

"Many excavations begin with test pits, and in fact many end with test pits."  
Hole and Heizer (1969:146)

In general, testing is the limited examination of an archaeological site's subsurface component for the purpose of deciding on or guiding further study. Testing usually involves the scientific excavation and recording of units known as test pits, test trenches, auger holes, etc., although new ways of identifying subsurface cultural features and deposits without digging, such as ground-penetrating radar, can be used. Testing is essentially a research activity just like any other identification effort. Lately, Agency officials and professional archaeologists (e.g., Neumann and Stanford 2001:161) are confusing different types of testing and their roles, resulting in miscommunication during the state and federal (i.e., Section 106) consultation processes and increasing the possibility of inadvertent damage to important archaeological sites.

### **Principles of Testing**

Based on past and current uses of test excavations (reviewed below), four general principles are evident. Testing or test excavations:

- 1) guide future or ongoing excavations, usually in regards to stratigraphy & feature locations;
- 2) should be as small & non-destructive as possible in order to minimize damage to cultural deposits as well as information loss;
- 3) are inherently sampling exercises & should be structured accordingly; &
- 4) can be used to gather information for evaluating site significance & integrity.

The importance of the second principle is not always stressed, but from the beginning test excavators were concerned about the conservation of archaeological sites. For example, J.P. Droop (1915:20-21) writes "it is necessary to make trials [i.e., test excavations] before beginning the main work, which is a pity because a site is not a cheese and tastes are apt to damage it."

## A Brief History of Testing

Testing and test excavations originally had a narrow focus. Early archaeologists like Sir Mortimer Wheeler (1954:66) viewed test units (then called control units) as “glimpses into the future.” That is, the units revealed the thickness and composition of the layers that excavators would soon encounter. Archaeologists eventually realized that important questions concerning chronological issues could be addressed by carefully examining cultural stratigraphy and the seriation of artifacts provenienced to each stratum. To efficiently gather this data, they excavated test pits or trenches into and across trash mounds and other suitable feature types. These archaeologists characterized their excavations as “tests” or “exploratory” in order to distinguish them from the prevailing trend of “complete” site excavation. To this day, test excavations are closely associated with the study of stratigraphy.

Later, archaeologists investigating any problem-oriented research question, not just one relating to chronology, excavated test units to quickly and expediently locate archaeological contexts containing specific data. Test excavations not only helped them locate areas for subsequent excavation, but were also useful for characterizing the site as a whole. These archaeologists selectively excavated sites and were concerned about the relationship between the excavated area and the entire site, because their conclusions depended on obtaining a representative sample. Even today, test excavations are conducted as part of a sampling strategy.

## Current Uses of Testing

Today, archaeologists employ test excavations to address a wide range of questions, including some rather mundane ones. Examples include, “Is a buried site present here?” “Can this site address an important research question?” and “Where within this site are the data needed to address a particular research question?” These example questions illustrate and correspond to the three types of testing and their roles in the general historic property identification and treatment process (**Table 1**).

Identification Testing is appropriate where ground visibility is low (e.g., pine duff) or in geomorphic settings likely to contain deeply buried sites (e.g., flood plains, alluvial fans & sand dunes). In contrast to much of the United States, this type of testing is rarely used in Arizona, because evidence of archaeological sites is normally readily visible on the modern ground surface; this is the same reason why most state or federal survey permits issued in Arizona contain non-excavation clauses. In Arizona, Identification Testing is most often used to identify site boundaries in areas obscured or disturbed by modern activities such as agricultural tilling and asphalt-paving.

**Table 1. Three Types of Testing and Their Roles.**

Type of Testing	Commonly Used Units	Sampling Fraction	Purpose of Testing	State Act Review Step	Section 106 Step (Federal)	Need MOA?
Identification Testing	shovel test pits, auger holes	very small % of project area	find sites, locate site boundaries	Step 2- Identify & Evaluate	Identification (36 C.F.R. 800.4)	No
Eligibility Testing	test trenches, test pits	lowest possible effective % of site area in project area	evaluate Register eligibility	Step 2- Identify & Evaluate	Identification (36 C.F.R. 800.4)	No
Data Testing or Phase 1 of Data Recovery	test trenches, test pits	representative sample % of site area in project area	locate important data contexts within a site	Step 3- Assessing Effects	Resolve Adverse Effects (36 C.F.R. 800.6)	Yes

*Notes:*

% – percentage; MOA – Memorandum of Agreement (needed for federal compliance process only).

Eligibility Testing is the most common testing type implemented in Arizona based on a review of SHPO library reports. In this role, archaeologists conduct test excavations or implement other testing methods to gather information beyond that collected during archival research and/or surface survey. The resulting data is used to assess a site’s significance in terms of an applicable historic context and physical integrity. As a result of Eligibility Testing, a statement about a site in terms of the State or National Register of Historic Places eligibility criteria can usually be justified. This type of testing is only appropriate where a site’s Register-eligibility status is indeterminable or unclear based on surface evidence, archival information, or both.

Data Testing, often called Phase One (1) of Data Recovery, is a component of a site’s mitigation treatment, and unlike the other two types of testing it is not a part of an agency’s identification efforts. Data Testing only occurs at Register-eligible or listed sites and is typically the first fieldwork phase of a multi-phase data recovery investigation. Its purpose is to judiciously gather information about a site so that archaeologists can focus data recovery efforts on features or depositional contexts that can address the investigation’s research questions. The size and extent of this type of testing can be greater than that of Identification or Eligibility Testing, although in cases where a site was previously subjected to Eligibility Testing, the additional amount of Data Testing fieldwork needed is typically pretty small. In the federal compliance process, Data Testing only occurs after an Agency official in consultation with SHPO and consulting parties selects mitigation as the appropriate treatment to resolve an undertaking’s adverse effect and files a Memorandum of Agreement (MOA) with the Advisory Council on Historic Preservation.

In summary, testing and test excavation can be employed throughout the general historic property identification and treatment process and are not confined to a single phase or step. However, each type of testing has its own role in the State and Federal compliance processes, and Agency officials and professional archaeologists should use each type of testing appropriately.

### SHPO Opinion

The SHPO would prefer that the term *testing* be clarified as to which testing type is meant whenever confusion may occur. We suggest using more precise language like “Identification Testing,” “Eligibility Testing,” or “Testing as Phase 1 of Data Recovery” as a way of making such distinctions clear. Some hypothetical examples of each are presented in **Appendix A**.

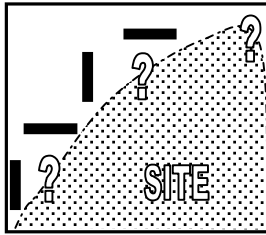
Agency officials should be familiar with the basic differences between testing types and their relationships to the steps of the State and Federal compliance processes. For example, it is acceptable in most cases to combine Identification and Eligibility Testing, because they’re both tools that can be used during the Identification Step of the compliance process (**Table 1**). On the other hand, if Eligibility and Data Testing are combined, for instance excavating a site out-of-existence, one of two possible negative outcomes is likely. One, the site may not have been Register eligible to begin with and the cost to gather information beyond that needed to evaluate the site was unnecessary. Or two, the site is Register eligible and the excavators, in effect, foreclosed on the agency’s, SHPO’s, and consulting parties’ opportunity to provide comment in a timely and meaningful manner and precluded the consideration of alternative, less-destructive treatment measures, such as avoidance. In the Federal compliance process, this situation could be considered anticipatory demolition.

### References Cited

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Approved by James Garrison, State Historic Preservation Officer (SHPO)

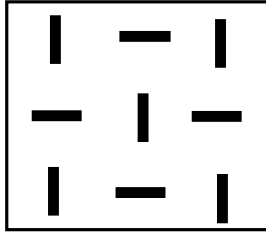
## APPENDIX A: Four Scenarios and their Corresponding Testing Type



**Testing Type:** Identification Testing

**Scenario:** A site is listed in the National Register of Historic Places and drawn on a map, but the exact location of its boundary is unclear based upon surface evidence and background research.

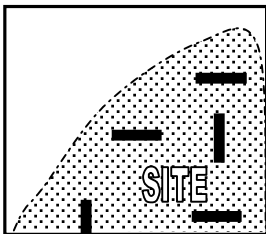
**Purpose of Test:** A few test trenches (thick black lines) are excavated to determine if site-related features occur outside the site's mapped boundary.



**Testing Type:** Identification Testing

**Scenario:** A geomorphic assessment indicates the presence of a deeply buried Pleistocene terrace on which archeologists previously found Archaic-period sites.

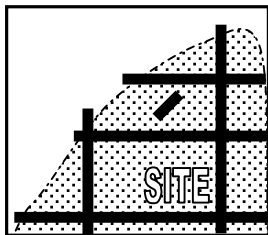
**Purpose of Test:** Test trenches (thick black lines) are systematically placed, excavated, and stepped back (as needed) across the project area in order to determine the presence or absence of sites situated on the buried landform.



**Testing Type:** Eligibility Testing

**Scenario:** A site's Register-eligibility status is previously undetermined, and surface evidence and background research are inconclusive as to the site's eligibility status. After consultation with SHPO, the agency determines that testing is needed to complete their identification effort.

**Purpose of Test:** Test trenches (thick black lines) representing a relatively low percentage of the site's area are systematically placed and excavated in order to obtain a representative sample of the site's information content and examine its condition while minimizing disturbance. If Register eligible, the agency might consider avoiding the site.



**Testing Type:** Data Testing (Phase 1 of Data Recovery)

**Scenario:** An areally extensive site was previously determined Register-eligible, and a small portion of it was previously excavated by archaeologists for another project. On the ground surface in the current project area, the site exhibits a low-density artifact scatter. The agency cannot avoid or lessen its effect, reaches an agreement concerning mitigation with consulting parties, and files a Memorandum of

Agreement with the Advisory Council.

**Purpose of Test:** Test trenches (thick black lines) representing a relatively high percentage of the site area in the project area are systematically and judgmentally placed and excavated in order to locate and evaluate cultural features and deposits. If critical data contexts, as defined in the project's research design, are present and important information remains uncollected after Data Testing, then a second phase of data recovery excavation will be initiated.