T 6N, R 9E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Fall/1994 (Hawkins and Walley 1995)
5. Tested? yes, shovel tested
6. Site Size and Depth: 1 m²; depth (?)
7. Site Content: Isolated find
8. Contextual Integrity: Disturbed
9. Environmental Context: Upland
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: ?
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: No further work

JPG-AACI-14

1. Site Number: Temporary Field Number: JPG-AACI-14
2. Location: USGS Holton Quadrangle, Section 18, T 6N, R 9E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Fall/1994 (Hawkins and Walley 1995)
5. Tested? yes, shovel tested
6. Site Size and Depth: 286 m²; depth (?)
7. Site Content: Lithic scatter and fire-cracked rock
8. Contextual Integrity: Disturbed
9. Environmental Context: Toeslope /upper terrace
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Unknown
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: Phase II test excavation

JPG-AACI-15

1. Site Number: Temporary Field Number: JPG-AACI-15
2. Location: USGS Holton Quadrangle, Section 24, T 7N, R 9E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Fall/1994 (Hawkins and Walley 1995)
5. Tested? yes, shovel tested
6. Site Size and Depth: 375 m², 0-28 cm below surface
7. Site Content: Lithic scatter
8. Contextual Integrity: Disturbed
9. Environmental Context: Floodplain
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Unknown
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: Phase II test excavation

JPG-AACI-16

1. Site Number: Temporary Field Number: JPG-AACI-16
2. Location: USGS Clifty Falls Quadrangle, Section 5, T 4N, 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Fall/1994 (Hawkins and Walley 1995)
5. Tested? yes, shovel tested
6. Site Size and Depth: 1 m²; depth (?)
7. Site Content: Isolated find
8. Contextual Integrity: Disturbed
9. Environmental Context: Upland-Terrace juncture
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: No further work

JPG-AACI-17

1. Site Number: Temporary Field Number: JPG-AACI-17
2. Location: USGS San Jacinto Quadrangle, Section 7, T 6N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Fall/1994 (Hawkins and Walley 1995)
5. Tested? yes, shovel tested
6. Site Size and Depth: 19 m long, 3 m deep, 2-3 m high, shovel test depth = 19 cm below surface
7. Site Content: One flake recovered from the shovel probe
8. Contextual Integrity: Undisturbed
9. Environmental Context: Upland slope rockshelter
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Unknown
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: Phase II test excavation

JPG-AACI-18

1. Site Number: Temporary Field Number: JPG-AACI-18
2. Location: USGS Holton Quadrangle, Section 35, T 7N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Fall/1994 (Hawkins and Walley 1995)
5. Tested? yes, shovel tested
6. Site Size and Depth: 6.5 m long, 2.1 m deep, 2 m high
7. Site Content: Isolated find
8. Contextual Integrity: 100% Disturbed
9. Environmental Context: Upland slope rock shelter
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Unknown
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: Phase II test excavation

JPG-AACI-19

1. Site Number: Temporary Field Number: JPG-AACI-19
2. Location: USGS San Jacinto Quadrangle, Section 18, T 6N; R 9E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Fall/1994 (Hawkins and Walley 1995)
5. Tested? yes, shovel tested
6. Site Size and Depth: 50 m²; depth (?)
7. Site Content: Lithic scatter
8. Contextual Integrity: Disturbed
9. Environmental Context: Upland glacial knoll
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: No further work

JPG-AACI-20

1. Site Number: Temporary Field Number: JPG-AACI-20
2. Location: USGS San Jacinto Quadrangle, Section 18, T 6N, R 9E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Fall/1994 (Hawkins and Walley 1995)
5. Tested? yes, shovel tested
6. Site Size and Depth: 1 m²; depth (?)
7. Site Content: Isolated find
8. Contextual Integrity: Disturbed
9. Environmental Context: Upland glacial knoll
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: No further work

JPG-AACI-21

1. Site Number: Temporary Field Number: JPG-AACI-21
2. Location: USGS San Jacinto Quadrangle, Section 18, T 6N, R 9E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Fall/1994 (Hawkins and Walley 1995)
5. Tested? yes, shovel tested
6. Site Size and Depth: 1 m²; depth (?)
7. Site Content: Isolated find
8. Contextual Integrity: Disturbed
9. Environmental Context: Upland glacial knoll
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Unknown
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Ineligible
14. Curation of Materials: Ball State University, Muncie, Indiana
15. Recommendation: No further work

JPG-AACI-22

1. Site Number: Temporary Field Number: JPG-AACI-22
2. Location: USGS San Jacinto Quadrangle, Section 7, T 5N, R 10E
3. Period of Site: 19th - mid 20th century
4. Date and Original Recorder: Fall/1994 (Hawkins and Walley 1995)
5. Tested? No
6. Site Size and Depth: 1,500 m²; depth (?)
7. Site Content: Farmstead house foundation
8. Contextual Integrity: Disturbed
9. Environmental Context: Upland
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Farmstead
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Unknown
14. Curation of Material: Not applicable
15. Recommendation: Evaluate

JPG-AACI-23

1. Site Number: Temporary Field Number: JPG-AACI-23
2. Location: USGS Clifty Falls Quadrangle, Section 30, T 5N, R 10E
3. Period of Site: 19-mid 20th century
4. Date and Original Recorder: Fall/1994 (Hawkins and Walley 1995)
5. Tested? yes, shovel tested
6. Site Size and Depth: 7480 m²; depth (?)
7. Site Content: Foundations, dam, wire fencing
8. Contextual Integrity: Disturbed
9. Environmental Context: Upland
10. SCS soil series classification: Cincinnati-Rossmoyne-Hickory soil association
11. Site Function: Farmstead
12. Projected Impacts: Timber harvesting
13. NRHP Eligibility: Unknown
14. Curation of Materials: Not applicable
15. Recommendation: Evaluate

12Je380

1. Site Number: Temporary Field Number: JPG-GMI-A1
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 32, T 5N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 2, 1995
5. Tested? No
6. Site Size and Depth: 25 m NS by 22 m EW by 30 cm deep.
7. Site Content: Window glass, bottle glass (amber and clear), bricks, whiteware, possible buried feature. Old spruces also present
8. Contextual Integrity: Poor; a modern building currently stands on the site
9. Environmental Context: Highly disturbed marshy plain
10. SCS soil series classification: Cobbsfork silt loam
11. Site Function: Historic rural residence
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je381

1. Site Number: Temporary Field Number: JPG-GMI-A2
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 32, T 5N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 10, 1995
5. Tested? No
6. Site Size and Depth: 75 m NS by 78 m EW by 20 cm deep
7. Site Content: Metal fragments, bottle and window glass, and four features, including two rubble piles and two concrete foundations
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Marshy wooded uplands
10. SCS soil series classification: Cobbsfork silt loam
11. Site Function: Historic rural residence or farmstead
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je382

1. Site Number: Temporary Field Number: JPG-GMI-A3
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 31, T 5N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 12, 1995
5. Tested? No
6. Site Size and Depth: 35 m NS by 50 m EW by 40 cm deep
7. Site Content: Whiteware, stoneware, window glass, bottle glass, metal fragments, brick fragments, and four features, including a concrete house foundation, a capped cistern, a well, and a capped septic tank
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Marshy wooded uplands
10. SCS soil series classification: Cobbsfork silt loam
11. Site Function: Historic farmstead
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je383

1. Site Number: Temporary Field Number: JPG-GMI-A4
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 33, T 5N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 16, 1995
5. Tested? No
6. Site Size and Depth: 50 m NS by 50 m EW; surface only
7. Site Content: An intact fenceline lined with drainage ditches; three features, including a loosely stacked wall of quarried limestone; a well lined with cut limestone; and a manmade watering hole partially lined with limestone
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Marshy wooded uplands
10. SCS soil series classification: Cobbsfork silt loam
11. Site Function: Historic farmstead (?)
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je384

1. Site Number: Temporary Field Number: JPG-GMI-A5
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 35, T 5N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 17, 1995
5. Tested? No
6. Site Size and Depth: 20 m NS by 30 m EW by 16 cm deep
7. Site Content: Brown glass fragment, whiteware sherd, and the remains of a concrete foundation.
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Marshy wooded uplands
10. SCS soil series classification: Cobbsfork silt loam
11. Site Function: Historic farmstead (?)
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je385

1. Site Number: Temporary Field Number: JPG-GMI-A6
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 35, T 5N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 18, 1995
5. Tested? No
6. Site Size and Depth: 20 m NS by 9 m EW by 20 cm deep
7. Site Content: Iron buggy or farm implement parts; wagon wheel rim; wagon wheel hub; stoneware pitcher (in fragments); amber, clear, and manganese glass bottles; stoneware vessel fragments; metal bucket fragment
8. Contextual Integrity: Poor; extensive disturbance (in secondary context in any case)
9. Environmental Context: Marshy wooded uplands
10. SCS soil series classification: Cobbsfork silt loam
11. Site Function: Historic trash dump
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je386

1. Site Number: Temporary Field Number: JPG-GMI-A7
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 35, T 5N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 19, 1995
5. Tested? No
6. Site Size and Depth: 38 m NS by 26 m EW by 22 cm deep
7. Site Content: Ornamental grasses and trees (persimmon and catalpas > 50 years old); bricks; concrete.
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Marshy wooded uplands
10. SCS soil series classification: Cobbsfork silt loam
11. Site Function: Historic unknown
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je387

1. Site Number: Temporary Field Number: JPG-GMI-A8
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 2, T 4N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 19, 1995
5. Tested? No
6. Site Size and Depth: 50 m NS by 50 m EW by 40 cm deep
7. Site Content: Aqua glass, nails, unidentified metal fragments, whiteware sherd, concrete, mussel shell, and three features, including two concrete slab foundations and a mounded rubble pile
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Marshy wooded uplands
10. SCS soil series classification: Cobbsfork silt loam
11. Site Function: Historic farmstead
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je388

1. Site Number: Temporary Field Number: JPG-GMI-A9
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 2, T 4N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 19, 1995
5. Tested? No
6. Site Size and Depth: 20 m NS by 45 m EW by 40 cm deep
7. Site Content: Clear thick plate glass, clear glass vessel fragments, amber glass vessel fragments, milk glass canning jar lid liner, concrete, mortar, coal, nails, unidentified metal fragments, wire fragments, stoneware fragments, brick, and three features: a circular brick-lined cistern, a dressed limestone-lined well box, and a square concrete box (septic tank?)
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Marshy wooded uplands
10. SCS soil series classification: Cobbsfork silt loam
11. Site Function: Historic farmstead
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je389

1. Site Number: Temporary Field Number: JPG-GMI-A10
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 2, T 4N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 25, 1995
5. Tested? No
6. Site Size and Depth: 85 m NS by 55 m EW by 20 cm deep
7. Site Content: Metal fragments, brick fragments, mortar fragments, calcined bone, nail, clear glass fragment, four well features (one lined with concrete, one lined with limestone, one lined with limestone and brick, and one lined with metal), and a subsurface foundation feature
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Marshy wooded uplands
10. SCS soil series classification: Cobbsfork silt loam
11. Site Function: Historic farmstead
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je390

1. Site Number: Temporary Field Number: JPG-GMI-A11
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 3, T 4N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 31, 1995
5. Tested? No
6. Site Size and Depth: 7 m in diameter by 20 cm deep
7. Site Content: Clear bottles and bottle glass, stoneware vessel fragments, hogwire, 55 gallon drum, firebrick, galvanized steel vessels, building tile, metal chain, aluminum pot, fragments of a porcelain toilet base
8. Contextual Integrity: Poor; extensive disturbance (in secondary context in any case)
9. Environmental Context: Marshy wooded uplands
10. SCS soil series classification: Cobbsfork silt loam
11. Site Function: Historic trash dump
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je391

1. Site Number: Temporary Field Number: JPG-GMI-A12
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 2, T 4N, R 10E
3. Period of Site: Early to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 31, 1995
5. Tested? No
6. Site Size and Depth: 10 m in diameter; surface only
7. Site Content: Two pre-WWII automobile bodies, one apparently belonging to a truck; one old water heater
8. Contextual Integrity: Good; minimal disturbance
9. Environmental Context: Marshy wooded uplands
10. SCS soil series classification: Cobbsfork silt loam
11. Site Function: Historic trash dump
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington; records only (no artifacts collected)
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je392

1. Site Number: Temporary Field Number: JPG-GMI-A13
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 4, T 4N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 31, 1995
5. Tested? No
6. Site Size and Depth: 65 m NS by 62 m EW by 20 cm deep
7. Site Content: Brick fragments, ironstone fragments, wire nails, a slate fragment, clear window glass, fragment of a chandelier, building tile fragments, metal fragments, redware ceramic fragment, and two features, including a limestone-lined well and limestone footing or foundation
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Marshy wooded uplands
10. SCS soil series classification: Cobbsfork silt loam
11. Site Function: Historic farmstead (?)
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je393

1. Site Number: Temporary Field Number: JPG-GMI-A14
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 4, T 4N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 7, 1995
5. Tested? No
6. Site Size and Depth: 105 m NS by 55 m EW by 20 cm deep
7. Site Content: Brick fragments, drain tile, stoneware sherd, wire nails, mussel shell, and ten features, including seven concrete foundations (one partially subsurface), one rubble pile, a concrete windmill base with a well-head, and a concrete-lined well box
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Marshy, grassy uplands
10. SCS soil series classification: Cobbsfork silt loam
11. Site Function: Historic farmstead
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je394

1. Site Number: Temporary Field Number: JPG-GMI-A15
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 3, T 4N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 12, 1995
5. Tested? No
6. Site Size and Depth: 30 m NS by 10 m EW by 20 cm deep
7. Site Content: Window glass, machine-cut nail, stoneware, plain whiteware, decorated whiteware, unidentified metal fragment
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Marshy wooded uplands
10. SCS soil series classification: Avonburg silt loam, 2-4 percent slopes, eroded
11. Site Function: Historic unknown (probably dozer mound or dump)
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je395

1. Site Number: Temporary Field Number: JPG-GMI-A16
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 3, T 4N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 12, 1995
5. Tested? No
6. Site Size and Depth: 20 m NS by 15 m EW by 20 cm deep
7. Site Content: Wire nails, whiteware, canning jar lid liner, canning jar top and base, aqua glass fragments, other clear glass, and stoneware (mostly in an artificial drainage); also, several limestone blocks
8. Contextual Integrity: Poor; destroyed by development
9. Environmental Context: Marshy wooded uplands
10. SCS soil series classification: Rossmoyne silt loam, 2-6 percent slopes, eroded
11. Site Function: Historic farmstead
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je396

1. Site Number: Temporary Field Number: JPG-GMI-A17
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 3, T 4N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 13, 1995
5. Tested? No
6. Site Size and Depth: Rough estimate based on observation, 50-60 m NS by 80-100 m EW; depth unknown
7. Site Content: Limestone-lined cellar hole with two stone entrance stairs; brick and mortar well box with two 1.5-in steel or iron pipe casings; possible chimney fall.
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Marshy wooded uplands; within old mine testing area.
10. SCS soil series classification: Rossmoyne silt loam, 2-6 percent slopes, eroded
11. Site Function: Historic farmstead
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Unknown
15. Recommendations: Preservation through avoidance

12Je397

1. Site Number: Temporary Field Number: JPG-GMI-A18
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 3, T 4N, R 10E
3. Period of Site: Late 19th to Mid 20th Century; unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; June 16, 1995
5. Tested? No
6. Site Size and Depth: 40 m NS by 20 m EW by 40 cm deep
7. Site Content: Nails, whiteware, brick, historic well: chert flakes, chert shatter, one possible chert scraper
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Wooded first terrace above creek
10. SCS soil series classification: Cincinnati silt loam, 6-12 percent slopes, severely eroded
11. Site Function: Historic well; possible short-term prehistoric campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je398

1. Site Number: Temporary Field Number: JPG-GMI-A19
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 34, T 4N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 20, 1995
5. Tested? No
6. Site Size and Depth: 40 m NS by 70 m EW by 20 cm deep
7. Site Content: Nails, window glass, bottle glass, stoneware, whiteware, porcelain, bone (possibly pig), brick, metal sign, amber apothecary bottle, redware ceramic disk (unglazed), and four features: a semi-intact limestone-lined cellar hole, a well cap and pipe, the dispersed remains of a brick and stone structure, and a refuse-filled hole, possibly from a privy, outhouse, or well.
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Wooded first terrace above creek
10. SCS soil series classification: Rossmoyne silt loam, 2-6 percent slopes, eroded
11. Site Function: Historic farmstead
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Unknown
15. Recommendations: Preservation through avoidance

12Je399

1. Site Number: Temporary Field Number: JPG-GMI-B1
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 31, T 5N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; May 4, 1995
5. Tested? No
6. Site Size and Depth: 8 m NS by 5 m EW by 60 cm deep
7. Site Content: Seven chert flakes, charcoal
8. Contextual Integrity: Good; minimal disturbance
9. Environmental Context: Small rise in flat, wooded, marshy area
10. SCS soil series classification: Cobbsfork silt loam
11. Site Function: Possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je400

1. Site Number: Temporary Field Number: JPG-GMI-B2
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 31, T 5N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 8, 1995
5. Tested? No
6. Site Size and Depth: 15 m NS by 12 m EW by 20 cm deep
7. Site Content: Dispersed limestone block foundation, wire protruding from trees, burned bricks, window glass, small metal bucket, top of a stoneware five-gallon milk container, medicine bottle
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Small wooded rise next to drainage
10. SCS soil series classification: Avonburg silt loam, 2-4 percent slopes, eroded
11. Site Function: Historic rural residence/feeding station
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je401

1. Site Number: Temporary Field Number: JPG-GMI-B3
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 31, T 5N, R 10E
3. Period of Site: Late 19th to Early 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 10, 1995
5. Tested? No
6. Site Size and Depth: 43 m NS by 34 m EW by 20 cm deep
7. Site Content: Metal wash basin (crushed), brick fragments, metal bar, stoneware fragments, glass fragments (clear and purple), square nails and nail fragments, unidentified metal fragments, >25 piles of undressed stone in linear arrangements (probably piers for a pole barn), a subsurface charcoal stain, and a circular feature consisting of dressed and undressed limestone blocks (possibly capping a well or privy)
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Flat, marshy woodlands
10. SCS soil series classification: Avonburg silt loam, 2-4 percent slopes, eroded
11. Site Function: Historic farmstead, possibly related to sites A3 and B2
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Unknown
15. Recommendations: Preservation through avoidance

12Je402

1. Site Number: Temporary Field Number: JPG-GMI-B5
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric, 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 12, 1995
5. Tested? No
6. Site Size and Depth: 50 m NS by 32 m EW by 20 cm deep
7. Site Content: One glass fragment, one chert flake, one bone fragment, charcoal
8. Contextual Integrity: Poor; extensive disturbance by nearby development
9. Environmental Context: Open, grassy, marshy field
10. SCS soil series classification: Avonburg silt loam, 2-4 percent slopes, eroded; Rossmoyne silt loam, 2-6 percent slopes, eroded
11. Site Function: Possible short-term campsite; construction debris
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je403

1. Site Number: Temporary Field Number: JPG-GMI-B6
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; May 15, 1995
5. Tested? No
6. Site Size and Depth: 10 m NS by 5 m EW by 20 cm deep
7. Site Content: Five chert flakes
8. Contextual Integrity: Good; minimal disturbance
9. Environmental Context: Open, grassy, marshy field with secondary growth
10. SCS soil series classification: Rossmoyne silt loam, 2-6 percent slopes, eroded
11. Site Function: Possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je404

1. Site Number: Temporary Field Number: JPG-GMI-B7
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric, Late 19th to Early 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 18, 1995
5. Tested? No
6. Site Size and Depth: 60 m NS by 182 m EW by > 60 cm deep
7. Site Content: Apparent leather (aboriginal?), purple glass, two bifaces, one core, one core fragment, one shatter fragment, and 29 flakes
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Wooded, flat first terrace on confluence between two branches of Harbert's Creek
10. SCS soil series classification: Holton loam, occasionally flooded
11. Site Function: Lithic procurement and reduction area; possible short-term campsite; historic dumping area
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Unknown
15. Recommendations: Preservation through avoidance

12Je405

1. Site Number: Temporary Field Number: JPG-GMI-B8
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; May 18, 1995
5. Tested? No
6. Site Size and Depth: 0.3 m NS by 0.3 m EW by 20 cm deep
7. Site Content: One chert flake
8. Contextual Integrity: Good; minimal disturbance
9. Environmental Context: Flat, grassy upland north of the confluence of Harbert's Creek and a major tributary
10. SCS soil series classification: Holton loam, occasionally flooded
11. Site Function: Isolated prehistoric lithic find
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je406

1. Site Number: Temporary Field Number: JPG-GMI-B9
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; May 18, 1995
5. Tested? No
6. Site Size and Depth: 0.3 m NS by 0.3 m EW by 20 cm deep
7. Site Content: Two chert flakes
8. Contextual Integrity: Good; minimal disturbance
9. Environmental Context: Flat, grassy upland
10. SCS soil series classification: Holton loam, occasionally flooded
11. Site Function: Isolated prehistoric lithic find
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je407

1. Site Number: Temporary Field Number: JPG-GMI-B10
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric; 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 19, 1995
5. Tested? No
6. Site Size and Depth: 50 m NS by 15 m EW by 40 cm deep
7. Site Content: One chert biface, four chert flakes, one nail, charcoal
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Flat, grassy upland
10. SCS soil series classification: Holton loam, occasionally flooded
11. Site Function: Possible short-term campsite with historic construction debris
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je408

1. Site Number: Temporary Field Number: JPG-GMI-B11
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; May 19, 1995
5. Tested? No
6. Site Size and Depth: 0.3 m NS by 0.3 m EW; surface only
7. Site Content: One chert flake
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Flat, grassy terrace on the interfluvium between two branches of Harbert's Creek
10. SCS soil series classification: Holton loam, occasionally flooded
11. Site Function: Isolated prehistoric lithic find
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je409

1. Site Number: Temporary Field Number: JPG-GMI-B13
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; May 19, 1995
5. Tested? No
6. Site Size and Depth: 50 m NW-SE by 50 m NE-SW by 20 cm deep
7. Site Content: Chert projectile point base, 2 chert flakes
8. Contextual Integrity: Good; minimal disturbance
9. Environmental Context: Flat, grassy upland on the interfluvium between two branches of Harbert's Creek
10. SCS soil series classification: Holton loam, occasionally flooded
11. Site Function: Possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je410

1. Site Number: Temporary Field Number: JPG-GMI-B14
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; May 19, 1995
5. Tested? No
6. Site Size and Depth: 20 m NS by 25 m EW by 20 cm deep
7. Site Content: Seven chert flakes, one chert shatter
8. Contextual Integrity: Good; minimal disturbance
9. Environmental Context: Flat, grassy upland on the interfluvium between two branches of Harbert's Creek
10. SCS soil series classification: Rossmoyne silt loam, 2-6 percent slopes, eroded
11. Site Function: Possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je411

1. Site Number: Temporary Field Number: JPG-GMI-B15
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; May 22, 1995
5. Tested? No
6. Site Size and Depth: 54 m NW-SE by 72 m NE-SW by 20 cm deep
7. Site Content: 15-20 chert flakes
8. Contextual Integrity: Poor; extensive disturbance by borrow pit
9. Environmental Context: Flat, wooded terrace south of the confluence of two branches of Harbert's Creek
10. SCS soil series classification: Cincinnati silt loam, 2-6 percent slopes, eroded
11. Site Function: Possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je412

1. Site Number: Temporary Field Number: JPG-GMI-B16
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; May 23, 1995
5. Tested? No
6. Site Size and Depth: 0.3 m NS by 0.3 m EW by 20 cm deep
7. Site Content: One flake
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Flat, wooded terrace above Harbert's Creek
10. SCS soil series classification: Holton loam, occasionally flooded
11. Site Function: Isolated prehistoric lithic find
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je413

1. Site Number: Temporary Field Number: JPG-GMI-B17
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Late 19th to Early 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 23, 1995
5. Tested? No
6. Site Size and Depth: 88 m NS by 88 m EW by 60 cm deep
7. Site Content: Handmade bricks and brick fragments, mortar, coal, square nails, window glass, bottle glass (green, clear, and iridescent), crockery, stoneware, whiteware, vehicle gas tank (possibly modern), finely-worked prehistoric biface from nearby drainage (secondary context)
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Wooded hilltop above a major tributary of Harbert's Creek
10. SCS soil series classification: Rossmoyne silt loam, 2-6 percent slopes, eroded
11. Site Function: Late 19th to Early 20th Century historic farmstead or rural residence; prehistoric artifact in secondary context
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je414

1. Site Number: Temporary Field Number: JPG-GMI-B18
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; May 23, 1995
5. Tested? No
6. Site Size and Depth: 18 m NS by 13 m EW by 20 cm deep
7. Site Content: Three flakes
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Flat, grassy upland above a branch of Harbert's Creek
10. SCS soil series classification: Holton loam, occasionally flooded
11. Site Function: Possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je415

1. Site Number: Temporary Field Number: JPG-GMI-B19
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric and 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 24, 1995
5. Tested? No
6. Site Size and Depth: 12 m NS by 4 m EW by 20 cm deep
7. Site Content: One flake, two glass fragments, charcoal
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Flat, grassy upland above a branch of Harbert's Creek
10. SCS soil series classification: Holton loam, occasionally flooded
11. Site Function: Isolated finds
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je416

1. Site Number: Temporary Field Number: JPG-GMI-B20
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; May 24, 1995
5. Tested? No
6. Site Size and Depth: 52 m NS by 60 m EW by 20 cm deep
7. Site Content: Eleven unmodified chert flake, one utilized chert flake, four chert shatter
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Flat, grassy upland above a branch of Harbert's Creek
10. SCS soil series classification: Avonburg silt loam, 0-2 percent slopes
11. Site Function: Possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je417

1. Site Number: Temporary Field Number: JPG-GMI-B21
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric, one historic artifact
4. Date and Original Recorder: Geo-Marine, Inc.; May 25, 1995
5. Tested? No
6. Site Size and Depth: 40 m NS by 60 m EW by 60 cm deep
7. Site Content: One historic glass fragment, two chert cores, one crude chert biface, one utilized chert flake, and 43 chert flakes
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Flat, grassy upland above a branch of Harbert's Creek
10. SCS soil series classification: Avonburg silt loam, 0-2 percent slopes
11. Site Function: Short-term campsite or lithic procurement and reduction area
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Unknown
15. Recommendations: Preservation through avoidance

12Je418

1. Site Number: Temporary Field Number: JPG-GMI-B22
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown Prehistoric, Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 26, 1995
5. Tested? No
6. Site Size and Depth: 55 m NS by 37 m EW by 40 cm deep
7. Site Content: Brick fragments, metal spikes, unidentified metal objects, square nails, window glass, bottle glass (green and clear), whiteware, transferware, a ceramic and metal furniture foot/wheel, seven chert flakes, and a well feature
8. Contextual Integrity: Good; minimal disturbance
9. Environmental Context: Wooded terrace above a minor tributary of Harbert's Creek
10. SCS soil series classification: Holton loam, occasionally flooded
11. Site Function: Possible short-term prehistoric campsite; Late 19th to Mid 20th Century historic farmstead or rural residence
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Unknown
15. Recommendations: Preservation through avoidance

12Je419

1. Site Number: Temporary Field Number: JPG-GMI-B23
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; May 26, 1995
5. Tested? No
6. Site Size and Depth: 65 m NS by 18 m EW by 20 cm deep
7. Site Content: Five chert flakes, two chert shatter
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Flat, grassy upland above a branch of Harbert's Creek
10. SCS soil series classification: Avonburg silt loam, 2-4 percent slopes, eroded
11. Site Function: Possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je420

1. Site Number: Temporary Field Number: JPG-GMI-B24
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; May 27, 1995
5. Tested? No
6. Site Size and Depth: 25 m NS by 35 m EW by 20 cm deep
7. Site Content: Six chert flakes, three glass fragments
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Flat, grassy upland above a branch of Harbert's Creek
10. SCS soil series classification: Holton loam, occasionally flooded
11. Site Function: Possible short-term campsite, modern military dump
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je421

1. Site Number: Temporary Field Number: JPG-GMI-B25
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; May 31, 1995
5. Tested? No
6. Site Size and Depth: 3 m NS by 30 m EW by 20 cm deep
7. Site Content: Two chert flakes
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Flat, grassy upland above a branch of Harbert's Creek
10. SCS soil series classification: Avonburg silt loam, 0-2 percent slopes
11. Site Function: Possible short-term campsite, modern-military dump
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je422

1. Site Number: Temporary Field Number: JPG-GMI-B26
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; May 31, 1995
5. Tested? No
6. Site Size and Depth: 0.3 m NS by 0.3 m EW by 20 cm deep
7. Site Content: One chert flake
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Flat, grassy upland above a branch of Harbert's Creek
10. SCS soil series classification: Avonburg silt loam, 0-2 percent slopes
11. Site Function: Isolated prehistoric lithic find
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je423

1. Site Number: Temporary Field Number: JPG-GMI-B27
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 1, 1995
5. Tested? No
6. Site Size and Depth: 70 m NS by 54 m EW by 28 cm deep
7. Site Content: Brick fragments, bottle glass (clear and purple), nail, whiteware, stoneware, transferware, metal objects
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Semi-wooded upland area
10. SCS soil series classification: Holton loam, occasionally flooded
11. Site Function: Late 19th to Mid 20th Century historic farmstead or rural residence
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je424

1. Site Number: Temporary Field Number: JPG-GMI-B28
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 1, 1995
5. Tested? No
6. Site Size and Depth: 4 m NS by 15 m EW by 20 cm deep
7. Site Content: One brick fragment, one bone fragment
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Grassy upland area
10. SCS soil series classification: Rossmoyne silt loam, 2-6 percent slopes, eroded
11. Site Function: Late 19th to Mid 20th Century historic unknown
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je425

1. Site Number: Temporary Field Number: JPG-GMI-B29
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 2, 1995
5. Tested? No
6. Site Size and Depth: 0.3 m NS by 0.3 m EW by 5 cm deep
7. Site Content: One brick fragment
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Grassy upland area
10. SCS soil series classification: Rossmoyne silt loam, 2-6 percent slopes, eroded
11. Site Function: Late 19th to Mid 20th Century historic unknown
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je426

1. Site Number: Temporary Field Number: JPG-GMI-B30
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; June 2, 1995
5. Tested? No
6. Site Size and Depth: 80 m NS by 10 m EW by 20 cm deep
7. Site Content: Five chert flakes, two chert shatter fragment
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Wooded terrace above a tributary of Harbert's Creek
10. SCS soil series classification: Avonburg silt loam, 2-4 percent slopes, eroded
11. Site Function: Possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je427

1. Site Number: Temporary Field Number: JPG-GMI-B31
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 34, T 5N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 5, 1995
5. Tested? No
6. Site Size and Depth: 80 m NS by 95 m EW by 28 cm deep
7. Site Content: Barrel hoops, one heavy gauge wire object, porcelain, whiteware, earthenware, bottle glass (brown, green, and clear), window glass, iron hinge, sheet nails, handmade bricks, metal bucket, coal, non-human tooth, and three features: a well, and the dispersed remains of two structures
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Marshy, wooded upland area
10. SCS soil series classification: Avonburg silt loam, 2-4 percent slopes, eroded
11. Site Function: Late 19th to Mid 20th Century historic farmstead or rural residence, possibly short-term prehistoric campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je428

1. Site Number: Temporary Field Number: JPG-GMI-B32
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 4, T 4N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 6, 1995
5. Tested? No
6. Site Size and Depth: 35 m NS by 100 m EW by 35 cm deep
7. Site Content: Bricks (whole and fragmented), bottle glass (clear, brown, and iridescent), whiteware, metal objects, coal, and two features: a concrete wall remnant, and a well
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Wooded upland area
10. SCS soil series classification: Rossmoyne silt loam, 2-6 percent slopes, eroded
11. Site Function: Late 19th to Mid 20th Century historic farmstead or rural residence (purported original location of the historic Bayless Cemetery)
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je429

1. Site Number: Temporary Field Number: JPG-GMI-B33
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 4, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; June 6, 1995
5. Tested? No
6. Site Size and Depth: 0.3 m NS by 0.3 m EW by 20 cm deep
7. Site Content: One chert flake
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Flat, grassy upland
10. SCS soil series classification: Avonburg silt loam, 0-2 percent slopes
11. Site Function: Isolated prehistoric lithic find
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je430

1. Site Number: Temporary Field Number: JPG-GMI-B34
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 4, T 4N, R 10E
3. Period of Site: Late 19th to Late 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 7, 1995
5. Tested? No
6. Site Size and Depth: 0.3 m NS by 0.3 m EW by 20 cm deep
7. Site Content: One whiteware fragment
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Flat, grassy upland
10. SCS soil series classification: Avonburg silt loam, 0-2 percent slopes
11. Site Function: Isolated historic find
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je431

1. Site Number: Temporary Field Number: JPG-GMI-B34
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 4, T 4N, R 10E
3. Period of Site: Late 19th to Late 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 7, 1995
5. Tested? No
6. Site Size and Depth: 0.3 m NS by 0.3 m EW by 20 cm deep
7. Site Content: Four corroded metal objects
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Marshy wooded upland
10. SCS soil series classification: Rossmoyne silt loam, 2-6 percent slopes, eroded
11. Site Function: Isolated historic find
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je432

1. Site Number: Temporary Field Number: JPG-GMI-B36
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 4, T 4N, R 10E
3. Period of Site: Late 19th to Late 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 8, 1995
5. Tested? No
6. Site Size and Depth: 3 m NS by 13 m EW by 20 cm deep
7. Site Content: One nail, one salt-glazed ceramic fragment
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Marshy wooded upland
10. SCS soil series classification: Avonburg silt loam, 0-2 percent slopes
11. Site Function: Historic trash scatter
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je433

1. Site Number: Temporary Field Number: JPG-GMI-B38
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 4, T 4N, R 10E
3. Period of Site: Late 19th to Late 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 8, 1995
5. Tested? No
6. Site Size and Depth: 20 m NS by 10 m EW by 20 cm deep
7. Site Content: Porcelain, whiteware, and transferware fragments
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Marshy wooded upland
10. SCS soil series classification: Rossmoyne silt loam, 2-6 percent slopes, eroded
11. Site Function: Historic trash scatter
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je434

1. Site Number: Temporary Field Number: JPG-GMI-B39
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 4, T 4N, R 10E
3. Period of Site: Late 19th to Late 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 9, 1995
5. Tested? No
6. Site Size and Depth: 5 m NS by 8 m EW by 20 cm deep
7. Site Content: Two rolls of old hogwire and one terra-cotta drain pipe fragment
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Marshy wooded upland
10. SCS soil series classification: Rossmoyne silt loam, 2-6 percent slopes, eroded
11. Site Function: Historic trash scatter
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je435

1. Site Number: Temporary Field Number: JPG-GMI-B40
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 4, T 4N, R 10E
3. Period of Site: Late 19th to Late 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 12, 1995
5. Tested? No
6. Site Size and Depth: 0.3 m NS by 0.3 m EW by 20 cm deep
7. Site Content: One brownware ceramic fragment
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Flat, wooded upland
10. SCS soil series classification: Rossmoyne silt loam, 2-6 percent slopes, eroded
11. Site Function: Isolated historic find
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je436

1. Site Number: Temporary Field Number: JPG-GMI-B41
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 4, T 4N, R 10E
3. Period of Site: Late 19th to Late 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 12, 1995
5. Tested? No
6. Site Size and Depth: 0.3 m NS by 0.3 m EW by 20 cm deep
7. Site Content: One salt-glaze stoneware fragment
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Flat, wooded upland
10. SCS soil series classification: Rossmoyne silt loam, 2-6 percent slopes, eroded
11. Site Function: Isolated historic find
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je437

1. Site Number: Temporary Field Number: JPG-GMI-B43
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 33, T 5N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; June 13, 1995
5. Tested? No
6. Site Size and Depth: 15 m NS by 5 m EW by 20 cm deep
7. Site Content: Two chert flakes
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Grassy upland
10. SCS soil series classification: Avonburg silt loam, 0-2 percent slopes
11. Site Function: Possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je438

1. Site Number: Temporary Field Number: JPG-GMI-B44
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 33, T 5N, R 10E
3. Period of Site: Unknown Prehistoric, Late 19th to Late 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 14, 1995
5. Tested? No
6. Site Size and Depth: 10 m NS by 5 m EW by 20 cm deep
7. Site Content: Metal fragments
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Wooded terrace above a minor tributary of Harbert's Creek
10. SCS soil series classification: Avonburg silt loam, 0-2 percent slopes
11. Site Function: Unknown prehistoric, historic artifact scatter
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je439

1. Site Number: Temporary Field Number: JPG-GMI-B45
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 33, T 5N, R 10E
3. Period of Site: Unknown Prehistoric, Late 19th to Late 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 14, 1995
5. Tested? No
6. Site Size and Depth: 20 m NW-SE by 5 m SW-NE by 20 cm deep
7. Site Content: One chert flake and one nail
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Wooded terrace above a minor tributary of Harbert's Creek
10. SCS soil series classification: Avonburg silt loam, 2-4 percent slopes, eroded
11. Site Function: Unknown prehistoric, historic artifact scatter
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je440

1. Site Number: Temporary Field Number: JPG-GMI-B46
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 33, T 5N, R 10E
3. Period of Site: Unknown Prehistoric, Late 19th to Late 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 14, 1995
5. Tested? No
6. Site Size and Depth: 35 m NS by 38 m EW by 20 cm deep
7. Site Content: Two flakes, 2 metal fragments, one whiteware fragment
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Grassy upland
10. SCS soil series classification: Avonburg silt loam, 2-4 percent slopes, eroded
11. Site Function: Unknown prehistoric, historic artifact scatter
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je441

1. Site Number: Temporary Field Number: JPG-GMI-B48
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 33, T 5N, R 10E
3. Period of Site: Late 19th to Late 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 15, 1995
5. Tested? No
6. Site Size and Depth: 0.3 m NS by 0.3 m EW by 20 cm deep
7. Site Content: Three metal fragments
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Flat grassy upland
10. SCS soil series classification: Rossmoyne silt loam, 2-6 percent slopes, eroded
11. Site Function: Isolated historic find
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je442

1. Site Number: Temporary Field Number: JPG-GMI-B48
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 33, T 5N, R 10E
3. Period of Site: Late 19th to Late 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 16, 1995
5. Tested? No
6. Site Size and Depth: 0.3 m NS by 0.3 m EW by 20 cm deep
7. Site Content: Nail
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Flat grassy upland
10. SCS soil series classification: Avonburg silt loam, 2-6 percent slopes, eroded
11. Site Function: Isolated historic find
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je443

1. Site Number: Temporary Field Number: JPG-GMI-B49
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 33, T 5N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; June 19, 1995
5. Tested? No
6. Site Size and Depth: 0.3 m NS by 0.3 m EW by 20 cm deep
7. Site Content: One retouched chert flake
8. Contextual Integrity: Good; minimal disturbance
9. Environmental Context: Wooded terrace above tributary of Harbert's Creek
10. SCS soil series classification: Rossmoyne silt loam, 2-6 percent slopes, eroded
11. Site Function: Isolated prehistoric lithic find
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je444

1. Site Number: Temporary Field Number: JPG-GMI-B50
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 33, T 5N, R 10E
3. Period of Site: Late 19th to Late 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 19, 1995
5. Tested? No
6. Site Size and Depth: 25 m NS by 25 m EW by 20 cm deep
7. Site Content: One glass fragment, whiteware fragment, possible pearlware fragment
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Marshy wooded upland
10. SCS soil series classification: Rossmoyne silt loam, 2-6 percent slopes, eroded
11. Site Function: Historic trash scatter
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je445

1. Site Number: Temporary Field Number: JPG-GMI-B51
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 33, T 5N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 20, 1995
5. Tested? No
6. Site Size and Depth: 48 m NS by 100 m EW by 20 cm deep
7. Site Content: Unidentified metal fragments, a metal spike, a possible piece of farm machinery or vehicle leafspring, brick, stoneware, whiteware, transferware, window glass, a 1937 Red Rock Cola bottle, and four features: One limestone-lined well, one concrete-lined well, a dispersed concrete block house foundation, and a partial limestone block/concrete foundation
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Marshy, wooded upland area
10. SCS soil series classification: Holton loam, occasionally flooded
11. Site Function: Late 19th to Mid 20th Century historic farmstead or rural residence
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je446

1. Site Number: Temporary Field Number: JPG-GMI-C1
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 32, T 5N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; May 3, 1995
5. Tested? No
6. Site Size and Depth: 5 m NS by 10 m EW by 20 cm deep
7. Site Content: Two chert flakes
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Grassy wetland
10. SCS soil series classification: Avonburg silt loam, 2-4 percent slopes, eroded
11. Site Function: Unknown; possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je447

1. Site Number: Temporary Field Number: JPG-GMI-C2
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 32, T 5N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; May 3, 1995
5. Tested? No
6. Site Size and Depth: 0.3 m NS by 0.3 m EW by 20 cm deep
7. Site Content: One chert flake
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Grassy upland
10. SCS soil series classification: Avonburg silt loam, 0-2 percent slopes
11. Site Function: Isolated prehistoric lithic find
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je448

1. Site Number: Temporary Field Number: JPG-GMI-C3
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 32, T 5N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; May 4, 1995
5. Tested? No
6. Site Size and Depth: 10 m NS by 5 m EW by 20 cm deep
7. Site Content: One chert flake, one fire-cracked rock fragment
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Grassy wetland
10. SCS soil series classification: Avonburg silt loam, 2-4 percent slopes, eroded
11. Site Function: Unknown; possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je449

1. Site Number: Temporary Field Number: JPG-GMI-C4
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 32, T 5N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 4, 1995
5. Tested? No
6. Site Size and Depth: 44 m NS by 22 m EW by 20 cm deep
7. Site Content: Twelve whiteware fragments, three wire nails, three window glass fragments, and two brick fragments
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Grassy wetland
10. SCS soil series classification: Avonburg silt loam, 2-4 percent slopes, eroded
11. Site Function: Historic farmstead or rural residence
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je450

1. Site Number: Temporary Field Number: JPG-GMI-C5
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 33, T 5N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 5, 1995
5. Tested? No
6. Site Size and Depth: 8 m NS by 12 m EW by 60 cm deep
7. Site Content: Clear window glass, asbestos, PVC plastic tubing (modern), a large quantity of rusted metal, and one feature: a small concrete foundation slab
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Grassy upland
10. SCS soil series classification: Avonburg silt loam, 2-4 percent slopes, eroded
11. Site Function: Harlow's General Store, a mercantile business
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je451

1. Site Number: Temporary Field Number: JPG-GMI-C6
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 8, 1995
5. Tested? No
6. Site Size and Depth: 50 m NS by 45 m EW by 20 cm deep
7. Site Content: Wire nail, unidentified metal fragments, hogwire, bottle glass (milk, aqua, manganese and clear), canning jar fragments, plaster, building tiles, bricks (whole and fragmentary) and three features: two concrete building foundations, and a dressed limestone well
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Marshy, wooded upland area
10. SCS soil series classification: Avonburg silt loam, 0-2 percent slopes
11. Site Function: Late 19th to Mid 20th Century historic farmstead or rural residence
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je452

1. Site Number: Temporary Field Number: JPG-GMI-C7
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Early to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 9, 1995
5. Tested? No
6. Site Size and Depth: 13 m NS by 11 m EW by 60 cm deep
7. Site Content: Plastic (modern), glass (window and bottle), unidentified metal fragments, wire, whiteware
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Marshy wooded upland
10. SCS soil series classification: Avonburg silt loam, 0-2 percent slopes
11. Site Function: Historic trash dump, with some modern components
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je453

1. Site Number: Temporary Field Number: JPG-GMI-C8
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 11, 1995
5. Tested? No
6. Site Size and Depth: 10 m NS by 6 m EW by 20 cm deep
7. Site Content: 20 wire nails, one sheet metal fragment, and one ceramic light bulb socket
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Marshy wooded upland
10. SCS soil series classification: Avonburg silt loam, 0-2 percent slopes
11. Site Function: Historic trash scatter
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je454

1. Site Number: Temporary Field Number: JPG-GMI-C9
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 9, 1995
5. Tested? No
6. Site Size and Depth: 14 m NS by 8 m EW by 60 cm deep
7. Site Content: Iron hook and bracing, buggy kerosene lamp frame, galvanized steel bucket and washtubs, hogwire, graniteware vessels, stoneware fragments, whiteware fragments, and aqua glass
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Marshy wooded upland
10. SCS soil series classification: Avonburg silt loam, 0-2 percent slopes
11. Site Function: Historic trash dump
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je455

1. Site Number: Temporary Field Number: JPG-GMI-C8
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 4, T 4N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 11, 1995
5. Tested? No
6. Site Size and Depth: 35 m NS by 46 m EW by 20 cm deep
7. Site Content: Dozer piles of thick chunks of concrete rubble, milk glass, aqua glass, window glass, brick fragments, crockery, whiteware, one 1916 U.S. "wheat" penny
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Marshy wooded upland
10. SCS soil series classification: Avonburg silt loam, 0-2 percent slopes
11. Site Function: Historic trash scatter
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je456

1. Site Number: Temporary Field Number: JPG-GMI-C11
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; May 16, 1995
5. Tested? No
6. Site Size and Depth: 81 m NS by 51 m EW by 20 cm deep
7. Site Content: One limestone shatter, 15 chert shatter, 25 chert flakes, one chert flake fragment, and one chert biface.
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Grassy upland
10. SCS soil series classification: Avonburg silt loam, 2-4 percent slopes, eroded; Holton loam, occasionally flooded
11. Site Function: Unknown; possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Unknown
15. Recommendations: Preservation through avoidance

12Je457

1. Site Number: Temporary Field Number: JPG-GMI-C12
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; May 16, 1995
5. Tested? No
6. Site Size and Depth: 10 m NS by 20 m EW by 40 cm deep
7. Site Content: Four chert flakes, one chert shatter
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Grassy terrace above Harbert's Creek
10. SCS soil series classification: Holton loam, occasionally flooded
11. Site Function: Unknown; possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je458

1. Site Number: Temporary Field Number: JPG-GMI-C13
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; May 17, 1995
5. Tested? No
6. Site Size and Depth: 50 m NS by 65 m EW by > 60 cm deep
7. Site Content: Four chert shatter, two chert cores, 51 chert flakes
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Grassy terrace above Harbert's Creek
10. SCS soil series classification: Avonburg silt loam, 0-2 percent slopes, eroded; Cincinnati silt loam, 2-6 percent slopes, eroded
11. Site Function: Unknown; possible short-term campsite or lithic procurement and reduction area
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Unknown
15. Recommendations: Preservation through avoidance, particular to determine its relationship with nearby site B21 (i.e., are they the same large site?)

12Je459

1. Site Number: Temporary Field Number: JPG-GMI-C14
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric; Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 18, 1995
5. Tested? No
6. Site Size and Depth: 38 m NS by 40 m EW by 20 cm deep
7. Site Content: Three chert flakes, bricks (whole and fragmentary), mortar, concrete, unidentified metal fragments, clear bottle glass, window glass, and five features: two concrete slab foundations, two concrete pier and beam foundations, and a cistern or well.
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Semi-wooded upland area
10. SCS soil series classification: Avonburg silt loam, 0-2 percent slopes
11. Site Function: Late 19th to Mid 20th Century historic farmstead; may be part of a complex including site C28, on the south side of Incinerator Road
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je460

1. Site Number: Temporary Field Number: JPG-GMI-C15
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; May 22, 1995
5. Tested? No
6. Site Size and Depth: 30 m NS by 10 m EW by 20 cm deep
7. Site Content: Seven chert flakes, three chert shatter
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Grassy terrace above Harbert's Creek
10. SCS soil series classification: Rossmoyne silt loam, 2-6 percent slopes, eroded
11. Site Function: Unknown; possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je461

1. Site Number: Temporary Field Number: JPG-GMI-C16
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; May 22, 1995
5. Tested? No
6. Site Size and Depth: 10 m NS by 20 m EW by 20 cm deep
7. Site Content: Five chert flakes, one shatter
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Grassy terrace above Harbert's Creek
10. SCS soil series classification: Rossmoyne silt loam, 2-6 percent slopes, eroded
11. Site Function: Unknown; possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je462

1. Site Number: Temporary Field Number: JPG-GMI-C18
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 23, 1995
5. Tested? No
6. Site Size and Depth: 62 m NS by 105 m EW by 20 cm deep
7. Site Content: Metal fragments, wire nails, iron bolt, coal, glass (window and bottle), bricks (whole and fragmentary), terra cotta shingles/roofing tiles, ceramics (from both construction material and kitchenware), asbestos, possible roof tar, four chert flakes, and six features: a buried chimney fall, three concrete foundations, a highly disturbed concrete-lined well, and a concrete windmill base and wellhead
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Wooded second terrace above the main channel of Harbert's Creek
10. SCS soil series classification: Rossmoyne silt loam, 2-6 percent slopes, eroded
11. Site Function: Late 19th to Mid 20th Century historic farmstead, probably related to the adjacent Nicklaus Cannery
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je463

1. Site Number: Temporary Field Number: JPG-GMI-C19
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 24, 1995
5. Tested? No
6. Site Size and Depth: 38 m NS by 20 m EW by 20 cm deep
7. Site Content: Two pieces of wire, and extensive concrete foundation, ornamental flower concentrations, and a series of interconnected artificial depressions leading down to Harbert's Creek (possibly not related to site)
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Wooded, marshy first terrace above the main channel of Harbert's Creek
10. SCS soil series classification: Rossmoyne silt loam, 2-6 percent slopes, eroded
11. Site Function: Late 19th to Mid 20th Century commercial/industrial site, probably related to nearby site C18
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je464

1. Site Number: Temporary Field Number: JPG-GMI-C20
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 24, 1995
5. Tested? No
6. Site Size and Depth: 10 m NS by 57 m EW; surface only
7. Site Content: Large concrete pillar and six large piles of crushed concrete; possibly remnants of structure(s) or old bridge(s) over Harbert's Creek
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Wooded terrace above the main channel of Harbert's Creek
10. SCS soil series classification: Avonburg silt loam, 0-2 percent slopes
11. Site Function: Late 19th to Mid 20th Century historic construction materials dump (?)
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je465

1. Site Number: Temporary Field Number: JPG-GMI-C21
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 25, 1995
5. Tested? No
6. Site Size and Depth: 12 m NS by 13 m EW by 60 cm deep (within cellar)
7. Site Content: Window glass, ceramic shingles, fine-mesh window screen wire, soda bottles (fragmentary), wire nails, bricks (whole and fragmentary), modern plastic electrical conduit, and one large concrete-lined cellar hole
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Wooded second terrace above the main channel of Harbert's Creek
10. SCS soil series classification: Avonburg silt loam, 0-2 percent slopes
11. Site Function: Late 19th to Mid 20th Century historic rural residence
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je466

1. Site Number: Temporary Field Number: JPG-GMI-C22
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric; Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 25, 1995
5. Tested? No
6. Site Size and Depth: 80 m NS by 105 m EW by 20 cm deep
7. Site Content: Metal fragments, glass (window and bottle), whiteware fragments (including a teacup handle), wire nails, one marble, one glass bottle stopper, bricks (whole and fragmentary; possibly homemade); one prehistoric chert flake; and six features: a concrete barn foundation, a trash-filled depression, a concrete windmill base with wellhead and mechanical well pump, an earthen mound with limestone slabs scattered throughout, a linear row of five concrete blocks imbedded in the ground, and a large concrete slab with a 6-in water pipe extending from surface to subsurface
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Semi-wooded second terrace above the main channel of Harbert's Creek
10. SCS soil series classification: Avonburg silt loam, 0-2 percent slopes
11. Site Function: Late 19th to Mid 20th Century historic rural residence and farmstead
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je467

1. Site Number: Temporary Field Number: JPG-GMI-C23
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; May 26, 1995
5. Tested? No
6. Site Size and Depth: 4 m NS by 10 m EW by 20 cm deep
7. Site Content: Three chert flakes
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Grassy terrace above Harbert's Creek
10. SCS soil series classification: Avonburg silt loam, 0-2 percent slopes, eroded; Cincinnati silt loam, 2-6 percent slopes, eroded
11. Site Function: Unknown; possible short-term campsite or lithic procurement and reduction area
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je468

1. Site Number: Temporary Field Number: JPG-GMI-C24
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric; Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 29, 1995
5. Tested? No
6. Site Size and Depth: 2 m NS by 22 m EW by 20 cm deep
7. Site Content: Two chert flakes, one chert shatter fragment, screw-top glass vessels, graniteware cooking pots, tin cans, metal fragments, galvanized steel buckets and washubs
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Grassy terrace above Harbert's Creek
10. SCS soil series classification: Rossmoyne silt loam, 2-6 percent slopes, eroded
11. Site Function: Unknown; possible short-term prehistoric campsite, historic trash dump
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je469

1. Site Number: Temporary Field Number: JPG-GMI-C25
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; May 30, 1995
5. Tested? No
6. Site Size and Depth: 4 m NS by 20 m EW by 20 cm deep
7. Site Content: Three chert flakes and two chert shatter fragments
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Semi-wooded terrace above Harbert's Creek
10. SCS soil series classification: Avonburg silt loam, 2-4 percent slopes, eroded
11. Site Function: Unknown; possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je470

1. Site Number: Temporary Field Number: JPG-GMI-C26
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; May 30, 1995
5. Tested? No
6. Site Size and Depth: 25 m NS by 14 m EW by 60 cm deep
7. Site Content: Sixteen chert flakes, seven shatter fragments
8. Contextual Integrity: Excellent; apparently undisturbed
9. Environmental Context: Wooded terrace above Harbert's Creek
10. SCS soil series classification: Cincinnati silt loam, 6-12 percent slopes, severely eroded
11. Site Function: Unknown; possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Unknown
15. Recommendations: Preservation through avoidance

12Je471

1. Site Number: Temporary Field Number: JPG-GMI-C27
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; May 30, 1995
5. Tested? No
6. Site Size and Depth: 30 m NS by 18 m EW by 20 cm deep
7. Site Content: Twenty-five chert flakes, eight chert shatter fragments (one a heat spall), and one historic wire nail
8. Contextual Integrity: Good; minimal disturbance
9. Environmental Context: Wooded terrace above Harbert's Creek
10. SCS soil series classification: Cincinnati silt loam, 6-12 percent slopes, severely eroded
11. Site Function: Unknown; possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Unknown
15. Recommendations: Preservation through avoidance

12Je472

1. Site Number: Temporary Field Number: JPG-GMI-C29
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; May 31, 1995
5. Tested? No
6. Site Size and Depth: 30 m NS by 20 m EW by 20 cm deep
7. Site Content: Fourteen chert flakes and two shatter fragments
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Wooded terrace above Harbert's Creek
10. SCS soil series classification: Avonburg silt loam, 2-4 percent slopes, eroded
11. Site Function: Unknown; possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je473

1. Site Number: Temporary Field Number: JPG-GMI-C30
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 4, T 4N, R 10E
3. Period of Site: Unknown prehistoric; Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; May 31, 1995
5. Tested? No
6. Site Size and Depth: 30 m NS by 56 m EW by 20 cm deep
7. Site Content: Poor-quality concrete chunks, metal sheets, glass (window and bottle), rolls of used hogwire, barbed wire, and baling wire, ceramic fragments, solarized manganese glass, galvanized steel washtubs and buckets, pile of WW II mortar fragments, one chert bifacial preform, 18 chert flakes, and 6 chert shatter fragments
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Wooded terrace above Harbert's Creek
10. SCS soil series classification: Cincinnati silt loam, 6-12 percent slopes, severely eroded; Avonburg silt loam, 2-4 percent slopes, eroded
11. Site Function: Unknown; possible short-term prehistoric campsite, historic trash dump
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Unknown
15. Recommendations: Preservation of prehistoric component through avoidance

12Je474

1. Site Number: Temporary Field Number: JPG-GMI-C31
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 4, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; June 1, 1995
5. Tested? No
6. Site Size and Depth: 30 m NS by 4 m EW by 20 cm deep
7. Site Content: Two chert flakes
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Wooded terrace above Harbert's Creek
10. SCS soil series classification: Avonburg silt loam, 0-2 percent slopes
11. Site Function: Unknown; possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je475

1. Site Number: Temporary Field Number: JPG-GMI-C32
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 4, T 4N, R 10E
3. Period of Site: Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 1, 1995
5. Tested? No
6. Site Size and Depth: 30 m NS by 90 m EW by 20 cm deep
7. Site Content: Bricks (whole and fragmentary), wire nails, cut nails, nail fragments, metal fragments, unidentified ceramics
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Marshy wooded upland
10. SCS soil series classification: Avonburg silt loam, 0-2 percent slopes
11. Site Function: Historic artifact scatter
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je476

1. Site Number: Temporary Field Number: JPG-GMI-C33
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 4, T 4N, R 10E
3. Period of Site: Unknown prehistoric; Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 5, 1995
5. Tested? No
6. Site Size and Depth: 20 m NS by 40 m EW by 20 cm deep
7. Site Content: Brick fragments, glass (window and bottle), nails, ceramics, 17 chert flakes, and one biface
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Wooded terrace above Harbert's Creek
10. SCS soil series classification: Cincinnati silt loam, 6-12 percent slopes, severely eroded
11. Site Function: Unknown; possible short-term prehistoric campsite, historic trash dump
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je477

1. Site Number: Temporary Field Number: JPG-GMI-C34
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 4, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; June 5, 1995
5. Tested? No
6. Site Size and Depth: 10 m NS by 10 m EW by 20 cm deep
7. Site Content: Five chert flakes
8. Contextual Integrity: Good; minimal disturbance
9. Environmental Context: Wooded terrace above Harbert's Creek
10. SCS soil series classification: Cincinnati silt loam, 6-12 percent slopes, severely eroded
11. Site Function: Unknown; possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je478

1. Site Number: Temporary Field Number: JPG-GMI-C35
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 4, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; June 6, 1995
5. Tested? No
6. Site Size and Depth: 22 m NS by 42 m EW by 20 cm deep
7. Site Content: Twenty-seven chert flakes and twelve chert shatter fragments
8. Contextual Integrity: Good; minimal disturbance
9. Environmental Context: Wooded terrace above Harbert's Creek
10. SCS soil series classification: Cincinnati silt loam, 6-12 percent slopes, severely eroded
11. Site Function: Unknown; possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Unknown
15. Recommendations: Preservation through avoidance

12Je479

1. Site Number: Temporary Field Number: JPG-GMI-C36
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 4, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; June 7, 1995
5. Tested? No
6. Site Size and Depth: 5 m NS by 5 m EW by 20 cm deep
7. Site Content: Four chert flakes, three chert shatter fragments
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Wooded terrace above Harbert's Creek
10. SCS soil series classification: Cincinnati silt loam, 6-12 percent slopes, severely eroded
11. Site Function: Unknown; possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je480

1. Site Number: Temporary Field Number: JPG-GMI-C37
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 4, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; June 7, 1995
5. Tested? No
6. Site Size and Depth: 12 m NS by 7 m EW by 20 cm deep
7. Site Content: Twenty-four chert flakes, two chert shatter fragments, and one chert core fragment
8. Contextual Integrity: Good; minimal disturbance
9. Environmental Context: Wooded terrace above Harbert's Creek
10. SCS soil series classification: Cincinnati silt loam, 6-12 percent slopes, severely eroded
11. Site Function: Unknown; possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Unknown
15. Recommendations: Preservation through avoidance

12Je481

1. Site Number: Temporary Field Number: JPG-GMI-C38
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 4, T 4N, R 10E
3. Period of Site: Late 19th to Late 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 9, 1995
5. Tested? No
6. Site Size and Depth: 4 m NS by 15 m EW by 38 cm deep
7. Site Content: Four wire nails, >20 metal wire fragments
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Grassy upland
10. SCS soil series classification: Holton loam, occasionally flooded
11. Site Function: Historic artifact scatter
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je482

1. Site Number: Temporary Field Number: JPG-GMI-C39
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 5, T 4N, R 10E
3. Period of Site: Unknown prehistoric; Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 12, 1995
5. Tested? No
6. Site Size and Depth: 72 m NS by 84 m EW by 40 cm deep
7. Site Content: Assorted metal fragments, an iron ring imbedded in the ground near the datum, a metal bar (possibly from a buggy or wagon), glass (window and bottle), whiteware, transferware, terra-cotta flowerpot fragments, bricks (whole and fragmentary), coal, two chert shatter fragments, one chert utilized flake tool, and seven features: a chimney fall with two associated concrete piers and brick rubble; two concrete slab foundations; one large concrete pier and beam barn foundation; two concrete water troughs (one possibly including a well); and a cellar feature lined on the east and west sides with dressed and mortared limestone
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Semi-wooded area above a minor tributary of Harbert's Creek
10. SCS soil series classification: Avonburg silt loam, 0-2 percent slopes
11. Site Function: Possible short-term prehistoric campsite; Late 19th to Mid 20th Century historic farmstead
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Unknown
15. Recommendations: Preservation through avoidance

12Je483

1. Site Number: Temporary Field Number: JPG-GMI-C40
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 4, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; June 13, 1995
5. Tested? No
6. Site Size and Depth: 58 m NS by 58 m EW by 40 cm deep
7. Site Content: Seventeen chert flakes, one chert shatter, one core fragment, one copper button
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Wooded upland
10. SCS soil series classification: Avonburg silt loam, 0-2 percent slopes
11. Site Function: Unknown; possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je484

1. Site Number: Temporary Field Number: JPG-GMI-C41
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 4, T 4N, R 10E
3. Period of Site: Early to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 13, 1995
5. Tested? No
6. Site Size and Depth: 12 m NS by 4 m EW; surface only
7. Site Content: A partial early-mid century automobile body, and two rolls of used hogwire
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Wooded uplands
10. SCS soil series classification: Cincinnati silt loam, 6-12 percent slopes, severely eroded
11. Site Function: Historic trash dump
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington; records only (no artifacts collected)
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je485

1. Site Number: Temporary Field Number: JPG-GMI-C42
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 4, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; June 15, 1995
5. Tested? No
6. Site Size and Depth: 30 m NS by 20 m EW by 20 cm deep
7. Site Content: Five chert flakes, and six chert shatter fragments
8. Contextual Integrity: Fair; moderate disturbance
9. Environmental Context: Wooded upland
10. SCS soil series classification: Avonburg silt loam, 0-2 percent slopes
11. Site Function: Unknown; possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je486

1. Site Number: Temporary Field Number: JPG-GMI-C43
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 4, T 4N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; June 15, 1995
5. Tested? No
6. Site Size and Depth: 20 m NS by 4 m EW by 20 cm deep
7. Site Content: Two chert flakes, two chert shatter fragments
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Wooded upland
10. SCS soil series classification: Rossmoyne silt loam, 2-6 percent slopes, eroded
11. Site Function: Unknown; possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je487

1. Site Number: Temporary Field Number: JPG-GMI-C44
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 34, T 5N, R 10E
3. Period of Site: Unknown prehistoric
4. Date and Original Recorder: Geo-Marine, Inc.; June 20, 1995
5. Tested? No
6. Site Size and Depth: 4 m NS by 26 m EW by 40 cm deep
7. Site Content: Eight chert flakes, three shatter fragments
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Wooded terrace above branch of Harbert's Creek
10. SCS soil series classification: Avonburg silt loam, 2-4 percent slopes, eroded
11. Site Function: Unknown; possible short-term campsite
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je488

1. Site Number: Temporary Field Number: JPG-GMI-C45
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 34, T 5N, R 10E
3. Period of Site: Unknown prehistoric; Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 20, 1995
5. Tested? No
6. Site Size and Depth: 48 m NS by 62 m EW by 20 cm deep
7. Site Content: One chert flake, window glass, steel bolts, wire nails, and two concrete pier and beam/slab foundations
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Semi-wooded terrace above a branch of Harbert's Creek
10. SCS soil series classification: Avonburg silt loam, 0-2 percent slopes
11. Site Function: Isolated prehistoric lithic find; Late 19th to Mid 20th Century historic farmstead or rural residence
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

12Je489

1. Site Number: Temporary Field Number: JPG-GMI-C46
2. Location: USGS Quadrangle and UTM Coordinates: 7.5' Clifty Falls, IN 1964; Section 34, T 5N, R 10E
3. Period of Site: Unknown prehistoric; Late 19th to Mid 20th Century
4. Date and Original Recorder: Geo-Marine, Inc.; June 21, 1995
5. Tested? No
6. Site Size and Depth: 16 m NS by 11 m EW by 20 cm deep
7. Site Content: Square nail, unidentified rusted metal object, iron hinges, enamelware metal washbasin, handmade brick, and a stacked limestone slab foundation with concrete and limestone sections on the north and south walls, and a small concrete slab along the south wall
8. Contextual Integrity: Poor; extensive disturbance
9. Environmental Context: Wooded terrace above a branch of Harbert's Creek
10. SCS soil series classification: Rossmoyne silt loam, 2-6 percent slopes, eroded
11. Site Function: Late 19th to Mid 20th Century historic farmstead or rural residence
12. Projected Impacts: Sale and development of land
13. Curation of Materials: Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington
14. NRHP Eligibility: Not eligible
15. Recommendations: No further work

APPENDIX J

**SUMMARY OF BUILDINGS AND BRIDGES
JEFFERSON PROVING GROUND**

Buildings and Structures at Jefferson Proving Ground Constructed Before 1946

Bldg. No.	Present Name	Property Type	Area (in ft ²)	Year Built	<u>NRHP Eligibility</u>		<u>NR Status as Individual Structure</u>			Eligible as Part of District	In Proposed District
					Individual	District	Ineligible	Eligible	Total		
401	Oakdale School & Museum	4	722	c. 1869	Yes-Listed	No		1			
1	Family Housing	7	4,744	Pre-1941	No	No	1				
3	Family Housing	7	2,926	Pre-1941	No	No	1				
4	Family Housing	7	2,882	Pre-1941	No	No	1				
7	Family Housing	7	3,604	Pre-1941	No	No	1				
8	Family Housing	7	2,910	Pre-1941	No	No	1				
11	Family Housing	7	2,308	Pre-1941	No	No	1				
12	Family Housing	7	3,282	Pre-1941	No	No	1				
15	Family Housing	7	3,202	Pre-1941	No	No	1				
16	Family Housing	7	2,489	Pre-1941	No	No	1				
17	Family Housing	7	2,647	Pre-1941	No	No	1				
20	Family Housing	7	3,142	Pre-1941	No	No	1				
21	Family Housing	7	2,304	Pre-1941	No	No	1				
23	Family Housing	7	3,369	Pre-1941	No	No	1				
485	Old Timbers Lodge	7	9,892	1929-32	Yes	No		1			
*	Stone Dam by Old Timbers Lodge	4	n/a	1929-34	No	No	1				
Subtotal Pre-1941 =							14	2	16	0	0
108/108a	Ordnance Admin. Building	3	28,322	1941 & 1953	No	Yes	1			1	1
2	Garage	7	406	1941	No	No	1				
5	Garage	7	210	1941	No	No	1				
6	Garage	7	210	1941	No	No	1				
9	Garage	7	406	1941	No	No	1				
10	Garage	7	406	1941	No	No	1				
13	Garage	7	210	1941	No	No	1				
14	Garage	7	210	1941	No	No	1				
18	Garage	7	210	1941	No	No	1				
19	Garage	7	406	1941	No	No	1				

Buildings and Structures at Jefferson Proving Ground Constructed Before 1946

Bldg. No.	Present Name	Property Type	Area (in ft ²)	Year Built	<u>NRHP Eligibility</u>		<u>NR Status as Individual Structure</u>			Eligible as Part of District	In Proposed District
					Individual	District	Ineligible	Eligible	Total		
25	Garage	7	406	1941	No	No	1				
33	Clinic	1	3,109	1941	Yes ¹	Yes		1		1	1
45	Distribution System Building	4	106	1941	No	No	1				
46	Distribution System Building	4	106	1941	No	No	1				
47	Distribution System Building	4	106	1941	No	No	1				
48	Distribution System Building	4	106	1941	No	No	1				
49	Distribution System Building	4	106	1941	No	No	1				
100	Post Headquarters Building	3	27,988	1941	Yes ¹	Yes		1		1	1
101	Distribution System Building	4	106	1941	No	No	1				1
102	Substation Building	4	880	1941	No	Yes	1			1	1
103	Central Heating Plant	4	4,421	1941	No	Yes	1			1	1
104	Distribution System Building	4	106	1941	No	No	1				1
105	Machine Shop	2	19,485	1941	No	Yes	1			1	1
106	Maintenance Shop	2	6,042	1941	No	Yes	1			1	1
107	Distribution System Building	4	106	1941	No	No	1				
110	Telephone Shop	4	144	1941	No	No	1				1
111	Fuel Station	4	144	1941	No	No	1				1
112	Telephone Exchange Building	3	3,080	1941	No	Yes	1			1	1
113	Distribution System Building	4	106	1941	No	No	1				1
115	Computer & Payroll Building	3	8,678	1941	No	Yes	1			1	1
117	Lumber & Pipe Shed	5	2,988	1941	No	Yes	1			1	1
118	Gas Station Building	4	148	1941	No	No	1				1
119	Carpenter & Maintenance Shop	2	6,575	1941	No	Yes	1			1	1
121	Maintenance & Paint Shop	2	1,567	1941	No	Yes	1			1	1
123	Scale House	5	73	1941	No	No	1				1
125	Fire Station	4	9,123	1941	No	Yes	1			1	1
127	Guards Reserve Storehouse	5	6,803	1941	No	No	1				1
129	Distribution System Building	4	106	1941	No	No	1				1
131	Scale House	5	75	1941	No	No	1				

Buildings and Structures at Jefferson Proving Ground Constructed Before 1946

Bldg. No.	Present Name	Property Type	Area (in ft ²)	Year Built	<u>NRHP Eligibility</u>		<u>NR Status as Individual Structure</u>			Eligible as Part of District	In Proposed District
					Individual	District	Ineligible	Eligible	Total		
133	Distribution Building	4	51	1941	No	No	1				
137	Distribution System Building	4	106	1941	No	No	1				1
139	Distribution System Building	4	106	1941	No	No	1				
141	Distribution System Building	4	68	1941	No	No	1				
143	Distribution System Building	4	143	1941	No	No	1				
145	Utility Tunnel Access	4	n/a	1941	No	No	1				1
149	Post Restaurant & Security	3	7,771	1941	Yes ¹	Yes		1		1	1
171	Sewage Treatment Pool & Plant	4	n/a	1941	No	No	1				
173	Sewage Treatment Pool & Plant	4	n/a	1941	No	No	1				
175	Sewage Treatment Pool Plant	4	n/a	1941	No	No	1				
177	Sewage Treating Plant	4	n/a	1941	No	No	1				
179	Distribution System Building	4	106	1941	No	No	1				
181	Sewage Treatment Pool & Plant	4	45	1941	No	No	1				
183	Sewage Treatment Pool & Plant	4	n/a	1941	No	No	1				
185	Storehouse	4	556	1941	No	No	1				
187	Sewage Treatment Pool & Plant	4	n/a	1941	No	No	1				
190	Distribution Bldg	4	51	1941	No	No	1				
192	Pressure Control Valve Facility	4	185	1941	No	No	1				
197	Public Restroom	1	50	1941	No	No	1				
198	Sentry Station	1	180	1941	No	No	1				
201	Switching Station Building	4	68	1941	No	No	1				1
202	General Purpose Warehouse	2	4,352	1941	No	Yes	1			1	1
203	Distribution System Building	4	106	1941	No	No	1				1
204	Entomology Facility	2	1,814	1941	No	Yes	1			1	1
205	Communication Center	3	880	1941	No	Yes	1			1	1
206	Distribution System Building	4	106	1941	No	No	1				1
208	Photography Lab Building	2	4,972	1941	No	Yes	1			1	1
210	Distribution System Building	4	106	1941	No	No	1				

Buildings and Structures at Jefferson Proving Ground Constructed Before 1946

Bldg. No.	Present Name	Property Type	Area (in ft ²)	Year Built	<u>NRHP Eligibility</u>		<u>NR Status as Individual Structure</u>			Eligible as Part of District	In Proposed District
					Individual	District	Ineligible	Eligible	Total		
211	Inert Loading Facility	2	8,753	1941	No	Yes	1			1	1
212	Vehicle Storage	5	13,010	1941	No	Yes	1			1	1
213	Distribution System Building	4	106	1941	No	No	1				1
214	Distribution System Building	4	106	1941	No	No	1				1
215	Ammo Quality Facility	2	4,352	1941	No	Yes	1			1	1
216	Heavy Gun Shop	2	10,656	1941	No	Yes	1			1	1
217	Distribution System Building	4	106	1941	No	No	1				1
218	Distribution System Building	4	106	1941	No	No	1				1
219	General Purpose Warehouse	2	2,048	1941	No	Yes	1			1	1
220	Shelter w/Anti-Aircraft Stockade	6	7,859	1941	No	No	1				1
221	Distribution System Building	4	106	1941	No	No	1				1
222	Ammo Quality Facility	2	180	1941	No	No	1				1
223	Vehicle Storage	5	13,010	1941	No	Yes	1			1	1
224	Safe Shelter	6	165	1941	No	Yes	1			1	1
225	Safe Shelter	6	139	1941	No	Yes	1			1	1
226	Electrical Maintenance Shop	2	4,352	1941	No	Yes	1			1	1
227	Heavy Gun Shop	2	10,065	1941	No	Yes	1			1	1
228	Distribution System Building	4	106	1941	No	No	1				1
229	Distribution System Building	4	106	1941	No	No	1				1
230	Loading/Unloading Dock	5	n/a	1941	No	No	1				1
231	General Purpose Warehouse	2	4,352	1941	No	Yes	1			1	1
232	Sentry Station	2	179	1941	No	No	1				1
233	Distribution System Building	4	106	1941	No	No	1				1
234	Shelter w/Anti-Aircraft Stockade	6	n/a	1941	No	No	1				
235	Loading/Unloading Dock	5	n/a	1941	No	No	1				
237	Sentry Station Storehouse	2	179	1941	No	No	1				1
260	Switching Station Building	4	68	1941	No	No	1				1
261	Switch Station Building	4	68	1941	No	No	1				1

Buildings and Structures at Jefferson Proving Ground Constructed Before 1946

Bldg. No.	Present Name	Property Type	Area (in ft ²)	Year Built	NRHP Eligibility		NR Status as Individual Structure			Eligible as Part of District	In Proposed District
					Individual	District	Ineligible	Eligible	Total		
262	Fuze Detonator Magazine	5	135	1941	No	No	1				1
263	Fuze Detonator Magazine	5	135	1941	No	No	1				1
264	Distribution System Building	4	106	1941	No	No	1				1
265	General Purpose Warehouse	2	1,630	1941	No	Yes	1			1	1
266	General Purpose Warehouse	2	1,630	1941	No	Yes	1			1	1
267	Distribution System Building	4	106	1941	No	No	1				1
268	Igloo Storage	5	120	1941	No	Yes ²	1			1	1
269	Igloo Storage	5	120	1941	No	Yes ²	1			1	1
270	Igloo Storage	5	120	1941	No	Yes ²	1			1	1
271	Blast Deflector Facility	6	n/a	1941	No	Yes	1			1	1
272	Igloo Storage	5	396	1941	No	Yes ²	1			1	1
274	Blast Deflector Facility	6	n/a	1941	No	Yes	1			1	1
276	Igloo Storage	5	2,396	1941	No	Yes ²	1			1	1
278	Igloo Storage	5	2,396	1941	No	Yes ²	1			1	1
290	Igloo Storage	5	2,394	1941	No	Yes ²	1			1	1
301	Aircraft Hangar	8	23,947	1941	No	Yes	1			1	
302	Distribution Building	4	532	1941	No	No	1				
309	Distribution System Building	4	106	1941	No	No	1				
310	Heating Oil Plant	4	1,470	1941	No	Yes	1			1	
311	Electrical Maintenance Shop	2	3,581	1941	No	Yes	1			1	1
312	Distribution System Building	4	106	1941	No	No	1				
313	Electrical Maintenance Shop	1	8,100	1941	Yes ¹	Yes		1		1	
320	Storage Building	5	65	1941	No	No	1				
321	Distribution System Building	4	106	1941	No	No	1				
322	Ammo Demolition Facility	6	4,352	1941	No	Yes	1			1	
323	Igloo Storage	5	396	1941	No	Yes ²	1			1	
400	Impact Area Safe Shelter	6	128	1941	No	No	1				
403	Safe Shelter Barricade	6	78	1941	No	No	1				

Buildings and Structures at Jefferson Proving Ground Constructed Before 1946

Bldg. No.	Present Name	Property Type	Area (in ft ²)	Year Built	<u>NRHP Eligibility</u>		<u>NR Status as Individual Structure</u>			Eligible as Part of District	In Proposed District
					Individual	District	Ineligible	Eligible	Total		
410	Impact Area Safe Shelter	6	131	1941	No	No	1				
420	Impact Area Safe Shelter	6	131	1941	No	No	1				
421	Impact Area Safe Shelter	6	131	1941	No	No	1				
430	Impact Area Safe Shelter	6	131	1941	No	No	1				
431	Impact Area Safe Shelter	6	131	1941	No	No	1				
433	Impact Area Safe Shelter	6	131	1941	No	No	1				
440	Impact Area Safe Shelter	6	131	1941	No	No	1				
441	Impact Area Safe Shelter	6	131	1941	No	No	1				
443	Impact Area Safe Shelter	6	131	1941	No	No	1				
450	Impact Area Safe Shelter	6	131	1941	No	No	1				
453	Impact Area Safe Shelter	6	131	1941	No	No	1				
461	Impact Area Safe Shelter	6	131	1941	No	No	1				
463	Impact Area Safe Shelter	6	131	1941	No	No	1				
470	Impact Area Safe Shelter	6	131	1941	No	No	1				
471	Impact Area Safe Shelter	6	131	1941	No	No	1				
473	Impact Area Safe Shelter	6	131	1941	No	No	1				
479	Impact Area Safe Shelter	6	135	1941	No	No	1				
480	South Observation Tower	6	36	1941	No	No	1				
481	Safe Shelter w/Obs. Tower	6	1,950	1941	No	No	1				
484	North Observation Tower	6	36	1941	No	No	1				
502	General Purpose Magazine Shop	6	4,352	1941	No	Yes	1			1	1
504	Distribution System Building	4	106	1941	No	No	1				1
506	General Purpose Magazine	6	4,352	1941	No	Yes	1			1	1
508	Distribution System Building	4	106	1941	No	No	1				1
510	Ammo Quality Facility	6	1,653	1941	No	Yes	1			1	1
512	Fuze Detonator Magazine	6	1,191	1941	No	Yes	1			1	1
514	Fuze Detonator Magazine	6	1,191	1941	No	Yes	1			1	1
516	General Purpose Warehouse	6	135	1941	No	No	1				1

Buildings and Structures at Jefferson Proving Ground Constructed Before 1946

Bldg. No.	Present Name	Property Type	Area (in ft ²)	Year Built	NRHP Eligibility		NR Status as Individual Structure			Eligible as Part of District	In Proposed District
					Individual	District	Ineligible	Eligible	Total		
520	Lunch Room	1	150	1941	No	No	1				1
*	West Observation Tower	6		1941	No	No	1				
*	North-1 Observation Tower	6		1941	No	No	1				
*	North-2 Observation Tower	6		1941	No	No	1				
*	East Observation Tower	6		1941	No	No	1				
135a	Elevated Water Storage Tower	4	n/a	1941	No	No	1				
145s*	Heat Distribution Station	4	95	1941	No	No	1				
*	Sewage & Water Treatment Plant	4	n/a	1941	No	No	1				
Subtotal 1941 =							154	4	158	51	82
37	General Purpose Warehouse	5	613	1942	Yes ¹	Yes		1		1	1
114	Credit Union Building	3	1,281	1942	Yes ¹	Yes		1		1	1
250	Safe Shelter	6	1,400	1942	No	Yes	1			1	1
259	Fuel Stand	4	74	1942	No	No	1				1
273	Arms Building	6	1,937	1942	No	Yes	1			1	1
275	Ammo Quality Building	6	3,999	1942	No	No	1				1
277	Ammo Quality Facility	6	5,961	1942	No	Yes	1			1	1
279	General Storehouse	6	2,804	1942	No	Yes	1			1	1
280	Distribution Bldg	4	112	1942	No	No	1				1
281	Ammo Quality Building	6	14,129	1942	No	Yes	1			1	1
282	Shelter & Storage	6	141	1942	No	No	1				
283	Heat Distribution Station	4	136	1942	No	No	1				1
284	3-Bay Safe Shelter	6	402	1942	No	Yes	1			1	
285	Ammo Quality Facility	6	1,734	1942	No	Yes	1			1	1
287	Distribution Bldg	4	112	1942	No	No	1				1
291	General Storehouse	6	5,270	1942	No	Yes	1			1	1
293	Ammo Assembly Facility	6	4,108	1942	No	Yes	1			1	1
296	Distribution Bldg	4	112	1942	No	No	1				

Buildings and Structures at Jefferson Proving Ground Constructed Before 1946

Bldg. No.	Present Name	Property Type	Area (in ft ²)	Year Built	NRHP Eligibility		NR Status as Individual Structure			Eligible as Part of District	In Proposed District
					Individual	District	Ineligible	Eligible	Total		
297	Safe Shelter	6	165	1942	No	Yes	1			1	
299	Safe Shelter	6	331	1942	No	Yes	1			1	
300	3-Bay Safe Shelter	6	402	1942	No	Yes	1			1	
Subtotal 1942 =							19	2	21	14	15
116	Gymnasium	1	3,108	1943	Yes ¹	Yes		1		1	1
236	Ammo Quality Facility	6	3,178	1943	No	Yes	1			1	1
288	2-Story Safe Shelter	6	440	1943	No	No	1				1
289	2-Story Safe Shelter	6	440	1943	No	Yes	1			1	1
292	Igloo Storage	5	2,396	1943	No	Yes ²	1			1	1
295	Ammo Quality Testing Facility	6	31,280	1943	No	Yes	1			1	1
305	Warehouse	5	280	1943	No	No	1				
501	Double Sided Igloo	5	2,396	1943	No	Yes ²	1			1	
Subtotal 1943 =							7	1	8	6	6
169	Inflammable Mat'l Storehouse	5	268	1944	No	No	1				
240	Safe Shelter	6	181	1944	No	No	1				1
242	Safe Shelter	6	181	1944	No	No	1				1
243	Ammo Quality Facility	2	1,908	1944	No	No	1				1
257	Safe Shelter & Observation	6	113	1944	No	Yes	1			1	1
286	Safe Shelter	6	160	1944	No	No	1				
324	Storage Shed	5	508	1944	No	No	1				
489	Safe Shelter & Storage	6	148	1944	No	No	1				
Subtotal 1944 =							8	0	8	1	4
241	Weather Station	2	1,179	1945	No	Yes	1			1	1
488	Safe Shelter	6	671	1945	No	No	1				
526	3-Bay Igloo Storage	5	269	1945	No	Yes ²	1			1	1
Subtotal 1945 =							3	0	3	2	2

Buildings and Structures at Jefferson Proving Ground Constructed Before 1946

Bldg. No.	Present Name	Property Type	Area (in ft ²)	Year Built	NRHP Eligibility Individual District	NR Status as Individual Structure			Eligible as Part of District	In Proposed District
						Ineligible	Eligible	Total		
					Pre-WW II =	14	2	16	0	0
					WW II =	191	7	198	74	109
					Pre-1946 Total =	205	9	214	74	109

¹ = WW II Temporary Building (Note: 7 eligible buildings are WW II temps eligible both individually and as part of the district)

² = Igloo

* = Properties represented by these entries do not occur on the Real Property Inventory for JPG.

Property Type:

1= Worker Support

2= Maintenance and Testing Support Buildings

3= Office and Administration

4= Utilities and Infrastructure

5= Storage/Shipping

6= Firing Line/Impact Zone

7= Housing

8= Airfield Facilities

Summary Information for 22 Bridges on Jefferson Proving Ground Constructed Before 1989

Bridge No. and Type	Description	Year Built	N.R. Eligibility	N.R. Eligibility
1 Steel Girder	Double Span/Vehicle Bridge	1920	No	
2 Pratt Truss	Single Span/Vehicle Bridge	1897	Yes	1
3 Pony Truss	Single Span/Vehicle Bridge	1896	No	
4 Steel Girder	Single Span/Vehicle Bridge	1895	No	
6 Steel Girder	Double Span/Vehicle Bridge	1900	No	
7 Steel Girder	Double Span/Vehicle Bridge	1900	No	
8 Pratt Truss	Single Span/Vehicle Bridge	1884	Yes	1
9 Steel Girder	Single Span/Vehicle Bridge	1959	No	
10 Pratt Truss	Single Span/Vehicle Bridge	1892	Yes	1
11 Pratt Truss	Single Span/Vehicle Bridge	1895	No	
12 Steel Truss	Triple Span/Vehicle Bridge	1910	No	
13 Steel Girder	Quadruple Span/Vehicle Bridge	1910	No	
15 Steel Girder	Quadruple Span/Vehicle Bridge	1912-45	No	
16 Steel Girder	Single Span/Vehicle Bridge	1957	No	
17 Stone Arch	Triple Stone Arch/Vehicle Bridge	1911	Yes	1
18 Steel Girder	Double Span/Vehicle Bridge	1899	No	
19 Reinforced Concrete	Single Span/Vehicle Bridge	1930	No	
22 Reinforced Concrete	Single Span/Vehicle Bridge	1921-25	Yes	1
23 Steel Girder	Double Span/Vehicle Bridge	1898	No	
25 Stone Arch	Single Stone Arch/Vehicle Bridge	1905	Yes	1
27 Stone Arch	Triple Stone Arch/Vehicle Bridge	1908	Yes	1
28 Stone Arch	Double Stone Arch/Vehicle Bridge	1907	Yes	1
Total Eligible =				8

APPENDIX K

**INVENTORY OF POTENTIAL HISTORIC SITES
ON JEFFERSON PROVING GROUND
IDENTIFIED THROUGH ARCHIVAL RESEARCH**

Archivally Identified Historic Sites
(after Stafford et al. 1985:A-4 to A-16)

Number	UTM Zone	Reference	Township	Range	Section	USGS Quad Map	CR
1	16	Stafford et al. 1985	7N	10E	18	HT759	3
2	16	Stafford et al. 1985	7N	10E	18	HT759	3
3	16	Stafford et al. 1985	7N	10E	18	HT759	3
4	16	Stafford et al. 1985	7N	10E	18	HT759	3
5	16	Stafford et al. 1985	7N	10E	18	HT759	3
6	16	Stafford et al. 1985	7N	10E	17	HT759	3
7	16	Stafford et al. 1985	7N	10E	17	HT759	3
8	16	Stafford et al. 1985	7N	10E	17	HT759	3
9	16	Stafford et al. 1985	7N	10E	17	HT759	3
10	16	Stafford et al. 1985	7N	10E	17	HT759	3
11	16	Stafford et al. 1985	7N	10E	16	HT759	3
12	16	Stafford et al. 1985	7N	10E	16	HT759	3
13	16	Stafford et al. 1985	7N	10E	15	HT759	3
14	16	Stafford et al. 1985	7N	10E	15	HT759	3
15	16	Stafford et al. 1985	7N	10E	15	HT759	3
16	16	Stafford et al. 1985	7N	10E	15	HT759	3
17	16	Stafford et al. 1985	7N	10E	15	HT759	3
18	16	Stafford et al. 1985	7N	10E	14	HT759	3
19	16	Stafford et al. 1985	7N	10E	14	HT759	3
20	16	Stafford et al. 1985	7N	10E	14	HT759	3
21	16	Stafford et al. 1985	7N	10E	15	HT759	3
22	16	Stafford et al. 1985	7N	10E	15	HT759	3
23	16	Stafford et al. 1985	7N	10E	15	HT759	3
24	16	Stafford et al. 1985	7N	10E	15	HT759	3
25	16	Stafford et al. 1985	7N	10E	22	HT759	3
26	16	Stafford et al. 1985	7N	10E	17	HT759	3
27	16	Stafford et al. 1985	7N	10E	17	HT759	3
28	16	Stafford et al. 1985	7N	10E	17	HT759	3
29	16	Stafford et al. 1985	7N	10E	18	HT759	3
30	16	Stafford et al. 1985	7N	10E	18	HT759	3
31	16	Stafford et al. 1985	7N	10E	18	HT759	3
32	16	Stafford et al. 1985	7N	10E	18	HT759	3
33	16	Stafford et al. 1985	7N	10E	19	HT759	3
34	16	Stafford et al. 1985	7N	10E	19	HT759	3
35	16	Stafford et al. 1985	7N	9E	24	HT759	3
36	16	Stafford et al. 1985	7N	9E	24	HT759	3
37	16	Stafford et al. 1985	7N	9E	24	HT759	3
38	16	Stafford et al. 1985	7N	10E	19	HT759	3

Number	UTM Zone	Reference	Township	Range	Section	USGS Quad Map	CR
39	16	Stafford et al. 1985	7N	10E	19	HT759	3
40	16	Stafford et al. 1985	7N	10E	19	HT759	3
41	16	Stafford et al. 1985	7N	10E	20	HT759	3
42	16	Stafford et al. 1985	7N	10E	20	HT759	3
43	16	Stafford et al. 1985	7N	10E	20	HT759	3
44	16	Stafford et al. 1985	7N	10E	20	HT759	3
45	16	Stafford et al. 1985	7N	10E	21	HT759	3
46	16	Stafford et al. 1985	7N	10E	21	HT759	3
47	16	Stafford et al. 1985	7N	10E	22	HT759	3
48	16	Stafford et al. 1985	7N	10E	22	HT759	3
49	16	Stafford et al. 1985	7N	10E	22	HT759	3
50	16	Stafford et al. 1985	7N	10E	22	HT759	3
51	16	Stafford et al. 1985	7N	10E	22	HT759	3
52	16	Stafford et al. 1985	7N	10E	23	HT759	3
53	16	Stafford et al. 1985	7N	10E	23	HT759	3
54	16	Stafford et al. 1985	7N	10E	23	HT759	3
55	16	Stafford et al. 1985	7N	10E	23	HT759	3
56	16	Stafford et al. 1985	7N	10E	23	HT759	3
57	16	Stafford et al. 1985	7N	10E	21	HT759	3
58	16	Stafford et al. 1985	7N	10E	22	HT759	3
59	16	Stafford et al. 1985	7N	10E	21	HT759	3
60	16	Stafford et al. 1985	7N	10E	21	HT759	3
61	16	Stafford et al. 1985	7N	10E	21	HT759	3
62	16	Stafford et al. 1985	7N	10E	21	HT759	3
63	16	Stafford et al. 1985	7N	10E	21	HT759	3
64	16	Stafford et al. 1985	7N	10E	28	HT759	3
65	16	Stafford et al. 1985	7N	10E	28	HT759	3
66	16	Stafford et al. 1985	7N	10E	28	HT759	3
67	16	Stafford et al. 1985	7N	10E	28	HT759	3
68	16	Stafford et al. 1985	7N	10E	28	HT759	3
69	16	Stafford et al. 1985	7N	10E	29	HT759	3
70	16	Stafford et al. 1985	7N	10E	29	HT759	3
71	16	Stafford et al. 1985	7N	10E	29	HT759	3
72	16	Stafford et al. 1985	7N	10E	30	HT759	3
73	16	Stafford et al. 1985	7N	10E	30	HT759	3
74	16	Stafford et al. 1985	7N	10E	30	HT759	3
75	16	Stafford et al. 1985	7N	10E	30	HT759	3
76	16	Stafford et al. 1985	7N	10E	30	HT759	3
77	16	Stafford et al. 1985	7N	10E	30	HT759	3
78	16	Stafford et al. 1985	7N	10E	30	HT759	3
79	16	Stafford et al. 1985	7N	10E	30	HT759	3

Number	UTM Zone	Reference	Township	Range	Section	USGS Quad Map	CR
80	16	Stafford et al. 1985	7N	9E	25	HT759	3
81	16	Stafford et al. 1985	7N	9E	25	HT759	3
82	16	Stafford et al. 1985	7N	9E	25	HT759	3
83	16	Stafford et al. 1985	7N	10E	31	HT759	3
84	16	Stafford et al. 1985	7N	9E	36	HT759	3
85	16	Stafford et al. 1985	7N	9E	36	HT759	3
86	16	Stafford et al. 1985	7N	9E	36	HT759	3
87	16	Stafford et al. 1985	7N	10E	31	HT759	3
88	16	Stafford et al. 1985	7N	10E	31	HT759	3
89	16	Stafford et al. 1985	7N	10E	31	HT759	3
90	16	Stafford et al. 1985	7N	10E	31	HT759	3
91	16	Stafford et al. 1985	7N	10E	32	HT759	3
92	16	Stafford et al. 1985	7N	10E	32	HT759	3
93	16	Stafford et al. 1985	7N	10E	29	HT759	3
94	16	Stafford et al. 1985	7N	10E	33	HT759	3
95	16	Stafford et al. 1985	7N	10E	33	HT759	3
96	16	Stafford et al. 1985	7N	10E	33	HT759	3
97	16	Stafford et al. 1985	7N	10E	33	HT759	3
98	16	Stafford et al. 1985	7N	10E	28	HT759	3
99	16	Stafford et al. 1985	7N	10E	27	HT759	3
100	16	Stafford et al. 1985	7N	10E	27	HT759	3
101	16	Stafford et al. 1985	7N	10E	27	HT759	3
102	16	Stafford et al. 1985	7N	10E	27	HT759	3
103	16	Stafford et al. 1985	7N	10E	34	HT759	3
104	16	Stafford et al. 1985	7N	10E	34	HT759	3
105	16	Stafford et al. 1985	7N	10E	34	HT759	3
106	16	Stafford et al. 1985	7N	10E	35	HT759	3
107	16	Stafford et al. 1985	7N	10E	35	HT759	3
108	16	Stafford et al. 1985	7N	10E	35	HT759	3
109	16	Stafford et al. 1985	7N	10E	26	HT759	3
110	16	Stafford et al. 1985	7N	10E	26	HT759	3
111	16	Stafford et al. 1985	7N	10E	26	HT759	3
112	16	Stafford et al. 1985	7N	10E	26	HT759	3
113	16	Stafford et al. 1985	7N	10E	26	HT759	3
114	16	Stafford et al. 1985	7N	10E	27	HT759	3
115	16	Stafford et al. 1985	7N	10E	27	HT759	3
116	16	Stafford et al. 1985	7N	10E	14	VR761	3
117	16	Stafford et al. 1985	7N	10E	14	VR761	3
118	16	Stafford et al. 1985	7N	10E	23	VR761	3
119	16	Stafford et al. 1985	7N	10E	23	VR761	3
120	16	Stafford et al. 1985	7N	10E	23	VR761	3

Number	UTM Zone	Reference	Township	Range	Section	USGS Quad Map	CR
121	16	Stafford et al. 1985	7N	10E	26	VR761	3
122	16	Stafford et al. 1985	7N	10E	26	VR761	3
123	16	Stafford et al. 1985	7N	10E	26	VR761	3
124	16	Stafford et al. 1985	7N	10E	35	VR761	3
125	16	Stafford et al. 1985	7N	10E	35	VR761	3
126	16	Stafford et al. 198	6N	10E	2	RX759	3
127	16	Stafford et al. 1985	6N	10E	1	RX759	3
128	16	Stafford et al. 1985	6N	10E	1	RX759	3
129	16	Stafford et al. 1985	6N	10E	12	RX759	3
130	16	Stafford et al. 1985	6N	10E	12	RX759	3
131	16	Stafford et al. 1985	6N	10E	12	RX759	3
132	16	Stafford et al. 1985	6N	10E	12	RX759	3
133	16	Stafford et al. 1985	6N	10E	12	RX759	3
134	16	Stafford et al. 1985	6N	10E	12	RX759	3
135	16	Stafford et al. 1985	6N	10E	12	RX759	3
136	16	Stafford et al. 1985	6N	10E	11	RX759	3
137	16	Stafford et al. 1985	6N	10E	14	RX759	3
138	16	Stafford et al. 1985	6N	10E	13	RX759	3
139	16	Stafford et al. 1985	6N	10E	13	RX759	3
140	16	Stafford et al. 1985	6N	10E	13	RX759	3
141	16	Stafford et al. 1985	6N	10E	13	RX759	3
142	16	Stafford et al. 1985	6N	10E	23	RX759	3
143	16	Stafford et al. 1985	6N	10E	14	RX759	3
144	16	Stafford et al. 1985	6N	10E	14	RX759	3
145	16	Stafford et al. 1985	6N	10E	24	RX759	3
146	16	Stafford et al. 1985	6N	10E	24	RX759	3
147	16	Stafford et al. 1985	6N	10E	24	RX759	3
148	16	Stafford et al. 1985	6N	10E	24	RX759	3
149	16	Stafford et al. 1985	6N	10E	24	RX759	3
150	16	Stafford et al. 1985	6N	10E	24	RX759	3
151	16	Stafford et al. 1985	6N	10E	23	RX759	3
152	16	Stafford et al. 1985	6N	10E	25	RX759	3
153	16	Stafford et al. 1985	6N	10E	25	RX759	3
154	16	Stafford et al. 1985	6N	10E	25	RX759	3
155	16	Stafford et al. 1985	6N	10E	25	RX759	3
156	16	Stafford et al. 1985	6N	10E	36	RX759	3
157	16	Stafford et al. 1985	6N	10E	36	RX759	3
158	16	Stafford et al. 1985	6N	10E	35	RX759	3
159	16	Stafford et al. 1985	6N	10E	36	RX759	3
160	16	Stafford et al. 1985	6N	10E	36	RX759	3
161	16	Stafford et al. 1985	6N	10E	36	RX759	3

Number	UTM Zone	Reference	Township	Range	Section	USGS Quad Map	CR
162	16	Stafford et al. 1985	6N	10E	35	RX759	3
163	16	Stafford et al. 1985	6N	9E	1	SJ759	3
164	16	Stafford et al. 1985	6N	10E	6	SJ759	3
165	16	Stafford et al. 1985	6N	10E	6	SJ759	3
166	16	Stafford et al. 1985	6N	10E	6	SJ759	3
167	16	Stafford et al. 1985	6N	10E	6	SJ759	3
168	16	Stafford et al. 1985	6N	10E	6	SJ759	3
169	16	Stafford et al. 1985	6N	10E	6	SJ759	3
170	16	Stafford et al. 1985	6N	10E	6	SJ759	3
171	16	Stafford et al. 1985	6N	10E	6	SJ759	3
172	16	Stafford et al. 1985	6N	10E	6	SJ759	3
173	16	Stafford et al. 1985	6N	10E	6	SJ759	3
174	16	Stafford et al. 1985	6N	10E	6	SJ759	3
175	16	Stafford et al. 1985	6N	10E	6	SJ759	3
176	16	Stafford et al. 1985	6N	10E	6	SJ759	3
177	16	Stafford et al. 1985	6N	10E	7	SJ759	3
178	16	Stafford et al. 1985	6N	10E	7	SJ759	3
179	16	Stafford et al. 1985	6N	10E	7	SJ759	3
180	16	Stafford et al. 1985	6N	10E	7	SJ759	3
181	16	Stafford et al. 1985	6N	10E	8	SJ759	3
182	16	Stafford et al. 1985	6N	10E	8	SJ759	3
183	16	Stafford et al. 1985	6N	10E	8	SJ759	3
184	16	Stafford et al. 1985	6N	10E	5	SJ759	3
185	16	Stafford et al. 1985	6N	10E	4	SJ759	3
186	16	Stafford et al. 1985	6N	10E	4	SJ759	3
187	16	Stafford et al. 1985	6N	10E	4	SJ759	3
188	16	Stafford et al. 1985	6N	10E	4	SJ759	3
189	16	Stafford et al. 1985	6N	10E	4	SJ759	3
190	16	Stafford et al. 1985	6N	10E	9	SJ759	3
191	16	Stafford et al. 1985	6N	10E	3	SJ759	3
192	16	Stafford et al. 1985	6N	10E	3	SJ759	3
193	16	Stafford et al. 198	6N	10E	3	SJ759	3
194	16	Stafford et al. 1985	6N	10E	3	SJ759	3
195	16	Stafford et al. 1985	6N	10E	3	SJ759	3
196	16	Stafford et al. 1985	6N	10E	2	SJ759	3
197	16	Stafford et al. 1985	6N	10E	3	SJ759	3
198	16	Stafford et al. 1985	6N	10E	2	SJ759	3
199	16	Stafford et al. 1985	6N	10E	10	SJ759	3
200	16	Stafford et al. 1985	6N	10E	9	SJ759	3
201	16	Stafford et al. 1985	6N	10E	9	SJ759	3
202	16	Stafford et al. 1985	6N	10E	9	SJ759	3

Number	UTM Zone	Reference	Township	Range	Section	USGS Quad Map	CR
203	16	Stafford et al. 1985	6N	10E	9	SJ759	3
204	16	Stafford et al. 1985	6N	10E	9	SJ759	3
205	16	Stafford et al. 1985	6N	10E	9	SJ759	3
206	16	Stafford et al. 1985	6N	10E	8	SJ759	3
207	16	Stafford et al. 1985	6N	10E	8	SJ759	3
208	16	Stafford et al. 1985	6N	10E	8	SJ759	3
209	16	Stafford et al. 1985	6N	10E	8	SJ759	3
210	16	Stafford et al. 1985	6N	10E	7	SJ759	3
211	16	Stafford et al. 1985	6N	10E	7	SJ759	3
212	16	Stafford et al. 1985	6N	10E	7	SJ759	3
213	16	Stafford et al. 1985	6N	10E	7	SJ759	3
214	16	Stafford et al. 1985	6N	10E	7	SJ759	3
215	16	Stafford et al. 1985	6N	10E	7	SJ759	3
216	16	Stafford et al. 1985	6N	10E	16	SJ759	3
217	16	Stafford et al. 1985	6N	10E	18	SJ759	3
218	16	Stafford et al. 1985	6N	10E	17	SJ759	3
219	16	Stafford et al. 1985	6N	10E	18	SJ759	3
220	16	Stafford et al. 1985	6N	10E	18	SJ759	3
221	16	Stafford et al. 1985	6N	10E	18	SJ759	3
222	16	Stafford et al. 1985	6N	10E	17	SJ759	3
223	16	Stafford et al. 1985	6N	10E	9	SJ759	3
224	16	Stafford et al. 1985	6N	10E	17	SJ759	3
225	16	Stafford et al. 1985	6N	10E	18	SJ759	3
226	16	Stafford et al. 1985	6N	10E	17	SJ759	3
227	16	Stafford et al. 1985	6N	10E	17	SJ759	3
228	16	Stafford et al. 1985	6N	10E	17	SJ759	3
229	16	Stafford et al. 1985	6N	10E	17	SJ759	3
230	16	Stafford et al. 1985	6N	10E	16	SJ759	3
231	16	Stafford et al. 1985	6N	10E	16	SJ759	3
232	16	Stafford et al. 1985	6N	10E	16	SJ759	3
233	16	Stafford et al. 1985	6N	10E	16	SJ759	3
234	16	Stafford et al. 1985	6N	10E	16	SJ759	3
235	16	Stafford et al. 1985	6N	10E	16	SJ759	3
236	16	Stafford et al. 1985	6N	10E	16	SJ759	3
237	16	Stafford et al. 1985	6N	10E	16	SJ759	3
238	16	Stafford et al. 1985	6N	10E	16	SJ759	3
239	16	Stafford et al. 1985	6N	10E	15	SJ759	3
240	16	Stafford et al. 1985	6N	10E	15	SJ759	3
241	16	Stafford et al. 1985	6N	10E	15	SJ759	3
242	16	Stafford et al. 1985	6N	10E	15	SJ759	3
243	16	Stafford et al. 1985	6N	10E	15	SJ759	3

Number	UTM Zone	Reference	Township	Range	Section	USGS Quad Map	CR
244	16	Stafford et al. 1985	6N	10E	15	SJ759	3
245	16	Stafford et al. 1985	6N	10E	15	SJ759	3
246	16	Stafford et al. 1985	6N	10E	22	SJ759	3
247	16	Stafford et al. 1985	6N	10E	22	SJ759	3
248	16	Stafford et al. 1985	6N	10E	15	SJ759	3
249	16	Stafford et al. 1985	6N	10E	15	SJ759	3
250	16	Stafford et al. 1985	6N	10E	23	SJ759	3
251	16	Stafford et al. 1985	6N	10E	14	SJ759	3
252	16	Stafford et al. 1985	6N	10E	14	SJ759	3
253	16	Stafford et al. 1985	6N	10E	14	SJ759	3
254	16	Stafford et al. 1985	6N	10E	14	SJ759	3
255	16	Stafford et al. 1985	6N	10E	14	SJ759	3
256	16	Stafford et al. 1985	6N	10E	14	SJ759	3
257	16	Stafford et al. 1985	6N	10E	14	SJ759	3
258	16	Stafford et al. 1985	6N	10E	15	SJ759	3
259	16	Stafford et al. 1985	6N	10E	14	SJ759	3
260	16	Stafford et al. 1985	6N	10E	23	SJ759	3
261	16	Stafford et al. 1985	6N	10E	23	SJ759	3
262	16	Stafford et al. 1985	6N	10E	23	SJ759	3
263	16	Stafford et al. 1985	6N	10E	23	SJ759	3
264	16	Stafford et al. 1985	6N	10E	23	SJ759	3
265	16	Stafford et al. 1985	6N	10E	26	SJ759	3
266	16	Stafford et al. 1985	6N	10E	26	SJ759	3
267	16	Stafford et al. 1985	6N	10E	26	SJ759	3
268	16	Stafford et al. 1985	6N	10E	27	SJ759	3
269	16	Stafford et al. 1985	6N	10E	27	SJ759	3
270	16	Stafford et al. 1985	6N	10E	27	SJ759	3
271	16	Stafford et al. 1985	6N	10E	27	SJ759	3
272	16	Stafford et al. 1985	6N	10E	27	SJ759	3
273	16	Stafford et al. 1985	6N	10E	27	SJ759	3
274	16	Stafford et al. 1985	6N	10E	27	SJ759	3
275	16	Stafford et al. 1985	6N	10E	22	SJ759	3
276	16	Stafford et al. 1985	6N	10E	22	SJ759	3
277	16	Stafford et al. 1985	6N	10E	22	SJ759	3
278	16	Stafford et al. 1985	6N	10E	22	SJ759	3
279	16	Stafford et al. 1985	6N	10E	22	SJ759	3
280	16	Stafford et al. 1985	6N	10E	22	SJ759	3
281	16	Stafford et al. 1985	6N	10E	22	SJ759	3
282	16	Stafford et al. 1985	6N	10E	21	SJ759	3
283	16	Stafford et al. 1985	6N	10E	28	SJ759	3
284	16	Stafford et al. 1985	6N	10E	21	SJ759	3

Number	UTM Zone	Reference	Township	Range	Section	USGS Quad Map	CR
285	16	Stafford et al. 1985	6N	10E	21	SJ759	3
286	16	Stafford et al. 1985	6N	10E	21	SJ759	3
287	16	Stafford et al. 1985	6N	10E	21	SJ759	3
288	16	Stafford et al. 1985	6N	10E	21	SJ759	3
289	16	Stafford et al. 1985	6N	10E	28	SJ759	3
290	16	Stafford et al. 1985	6N	10E	28	SJ759	3
291	16	Stafford et al. 1985	6N	10E	28	SJ759	3
292	16	Stafford et al. 1985	6N	10E	28	SJ759	3
293	16	Stafford et al. 1985	6N	10E	28	SJ759	3
294	16	Stafford et al. 1985	6N	10E	28	SJ759	3
295	16	Stafford et al. 1985	6N	10E	27	SJ759	3
296	16	Stafford et al. 1985	6N	10E	27	SJ759	3
297	16	Stafford et al. 1985	6N	10E	28	SJ759	3
298	16	Stafford et al. 1985	6N	10E	33	SJ759	3
299	16	Stafford et al. 1985	6N	10E	33	SJ759	3
300	16	Stafford et al. 1985	6N	10E	33	SJ759	3
301	16	Stafford et al. 1985	6N	10E	33	SJ759	3
302	16	Stafford et al. 1985	6N	10E	28	SJ759	3
303	16	Stafford et al. 1985	6N	10E	28	SJ759	3
304	16	Stafford et al. 1985	6N	10E	29	SJ759	3
305	16	Stafford et al. 1985	6N	10E	29	SJ759	3
306	16	Stafford et al. 1985	6N	10E	29	SJ759	3
307	16	Stafford et al. 1985	6N	10E	32	SJ759	3
308	16	Stafford et al. 1985	6N	10E	33	SJ759	3
309	16	Stafford et al. 1985	6N	10E	33	SJ759	3
310	16	Stafford et al. 1985	6N	10E	33	SJ759	3
311	16	Stafford et al. 1985	6N	10E	33	SJ759	3
312	16	Stafford et al. 1985	6N	10E	33	SJ759	3
313	16	Stafford et al. 1985	6N	10E	33	SJ759	3
314	16	Stafford et al. 1985	6N	10E	33	SJ759	3
315	16	Stafford et al. 1985	6N	10E	32	SJ759	3
316	16	Stafford et al. 1985	6N	10E	32	SJ759	3
317	16	Stafford et al. 1985	6N	10E	32	SJ759	3
318	16	Stafford et al. 1985	6N	10E	32	SJ759	3
319	16	Stafford et al. 1985	6N	10E	29	SJ759	3
320	16	Stafford et al. 1985	6N	10E	30	SJ759	3
321	16	Stafford et al. 1985	6N	10E	30	SJ759	3
322	16	Stafford et al. 1985	6N	10E	30	SJ759	3
323	16	Stafford et al. 1985	6N	10E	30	SJ759	3
324	16	Stafford et al. 1985	6N	10E	30	SJ759	3
325	16	Stafford et al. 1985	6N	10E	30	SJ759	3

Number	UTM Zone	Reference	Township	Range	Section	USGS Quad Map	CR
326	16	Stafford et al. 1985	6N	10E	19	SJ759	3
327	16	Stafford et al. 1985	6N	10E	19	SJ759	3
328	16	Stafford et al. 1985	6N	10E	19	SJ759	3
329	16	Stafford et al. 1985	6N	10E	19	SJ759	3
330	16	Stafford et al. 1985	6N	10E	19	SJ759	3
331	16	Stafford et al. 1985	6N	10E	19	SJ759	3
332	16	Stafford et al. 1985	6N	10E	19	SJ759	3
333	16	Stafford et al. 1985	6N	10E	31	SJ759	3
334	16	Stafford et al. 1985	6N	10E	31	SJ759	3
335	16	Stafford et al. 1985	6N	10E	31	SJ759	3
336	16	Stafford et al. 1985	6N	10E	32	SJ759	3
337	16	Stafford et al. 1985	6N	10E	32	SJ759	3
338	16	Stafford et al. 1985	5N	10E	6	SJ759	3
339	16	Stafford et al. 1985	5N	10E	7	SJ759	3
340	16	Stafford et al. 1985	5N	10E	5	SJ759	3
341	16	Stafford et al. 1985	5N	10E	5	SJ759	3
342	16	Stafford et al. 1985	5N	10E	5	SJ759	3
343	16	Stafford et al. 1985	5N	10E	5	SJ759	3
344	16	Stafford et al. 1985	5N	10E	4	SJ759	3
345	16	Stafford et al. 1985	5N	10E	4	SJ759	3
346	16	Stafford et al. 1985	5N	10E	4	SJ759	3
347	16	Stafford et al. 1985	5N	10E	4	SJ759	3
348	16	Stafford et al. 1985	5N	10E	3	SJ759	3
349	16	Stafford et al. 1985	5N	10E	3	SJ759	3
350	16	Stafford et al. 1985	5N	10E	3	SJ759	3
351	16	Stafford et al. 1985	5N	10E	3	SJ759	3
352	16	Stafford et al. 1985	6N	10E	34	SJ759	3
353	16	Stafford et al. 1985	6N	10E	34	SJ759	3
354	16	Stafford et al. 1985	6N	10E	34	SJ759	3
355	16	Stafford et al. 1985	6N	10E	34	SJ759	3
356	16	Stafford et al. 1985	6N	10E	34	SJ759	3
357	16	Stafford et al. 1985	6N	10E	35	SJ759	3
358	16	Stafford et al. 1985	6N	10E	35	SJ759	3
359	16	Stafford et al. 1985	6N	10E	35	SJ759	3
360	16	Stafford et al. 1985	6N	10E	35	SJ759	3
361	16	Stafford et al. 1985	6N	10E	35	SJ759	3
362	16	Stafford et al. 1985	5N	10E	2	SJ759	3
363	16	Stafford et al. 1985	5N	10E	2	SJ759	3
364	16	Stafford et al. 1985	5N	10E	2	SJ759	3
365	16	Stafford et al. 1985	5N	10E	3	SJ759	3
366	16	Stafford et al. 1985	5N	10E	3	SJ759	3

Number	UTM Zone	Reference	Township	Range	Section	USGS Quad Map	CR
367	16	Stafford et al. 1985	5N	10E	3	SJ759	3
368	16	Stafford et al. 1985	5N	10E	10	SJ759	3
369	16	Stafford et al. 1985	5N	10E	10	SJ759	3
370	16	Stafford et al. 1985	5N	10E	10	SJ759	3
371	16	Stafford et al. 1985	5N	10E	10	SJ759	3
372	16	Stafford et al. 1985	5N	10E	10	SJ759	3
373	16	Stafford et al. 1985	5N	10E	11	SJ759	3
374	16	Stafford et al. 1985	5N	10E	11	SJ759	3
375	16	Stafford et al. 1985	5N	10E	14	SJ759	3
376	16	Stafford et al. 1985	5N	10E	15	SJ759	3
377	16	Stafford et al. 1985	5N	10E	10	SJ759	3
378	16	Stafford et al. 1985	5N	10E	15	SJ759	3
379	16	Stafford et al. 1985	5N	10E	10	SJ759	3
380	16	Stafford et al. 1985	5N	10E	9	SJ759	3
381	16	Stafford et al. 1985	5N	10E	9	SJ759	3
382	16	Stafford et al. 1985	5N	10E	9	SJ759	3
383	16	Stafford et al. 1985	5N	10E	9	SJ759	3
384	16	Stafford et al. 1985	5N	10E	9	SJ759	3
385	16	Stafford et al. 1985	5N	10E	9	SJ759	3
386	16	Stafford et al. 1985	5N	10E	9	SJ759	3
387	16	Stafford et al. 1985	5N	10E	9	SJ759	3
388	16	Stafford et al. 1985	5N	10E	9	SJ759	3
389	16	Stafford et al. 1985	5N	10E	8	SJ759	3
390	16	Stafford et al. 1985	5N	10E	8	SJ759	3
390	16	Stafford et al. 1985	5N	10E	8	SJ759	3
392	16	Stafford et al. 1985	5N	10E	8	SJ759	3
393	16	Stafford et al. 1985	5N	10E	8	SJ759	3
394	16	Stafford et al. 1985	5N	10E	17	SJ759	3
395	16	Stafford et al. 1985	5N	10E	17	SJ759	3
395	16	Stafford et al. 1985	5N	10E	17	SJ759	3
397	16	Stafford et al. 1985	5N	10E	17	CF764	3
398	16	Stafford et al. 1985	5N	10E	17	CF764	3
399	16	Stafford et al. 1985	5N	10E	17	CF764	3
400	16	Stafford et al. 1985	5N	10E	20	CF764	3
401	16	Stafford et al. 1985	5N	10E	16	CF764	3
402	16	Stafford et al. 1985	5N	10E	16	CF764	3
403	16	Stafford et al. 1985	5N	10E	16	CF764	3
404	16	Stafford et al. 1985	5N	10E	14	CF764	3
405	16	Stafford et al. 1985	5N	10E	14	CF764	3
406	16	Stafford et al. 1985	5N	10E	23	CF764	3
407	16	Stafford et al. 1985	5N	10E	23	CF764	3

Number	UTM Zone	Reference	Township	Range	Section	USGS Quad Map	CR
408	16	Stafford et al. 1985	5N	10E	23	CF764	3
409	16	Stafford et al. 1985	5N	10E	23	CF764	3
410	16	Stafford et al. 1985	5N	10E	23	CF764	3
411	16	Stafford et al. 1985	5N	10E	23	CF764	3
412	16	Stafford et al. 1985	5N	10E	23	CF764	3
413	16	Stafford et al. 1985	5N	10E	23	CF764	3
414	16	Stafford et al. 1985	5N	10E	21	CF764	3
415	16	Stafford et al. 1985	5N	10E	22	CF764	3
416	16	Stafford et al. 1985	5N	10E	21	CF764	3
417	16	Stafford et al. 1985	5N	10E	21	CF764	3
418	16	Stafford et al. 1985	5N	10E	20	CF764	3
419	16	Stafford et al. 1985	5N	10E	20	CF764	3
420	16	Stafford et al. 1985	5N	10E	20	CF764	3
421	16	Stafford et al. 1985	5N	10E	20	CF764	3
422	16	Stafford et al. 1985	5N	10E	20	CF764	3
423	16	Stafford et al. 1985	5N	10E	19	CF764	3
424	16	Stafford et al. 1985	5N	10E	29	CF764	3
425	16	Stafford et al. 1985	5N	10E	29	CF764	3
426	16	Stafford et al. 1985	5N	10E	29	CF764	3
427	16	Stafford et al. 1985	5N	10E	29	CF764	3
428	16	Stafford et al. 1985	5N	10E	28	CF764	3
429	16	Stafford et al. 1985	5N	10E	28	CF764	3
430	16	Stafford et al. 1985	5N	10E	28	CF764	3
431	16	Stafford et al. 1985	5N	10E	27	CF764	3
432	16	Stafford et al. 1985	5N	10E	27	CF764	3
433	16	Stafford et al. 1985	5N	10E	27	CF764	3
434	16	Stafford et al. 1985	5N	10E	27	CF764	3
435	16	Stafford et al. 1985	5N	10E	27	CF764	3
436	16	Stafford et al. 1985	5N	10E	27	CF764	3
437	16	Stafford et al. 1985	5N	10E	26	CF764	3
438	16	Stafford et al. 1985	5N	10E	26	CF764	3
439	16	Stafford et al. 1985	5N	10E	26	CF764	3
440	16	Stafford et al. 1985	5N	10E	26	CF764	3
441	16	Stafford et al. 1985	5N	10E	26	CF764	3
442	16	Stafford et al. 1985	5N	10E	26	CF764	3
443	16	Stafford et al. 1985	5N	10E	35	CF764	3
444	16	Stafford et al. 1985	5N	10E	34	CF764	3
445	16	Stafford et al. 1985	5N	10E	27	CF764	3
446	16	Stafford et al. 1985	5N	10E	28	CF764	3
447	16	Stafford et al. 1985	5N	10E	33	CF764	3
448	16	Stafford et al. 1985	5N	10E	33	CF764	3

Number	UTM Zone	Reference	Township	Range	Section	USGS Quad Map	CR
449	16	Stafford et al. 1985	5N	10E	32	CF764	3
450	16	Stafford et al. 1985	5N	10E	32	CF764	3
451	16	Stafford et al. 1985	5N	10E	33	CF764	3
452	16	Stafford et al. 1985	5N	10E	32	CF764	3
453	16	Stafford et al. 1985	5N	10E	33	CF764	3
454	16	Stafford et al. 1985	5N	10E	32	CF764	3
455	16	Stafford et al. 1985	5N	10E	32	CF764	3
456	16	Stafford et al. 1985	5N	10E	32	CF764	3
457	16	Stafford et al. 1985	5N	10E	30	CF764	3
458	16	Stafford et al. 1985	5N	10E	31	CF764	3
459	16	Stafford et al. 1985	4N	10E	5	CF764	3
460	16	Stafford et al. 1985	4N	10E	5	CF764	3
461	16	Stafford et al. 1985	4N	10E	5	CF764	3
462	16	Stafford et al. 1985	4N	10E	5	CF764	3
463	16	Stafford et al. 1985	4N	10E	5	CF764	3
464	16	Stafford et al. 1985	4N	10E	5	CF764	3
465	16	Stafford et al. 1985	4N	10E	5	CF764	3
466	16	Stafford et al. 1985	4N	10E	4	CF764	3
467	16	Stafford et al. 1985	4N	10E	4	CF764	3
468	16	Stafford et al. 1985	4N	10E	4	CF764	3
469	16	Stafford et al. 1985	4N	10E	33	CF764	3
470	16	Stafford et al. 1985	4N	10E	4	CF764	3
471	16	Stafford et al. 1985	4N	10E	3	CF764	3
472	16	Stafford et al. 1985	4N	10E	4	CF764	3
473	16	Stafford et al. 1985	4N	10E	3	CF764	3
474	16	Stafford et al. 1985	4N	10E	3	CF764	3
475	16	Stafford et al. 1985	4N	10E	4	CF764	3
476	16	Stafford et al. 1985	4N	10E	2	CF764	3
477	16	Stafford et al. 1985	5N	10E	35	CF764	3
478 ²	16	Stafford et al. 1985	7N	10E	34	HT759	3

¹ Oakdale School, Building No. 401

² Old Timbers Lodge, Building No. 485

APPENDIX L

**AMENDED
PROGRAMMATIC AGREEMENT
BETWEEN
THE DEPARTMENT OF THE ARMY,
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION,
AND THE NATIONAL CONFERENCE OF STATE HISTORIC
PRESERVATION OFFICERS
CONCERNING
REALIGNMENT AND CLOSURE OF ARMY INSTALLATIONS
IN ACCORDANCE WITH
BASE CLOSURE AND REALIGNMENT ACT**

AMENDED
PROGRAMMATIC AGREEMENT
BETWEEN
DEPARTMENT OF THE ARMY
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION, AND
THE NATIONAL CONFERENCE OF STATE HISTORIC PRESERVATION OFFICERS
CONCERNING
REALIGNMENT AND CLOSURE OF ARMY INSTALLATIONS
IN ACCORDANCE WITH
BASE CLOSURE AND REALIGNMENT ACT

WHEREAS, the Department of the Army (Army) is responsible for implementation of applicable portions of the Base Closure and Realignment Act of 1988 (P.L. 100-526) and the Defense Base Closure and Realignment Act of 1990 (P.L. 101-510), commonly known as the "BRAC" program; and

WHEREAS, the Army is proceeding with base realignment and closure actions, to include the realignment of functions and units, closure of installations, and disposal of surplus property in a manner consistent with the "Report of the Defense Secretary's Commission on Base Realignments and Closures," December 29, 1988 (Commission Report) and "Defense Base Closure and Realignment Commission Report to the President 1991," July 1, 1991; and

WHEREAS, the Army has determined that its implementation of the BRAC program may have effects on properties included in and eligible for inclusion in the National Register of Historic Places (historic properties); and

WHEREAS, the Army has entered into a Programmatic Agreement on February 5, 1990 with the Advisory Council on Historic Preservation (Council) and the National Conference of State Historic Preservation Officers (NCSHPO) pursuant to Section 800.13 of the regulations (36 CFR Part 800) implementing Sections 106 and 110(f) of the National Historic Preservation Act (NHPA) and Army Regulation 420-40, "Historic Preservation;" and

WHEREAS, the Army has renewed its consultation with the Council and the NCSHPO to amend the previous Agreement because of new realignment and closure actions not covered by the previous Agreement;

NOW, THEREFORE, the Army, the Council, and the NCSHPO agree that the Army's implementation of the BRAC program shall be administered in accordance with the following stipulations, which will supersede the Agreement of February 5, 1990, and will satisfy the Army's Section 106 and 110(f) responsibilities for all individual undertakings under the BRAC program.

Stipulations

The Army will ensure that the following measures are carried out.

I. Applicability

The terms of this Agreement apply only to Army installations which may be affected under the provisions of P.L. 100-526 and P.L. 101-510 (see Attachment 1).

II. Areas of Potential Effects

Although some BRAC actions may induce changes in population distribution, traffic, and land use that extend beyond the particular facilities to be closed and parcels on which new construction will occur, the effect of these changes on historic properties is uncertain at this time. Accordingly, during preliminary coordination with the SHPO (Stipulation III), the Army will define the area of potential effects of a BRAC action consistent with the Council's regulations (36 CFR Section 800.2(c), 800.9(a), and 800.9(b)) and with reference to possible adverse effects to known historic properties which may reasonably be expected to occur on or adjacent to the property subject to the BRAC action. In cases of dispute over the area of potential effects of a BRAC action, the opinion of the Council will be binding on all parties to this Agreement.

III. NEPA and Preliminary Coordination with the SHPO

A. It is mutually understood that many of the terms of this Agreement will be carried out after the Army has complied with the National Environmental Policy Act (NEPA) and filed its Record of Decision (ROD), Finding of No Significant Impact (FNSI), or Record of Environmental Consideration (REC). Nevertheless:

1. the Army must meet all its NHPA responsibilities for BRAC generated activities; and

2. whenever it is feasible for the Army to carry out the terms of this Agreement prior to filing the ROD, FNSI, or REC, the Army will do so; and

3. when it is infeasible to complete the actions required by Sections 106 and 110(f) of the NHPA prior to issuance of a REC, FNSI (assuming a FNSI is otherwise proper given the affects on historic properties) or ROD, the Army will stipulate in the REC, FNSI or ROD the specific areas in which the Army has not complied with the NHPA. The FNSI or ROD will further specify that the Army will not undertake any new BRAC construction, renovation, land disposal, training exercises, or other activities which could

affect historic properties until the actions necessary to inventory, assess, and take into account the effects on historic properties have been completed consistent with the terms set forth in this Agreement; and

4. the Army Historic Preservation Officer or her designee will review the draft ROD or FNSI for each BRAC project to ensure that outstanding historic preservation requirements are adequately addressed in these documents; and

5. the Army will ensure that no actions that could result in effects on historic properties are undertaken pursuant to a ROD, FNSI, or REC until the terms of this Agreement have been carried out.

B. The Army will notify the appropriate SHPO within 60 days after the signing of this agreement about the nature and timing of the BRAC actions for individual installations and will provide the following information:

1. a description of the type and location of the undertaking.

2. currently available milestones for BRAC actions affecting the installation.

3. information available about historic properties at the installation.

4. currently available information about the actions of the Department of Defense Office of Economic Adjustment concerning the setup of local reuse committees for those installations or portions of installations which the Army will dispose.

C. The Army will coordinate the NEPA process with its NHPA activities. In accordance with the memorandum to all BRAC participants (Attachment 2), NEPA documentation for each facility will:

1. identify known historic properties and past studies;

2. identify the potential for historic properties to be affected by the BRAC process; and

3. identify the steps necessary for the Army to meet its Section 106 responsibilities under NHPA.

D. The level of documentation in Stipulation III. C. 1-3. above will be commensurate with the type of environmental document prepared. Only brief overviews and summaries of impacts, if any, are expected in Records of Environmental Consideration and Environmental Planning Guides. When Environmental Assessments and Environmental Impact Statements are prepared, a more detailed presentation of data will be included.

E. The Army will send the Council and appropriate SHPOs all BRAC Environmental Assessments (EAs) and Draft Environmental Impact Statements (DEISs) for their review and comment. There will be a 45 day review period for each EIS during the public comment period. The review time for each EA, however, will be 15 working days from receipt, due to an accelerated schedule. The information included in these documents will constitute the first effort in the process to identify historic properties and assess the potential effects on them as defined in 36 CFR Part 800.4 and 800.5.

F. The Army will ensure that copies of final BRAC EAs and Final Environmental Impact Statements (FEISs) are provided to appropriate SHPOs and the Council.

G. The Army shall provide a copy of this Agreement, its attachments, AR 420-40, 36 CFR 800, and the materials listed in Stipulation IX of this Agreement to appropriate commanders and Army elements responsible for Army BRAC NEPA compliance.

H. On November 1, 1992 and on that same date every year thereafter, the Army will provide the Council, all appropriate SHPOs, and the NCSHPO, with an annual update report on the status of BRAC activities. The report shall discuss all BRAC historic resource investigations and coordination undertaken and document all no effect or no adverse effect determinations received for BRAC projects. The report will also include a discussion of activities undertaken for closing facilities by the Department of Defense Office of Economic Adjustment. This report will be prepared until such time as all necessary NHPA requirements for BRAC have been met or a decision has been made by the Army not to proceed with further BRAC actions.

IV. IDENTIFICATION AND EVALUATION

A. Identification

1. Based on the assembly of existing information through the NEPA process, the Army will consult with appropriate SHPOs and make a reasonable and good faith effort to identify historic properties located on installations under Army control that will be affected by BRAC construction, U.S. Army Corps of Engineers

Toxic and Hazardous Materials Agency (THAMA) BRAC cleanup activities, or U.S. Army BRAC land disposal activities.

2. When existing information is not adequate for identifying historic properties that will be affected by BRAC activities, the Army will undertake installation-specific field surveys in accordance with appropriate professional standards as defined in the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 FR 44716-42; hereafter "Standards and Guidelines"), except as provided in Attachment 3.

3. The Army will develop priorities for undertaking identification and evaluation of historic properties on individual installations. These priorities will be determined by:

a. the specific nature and timing of the undertaking proposed;

b. the land configuration, size, current mission, and land use history of the individual Army installation;

c. the potential nature and extent of historic properties (including but not limited to those which may be of special significance for their connection with the origins and the development of the Cold War); and

d. possible constraints on field investigations, such as ranges, impact and contaminated areas, safety zones and hazardous materials.

4. All identification and evaluation actions will be carried out by the Army in consultation with the appropriate SHPO. The Army will provide information to the SHPOs concerning the constraints of the type noted in Stipulation IV.A.3.d. above. In addition, the Army and the SHPOs will assemble and exchange information as it becomes available on the location and evaluation of historic properties.

5. The Army will ensure the identification of records and objects related to the historic significance of properties to be disposed of. Each installation will be required to identify extant historic records and related historic objects.

6. Throughout the planning and implementation of the BRAC program, the Army will provide guidance to the field to ensure that historic properties are not inadvertently damaged, destroyed, or allowed to deteriorate before, during, or after closure or realignment.

B. Evaluation

The Army will determine, in consultation with the appropriate SHPO, the eligibility of properties for inclusion in the National Register in accordance with 36 CFR 800.4(c), and with reference to inventories and planning by the State, the Army's history and traditions, previous Army historic site surveys, and any thematic studies that may have been completed or are underway. If the Army and SHPO fail to agree upon the National Register eligibility of a property, the Army will obtain a determination of eligibility from the Secretary of Interior pursuant to 36 CFR 800.4(c)(4).

V. Determinations of Effect

A. The Army, in consultation with the appropriate SHPO, shall determine the effect of BRAC actions on historic properties in accordance with 36 CFR 800.5, applying the Criteria of Effect and Adverse Effect at 36 CFR 800.9.

B. Where the Army determines pursuant to 36 CFR 800.5 that an adverse effect may occur, then:

1. if the Army determines, in consultation with the SHPO and taking into account the comments, if any, of the interested persons identified at 36 CFR 800.5(e)(1), that it is appropriate to apply the standard mitigation measures set forth in Attachment 4, the Army will provide the SHPO and the Council with sufficient documentation to support this determination, advise them that the Army intends to carry out the specified measures, and request their concurrence within 30 days. If the Council and the SHPO concur within 30 days of their receipt of such documentation, the Army shall carry out the standard mitigation measures it has determined to be appropriate. Failure by the Council or SHPO to respond within the specified time period shall be conclusive of that party's concurrence. Should the Council or SHPO disagree with the Army's determination, the Army will initiate consultation in accordance with 36 CFR 800.5(e).

2. if the Army and the SHPO, taking into account the comments, if any, of the interested persons identified at 36 CFR 800.5(e)(1), agree on a program to avoid, minimize, or mitigate the adverse effect, the Army will provide the Council with sufficient documentation to support this determination and request its concurrence within 30 days. If the Council concurs within 30 days of its receipt of such documentation, the Army shall carry out the program. Failure by the Council to respond within the specified time period shall be conclusive of the Council's concurrence. Should the Council object to the program, the Army will undertake

consultation in accordance with 36 CFR 800.5(e).

3. if the Army determines that neither paragraph 1 nor paragraph 2 above is applicable, or effects on an NHL are involved, then the Army will initiate consultation in accordance with 36 CFR 800.5(e).

VI. Treatment and Management.

A. The Army will ensure that the effects of BRAC actions on historic properties are treated in accordance with the determinations and agreements reached pursuant to Stipulation V.

B. For those installations or portions of installations which will remain under Army control, the Army will develop treatment and management plans to ensure that properties affected by BRAC are incorporated into installation Historic Preservation Plans/Cultural Resource Management Plans (HPP/CRMP) in accordance with AR 420-40, and shall create such HPP/CRMPs should they not presently exist. All such HPP/CRMPs shall be developed or amended to include properties affected by BRAC within a reasonable period of time following the date of this Agreement, not to exceed the September 30, 1995 date for completion of BRAC actions as specified in P.L. 100-526 and the July 1, 1998 date as specified in P.L. 101-510.

C. Notwithstanding any other provision of this Agreement, the Army may undertake documentation of historic structures in a manner consistent with the Secretary of the Interior's Standards and Guidelines for Architectural and Engineering Documentation (48 FR 44730-34) prior to making a determination or reaching an agreement pursuant to Stipulation V, if the Army judges that such documentation is likely to be part of an acceptable mitigation program.

D. Notwithstanding any other provision of this Agreement, the Army may enter into agreements with appropriate SHPOs and the Council, seeking the concurrence of other interested persons, if any, establishing processes for the identification, evaluation, treatment and management of historic properties that may be subject to effect by a BRAC action, in lieu of identifying such properties and establishing specific treatment or management plans for them prior to making a decision regarding such an action, where:

1. the precise nature, schedule, location or design of the action is uncertain, and

2. the Army, SHPO, and Council agree that the effects of the action are likely to be relatively minor, or affect historic

properties whose treatment or management will require the application of routine procedures.

E. The Army will ensure that the provisions of the Archaeological Resources Protection Act (P.L. 96-95) and the Native American Graves Protection and Repatriation Act (P.L. 101-601) are implemented, as appropriate, during the BRAC program.

VII. Interim Protection, Records Retention, and Long-Term Curation

A. The Army will notify the appropriate commanders of the need for interim protection of identified and potential historic properties to ensure that deferred maintenance or other management decisions do not adversely affect the integrity of these properties. Important architectural elements will be identified to ensure future appropriate disposal.

B. The Army will consult with the SHPO on terms of curation and disposition of historical documents, drawings, photographs, reports, and archeological materials generated by BRAC studies.

VIII. Public Involvement

A. For those installations or portions of installations of which the Army will dispose, the Army will notify the Department of Defense Office of Economic Adjustment and the local reuse committees about NHPA requirements and concerns. To the fullest extent possible and appropriate, the Army will work with the local reuse committees, appropriate SHPOs and other interested parties to develop treatments and/or management plans to ensure compatible reuse.

B. The Army and the appropriate SHPO will consider the need for additional consulting parties consistent with the Council's publication, "Public Participation in Section 106 Review: A Guide for Agency Officials" (Advisory Council on Historic Preservation, 1989).

C. To the extent practicable, public participation shall be coordinated with public participation under NEPA.

IX. Standards and Guidelines

Standards and guidelines for implementing this Agreement include, but are not limited to:

Army Regulation (AR) 420-40: Historic Preservation

(Department of the Army, 15 May 1984);

36 CFR Part 800: Protection of Historic Properties;

The Section 110 Guidelines: Guidelines for Federal Agency Responsibilities under Sec. 110 of the National Historic Preservation Act (53 FR 4727-4746);

The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (48 FR 44716-42);

The Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (National Park Service, 1990);

Identification of Historic Properties: a Decisionmaking Guide for Managers (Advisory Council on Historic Preservation, 1988);

Public Participation in Section 106 Review: A Guide for Agency Officials (Advisory Council on Historic Preservation, 1989); and

Preparing Agreement Documents (Advisory Council on Historic Preservation, 1989).

Guidelines for Evaluating and Documenting Traditional Cultural Properties (National Register Bulletin 38, 1991).

X. Dispute Resolution

A. Should a SHPO or an interested person identified at 36 CFR 800.5(e)(1) object to the Army's implementation of any part of this Agreement, the Army shall consult with the objecting party to resolve the objection. If the Army determines that the objection cannot be resolved, the Army shall forward all documentation relevant to the dispute to the Council. Within 30 days after receipt of all pertinent documentation, the Council will either:

1. provide the Army with recommendations, which the Army will take into account in reaching a final decision regarding the dispute; or

2. notify the Army that it will comment pursuant to 36 CFR 800.6(b), and proceed to comment. Any Council comment provided in response to such a request will be taken into account by the

Army in accordance with 36 CFR 800.6(c)(2) with reference to the subject of the dispute.

B. Any recommendation or comment provided by the Council will be understood to pertain only to the subject of the dispute; the Army's responsibility to carry out all actions under this Agreement that are not the subject of the dispute will remain unchanged.

C. Should a member of the public object to any measure carried out under the terms of this Agreement, or the manner in which such a measure is implemented, the Army shall take the objection into account and consult as needed with the objecting party, the SHPO, and the Council to resolve the objection.

XI. Amendments

Any party to this Agreement who determines that some portion of the Agreement cannot be met must immediately request the other signatories to consider an amendment or addendum to this Agreement which would ensure full compliance. Such an amendment or addendum shall be executed in the same manner as the original Agreement. Should any party to this Agreement be unable to maintain a level of effort sufficient to carry out the terms of this Agreement, that party shall notify the others and seek an appropriate amendment.

XII. Termination of Existing and New Agreements

A. The Agreement of February 5, 1990 for the BRAC program will terminate upon the date of final signature of this Agreement.

B. This Agreement will terminate on September 30, 1997, unless the parties agree to extend the terms of this agreement beyond that date.

Execution and implementation of this Programmatic Agreement establishes that the Army has satisfied its responsibilities under Sections 106 and 110(f) of the National Historic Preservation Act for all individual undertakings of the BRAC program as outlined in this Agreement.

DEPARTMENT OF THE ARMY

BY: Paul W. Johnson (date) 13 July 92
Paul W. Johnson, Deputy Assistant Secretary of the Army
(Installations and Housing)

NATIONAL CONFERENCE OF STATE HISTORIC PRESERVATION OFFICERS

BY: H. Bryan Mitchell (date) 7/17/92
H. Bryan Mitchell, President

ADVISORY COUNCIL ON HISTORIC PRESERVATION

BY: John C. Harper (date) 7/15/92
John C. Harper, Chairman

ATTACHMENT 1

BRAC I AFFECTED FACILITIES

Alabama

- Alabama Army Ammunition Plant - closure
- Coosa River Annex - closure
- Anniston Depot - realignment
- Redstone Arsenal - realignment

Arizona

- Navajo Activity - closure
- Fort Huachuca - realignment
- Yuma Proving Ground - realignment

California

- Presidio of San Francisco - closure
- Hamilton Army Air Field - closure
- Sierra Depot - potential realignment
- Fort Ord - realignment*
- Oakland Army Base - realignment
- Fort Irwin - realignment
- Camp Parks - realignment
- Sacramento Army Depot - realignment*

Colorado

- Bennett Army National Guard Facility - closure
- Pueblo Depot - realignment
- Fort Carson - realignment
- Fitzsimmons Army Medical Center - realignment

District of Columbia

- Fort McNair - realignment
- Walter Reed Army Medical Center - realignment

Florida

- Cape St. George Reservation - closure

Georgia

- Fort Gordon - realignment
- Fort Benning - realignment

Hawaii

Kapalama Military Reservation - closure
Schofield Barracks - realignment

Illinois

Fort Sheridan - closure

Indiana

Jefferson Proving Ground - closure
Indiana Army Ammunition Plant - partial closure
Fort Benjamin Harrison - realignment*

Iowa

Fort Des Moines - partial closure

Kansas

Fort Leavenworth - realignment

Kentucky

Lexington Bluegrass Army Depot - closure
Bluegrass Activity - realignment
Fort Knox - realignment
Fort Campbell - realignment

Louisiana

New Orleans Military Ocean Terminal - closure

Massachusetts

Army Materials Technology Laboratory - closure
Fort Devens - realignment*
Natick Research, Development & Engineering Center -
realignment

Maryland

Nike site at Aberdeen Proving Ground - closure
Gaithersburg Army Reserve Center - closure
Fort Meade - partial closure and realignment
Fort Holabird - partial closure and realignment
Fort Detrick - realignment+
Aberdeen Proving Ground - realignment
Harry Diamond Laboratory - realignment

Michigan

Pontiac Storage Facility - closure
Detroit Arsenal - realignment+

Missouri

Nike site at Kansas City - closure
Fort Leonard Wood - realignment

North Carolina

Fort Bragg - realignment

New Jersey

Fort Dix - realignment
Fort Monmouth - realignment+
Picatinny Arsenal - realignment+
Nike Philadelphia 41/43 (stand alone housing) - closure

New Mexico

Fort Wingate - closure
White Sands Missile Range - realignment

Nevada

Hawthorne Army Ammunition Plant - realignment

New York

Fort Drum - realignment

Oklahoma

Fort Sill - realignment

Oregon

Umatilla Depot - realignment

Pennsylvania

Tacony Warehouse - closure
Tobyhanna Depot - realignment
Letterkenny Depot - realignment
Fort Indiantown Gap - realignment

South Carolina

Fort Jackson - realignment

Texas

Fort Bliss - realignment
Red River Depot - realignment

Utah

Fort Douglas - closure
Tooele Depot - realignment

Virginia

Cameron Station - closure
Fort Belvoir - realignment
Fort Lee - realignment
Fort Myer - realignment
Fort A. P. Hill - realignment

Washington

Fort Lewis - realignment

Wisconsin

Fort McCoy - realignment

The Defense Base Closure and Realignment Act of 1990, Public Law 101-510, (BRAC 91) overturned a number of the base realignment and closure recommendations made by the Base Closure and Realignment Act of 1988, Public Law 100-526, (BRAC I).

- Indicates that the installation is now recommended for closure by BRAC 91.

- + Indicates that the realignment actions proposed by BRAC I have been overturned by BRAC 91 recommendations.

BRAC 91 AFFECTED FACILITIES

Alabama

Anniston Army Depot - realignment
Redstone Arsenal - realignment

Arizona

Fort Huachuca - realignment.

Arkansas

Fort Chaffee - realignment

California

Fort Ord - closure
Sacramento Army Depot - closure

Colorado

Fort Carson - realignment

Illinois

Rock Island Arsenal - realignment

Indiana

Fort Benjamin Harrison - closure

Kentucky

Fort Knox - realignment

Louisiana

Fort Polk - realignment

Maryland

Aberdeen Proving Ground - realignment
Harry Diamond Laboratories, Adelphi - realignment

Massachusetts

Fort Devens - closure

Missouri

Aviation Systems Command & Troop Support Command -
realignment

New Jersey

Fort Dix - realignment
Fort Monmouth - realignment
Picatinny Arsenal - realignment

New Mexico

White Sands Missile Range - realignment

Ohio

Army Aviation Propulsion Directorate - realignment

Pennsylvania

Letterkenny Army Depot - realignment
Tobyhanna Army Depot - realignment

South Carolina

Fort Jackson - realignment

Texas

Corpus Christi Army Depot - realignment
Fort Hood - realignment
Red River Army Depot - realignment

Virginia

Army Research Institute - realignment
Fort Belvoir - realignment
Harry Diamond Laboratory, Woodbridge Research Facility -
closure

Washington

Fort Lewis - realignment

ATTACHMENT 2

PLAN TO ACCOMPLISH HISTORIC AND CULTURAL RESOURCES REQUIREMENTS
IAW BASE REALIGNMENT AND CLOSURE IMPLEMENTATION PLAN FOR THE ARMY

1. Purpose. The Army will accomplish the requirements of this Programmatic Agreement IAW the BRAC Implementation Plan and the following guidance.

2. Chief of Engineers (COE) will:

a. Provide technical advice and assistance relating to compliance with historic and cultural resources laws, rules, and regulations.

b. Develop standards for information about historic and cultural resources and for assessments of undertakings having an effect on significant and historic resources.

c. Assist MACOMs in developing MOAs and compliance documents for individual installations.

d. Obtain the signature of the Army's Federal Representative (OASA(I&H)) on Memorandum of Agreement (MOA) entered into with the Advisory Council and the SHPOs for installation base realignment and closure undertakings.

e. Review historic and cultural resources work requirements and cost estimates, as requested by MACOMs.

f. Monitor compliance activities in order to correlate with BRAC schedule and report to Deputy Assistant Secretary of the Army (Installations and Housing).

g. Prepare an annual update report on BRAC cultural resource activities for distribution to appropriate Army offices, SHPOs and the Advisory Council. This report will be based upon information to be supplied by appropriate MACOMs.

h. Notify appropriate SHPOs about the nature and timing of BRAC actions on Army installations within their states. The content of these notifications will be based upon information supplied by affected MACOMs.

i. Coordinate with and inform the Office of Economic Adjustment and designated reuse committees about historic property concerns at closing Army facilities.

j. Point of contact is Constance Ramirez (CEHSC-FN) CML 703-704-1570, DNS 654-1570.

k. USACE Mobile District will assist CEHSC-FN with the management and coordination of the BRAC cultural resources program.

3. MACOMS will:

- a. Ensure that all installations meet NHPA requirements.
- b. Include compliance with NHPA in MACOM Base Realignment and Closure Implementation Plan and engineer action plan.
- c. Consolidate, evaluate, and program installation historic and cultural resources work and funding requirements based upon Corps of Engineers input.
- d. Identify compliance tasks and schedule for each installation.
- e. Assist installations, as appropriate, in development of MOAs and other compliance and mitigation documents.
- f. Forward all MOAs to CEHSC-FN for ratification by Army's Federal Representative (DASA(I&H)).
- g. Review DD Form 1391 to ensure project compliance with NHPA and/or MOAs.
- h. Coordinate with Center for Military History on treatment of historic records associated with historic places.
- i. Provide CEHSC-FN with annual updates of BRAC cultural resource accomplishments so that an annual report can be prepared for submission to appropriate Army offices, SHPOs, and the Advisory Council.
- j. Provide CEHSC-FN with information about the nature and timing of BRAC actions at individual installations so that this information can be communicated to appropriate SHPOs.

k. MACOM historic preservation contacts are:

FORSCOM: Dr. James Cobb/FCEN-CED-E/(404)669-7812

TRADOC: Dr. Paul Green/ATBO-GE/(804)727-2037

AMC: Mr. Paul McGuff/CESWF-PL-RC/USACE Fort Worth District/(817)334-2625

MDW: Ms. Edna Barber/ANEN-E/(202)475-2793

Other MACOMS: Dr. Constance Ramirez/CEHSC-FN/(703)704-1570

1. MACOMS will ensure that installations:

- (1). Provide all existing information about historic and cultural resources to USACE districts preparing Section 106

Consultation Packages and Environmental Assessment/Environmental Impact Statements.

(2). Ensure adequacy of historic and cultural resource information in NHPA and NEPA documentation.

(3). Establish a POC for historic resources for all base realignment and closure actions and forward name, address and telephone number to MACOM POC.

(4). Provide materials about the installation's mission and its historic and cultural resources for compliance consultation with SHPO, Advisory Council and MACOM.

4. MACOMs will provide guidance to USACE District Offices and contractors preparing or overseeing preparation of NEPA documents to:

a. Ensure that adequate information on historic and cultural resources are included in each REC, EA, and EIS.

b. Include the following information in each EA and EIS regarding historic and cultural resources:

(1) Reference and description of BRAC Programmatic Agreement.

(2) Background statements on the prehistory, civilian history, and military history of the affected installation.

(3) Overview of previous cultural resource inventories, investigations, agreements, and historic preservation plans.

(4) List and give general locations of all National Historic Landmarks or National Register properties and districts located on the subject installation. When feasible and not considered detrimental to site protection and preservation, the locations of these properties should be displayed on maps.

(5) If applicable, list and give locations of National Historic Landmarks or National Register properties located off of Army property that might be affected physically, visually, or audibly by BRAC activities. When feasible and not considered detrimental to site protection and preservation, the locations of these properties should be displayed on maps.

(6) Give the number and general location of archeological sites and historic buildings on the subject facility. State how many of these properties have been determined eligible for the National Register. When feasible and not considered detrimental to site protection or preservation the locations these properties should be displayed on maps.

(7) State whether the buildings or lands to be affected by BRAC actions have been inventoried for National Register significance. Identify any historic buildings and/or archeological sites that will be affected by BRAC actions. Give the National Register status of these properties. If the areas to be affected have been previously examined and a no effect or no adverse effect will result from the BRAC activities, reference the SHPO correspondence that concurs with this opinion.

(8) If National Register eligible or listed properties are located within the area of potential effect, determine the effects of the BRAC action on these historic properties. Effects may include but not be limited to:

- (a) Destruction of historic buildings.
- (b) Construction in historic districts.
- (c) Repair or alteration of historic buildings.
- (d) Construction in areas with archeological sites.
- (e) Transfer of ownership to non-federal parties.
- (f) Decreased maintenance resulting in deterioration of historic buildings.
- (g) Change of mission training in range areas resulting in soil erosion or disturbance of ground surface in new areas.

(9) Describe and state the results of any cultural resource investigations undertaken for BRAC actions.

(10) Identify any additional cultural resource investigations that will be required to meet NEPA and NHPA Section 106, 110, and 111 requirements before the BRAC action can proceed. The scope of these actions should be identified in as much detail as possible. Recommendations for work should be restricted solely to those effects brought about by BRAC closure, realignment, or land disposal actions. Information about work efforts to be recommended at the affected installations will include at least the following:

(a) Approximate size (in acres) of areas to be recommended for archeological survey.

(b) Approximate number and locations of buildings, structures, districts, objects or sites to be recommended for historical inventory.

(c) Approximate number of known archeological sites needing additional investigations to determine National Register eligibility.

(d) Approximate cost estimates to complete the above recommended work items.

(11) Provide POC for historic resources actions to MACOMs.

5. Schedule: In order to ensure that NHPA requirements do not delay realignments and closure activities, work should be initiated and funded at the earliest possible date to accomplish necessary resource inventories, studies, mitigation, and coordination measures.

6. Point of Contact for technical questions is CEHSC-FN (Constance Ramirez) at CML 703-704-1570/DNS 654-1570. Point of contact for questions concerning policy issues is DAEN-ZCI-B (Doug Macheray) at CML 703/693-5039/AV 223-5039.

ATTACHMENT J

EXCEPTIONS TO IDENTIFICATION PROCEDURES

Where existing information is not adequate for identifying historic properties, the Army nonetheless need not undertake installation-specific field surveys pursuant to Stipulation IV.A.2 if:

a. the lands involved will be transferred to another Federal agency that will use them for purposes no more likely to adversely affect historic properties than those for which the lands are presently used by the Army, provided the recipient Federal agency agrees to develop and implement a program, in consultation with the SHPO and other interested persons, for carrying out the requirements of Section 110(a)(2) of the National Historic Preservation Act on the lands it receives; or

b. the lands involved will be transferred to a State or local agency that enters into an agreement with the Army, the SHPO, and the Council stipulating that it will use them for purposes likely to have no adverse effect on historic properties which may be present, and that it will develop and implement a program, in consultation with the SHPO, the Council, and other interested persons, for identifying and protecting historic properties in a manner consistent with the "Standards and Guidelines" and other applicable Department of the Interior and Council guidelines; or

c. the BRAC action that will affect the lands involved, and the nature of the historic properties that may exist on such lands, are such that the Army, the SHPO, the Council, and other interested persons agree that identification need not be carried out, or may be carried out at a later date, and enter into an agreement stipulating how and by whom any identification will be carried out.

ATTACHMENT 4

STANDARD MITIGATION MEASURES

1. Transfer of a historic building or structure subject to a preservation covenant, enforceable under applicable State law, equivalent to the example shown in Figure 7 of the Council's 1989 publication: "Preparing Agreement Documents" (pp. 30-31), combined with a program of recordation approved by the SHPO as consistent with the Secretary of the Interior's Standards and Guidelines for Architectural and Engineering Documentation (48 FR 44730-34).

2. Recovery of data from an archeological site or sites in accordance with a research design and data recovery plan prepared in consultation with the SHPO and interested persons (including any interested Indian tribe or other Native American group) and addressing each of the following points:

- the property, properties, or portions of properties where data recovery is to be carried out;
- any property, properties, or portions of properties that will be altered or transferred without data recovery;
- the research questions to be addressed through the data recovery, and the importance and relevance of each;
- the methods to be used, and their relevance to the research questions;
- the methods to be used in analysis, data management, and dissemination of data, including a schedule;
- the disposition of recovered materials and records;
- the methods for involving the interested public in the data recovery;
- the methods for disseminating results of the work to the interested public;
- the methods by which local governments, Indian tribes, and other interested persons will be kept informed of the work and afforded the opportunity to comment; and
- the methods and schedule by which progress and final reports will be provided to the SHPO, the Council, and interested persons.

APPENDIX M

**MEMORANDUM OF AGREEMENT
BETWEEN THE DEPARTMENT OF THE ARMY,
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION,
AND THE INDIANA STATE HISTORIC PRESERVATION
OFFICER
CONCERNING CLOSURE
OF JEFFERSON PROVING GROUND, INDIANA**

MEMORANDUM OF AGREEMENT

BETWEEN THE DEPARTMENT OF THE ARMY, THE ADVISORY COUNCIL ON HISTORIC PRESERVATION, AND THE INDIANA STATE HISTORIC PRESERVATION OFFICER CONCERNING CLOSURE OF THE JEFFERSON PROVING GROUND, INDIANA

WHEREAS the United States Department of the Army (Army) has determined that the closure of the Jefferson Proving Ground, Indiana (JPG) may have adverse effects on properties that are eligible for inclusion in the National Register of Historic Places, and has consulted with the Indiana State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (Council) in accordance with Section 106 of the National Historic Preservation Act, 16 U.S.C. 470 et. seq. (the Act), its implementing regulations 36 CFR Part 800), and the Programmatic Agreement (PA) among the Army, the Council, and the National Conference of State Historic Preservation Officers, executed 05 February 1990; and

WHEREAS pursuant to Stipulation VI.E of the PA, the consulting parties have agreed that because the precise nature and schedule of activities associated with the closure, environmental restoration, and disposal of JPG are uncertain, and because such activities are likely to affect properties whose treatment or management will require the application of routine procedures, it is appropriate for the Army in this memorandum of agreement to set forth processes for the identification, evaluation, treatment and management of historic properties in lieu of identifying such properties and establishing specific treatment or management plans for them prior to closure;

NOW, THEREFORE, it is mutually agreed that the following stipulations will be adhered to in order to take into account the effect of the Project on historic properties in accordance with the Act.

Stipulations

The Army will ensure that the following stipulations are implemented:

I. Cultural Resource Management Plan

A. The Army will prepare a Cultural Resource Management Plan (CRMP) for JPG in consultation with the SHPO, and Council, and in accordance with the standards outlined in Attachment A. The Army will ensure that the CRMP is complete in draft form by September 30, 1994 at the latest, and that subject to resolution of disagreements or questions in accordance with Stipulation I.B, the CRMP is finalized and implemented by September 30, 1995.

B. When the CRMP is complete in draft form, the Army will provide copies of the draft to the SHPO and the Council for a review over a 30-day period. Acceptance of the CRMP draft will be in writing at the end of the 30-day period; or assumed, in the case that comments are not made. Disagreements or questions about the draft CRMP will be resolved through consultation among the parties.

C. Upon acceptance of the CRMP by the SHPO and the Council, the Army will finalize and implement it in lieu of compliance with 36 CFR 800.4 through 800.6 and 36 CFR 800.11.

D. The Army will prepare a report every two years on its implementation of the CRMP, and provide this report to the SHPO for review, comment, and consultation as needed.

E. The Army will ensure that the CRMP is re-evaluated and updated as needed on a five-year implementation cycle, in consultation with the SHPO. Should the CRMP require significant revision, the Army will initiate consultation with the Council in accordance with 36 CFR 800 to make such revisions and to amend or replace this agreement.

II. Interim Protection of Historic Properties

A. The Army will ensure that the structures listed in Attachment B, are secured, stabilized, protected, and maintained in accordance with Army Technical Manual 5-801-2.

B. The JPG timber management program activities of timber harvesting and thinning are undertakings that necessitate inventory and assessment for archeological resources. The Army will ensure that such inventory and assessment is conducted in consultation with the SHPO. Further, the Army will monitor the effectiveness of its surveys by inspecting the areas of potential effect immediately after harvesting to:

1. Gather any additional information about the presence, extent, and nature of sites that may be discovered as a result of harvesting operations.

2. Assess the effect of harvesting upon archeological sites.

3. Assess the effectiveness of the conditions specified in this Agreement in minimizing damage to archeological sites and make recommendations about additional conditions, if any, that may be appropriate.

C. Until the CRMP has been accepted by the SHPO and the Council, the Army will comply with 36 CFR 800 with respect to any undertaking it proposes to carry out at JPG, except as provided in the paragraphs below.

1. Continuing operations of the installation whose effects will occur entirely within heavily contaminated/low resource sensitivity areas as shown in Attachment C shall not be subjected to archeological survey because of their prior disturbance, a need to avoid undue danger of injury to survey personnel by contact with unexploded ordnance or other hazard, and/or low potential for containing historic properties.

2. The JPG timber management program will continue following closure. Any activities of this program such as timber marking and use and maintenance of existing fire lanes, which have little potential to further disturb or damage archeological sites, are exempted from further coordination. If historic properties or potential historic properties are discovered during archeological survey prior to timber harvests, and these places are marked in consultation with the SHPO and avoided during harvesting, then there shall be no effect on historic properties. However, if avoidance of historic properties or potential historic properties is not possible, the timber management action shall be subject to further coordination pursuant to 36 CFR 800.

3. JPG may continue its agricultural outleasing program following closure. If so, grazing leases or agricultural leases that will result in no disturbance of the ground surface, or foundations above the ground surface, shall be exempted from further coordination requirements. Any leases that could result in construction of new facilities, any tillage of previously unplowed ground, and/or other actions that have the potential

to disturb historic properties, shall be undertakings subject to coordination pursuant to 36 CFR 800.

4. Programs and activities under the JPG Natural Resource Management Program shall be exempted from coordination requirements unless these programs and activities should require construction of new facilities, disturbance of previously undisturbed surfaces, or any tillage of previously unplowed ground. Any undertakings that involve construction or disturbance of previously undisturbed surfaces shall be subject to coordination pursuant to 36 CFR 800.

5. Only non-temporary buildings and structures built 1946 or earlier shall be subject to coordination under the Act when they will be affected by a planned demolition project, or significant alteration of their character due to maintenance or renovation activities.

D. Security. The Army will ensure that the provisions of the Archeological Resources Protection Act of 1979 are vigorously enforced at JPG for as long as the property remains under Army jurisdiction.

III. Disposal of Jefferson Proving Ground

A. Transfer to Other Federal Agencies

1. Notwithstanding any other provision of this memorandum of agreement, it is understood that should the Army transfer any portion of JPG to another Federal agency for conservation purposes, such as for use as a wildlife refuge or park, the Army need not identify, evaluate, or plan for the management of historic properties within such portion of JPG, except to the extent required to address effects of environmental hazard remediation, but will provide to the receiving agency all available information on known historic properties and areas where historic properties are likely to occur, so that the receiving agency can use such information in its own compliance with the Act.

2. Notwithstanding any other provision of this memorandum of agreement, it is understood that should the Army transfer any portion of JPG to another Federal agency for other than conservation purposes, the parties to this memorandum of agreement and the receiving agency will consult to determine what actions, if any, may be necessary to preserve historic properties subject to effect by such transfer, and will amend this memorandum of agreement or take other actions in accordance with 36 CFR 800 to the extent needed to specify how such actions, if any, will be implemented.

B. Transfer to Non-Federal Agencies

1. Archeological Properties

a. If the Army proposes to transfer to a non-federal entity any property that has been determined eligible for inclusion in the Register, the Army will ensure that potential interested parties are identified in consultation with the SHPO and Council and invited to participate in planning, and that either:

i. Such property is identified in the transfer documents and made the subject of the preservation condition set forth in Attachment D, which will be included in the transfer instrument pertaining to the real property containing the property and recorded in the real estate records of Jefferson, Jennings, or Ripley Counties, State of Indiana for the transfer of such real property; or,

ii. Such property is subjected to archeological data recovery prior to transfer. The data recovery shall meet the standards set forth in Attachment E.

b. If the Army proposes to transfer to a non-federal entity any identified historic or prehistoric archeological site that has not yet been evaluated in accordance with Stipulation III.A, the Army will ensure that it is so evaluated. If the property is eligible for inclusion in the Register, the Army will comply with Stipulation III.B.1.a. with respect to such property. If the property is not eligible, the Army may transfer such property without preservation conditions or data recovery.

c. If the Army proposes to transfer to a non-federal entity any real property identified in Attachment C as lands where historic or prehistoric sites are likely to occur, and as lands where there is low contamination and little disturbance, the Army will ensure that such lands are identified in the transfer documents and made the subject of the preservation condition set forth in Attachment F. Should the proposed recipient of such lands be unwilling to accept such condition, the Army will conduct surveys in consultation with the SHPO, and in accordance with applicable National Park Service, Council, and SHPO guidelines to identify and evaluate specific archeological sites. If any such sites are identified, the Army will comply with stipulations III.B.1.a. or III.B.1.b. as applicable before proceeding with the transfer.

2. Historic Standing Structures

a. If the Army proposes to transfer to a non-federal entity any of the historic standing buildings or structures listed in Attachment B, or any other standing structure determined eligible for inclusion in the National Register, the Army will ensure that the instrument transferring the property incorporates the covenant attached hereto as Attachment G, and that covenant shall be recorded in the real estate records of Jefferson, Jennings or Ripley Counties, State of Indiana.

b. If there is no acceptable offer that will conform to the rehabilitation and maintenance requirements of the Standards, the Army, with the approval of the SHPO, may modify the covenant to reduce the requirements, or may transfer the property without a preservation covenant.

c. Prior to the transfer of such a property, the Army shall ensure that it is recorded in accordance with a recordation plan that is consistent with the Secretary of the Interior's Standards and Guidelines for Architectural and Engineering Documentation (48 FR 44730-34) and approved by the SHPO. The recordation plan shall be provided to the SHPO for a 30-day comment period. Acceptance of the plan will be in writing at the end of the 30-day period; or assumed, in the case that comments are not made. Disagreements or questions about the plan will be resolved through consultation among the parties.

d. If the Army proposes to transfer to a non-federal entity any identified structure or building that has not yet been evaluated, the Army will ensure that it is so evaluated. If the structure or building is eligible for inclusion in the Register, the Army will comply with Stipulation III.B.2.a, b, and c.

IV. Remediation of Health, Safety, and Environmental Hazards.

A. In pursuing the on-going Remedial Investigation/Feasibility Study (RI/FS) of environmental hazards at the JPG, the Army will ensure, upon execution of this agreement, that personnel conducting the RI/FS:

1. Are familiarized with the need to exercise care when working in the areas identified as archeologically sensitive and as not heavily disturbed and/or contaminated on Attachment C.;

2. Consult a professional archeologist when planning work in such areas, have access to the advice of a professional archeologist in the event of an archeological discovery, and obtain archeological review of the results of work in such areas;

3. Have access to personnel trained in archeological field work when working in such areas;

4. Include in the report of the RI/FS:

a. Descriptions of any potential conflicts between remediation and preservation of historic properties;

b. Where feasible, recommendations about how to resolve such conflicts; and,

c. Identification of any situations in which, because of risks to human health, safety, or the environment, remediation must proceed without taking steps to preserve historic properties subject to effect.

B. The Army shall provide the draft final RI/FS to the SHPO and the Council for review concurrently with its submittal to the U.S. Environmental Protection Agency (EPA) and the State of Indiana pursuant to the Comprehensive Environmental Response Compensation and Liability Act of 1980, as amended (CERCLA) for a 30-day review. Objection to the RI/FS by parties to this agreement will be resolved as specified in Stipulation IX.A. The parties to this agreement understand that pursuant to CERCLA, final decisions with respect to remediation actions are made by EPA or the State.

C. The Army will ensure that 36 CFR 800 is complied with before remediation measures are implemented, except that the Army need not comply with 36 CFR 800 where the report of the RI/FS has recommended, pursuant to Stipulation IV.A.5.c., that remediation proceed without preserving historic properties and neither the SHPO nor the Council has objected to this recommendation, or where the SHPO or Council has objected but such objection has been resolved through consultation among the parties to this agreement, or implementation of Stipulation IX.

V. Reporting. The Army shall ensure that reports on all activities carried out pursuant to this agreement are provided to the SHPO, and, upon request, to other interested parties.

VI. Work and Personnel Qualification Standards.

A. Any work conducted under this agreement will be pursued in accordance with the applicable Secretary of the Interior, SHPO, or Council standards and guidelines.

B. The Army shall ensure that all archeological surveys, data recovery work, and CRMP preparation conducted pursuant to this agreement are carried out by or under the direct supervision of a person or persons meeting at a minimum the pertinent qualifications set forth at Appendix C to Army Regulation 420-40.

VII. Amendments.

A. The parties to this agreement may amend the terms of this agreement, and the provisions of any attachment hereto, by completing and signing the form provided as Attachment H.

B. Upon execution of the amendment, each party will attach a copy of the fully executed form to that party's copy of this agreement, and will enter the amendment number and date on the upper right-hand corner of the first page of this agreement.

VIII. Scheduled Consultation. Twelve months after this agreement is executed and annually thereafter until the CRMP has been finalized and its implementation has been initiated in accordance with the terms of this agreement (or until JPG has been transferred in accordance with the terms of this agreement), the parties to this agreement will consult to review implementation of its terms and determine whether revisions are needed. If revisions are needed, the parties to this agreement will consult in accordance with 36 CFR 800 to make such revisions.

IX. Dispute Resolution.

A. Except as provided below, the Army will present parties to this agreement plans and other documents for a 30-day review. Failure of those parties to provide comment within the 30-day period will indicate acceptance and approval of the information provided. Should any party to this agreement object within 30 days to any plans or other documents provided by the Army or others for review pursuant to this agreement or to any actions proposed or initiated by the Army that may pertain to the terms of this agreement, the Army shall consult with the objecting party to resolve the objection. If the Army determines that the objection cannot be resolved, the Army shall forward all documentation relevant to the dispute to the Council. Within 30 days after receipt of all pertinent documentation, the Council will either:

1. Provide the Army with recommendations, which the Army will take into account in reaching a final decision regarding the dispute; or

2. Notify the Army that it will comment pursuant to 36 CFR 800.6(b), and proceed to comment within 60 days. Any Council comment provided in response to such a request will be taken into account by the Army in accordance with 36 CFR 800.6(c)(2) with reference to the subject of the dispute.

B. Any recommendation or comment provided by the Council pursuant to Stipulation IX.A will be understood to pertain only to the subject of the dispute; the Army's responsibility to carry out all actions under this agreement that are not the subjects of the dispute will remain unchanged.

C. At any time during implementation of the measures stipulated in this agreement, should an objection to any such measure or its manner of implementation be raised by a member of the public, the Army shall take the objection into account and consult as needed with the objecting party, the SHPO, or the Council to resolve the objection.

Execution and implementation of this Memorandum of Agreement evidences that the Army has afforded the Council a reasonable opportunity to comment on the closure and transfer of JPG, and that the Army has taken into account the effects of the undertaking on historic properties.

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: *Robert D. Bush*
Executive Director

Date: 8/31/92

DEPARTMENT OF THE ARMY

By: *Ronald J. Benick*
RONALD J. BENICK
Colonel, OD
Commander
Jefferson Proving Ground

Date: 3 SEP 91

By: *Ronald V. Hite*
RONALD V. HITE
Brigadier General, USA
Commander
U.S. Army Test and Evaluation Command

Date: 1 NOV 91

By: *William B. McGrath*
WILLIAM B. McGRATH
Major General, USA
Chief of Staff
U.S. Army Materiel Command

Date: 10-12-91

By: *Paul W. Johnson*
PAUL W. JOHNSON
Deputy Assistant Secretary of the Army
for Installations and Housing

Date: 17 JULY 1992

INDIANA STATE HISTORIC PRESERVATION OFFICER

By: *Patrick R. Ralston*
PATRICK R. RALSTON
State Historic Preservation Officer

Date: 10-4-91

ATTACHMENT A
CULTURAL RESOURCE MANAGEMENT PLAN STANDARDS

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The Cultural Resource Management Plan (CRMP) for JPG shall be prepared in accordance with the following standards.

A. The CRMP will be prepared by or under the supervision of an individual who meets, or individuals who meet, at a minimum, the professional qualifications standards for archeology in the Secretary of the Interior's Professional Qualifications Standards (48 FR 44738-9).

B. The CRMP will be prepared with reference to:

1. The Secretary of the Interior's Standards and Guidelines for Preservation Planning (48 FR 44716-20);

2. the Section 110 Guidelines (53 FR 4727-46; Advisory Council on Historic Preservation and National Park Service 1989);

3. Army Regulation 420-40;

4. Indiana State Historic Preservation Plan.

C. The CRMP will be prepared in consultation with the Indiana SHPO and Council.

D. The CRMP will address the full range of historic properties that may exist at JPG, including but not limited to buildings and structures, archeological sites, and traditional cultural properties.

E. The CRMP will incorporate data produced by the survey work conducted pursuant to this Agreement and other surveys conducted at JPG.

F. The essential purpose of the CRMP will be to establish processes for integrating the preservation and use of historic properties with the mission and programs of the Army in a manner appropriate to the nature of the historic properties involved, the nature of JPG, and the nature of the Army's mission, programs, and planning processes at JPG.

G. In order to facilitate such integration, the CRMP, including all maps and graphics, will be made consistent with the database management system and planning system employed by JPG.

H. The CRMP need not be a single document, and appropriate elements of the CRMP should be maintained in electronic media compatible with JPG's information management system.

I. The CRMP will include the following elements:

a. An explanation of the basis upon which the CRMP is being prepared.

b. An introduction to the organization and use of the various sections of the CRMP.

c. A synthesis of available data on the history, prehistory, architecture, architectural history, and ethnography of JPG and its surrounding area, to provide a context in which to evaluate and consider alternative treatment strategies for different classes of historic properties.

d. A database, expandable as more information becomes available, that includes:

i. Descriptions of all properties within JPG that are known or thought to meet the National Register criteria (36 CFR 60.4);

ii. Descriptions of all properties that have been identified and subjected to data recovery prior to their disturbance, whether or not such disturbance has in fact occurred;

iii. Descriptions of all properties that have been identified and determined not to meet any of the National Register criteria; and

iv. Information on lands subjected to historic properties surveys, together with reports of such surveys and their results.

e. Projections of the distribution and nature of historic properties that may exist on Proving Ground lands, based on the synthesis and database, together with an estimate of the accuracy of the projections, and mechanisms for testing, refining, and verifying the projections to the extent needed through field survey and other further research.

f. Procedures for the identification and evaluation of historic properties that may be affected by Army activities at JPG, providing for identification and evaluation to take place in a timely manner during the planning of any actions that might affect historic properties.

g. Procedures for the management of historic properties within JPG, including but not limited to:

i. Procedures for the use of historic properties for agency purposes or the purposes of others, in a manner that does not cause significant damage to or deterioration of such properties, with reference to the Section 110 Guidelines, Section 110(a)(1), Discussion (b);

ii. Procedures for affirmatively preserving historic properties, with reference to the Section 110 Guidelines, Section 110(a)(1), Discussion (c);

iii. Procedures for the maintenance of historic properties, with reference to the Section 110 Guidelines, Section 110(a)(2), Discussion (d)(1)(i);

iv. Procedures for the avoidance or mitigation of adverse effects on historic properties, with reference to the Section 110 Guidelines, Section 110(a)(2), Discussion (d)(1)(iii) that ensure the Army's compliance with Section 106 of the National Historic Preservation Act without necessarily adhering to the procedural steps and standards set forth at 36 CFR 800 or in Chapter 3 of AR 420-40; and

v. Procedures for consulting with relevant parties during implementation of the CRMP, with reference to the Section 110 Guidelines, Part III, and specifically

identifying circumstances under which the SHPO, or other interested parties, will be consulted, and outlining how such consultation will be initiated and carried out.

h. An explanation of how the activities at the installation will comply with the Native American Graves Protection and Repatriation Act, Public Law 101-601, including but not limited to:

i. A discussion of the known or probable locations of Native American cultural items, as that term is defined in the Native American Graves Protection and Repatriation Act;

ii. A discussion of the known or probable nature of those Native American cultural items;

iii. Assuming discovery, study, or removal is necessary to proceed with or is part of a planned activity, a discussion of why it is necessary to search for, study, or remove the Native American cultural items from the location of the planned activity;

iv. Who will obtain any necessary permits under Section 4 of the Archeological Resources Protection Act of 1979, 16 U.S.C. 470aa, et seq.;

v. What (if any) Indian tribe will be consulted prior to the planned excavation or removal;

vi. What disposition will be made of the excavated or removed items; and,

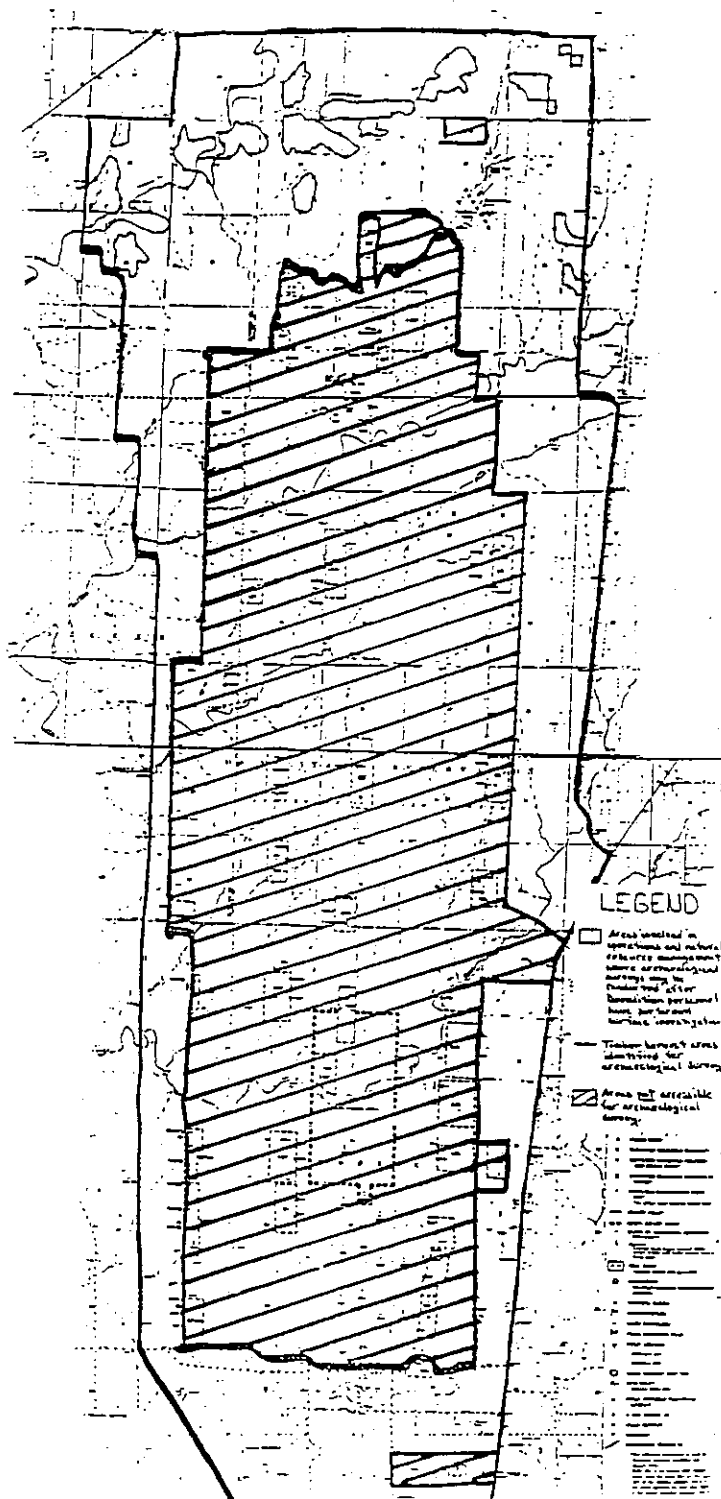
vii. What will constitute proof of consultation under e. above.

ATTACHMENT B:
KNOWN HISTORIC STRUCTURES AT JPG

Building 485	"Old Timbers Lodge"
Building 401	"Oakdale School"
Bridge 17	"Stone Bridge"
Bridge 25	"Stone Bridge"
Bridge 27	"Stone Bridge"
Bridge 28	"Stone Bridge"

ATTACHMENT C:

MAP SHOWING LOCATION OF HEAVILY DISTURBED AND/OR CONTAMINATED
AREAS AT JEFFERSON PROVING GROUND AS WELL AS SHOWING
AREAS OF ARCHEOLOGICAL SENSITIVITY



**ATTACHMENT D:
STANDARD PRESERVATION COVENANT FOR ARCHEOLOGICAL SITE**

In consideration of the conveyance of the real property that includes the [name of archeological site] located in the County of [name], State of Indiana, which is more fully described as: [Insert legal description], [Name of property recipient] hereby covenants on behalf of [himself/herself/itself], [his/her/its] heirs, successors, and assigns at all times to the United States Department of the Army and the Indiana State Historic Preservation Officer to maintain and preserve the [name of archeological site] as follows:

1. No disturbance of the ground surface or any other thing shall be undertaken or permitted to be undertaken on [name or archeological site] which would affect the physical integrity of the [name of archeological site] without the express prior written permission of the Indiana State Historic Preservation Officer, signed by a fully authorized representative thereof. Should the Indiana State Historic Preservation Officer require, as a condition of the granting of such permission, that the [name of recipient] conduct archeological data recovery operations or other activities designed to mitigate the adverse effect of the proposed activity on the [name of archeological site], the [name of recipient] shall at [his/her/its] own expense conduct such activities in accordance with the Secretary of the Interior's Standards and Guidelines for Archeological Documentation (48 FR 44734-37) and such standards and guidelines as the Indiana State Historic Preservation Officer may specify, including but not limited to standards and guidelines for research design, conduct of field work, conduct of analysis, preparation and dissemination of reports, disposition of artifacts and other materials, consultation with Native American or other organizations, and reinterment of human remains.
2. [Name of recipient] shall make every reasonable effort to prohibit any person from vandalizing or otherwise disturbing the [name of archeological site], and shall promptly report any such disturbance to the Indiana State Historic Preservation Officer.
3. The Indiana State Historic Preservation Officer shall be permitted at all reasonable times to inspect [name of archeological site] in order to ascertain if the above conditions are being observed.
4. In the event of a violation of this covenant, and in addition to any remedy now or hereafter provided by law, the Indiana State Historic Preservation Officer may, following reasonable notice to [name of recipient], institute suit to enjoin said violation or to require the restoration of [name of archeological site]. The successful party shall be entitled to recover all costs or expenses incurred in connection with such a suit, including all court costs and attorney's fees.
5. [Name of recipient] agrees that the Indiana State Historic Preservation Officer may at his discretion, without prior notice to [name of recipient], convey and assign all or part of its rights and responsibilities contained herein to a third party.
6. This covenant is binding on [name of recipient], [his/her/its] heirs, successors, and assigns in perpetuity. Restrictions, stipulations, and covenants contained herein shall be inserted by [name of recipient] verbatim or by express reference in any deed or other legal instrument by which [he/she/it] divests [himself/herself/itself] of either the fee simple title or any other lesser estate in [name of archeological site] or any part thereof.
7. The failure of the Indiana State Historic Preservation Officer to exercise any right or remedy granted under this instrument shall not have the effect of waiving or limiting

the exercise of any other right or remedy or the use of such right or remedy at any other time.

The covenant shall be a binding servitude upon the real property that includes the [name of archeological site] and shall be deemed to run with the land. Execution of this covenant shall constitute conclusive evidence that [name of recipient] agrees to be bound by the foregoing conditions and restrictions and to perform to obligations herein set forth.

ATTACHMENT E:
DATA RECOVERY STANDARDS

1. Archeological data recovery shall be carried out in accordance with a data recovery plan developed in consultation with the Indiana SHPO. The data recovery plan shall be consistent with the Secretary of the Interior's Standards and Guidelines for Archeological Documentation (48 FR 44734-37) and pertinent standards and guidelines of the Indiana SHPO, and shall take into account the Council's publication, Treatment of Archeological Properties (Advisory Council on Historic Preservation, [draft] 1980), subject to any pertinent revisions the Council may make in the publication prior to completion of the data recovery plan. The plan shall specify, at a minimum:

a. The property, properties, or portions of properties where data recovery is to be carried out;

b. Any property, properties, or portions of properties that will be transferred without data recovery, and the rationale for doing so;

c. The research questions to be addressed through the data recovery, with an explanation of their relevance and importance;

d. The field work methods to be used, with an explanation of their relevance to the research questions;

e. The methods to be used in analysis, with an explanation of their relevance to the research questions;

f. The methods to be used in data management and dissemination of data, including a schedule;

g. The manner in which recovered materials will be disposed of, in a manner consistent with Indiana State law regarding disposition of archeological materials and recovered human remains;

h. The manner in which field notes and other records of field work and analysis will be preserved and disposed of;

i. The methods to be used to involve the interested public in the data recovery;

j. The methods to be used in disseminating results of the work to the interested public;

k. The methods by which interested Native American groups or others with special interests in the property, if any, will be kept informed of the work and afforded the opportunity to participate; and

l. The schedule for the submission of progress reports and final reports to the Indiana SHPO and others.

2. Records of data recovery field work and analysis shall be retained in an archive or other curatorial facility approved by the Indiana SHPO and disseminated as appropriate to facilitate research and management without unduly endangering historic properties.

3. Material recovered from data recovery projects shall be curated in accordance with 36 CFR Part 79, except that human remains and artifacts associated with graves shall be treated in conformance with Indiana State law.

ATTACHMENT F:

STANDARD COVENANT FOR REAL PROPERTY THAT MAY CONTAIN
ARCHEOLOGICAL SITES

In consideration of the conveyance of certain real property, hereinafter referred to as the [parcel designation] located in the County of [name], State of Indiana, which is more fully described as: [Insert legal description], [name of property recipient] hereby covenants on behalf of [himself/herself/itself], [his/her/its] heirs, successors, and assigns at all times to the United States Department of the Army and the Indiana State Historic Preservation Officer to protect archeological resources by carrying out measures as follows:

1. No disturbance of the ground surface or any other thing shall be undertaken or permitted to be undertaken on [parcel designation] which might affect the physical integrity of archeological sites without first conducting an intensive survey as defined in the Secretary of the Interior's Standards and Guidelines for Identification (48 FR 44720-23) and in accordance with applicable State Historic Preservation Officer guidelines, of the area subject to such disturbance or other effect, in consultation with the Indiana State Historic Preservation Officer, providing the Indiana State Historic Preservation Officer with a report of the survey acceptable to the Indiana State Historic Preservation Officer, and complying with Paragraph 3 hereunder should this survey result in the identification of an archeological site.

2. Should the survey carried out pursuant to Paragraph 1 result in a determination, concurred in by the Indiana State Historic Preservation Officer, that there are no archeological sites within the area subject to disturbance or other effect, such disturbance or other effect may proceed and the requirements of this covenant may be removed with respect to the area surveyed, but will continue in force with respect to any unsurveyed lands within the [parcel designation].

3. Should the survey carried out pursuant to Paragraph 1 result in the identification of an archeological site, the [name of recipient] will request the opinion of the Indiana State Historic Preservation Officer as to whether the site is eligible for inclusion in the National Register of Historic Places. Should the Indiana State Historic Preservation Officer determine that the site is not eligible for inclusion in the National Register, the [name of recipient] may disturb or otherwise affect the site and the requirements of this covenant may be removed with respect to that site but will continue in force with respect to any other archeological sites and with respect to any unsurveyed lands within the [parcel designation]. Should the Indiana State Historic Preservation Officer determine that the site is eligible for inclusion in the National Register, the [name of recipient] shall comply with paragraphs 4 and 5 hereunder.

4. No disturbance of the ground surface or any other thing shall be undertaken or permitted to be undertaken on any archeological site determined by the Indiana State Historic Preservation Officer to be eligible for inclusion in the National Register of Historic Places which would affect the physical integrity of such site without the express prior written permission of the Indiana State Historic Preservation Officer, signed by a fully authorized representative thereof. Should the Indiana State Historic Preservation Officer require, as a condition of the granting of such permission, that the [name of recipient] conduct archeological data recovery operations or other activities designed to mitigate the adverse effect of the proposed activity on the archeological site, the [name of recipient] shall at [his/her/its] own expense conduct such activities in accordance with the Secretary of the Interior's Standards and Guidelines for Archeological Documentation (48 FR 44734-37) and such standards and guidelines as

the Indiana State Historic Preservation Officer may specify, including but not limited to standards and guidelines for research design, conduct of field work, conduct of analysis, preparation and dissemination of reports, disposition of artifacts and other materials, consultation with Native American or other organizations, and reinterment of human remains.

5. [Name of recipient] shall make every reasonable effort to prohibit any person from vandalizing or otherwise disturbing any archeological site determined by the Indiana State Historic Preservation Officer to be eligible for inclusion in the National Register of Historic Places, and shall promptly report any such disturbance to the Indiana State Historic Preservation Officer.

6. The Indiana State Historic Preservation Officer shall be permitted at all reasonable times to inspect [parcel designation] in order to ascertain if the above conditions are being observed.

7. In the event of a violation of this covenant, and in addition to any remedy now or hereafter provided by law, the Indiana State Historic Preservation Officer may, following reasonable notice to [name of recipient], institute suit to enjoin said violation or to require the restoration of any archeological site affected by such violation. The successful party shall be entitled to recover all costs or expenses incurred in connection with such a suit, including all court costs and attorney's fees.

8. [Name of recipient] agrees that the Indiana State Historic Preservation Officer may at his discretion, without prior notice to [name of recipient], convey and assign all or part of its rights and responsibilities contained herein to a third party.

9. This covenant is binding on [name of recipient], [his/her/its] heirs, successors, and assigns in perpetuity. Restrictions, stipulations, and covenants contained herein shall be inserted by [name of recipient] verbatim or by express reference in any deed or other legal instrument by which [he/she/it] divests [himself/herself/itself] of either the fee simple title or any other lesser estate in [parcel designation] or any part thereof.

10. The failure of the Indiana State Historic Preservation Officer to exercise any right or remedy granted under this instrument shall not have the effect of waiving or limiting the exercise of any other right or remedy or the use of such right or remedy at any other time.

The covenant shall be a binding servitude upon the real property that includes the [parcel designation] and shall be deemed to run with the land. Execution of this covenant shall constitute conclusive evidence that [name of recipient] agrees to be bound by the foregoing conditions and restrictions and to perform the obligations herein set forth.

ATTACHMENT G:
STANDARD PRESERVATION COVENANT

1. In consideration of the conveyance of certain real property, hereinafter referred to as [name of property], located in the County of [Name], State of Indiana, which is more fully described as: [Insert legal description], [Name of property recipient] hereby covenants on behalf of [himself/herself/itself], [his/her/its] heirs, successors, and assigns at all times to the United States Army and the Indiana State Historic Preservation Officer to preserve and maintain [name of property] in accordance with the recommended approaches in the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (National Park Service, 1983) in order to preserve and enhance those qualities that make [name of property] eligible for inclusion in the National Register of Historic Places.

2. No construction, alteration, remodeling or any other thing shall be undertaken or permitted to be undertaken on [name of property] which would affect the integrity or the appearance of [name of property] without the express prior written permission of the Indiana State Historic Preservation Officer, signed by a fully authorized representative thereof.

3. The Indiana State Historic Preservation Officer shall be permitted at all reasonable times to inspect [name of property] in order to ascertain if the above conditions are being observed.

4. In the event of a violation of this covenant, and in addition to any remedy now or hereafter provided by law, the Indiana State Historic Preservation Officer may, following reasonable notice to [name of recipient], institute suit to enjoin said violation or to require the restoration of [name of property]. The successful party shall be entitled to recover all costs or expenses incurred in connection with such a suit, including all court costs and attorney's fees.

5. [Name of recipient] agrees that the Indiana State Historic Preservation Officer may at its discretion, without prior notice to [name of recipient], convey and assign all or part of its rights and responsibilities contained herein to a third party.

6. This covenant is binding on [name of recipient], [his/her/its] heirs, successors, and assigns for fifty (50) years from the date of this instrument. Restrictions, stipulations, and covenants contained herein shall be inserted by [name of recipient] verbatim or by express reference in any deed or other legal instrument by which [he/she/it] divests [himself/herself/itself] of either the fee simple title or any other lesser estate in [name of property] or any part thereof.

7. The failure of the Indiana State Historic Preservation Officer to exercise any right or remedy granted under this instrument shall not have the effect of waiving or limiting the exercise of any other right or remedy or the use of such right or remedy at any other time.

The covenant shall be a binding servitude upon [name of property] and shall be deemed to run with the land. Execution of this covenant shall constitute conclusive evidence that [name of recipient] agrees to be bound by the foregoing conditions and restrictions and to perform to obligations herein set forth.

ATTACHMENT H
AMENDMENT FORM

AMENDMENT # _____

DATE: _____

MEMORANDUM OF AGREEMENT

BETWEEN THE DEPARTMENT OF THE ARMY,
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION,
AND THE INDIANA STATE HISTORIC PRESERVATION OFFICER
CONCERNING CLOSURE OF JEFFERSON PROVING GROUND

1. Need for Amendment:

[Describe briefly]

2. Amendment:

[Specify]

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: _____ Date: _____
Executive Director

DEPARTMENT OF THE ARMY

By: _____ Date: _____
Commander, Jefferson Proving Ground

By: _____ Date: _____
Commander, U.S. Army Test and Evaluation Command