DOLORES ARCHAEOLOGICAL PROGRAM TECHNICAL REPORTS

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The Dolores Archaeological Program Field Manual - 1978

by

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ABSTRACT

The Dolores Archaeological Program (D.A.P.) Field Manual was conceived during several seminar sessions held in the fall of 1978. The purpose of the manual is to set forth in clear and concise language standard procedures to be employed when intensively excavating prehistoric sites as part of comprehensive mitigation efforts undertaken by the program. To this end the field manual now contains detailed discussions of preliminary operations, record keeping, sampling techniques, special excavation procedures, and administration, as well as brief presentations on how to treat certain artifact classes. A section on archaeomagnetic sampling techniques and a glossary are also included. The manual in its present form is not intended to be a finished document; it is anticipated that modifications and additions will result from field applications and feedback and from recently hired personnel with expertise in specialized areas.

SECTION 1

INTRODUCTION

by Allen E. Kane

The first field season of the Dolores Archaeological Program (during the summer of 1978) served as a testing period for various excavation, sampling, and recording techniques. Different approaches in such areas as size and orientation of site grids, methods of sampling cultural units, magnetometer testing operations, excavating pitstructures, and bulk soil sampling were implemented and then evaluated.

As a result of this first season's work, a consensus was reached as to the most effective techniques for data retrieval purposes, and as to those most practical considering the resources of the D.A.P. and the excavation environment of project study areas. It was recognized that the conclusions and recommendations agreed upon should be formalized as guidelines for site managers and workers during future field seasons. To this end, several staff seminars were held during the week of 13-17 November 1978 to develop the contents and format of a Dolores Archaeological Program Field Manual.

The objectives in drafting a field manual were several: First, the manual would serve as a reference for site managers unfamiliar with field procedures employed by the D.A.P., or as a convenient review source. Second, strict adherence to the manual would insure comparability of data recovered from excavations in different areas that were managed by different site managers. Third, the manual would be a point of continuing discussion regarding field methods among project personnel. The product of such discussion sessions would be modifications and improvements that

would be incorporated into future drafts of the manual; that is, the manual is conceived as a flexible tool that can be modified to accomodate the changing credo of D.A.P. excavation programs and will evolve as advances are made in field techniques.

Attending the seminar sessions during the fall of 1978 were D.A.P. Field Director Allen E. Kane, Washington State University Site Manager Pat Hogan, and University of Colorado Site Managers Nancy Hewitt, Gary Brown, and Joel Brisbin. The first order of business was to decide on the format of the manual; that is, what specific topics should be addressed and in what order (these topics would become section headings in the manual). Next, each general topic decided upon was discussed in detail to make explicit standard conventions and procedures to be presented in each chapter. Finally, individuals were assigned to draft various chapters; the drafts were reviewed later by the members of the seminar. It was decided that the major topics to be addressed in the manual were: (1) preliminary site operations including surface collection, constructing the site grid and choosing an excavation sample; (2) records, the discussion to be a detailed precise explanation of the records to be maintained in the field, including field forms; (3) sampling techniques, centering on methods in recovering and recording environmental and dating samples; (4) mapping procedures; (5) special excavation procedures, that is, those designed especially for coping with surface and subsurface cultural remains; and (6) administration, outlining work standards, safety procedures, the chain of authority, etc. Individual members of the seminar drafted these major topics; in addition, task specialists were requested to draft sections of the manual dealing with artifact recovery. Also included in this first version of the manual are a chapter on

archaeomagnetic sampling procedures by J. Hathaway and a glossary of technical field terms by N. Hewitt.

A major accomplishment of the project in 1978 was the development of a set of standard recording forms for use in the field and laboratory; the forms have been carefully designed to mesh with the prehistoric data anticipated for recovery in project study areas. Hogan summarizes the primary field forms in Section 3 of this manual; in addition the project also employs several forms that are partially completed in the field, but also demand analysis data. These are the Activities Recording Form, the Architecture Form-Integration and Inference, and the Household Cluster Form (Figures 11.1, 11.2, and 11.3, and Tables 11.1, 11.2, and 11.3). In addition to serving as a mnemonic device for site managers and as a summary device for encountered features and architecture, D.A.P. forms are designed to permit quantitative comparison of different data categories. The activities, architectural integration and inference and the household cluster forms were designed primarily to permit intersite comparisons using quantiative techniques.

As mentioned in the previous discussion, the field manual is not intended to stand as a rigid authority governing all situations encountered in the field. Rather, it is recognized that a certain flexibility is necessary and that standards or conventions cited in this version may change as the result of subsequent fieldwork and new perspectives. Among changes or additions anticipated in 1979 are a revised section on environmental sampling, a section on probability sampling for excavations, and a discussion of the use of mechanized equipment. While the manual was designed for the Dolores Archaeological

Figure 11.1 Dolores Archaeological Program Activities Recording Form.

DOLORES ARCHAEOLOGICAL PROJECT
U.S. Bureau of Reclamation

ACTIVITIES RECORDING FORM

Recorder

Date

State | County | Number

STUDY UNIT
TYPE | NUMBER | SURFACE

ACTIVITY AREA I.D.
Type | Number

Area | Subarea

Provenience Label

Site Coord. System | Datum

Grid

Description/Interpretation

Associations:

		Code	Type	Number
Internal				
External		A		
		A		
		A		
		U		
		H		

Social Correlates | Groups

Organization

Status

Sketch

Key:

Plan View

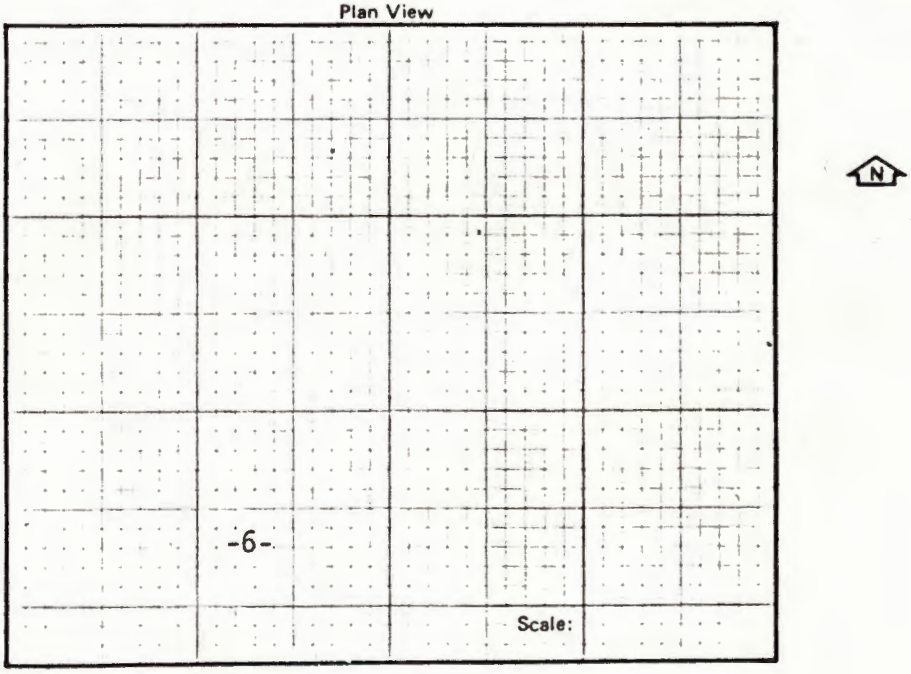


Table 11.1 Coding Guidelines for the D.A.P. Activities Recording Form (page 1 of 4)

The Activities Recording Form, Used for describing Activity Areas, is envisioned as one filled out partially in the field and partially during analysis. Some of the values of the variables will not be available until analysis.

Recorder: Four-letter initials.

Date: Month (two digits) Day (two digits) Year (two digits)

State, County, Site Number: Two digits, two letters, five digits.

Study Unit Type: Two digits (coding from F.S. Form format)

Vertical Subdivision: Three digits (coding from the F.S. Form format)

Activity Area Type: Two digits

01: Indeterminate
02-04: Unassigned
05: Domestic: not further specified
06: Sleeping area
07: Food processing: not further specified
08: Cooking area
09: Mealing area
10: Butchering: gross
11: Butchering: fine
12-15: Unassigned
16: Animal husbandry
17: Agriculture: not further specified
18: Agriculture: field
19: Agriculture: plot or garden
20: Agriculture: terrace
21-23: Unassigned
24: Hunting: not further specified
25: Hunters outpost (blind or lookout)
26: Snare site
27: Jump site
28: Unassigned
29: Fishing
30: Land management: not further specified
31: Erosion control (check dam)
32: Tank
33: Reservoir
34: Improved spring
35: Canal

Table 11.1 Coding Guidelines for the D.A.P. Activities* Recording Form (page 2 of 4)

38: Fiber-processing
39: Weaving, clothing manufacture
40: Animal product processing, not bone
41: Tool manufacture: not further specified
42: Tool manufacture: lithic, flaked, processing
43: Tool manufacture: lithic, nonflaked, processing
44: Tool maintenance: lithic not further specified
45: Tool manufacture: bone
46: Tool manufacture: vegetal
47: Tool manufacture: composite
48: Unassigned
49: Special crafts: ornaments
50-51: Unassigned
52: Ceramic manufacture: not further specified
53: Ceramic manufacture: kiln
54: Ceramic manufacture: wet process area
55-56: Unassigned
57: Storage: not further specified
58: Storage: food
59: Storage: lithic tool
60: Storage: ceramic tool
61: Storage: bone tool
62: Storage: other
63: Unassigned
64: Construction: borrow area
65: Construction: other
66: Mining: construction material
67: Mining: flaked lithic tool source
68: Mining: nonflaked lithic tool source
69: Mining: ceramic source
70: Unassigned
71: Medicine
72: Ritual, not further specified
73: Ritual, animal burial
74-75: Unassigned
76: Hygiene: toilets
77: Hygiene: baths
78: Recreation: dancing
79: Recreation: juvenile play
80: Recreation: other
81: Art: petroglyphs
82: Art: pictographs
83: Communication: signal fire
84: Communication: other
85: Heating
86: Unassigned
87: Smoking area
88: Defense/security
89-91: Unassigned

Table 11.1 Coding Guidelines for the D.A.P. Activities Recording Form (page 3 of 4)

89-91: Unassigned
92: Mortuary: cemetery
93: Unassigned
94: Discard: not further specified
95: Discard: pit
96: Discard: arroyo fill
97: Discard: sheet
98: Discard: other
99: Reconnaissance: sentry post

Activity Area Number: Five digits (from the consecutive site series)

Area: One digit (coding from the F.S. Form format)

Subarea: One digit (coding from the F.S. Form format)

Datum: Six digits (from the consecutive site series)

Grid: Six digits - grid coordinates in meters south and meters east of the northwest corner of a 1 by 1 m square which is closest to the center of the activity area

Associations:

Code:		Type:
Z - Not applicable		00
F - Feature		Feature type (from F.S. format)
S - Study unit		Study unit type (from F.S. format)
P - Point location		Material Identification Class

Number: For features and study units record the appropriate number from the appropriate site series.
For point locations record the numbers of the individual point locations.

Associations:

Code:	Type:
A - Activity Area	Activity Area type
U - Use Area	Use Area type (see coding below)
H - Household Cluster	

Table 11.1 Coding Guidelines for the D.A.P. Activities Recording Form (page 4 of 4)

USE AREA CODING FORMAT

00 - Not applicable
01 - Indeterminate
02-09 - Unassigned
10 - Economic (primary), not further specified
11 - Economic, food processing
12 - Economic, storage
13 - Economic, construction
14-19 - Unassigned
20 - Economic, discard
21-37 - Unassigned
38 - Economic, complex (combinations of processing, storage, construction, discard, etc.)
39 - Economic, other
40 - Domestic (primary), not further specified
41 - Domestic, living (maintenance, cooking, eating, sleeping)
42-48 - Unassigned
49 - Domestic, other
50 - Social, not further specified
51-58 - Unassigned
59 - Social, other
60 - Ceremonial, not further specified
61-68 - Unassigned
69 - Ceremonial, other
70 - Economic and domestic, not further specified
71 - Economic and domestic, storage and living
72-97 - Unassigned
98 - Peripheral, no specific function
99 - Other

Number: For activity areas, use areas and household clusters record the appropriate number from the appropriate site series

Group: Two digits (coding from Groups format) in order of prominence

Organization: Two digits (coding from Organization format) in order of prominence

Status: Two digits (coding from Status format)

SHOW AT LEAST ONE SET OF GRID COORDINATES ON THE MAP.

Figure 11.2 Dolores Archaeological Program Architecture Form - Integration and Inference.

DOLORES ARCHAEOLOGICAL PROJECT
U.S. Bureau of Reclamation

ARCHITECTURE FORM

INTEGRATION AND INFERENCE

Recorder

Date

State | County | Site

Structure | Type | Number

External Associations

Use History

Construction History

Remodeling

Functions

Code	Type	Number

Dates

Evidentiary ____ to ____

Inferential ____ to ____

Evidence

Primary Construction Mode: Site Prep. / Foundation / Walls / Floor / Roof

Remodeling Episodes: Foundation / Walls / Floor / Roof

Features

Type	Number

Functions: Overall / Individual Tasks

Activities

Table 11.2 Coding Guidelines for D.A.P. Architecture Form - Integration and Inference (page 1 of 7)

Recorder: Four-letter initials

Date: Month (two digits) Day (two digits) Year (two digits)

State, County, Site: Two digits, two letters, five digits

Structure Type: Coding from the Study Unit Type values on F.S. format - two digits

Structure Number: From the consecutive site series of Study Unit Numbers - two digits

EXTERNAL ASSOCIATIONS:

U = Use Area (maximum = four areas)	Type: coding from Use Area format Two digits	Number: from consecutive site series Six digits

(Select up to four use areas external to the use area for this architectureal unit. These will generally be within the same site as this architectural unit. Include comtemporaneous use areas at limited activity or seasonal sites within 100 m if the unit being recorded is habitation. Include contemporaneous use areas at habitations within 100 m if the site being recorded is a limited activity or seasonal site.)

S = Study Unit (maximum = three units)	Type: coding from F.S. format two digits	Number: from consecutive site series six digits

(Select up to three study units within the same use area as this architectural unit.)

Site Ref: One digit
Taken from adjacent, contemporaneous sites coded on the accompanying Household Cluster Form - if there is no Household Cluster Form which includes this architectural unit, assign site reference numbers in the longhand space on this form
For use areas and study units which are within the same site as this architectural unit, Site Ref = 0

Dates: Evidentiary: Four digits
Years B.P. (present = A.D. 1950)

Inferential: Four digits
Years B.P. (present = A.D. 1950)

Table 11.2 Coding Guidelines for D.A.P. Architecture • Form - Integration and Inference (page 2 of 7)

Dates: Evidentiary: Four digits
Years B.P. (present = A.D. 1950)

Inferential: Four digits
Years B.P. (present = A.D. 1950)

Evidence: Two digits
Coding from Temporal Assignment format (accompanies Household Cluster Form)

Construction History: Primary Construction Mode:
Site Prep through Roof: Two digits
From the Integration and Inference Format

Construction History: Remodelling Episodes:
Foundation through Roof: Two digits
Number of such episodes

Construction History: Remodelling: Features:
Feature Type: Two digits - coding from F.S. format
Features Number: Six digits - from the consecutive site series

Functions: Overall: Three digits - coding from Use Area format (matches use area type of this architectural unit)

Functions: Individual Tasks: Two digits - coding from the Activity Area format (include all types within this architectural unit)

Social Correlates: Groups: Two digits - coding from Social Correlates format

Social Correlates: Organization: Two digits - coding from Social Correlates format

Social Correlates: Status: Two digits - coding from the Social Correlates format

Table 11.2 Coding Guidelines for D.A.P. Architecture Form - Integration and Inference (page 3 of 7)

INTEGRATION AND INFERENCE FORMAT

Site Preparation

00: Not applicable
01: Indeterminate
02: Cleared
03: Cleared and leveled (excavated)
04: Cleared and developed (filled)
05-09: Unassigned
10: Shallow excavated pit < 1 m
11-19: Unassigned
20: Deep excavated pit > 1 m
21-98: Unassigned
99: Other

Foundation

00: Not applicable
01: Indeterminate
02: Foundation not distinguished from wall construction
03-09: Unassigned
10: On ground surface, simple, plastic materials (not masonry or cobbles)
11: On ground surface, complex, plastic materials
12-19: Unassigned
20: On ground surface, simple, cobbles
21: On ground surface, simple, masonry
22: On ground surface, simple, masonry, undifferentiated from lower portion of wall
23: On ground surface, simple mesolithic masonry
24: On ground surface, complex, masonry
25-29: Unassigned
30: On ground surface, complex, masonry and plastics
31-39: Unassigned
40: Subterranean, simple, plastic materials
41-49: Unassigned
50: Subterranean, simple, stone or masonry
51-59: Unassigned
60: Subterranean, complex, plastic materials
61-69: Unassigned
70: Subterranean, complex, stone
71-79: Unassigned
80: Subterranean, complex, mixed materials
81-98: Unassigned
99: Other

Table 11.2 Coding Guidelines for D.A.P. Architecture Form - Integration and Inference (page 4 of 7)

Walls

00: Not applicable
01: Indeterminate
02: Excavated, indeterminate
03: Excavated, no further treatment
04: Excavated, finished
05-09: Unassigned
10: Excavated, horizontal primary construction, plastic materials, unfinished
11: Excavated, horizontal primary construction, plastic materials, finished
12: Excavated, horizontal primary construction, stone or masonry, unfinished
13: Excavated, horizontal primary construction, stone or masonry, finished
14: Excavated, horizontal primary construction, complex materials, unfinished
15: Excavated, horizontal primary construction, complex materials, finished
16-17: Unassigned
18: Excavated, vertical primary construction, plastic materials, unfinished
19: Excavated, vertical primary construction, plastic materials, finished
20: Excavated, vertical primary construction, stone or masonry, finished
21: Excavated, vertical primary construction, stone or masonry, finished
22: Excavated, vertical primary construction, complex materials, unfinished
23: Excavated, vertical primary construction, complex materials, finished
24-25: Unassigned
26: Excavated, unoriented or mixed orientation construction, plastic materials, unfinished
27-29: Unassigned
30: Free-standing, indeterminate
31: Free-standing, horizontal primary construction, plastic materials, unfinished
32: Free-standing, horizontal primary construction, plastic materials, finished
33: Free-standing, horizontal primary construction, stone or masonry, unfinished
34: Free-standing, horizontal primary construction, stone or masonry, finished
35: Free-standing, horizontal primary construction, complex materials, unfinished

Table 11.2 Coding Guidelines for D.A.P. Architecture Form - Integration and Inference (page 5 of 7)

Walls

36: Free-standing, horizontal primary construction, complex materials, finished
37-38: Unassigned
40: Free-standing, vertical primary construction, plastic materials, unfinished
41: Free-standing, vertical primary construction, plastic materials, finished
42: Free-standing, vertical primary construction, stone or masonry, unfinished
43: Free-standing, vertical primary construction, stone or masonry, finished
44: Free-standing, vertical primary construction, complex materials, unfinished
45: Free-standing, vertical primary construction, complex materials, finished
46-47: Unassigned
48: Free-standing, unoriented or mixed orientation construction, plastic materials, unfinished
49: Free-standing, unoriented or mixed orientation construction, plastic materials, finished
50: Free-standing, unoriented or mixed orientation construction, stone or masonry, unfinished
51: Free-standing, unoriented or mixed orientation construction, stone or masonry, unfinished
52: Free-standing, unoriented or mixed orientation construction, complex materials, unfinished
53: Free-standing, unoriented or mixed orientation construction, complex materials, finished
54-59: Unassigned
60: Shared walls, horizontal primary construction, plastic materials, unfinished
61: Shared walls, horizontal primary construction, plastic materials, finished
62: Shared walls, horizontal primary construction, stone or masonry, unfinished
63: Shared walls, horizontal primary construction, stone or masonry, finished
64: Shared walls, horizontal primary construction, complex materials, unfinished
65: Shared walls, horizontal primary construction, complex materials, finished
66-67: Unassigned
68: Shared walls, vertical primary construction, plastic materials, unfinished
69: Shared walls, vertical primary construction, plastic materials, finished

Table 11.2 Coding Guidelines for D.A.P. Architecture Form - Integration and Inference (page 6 of 7)

Walls

70: Shared walls, vertical primary construction, stone or masonry, unfinished
71: Shared walls, vertical primary construction, stone or masonry, finished
72: Shared walls, vertical primary construction, complex materials, unfinished
73: Shared walls, vertical primary construction, complex materials, finished
74-75: Unassigned
76: Shared walls, unoriented or mixed orientation construction, plastic materials, unfinished
77: Shared walls, unoriented or mixed orientation construction, plastic materials, finished
78: Shared walls, unoriented or mixed orientation construction, stone or masonry, unfinished
79: Shared walls, unoriented or mixed orientation construction, stone or masonry, finished
80: Shared walls, unoriented or mixed orientation construction, complex materials, unfinished
81: Shared walls, unoriented or mixed orientation construction, complex materials, finished
82-84: Unassigned
85: Walls of structure have different construction modes
86-98: Unassigned
99: Other

Floor

00: Not applicable
01: Indeterminate
02-09: Unassigned
10: Ground surface or bottom of pit, no other modification
11: Leveled and cleared, no other modification
12-19: Unassigned
20: Leveled and cleared, surface added, adobe
21: Leveled and cleared, surface added, sand
22-29: Unassigned
30: Leveled and cleared, subbase and surface present, adobe surface
31: Leveled and cleared, subbase and surface present, paved or flagging
32-39: Unassigned
40: Leveled and cleared, foundation, subbase and surface treatment present (complex construction), adobe surface
41: Leveled and cleared, complex construction, sand surface
42: Leveled and cleared, complex construction, paved

Table 11.2 Coding Guidelines for D.A.P. Architecture Form - Integration and Inference (page 7 of 7)

Floor

43: Leveled and cleared, complex construction, partially paved
44-98: Unassigned
99: Other

Roof

00: Not applicable
01: Indeterminate
02: Walls and roof not differentiated
03: Natural roof (cave)
04-09: Unassigned
10: Walls primary support, construction indeterminate
11: Walls primary support, brush construction
12: Walls primary support, complex construction, poles (vigas) laid horizontally across wall tops, superstructure present
13: Walls primary support, complex construction, vigas and latias
14-18: Unassigned
19: Walls primary support, other
20: Primary support by walls and posts, construction indeterminate
21: Primary support by walls and posts, vigas only, superstructure
22: Primary support by walls and posts, complex construction, vigas and latias
23-28: Unassigned
29: Primary support by walls and posts, other
30: four main supports, vigas strung between supports
31-38: Unassigned
39: four main supports, other
40: Other post pattern, vigas strung between supports
41-48: Unassigned
49: Other post pattern, other
50: Cribbed roof, masonry pilasters
51-59: Unassigned
60: Cribbed roof, wooden post pilasters
61-98: Unassigned
99: Other

Figure 11.3 Dolores Archaeological Program
Household Cluster Form.

Table 11.3 Coding Guidelines for D.A.P.
Household Cluster Form (page 1 of 5)

Prepared by: four-letter initials

Date: month (two digits) day (two digits) year (two digits)

State: two digits

County: two letters

Area: one digit (coding from the F.S. format) same as house

Subarea: one digit (coding from the F.S. format) same as house

H = Household Cluster Type: Locality Number (coding from F.S. format)

Number:

Grass Mesa Locality:	05MT2151	Element 1 = H #000001
	05MT2151	Element 2 = H #000002
	05MT2161	none presently assigned
	05MT0023	none presently assigned
Periman Locality:	05MT4475	Element 1 = H #000001
	05MT4475	Element 2 = H #000002
	05MT4671	Element 1 = H #000003
Sagehen Locality:	05MT4545	Element 1 = H #000001
	05MT2198	Element 1 = H #000002
	05MT2192	Element 1 = H #000003
	05MT2194	Element 1 = H #000004
	05MT2162	Element 1 = H #000005
	05MT4614	Element 1 = H #000006
	05MT4614	Element 2 = H #000007
	05MT2848	Element 1 = H #000008
	05MT2848	Element 2 = H #000009
	05MT2853	Element 1 - H #000010
	05MT2193	Element 1 - H #000011
	05MT2193	Element 2 - H #000012
	05MT2853	Element 2 - H #000013
	05MT2236	Element 1 - H #000014
	05MT2858	Element 1 - H #000015
	05MT2854	Element 1 - H #000016
	05MT2854	Element 2 - H #000017
	05MT4640	Element 1 - H #000018
	05MT4644	Element 1 - H #000019
	05MT4644	Element 2 - H #000020
	05MT2235	Element 1 = H #000021
House Creek Locality:	05MT2320	Element 1 = H #000001

Table 11.3 Coding Guidelines for D.A.P.
Household Cluster Form (page 2 of 5)

Dimensions: Dimensions recorded to nearest square meter
Total surface area of household cluster at habitation

U = Use Area	Type: coding from Use Area format two digits area type of the house	Number: from consecutive site series six digits

INTERNAL ASSOCIATIONS

U = Use Area	Type: coding from Use Area format two digits	Number: how many use areas of this type six digits
A = Activity Area	Type: coding from Act. Area format two digits	Number: how many activity areas of this type six digits
F = Feature	Type: coding from F.S. format two digits	Number: how many features of this type six digits

(When feature types are listed, only these values should be included: 10, 11, 12, 13, 15, 16, 17, 23, 24, 26, 29, 34, 35, 36, 38, 39, 48, 61, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80.
Also, combine values 10, 24, and 29 and list them all as 29s.
Also, combine values 61 and 80 and list them as 61.)
****

H = Household Cluster (maximum = 6 clusters)	Type: locality (from F.S. form two digits	Number: from consecutive locality series six digits
U = Use Area (maximum = 3 areas)	Type: from Use Area format two digits	Number: from consecutive site series six digits
A = Activity Area (maximum = 3 areas)	Type: from Activity Area format two digits	Number: from consecutive site series six digits

Site Reference: One digit
From six sites listed below

(Consider archaeological contemporaneity and distance in selecting the above Household Clusters, Use Areas, and Activity Areas, and the sites below.)

Site: State (two digits) County (two letters) Number (six digits)
(Nearest 6 archaeologically contemporaneous sites)

Table 11.3 Coding Guidelines for D.A.P. Household Cluster Form (page 3 of 5)

Temporal Assignment Evidence:	Two digits - coding from Temporal Assignment format)
Evidentiary or Inferential:	Four digits Years B.P. (present = A.D. 1950) Fill in either an evidentiary or an inferential date for the first occupation of this household cluster and for the final abandonment of this household cluster

(Evidentiary dates are defined as directly associated dendrochronological, archaeomagnetic, radiocarbon, dendrochronologically-dated ceramic types, or artifact seriation including dendrochronologically-dated ceramic types.)

Population Estimate:	Three digits ("Best estimate" of population of this household cluster to nearest person)
Living Space:	Four digits Indicate roofed domestic space to nearest tenth of a square meter include bench space in a pitstructure Do not include antechambers
Storage Space:	Four digits Indicate roofed storage space to nearest tenth of a square meter Include antechambers and large cists
Trade Items or Foreign Style:	One digit Coding from Temporal Assignment format

Table 11.3 Coding Guidelines for D.A.P.
Household Cluster Form (page 4 of 5)

EVIDENCE FOR TEMPORAL ASSIGNMENT
VARIABLE VALUE LIST

EVIDENCE

00 No dating methods applied
01 Evidence from sampling program, dendrochronology
02 Evidence from sampling, archaeomagnetism
03 Evidence from sampling program, radiocarbon
04 Evidence from sampling program, dendrochronology and archaeomagnetism
05 Evidence from sampling program, dendrochronology and radiocarbon
06 Evidence from sampling program, archaeomagnetism and radiocarbon
07-08 Unassigned
09 Evidence from other sampling program
10 Evidence from stratigraphic context, direct association
11 Evidence from stratigraphic context, indirect association
12-18 Unassigned
19 Evidence from stratigraphic context, other
20 Evidence from architecture, building style
21 Evidence from architecture, presence or absence of features
22-28 Unassigned
29 Evidence from architecture, other
30 Evidence from artifactual assemblage, ceramics, presence or absence of dendrochronologically dated materials
31 Evidence from artifactual assemblage, ceramics seriation
32 Evidence from artifactual assemblage, presence or absence of non-flaked lithic types
33 Evidence from artifactual assemblage, presence or absence of flaked lithic types
34 Evidence from artifactual assemblage, presence or absence of flaked and nonflaked lithic types
35 Evidence from artifactual assemblage lithics seriation
36 Evidence from artifactual assemblage, vegetal or bone
37 Evidence from artifactual assemblage, presence or absence of ceramic or lithic types
38 Evidence from artifactual assemblage, multiseriation
39 Evidence from artifactual assemblage, other
40 Evidence from nonartifactual assemblage, bone
41 Evidence from nonartifactual assemblage, vegetal
42 Evidence from nonartifactual assemblage, mineral
43-48 Unassigned
49 Evidence from nonartifactual assemblage, other
50 Environmental evidence, pollen stratigraphy
51 Environmental evidence, geology
52-58 Unassigned
59 Environmental evidence, other

60 Multisource, dendrochronology and stratigraphy
61 Multisource, dendrochronology and architecture
62 Multisource, dendrochronology and artifact types
63 Multisource, dendrochronology and artifact seriation
64 Multisource, dendrochronology and artifacts, other
65 Multisource, dendrochronology and nonartifactual material
66 Multisource, archaeomagnetism and stratigraphy
67 Multisource, archaeomagnetism and architecture
68 Multisource, archaeomagnetism and artifact types
69 Multisource, archaeomagnetism and artifact seriation
70 Multisource, archaeomagnetism and artifacts, other
71 Multisource, archaeomagnetism and nonartifactual material
72 Multisource, radiocarbon and stratigraphy
73 Multisource, radiocarbon and architecture
74 Multisource, radiocarbon and artifact types
75 Multisource, radiocarbon and artifact seriation
76 Multisource, radiocarbon and artifacts, other
77 Multisurce, radiocarbon and nonartifactual materials
78 Multisource, stratigraphy and architecture
79 Multisource, stratigraphy and artifact types
80 Multisource, stratigraphy and artifact seriation
81 Multisource, stratigraphy artifacts, other
82 Multisource, stratigraphy and nonartifactual materials
83 Multisource, architecture and artifact types
84 Multisource, architecture and artifact seriation
85 Multisource, architecture and artifacts, other
86 Multisource, architecture and nonartifacutal materials
87 Multisource, nonartifactual materials and artifact types
88 Multisource, nonartifactual materials and artifact seriation
89 Multisource, nonartifactual materials and artifacts, other
90-98 Unassigned
99 Other dating technique

NOTE: In applying codes, if only one dating source available, use code for that source; if more than one available, choose primary one or two.

TRADE ITEMS OR FOREIGN STYLE

0 No trade items recovered
1 Intra-Mesa Verde Region items or style; one through five traits identified
2 Intra-Mesa Verde Region items or style; greater than five traits identified
3-4 Unassigned
5 Extra-Mesa Verde Region items or style; one through five traits identified
6 Extra-Mesa Verde Region items or style; more than five traits identified
7-8 Unassigned
9 Combination intra- and extra-Mesa Verde Region items or style

Program, the conventions and standards outlined herein and the recording forms could probably be adopted with minimum modifications by other researchers studying Formative New World cultures.

SECTION 2

PRELIMINARY OPERATIONS

by Nancy J. Hewitt and Allen E. Kane

Pre-fieldwork Research

Preliminary operations to be conducted at Dolores Archaeological Program sites scheduled for intensive investigation can be placed in four categories: pre-fieldwork research, sampling, establishment of excavation controls, and the formulation of an excavation design.

Before actually going into the field with his excavation crew, the site manager (crew chief) and his assistant(s) will carry out some preliminary research. This will include a review of the survey site report, a conference with the locality supervisor and field director concerning the site and its role in the research design, and perusal of pertinent literature, for example, site reports on similar sites; readings can be recommended by the field director. If time permits, the site manager and his designated assistants, the locality supervisor, and the field director should visit the site before excavation begins.

Upon arrival at the site the first objective is to photograph the site as is; several photos should be taken from different angles. Locations from which pictures are taken should be marked so that during or after excavation, shots can be taken from the same places.

After initial photography the limits of the site must be defined. For our purposes, this is usually the limits of the artifact scatter, although in some cases, a rather arbitrary judgment will have to be made. The limits of the site should be marked with flagging tape secured to visible anchors (usually vegetation).

The next task involves detailed sampling and recording of the native environment at and in the vicinity of the site. The site manager should assign knowledgeable individuals to make transects across the site area recording vegetation types and relative frequency, and fauna. Another task group should be assigned the collection of pinch pollen samples according to a systematic design (perhaps at every 12 m interval in a lattice pattern). A third task group should collect materials sources samples: these include soil samples from different soil zones in the site vicinity (for chemical and sedimentation testing) and samples from natural rock outcrops.

The site manager must be aware that in order to fully interpret his site he must know the environmental and social setting as well as the site itself. A separate section in the site notebook should be reserved for environment; this should include the results of the vegetation transects and other studies. The site chief should be familiar with the local environment to a distance of a few hundred meters; during preliminary operations he should begin this process of site catchment analysis; ultimately, this will involve walking out from the site in all directions and noting environmental data. Types of data to be recorded include seeps and springs and impermanent streams, arable land percentages, locations of vegetal and animal resources (such as firewood, construction, berries, fibers, etc.) and stone raw materials. The site manager can mark point locations or areal limits and these can be shot in with a transit. The environmental section of the site notebook should include tables of resource types and distances and directions. A large scale sketch map should also be maintained. A subsection in the notebook should be reserved for observations concerning the social environment. It is

expected that the site manager will not complete this catchment study during preliminary operations; rather it will be a continuing process.

Establishment of Controls

Once the limits of the site have been established and sampling procedures completed, the site manager should establish excavation controls. The site should be brushed, to facilitate mapping and to reveal any surface features. After brushing, the horizontal datum should be established. The datum will be at the northwest corner of the site, but distant enough to allow for any features not visible from the surface; this point will serve as the functional datum for the site and is assigned to the location (100S,100E). The theoretical true datum (0S,0E), then, is located approximately 140 m to the northwest and can be used in the eventuality the site boundaries are expanded in that direction. The grid can then be established by plotting in points at 4 m intervals to form a lattice. The grid will be oriented magnetic north. It is also important that if a magnetometer survey has been conducted on the site, that the northwest corner of the grid be an intersection of the lattice; hence, the location of the excavation grid may have been partially predetermined by the magnetometer survey.

A vertical datum must also be established; this is done after layout of the excavation grid. The vertical datum should be placed at or near the highest natural surface on the site, at a major grid intersection. After both datum points have been established, a topographic map of the site should be started; standard contour intervals used by project personnel are 25 cm, 50 cm, and 1 m. The site manager should insure that the vertical datum is correlated with the modern ground surface and

prehistoric ground surface for different site areas. The 25 cm interval should be used for all sites with relatively flat topography. The location of structures and features should be added to the map as they are defined. Also, the site manager should designate areas outside the defined limits of the site for an equipment dump, a site headquarters, and a break/tobacco area. Eating, smoking, and chewing of tobacco will be restricted to this area to avoid contamination of the site. Elements of establishing controls for site excavations are depicted in Figure 11.4.

Excavation Design

Formulation of a specific excavation strategy for the site will be dependent on research design requirements and formal (archaeological) remains present. The latter includes distributions of surface artifacts, visible architecture and results of the magnetometer survey.

To begin this process a complete surface collection should be made using the 4 m squares in the original grid lattice as provenience units (each square in the lattice is assigned an identity based on the location of the NW grid intersection; for example, 014S,018E, etc.). The site manager should maintain a separate sketch map and listing for each class of cultural material; nonflaked lithics, lithics, and ceramic items will be counted at the site, and building stone and jacal (adobe) weighed. In situ (prehistoric context) items, of course, should be returned or left in place.

The site should then be stratified according to artifact frequency, magnetometer anomalies and architectural remains. The stratifying procedure begins by dividing the site into subunits (areas) based on the above criteria (for example a roomblock would constitute Area 1, a

Figure 11.4 Scheme for preliminary operations at sites scheduled for intensive operations.

DOLORES ARCHAEOLOGICAL PROJECT
U.S. Bureau of Reclamation

HOUSEHOLD CLUSTERS

Prepared by

Date

State | County | Site

Area

Subarea

General Description

Type | Number

H

Dimensions

Associations:

Internal Associations

House — Code: U | Type | Number

Use Areas, Activity Loci, and Features

Economic Activities:

Code	Type	Number	Site Ref.

	State	County	Number
Site 4			
Site 5			
Site 6			

External Associations

Code	Type	Number	Site Ref.

	State	County	Number
Site 1			
Site 2			
Site 3			

Social Relations:

Temporal Assignment (years BP)

	Evidence	Evidentiary	Inferential
Occupied			
Abandoned			

Population Estimate

Living Space

Storage Space

Trade Items or Foreign Style

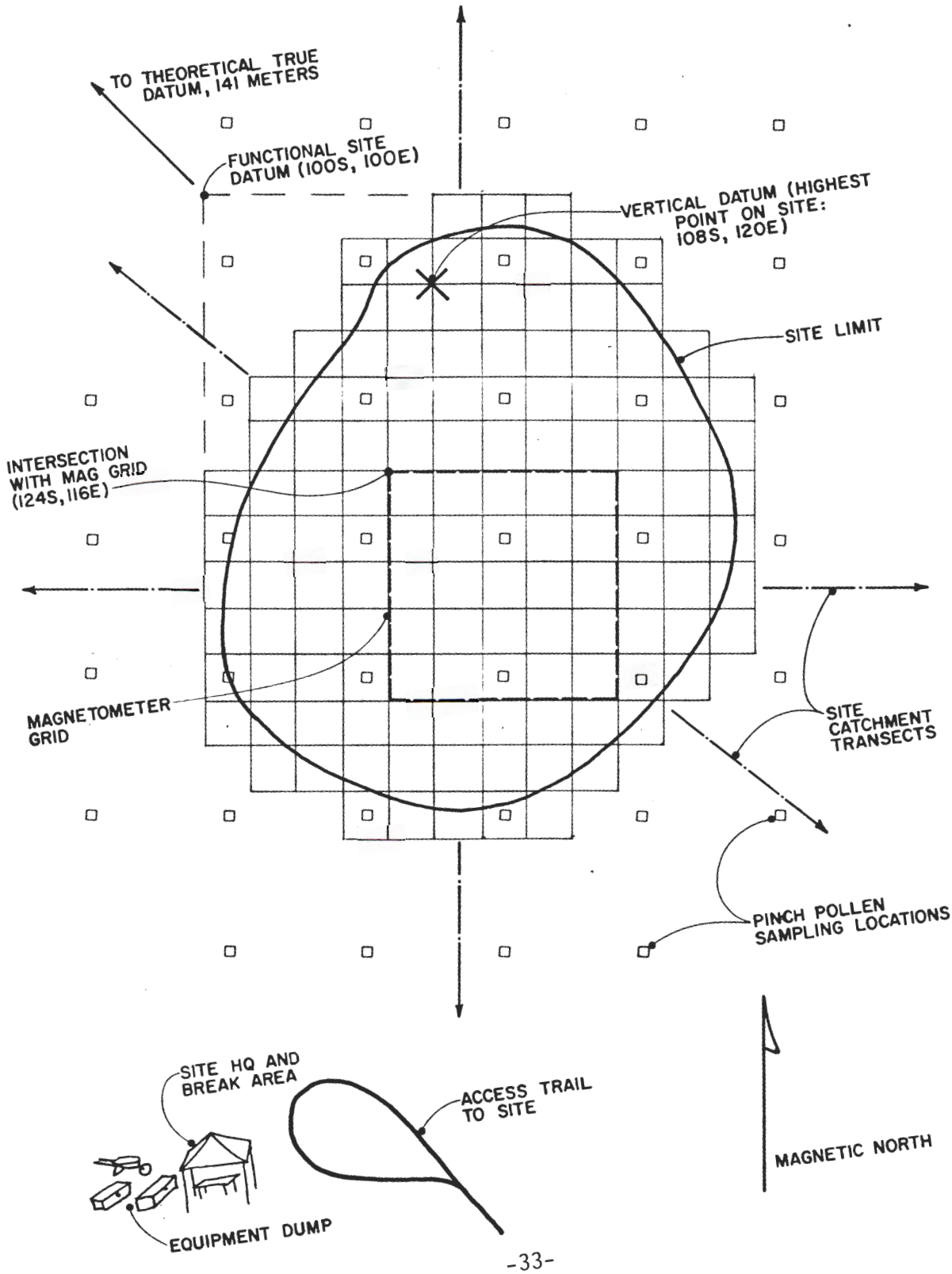
hypothesized pitstructure would make up Area 2, a trash deposit Area 3, a nonstructural expanse west of the pitstructure is Area 4, etc.); that is, stratify the site according to culture divisions (use areas), if possible. In many cases, distinct cultural divisions will not be apparent at the site, and areas will have to be defined or based on other than architectural criteria. These areas will then be used as units for excavation sample selection; those areas where few cultural features are expected should be sampled at 10-15 percent frequency, and potentially more significant units at 20-25 percent.

Actual excavation will be initiated in 2 by 2 m test squares. To select the sample, consider each area as a unit and, using a table of random numbers (Table 11.4), choose locations (squares) until the desired percentage is reached. For example, consider an area with 20 4 by 4 m squares as part of the original lattice; each 4 by 4 m square defines four 2 by 2 m potential test excavation squares. Number the latter in a systematic manner from 1-80. Using the Table of Random Numbers, select excavation units using every other pair of digits to start a number (81| 52| 57| 22| 95 = squares 52, 22 selected for excavation). Continue until the correct percent is reached, rejecting duplicates and those not in the potential excavation universe.

Once the sample has been chosen, work can begin in the designated test squares using arbitrary 20 cm levels. Work should be continued in these units until a feature or undisturbed deposits are encountered. If a feature is discovered, the horizontal limits should be defined and it then should be excavated using one of the specialized techniques discussed in Section 6.

D.A.P. FIELD MANUAL

DESIGN FOR PRELIMINARY SITE OPERATIONS



SECTION 3

RECORDS

by Patrick Hogan

Introduction

Archaeology is a destructive science; as a site is excavated it is systematically destroyed. This fact places a tremendous responsibility on the site manager (crew chief) to preserve in his excavation records as complete a picture as possible of the site in both its cultural and natural aspects. The ideal should be a total verbal reconstruction. The legitimacy of archaeology's claim to being a scientific discipline rests on the assumption that the excavator's notes are a complete and intellectually honest data base permitting re-study and verification of the excavator's interpretations by other investigators.

The purpose of this chapter is to provide guidelines for the observation and recording of these basic data and to outline the notetaking and record keeping procedures adopted for the Dolores Archaeological Program. To facilitate reference of this section in the field it is divided into three major sections. The first section discusses the various record keeping responsibilities of the site director; the second section the standard format of the site notebook; and the third, the various forms utilized in recording the site.

The Site Manager's Responsibilities

The site manager's responsibilities fall more or less neatly into three categories: administration, description, and interpretation.

Administration

The site manager's administrative duties include submission of a weekly labor manning record, preparation of a monthly progress report detailing operations at the site, the implementation of new procedures, and the communication of information from various administrative officials to the crew members and vice versa.

Preparation of the payroll records require that the site chief complete a form at the end of each week listing the hours worked by each crew member.

Monthly progress reports for each site should include the number of person days worked at the site and a description of the work completed during that month. As well, there should be a brief discussion of the general excavation strategy, any subsequent modifications of that strategy with justification, and a summary of current speculations relating to the nature of the site and its applicability to the program research design. Both of these reports require appropriate daily entries in the site log.

New procedures, policy changes or problems are usually communicated to the site directors as written memos. These may need to be referred to periodically or at a future date; therefore, it is suggested that all memos be filed in the site notebook by date with the most recent to the front.

Description

At the beginning of this section the responsibility of the archaeologist to reconstruct the site as fully as possible via a written record was stressed. To a great extent, that reconstruction rests on the controls established and maintained during excavation. Remember, too,

that all subsequent analysis is dependent on those controls--they are no more accurate than the provenience on which they are based. At the same time, controls must be comparable between sites both to simplify record keeping and to realize the goals of the program research design.

Toward these ends, the co-principal investigators and site chiefs have, after a year of fieldwork, agreed on a hierarchy of provenience units as a framework for the descriptive site record. For the most part, the provenience units are analytical conveniences; that is, they are artificial units imposed on the site. Only architectural study units and features necessarily correspond to any cultural units. The major units of this hierarchy are briefly discussed below. As will be explained in discussing the notebook format, this hierarchy structures the way in which the descriptive notes will be taken.

The largest analytical subdivisions of a site are areas followed by subareas. These designations are optional provenience categories used to divide the site into such major areas as roomblocks, plaza areas, middens, etc. They are meant as a convenience both in the excavation of the site and in the preparation of the site report.

The study unit is the basic unit of excavation and notetaking. Study units may be structures, occupation surfaces, or trenches. Within the study unit, cultural units such as hearths and cists are defined as features, the most specific descriptive unit.

A number of other provenience units have been defined to establish vertical and horizontal context; however, these generally crosscut features, study units, and sometimes even subareas, and, therefore, are not part of the hierarchy used to order the descriptive notes. These terms will be discussed in detail in the section on filling out forms.

With the hierarchy of observation and description established the descriptive aspects of notetaking can now be addressed directly. Notes should be taken in narrative form using complete sentences, taking care to be as clear and concise as possible. In the initial definiton of a feature or study unit care should be taken to divorce yourself from any preconceptions or interpretations. Once a cultural unit has been labelled a "room" or "hearth" there is tendency to let the label carry much of the burden of the description. Describe what you see; its form, how it is put together, its components, dimensions, context both culturally and physically--in short, all the aspects of the unit that made it seem significant to you in the first place. Then you can label it, giving a detailed justification of the label you have chosen.

Although primary reliance is placed on written description, supplement this with liberal use of sketches, maps, and photographs. These can be of great value in clarifying relationships with materials yet uncovered. They give a visual record even after excavation has destroyed the unit itself. Remember, too, that visual aids will be needed in the report to augment the verbal discussion.

It must be admitted at this point that the ideal of total reconstruction of the site in the excavation record is unattainable. What will be seen by the excavator and subsequently recorded is, in large measure, what he is looking for. This need not mean you find only what you want to (though there is that danger) but that observations will be structured in part by the questions you are asking. The trick is to be explicit about that bias.

The biases of the program--the questions being asked--are stipulated in the research design. Care should be taken that as many lines of

evidence as possible are amassed to answer these questions. Undoubtedly any site will have a number of unique features and problems that must be described and handled. While these are important, they are generally dealt with adequately in the notes since they are constantly before the excavator. Observations pertinent to the research design, being less obvious, can, but should not, be forgotten in the knotty work of unraveling the site.

Clearly, the sheer quantity of descriptive recording needed is beyond the ability of one person. The site chief must remain cognizant of the overall picture at the site; how the various components are related; how the site is integrated with the immediate cultural and natural environment; and how the site relates to the research design. The necessity of maintaining this overview means that much of the detailed description must be delegated to the field assistant and other crew members. But while the task itself can be delegated, the responsibility for proper and complete records cannot. A regular schedule should be established for teaching notetaking procedures and for reviewing the notes taken by crew members.

Interpretation

A clear division must be made between the descriptive portion of the notes and any interpretive assertions that are made. At the same time, any interpretation must be dependent upon observation and description.

Interpretive notes should be outlined referring to relevant aspects of the description. Alternative interpretations should be presented and as much evidence as possible cited to favor one interpretation over the other. In essence, this amounts to thinking on paper. Your interpretations are put down in a form that allows an independent

evaluation of your decisions at each level.

Like the descriptive notes, interpretations should be made at each hierarchical level. Since associations between cultural units are basic to interpretaion, though, more frequent reference to provenience units is necessary and cross-reference to other units is critical. The greater burden for interpretation consequently must rest with the site chief.

To the greatest extent possible the interpretation of all site phenomena should be made in the field while the context is preserved and before the investigator. Certainly some of these interpretations will be modified by subsequent laboratory analysis but the practice is infinitely superior to trying to decide what went on solely from the descriptive notes after the site is closed.

As is the case with description, interpretation must be tied closely to the research design. There are many unique aspects to every site, aspects the archaeologist should strive to understand fully. At the same time, an understanding of the adaptations of the Anasazi to the Dolores area, and more generally, an understanding of culture process, is dependent on a regional focus. Multisite comparisons demand comparable data. Since the site-by-site interpretations are in part the data for regional analysis, it is imperative that the site managers address specifically the contributions their individual sites can make to clarifying these general questions.

Notebook Format

All site notes are to be taken on the forms provided using a sharp pencil. The forms are to be punched for insertion into a standard three ring looseleaf binder. The advantage of the system is that notes on

various units can be filed together, simplifying retreival of information on a particular phenomenon at a later date. Notes are filed by category and by provenience hierarchy. Index tabs can be utilized to increase the ease with which any needed bit of information can be retreived.

The responsibility for protecting the notes rests with the site manager. As a precaution, though, all forms have a carbonless copy. These are retained in the notebook and the originals turned into the lab on a weekly basis so that a complete duplicate of the site records can be maintained.

Five major categories comprise the notebook: a site log, environmental section, descriptive/interpretive notes, provenience lists, and the sample log. Though not actually a part of the site record, for ease of reference, memos should be filed in the back of the looseleaf with the notes.

The site log is a daily record kept by the site chief of the progress of research. It includes such administrative details as who worked what hours, where they worked, what was accomplished, visitors to the site, etc. As mentioned, these are details that will be needed for completing monthly progress reports and weekly payroll lists.

In addition, the strategy of excavation should be made explicit as should the rationale for any modifications made during the course of excavation. The site log is also where the site-wide problems, associations, and interpretations are detailed. To the extent possible, this portion of the site log should constitute a first draft of the preliminary site report.

The body of the notebook will be the descriptive/interpretive notes. The organization of this section follows the provenience hierarchies

already discussed. Divisions are made for each area if the site is so divided. Within this division, subdivisions are made for each subarea and the subarea in turn is divided into study units. Within the study unit notes, all relevant feature notes are included. In this way all related observations are grouped from the smallest to the largest unit.

Each unit of the hierarchy is defined by a cover sheet. For features and study units these will be prepared forms. Behind the cover sheet, notes are filed by date. Notes of each lower level are filed behind the notes for the next higher level with which they are associated.

The third section of the notebook is a list of provenience units. Areas and subareas of the site, and features, are numbered sequentially for the site as a whole. Likewise, each type of study unit has a sequential listing as do stratigraphic units within each study unit. For each of these a list should be kept of the numbers assigned and a brief description of the unit assigned that number.

Lists should also be kept of the numbers assigned to the artifacts and samples taken at the site--the fourth notebook category. Chief among these is the Field Specimen (F.S.) catalogue. F.S. numbers are actually provenience designators, and are the fundamental provenience units for analysis, storage, and retrieval of all artifactual materials. F.S. numbers are sequential for the entire site.

As well as the F.S. number, certain samples--bulk soil, tree-ring, C-14, and pollen--have sample numbers as well. These too are sequentially numbered requiring lists to be kept of numbers assigned.

Point locations, artifacts recovered in situ from floors or activity areas, are numbered sequentially for each study unit in which they are found. Lists are kept for each study unit describing the artifacts assign-

ed point location numbers. These lists tied with the point locations numbers plotted on the map of the surface and augmented by pollen and bulk soil samples comprise the basic record of prehistoric activity areas.

Finally, a catalogue of all photographs taken at the site must be kept. Photographs are numbered by roll and exposure number.

Forms

The need for comparability of data has been repeatedly emphasized throughout this chapter. As an aid to obtaining this comparability a number of forms have been designed to meet the specific needs of the program. The intent in producing the forms is not to establish a rigid structure to be forced on the data; rather, these are intended as mnemonic devices to aid in efficiently organizing and summarizing needed information, as well as ensuring that all relevant records are made.

The field forms fall into three major categories. The feature sheets, study unit forms, burial forms, stratigraphic forms, and continuation sheets are primarily aids in composing the descriptive notes and interpretations. The field provenience description, sample log forms, and photo data sheets facilitate the recording of artifactual materials and their proveniences. The sample inventory catalogue and point location catalogue help maintain control over artifactual material during transport and initial processing. Current field forms and coding guidelines are included as Figures 11.5, 11.6, 11.7, 11.8, 11.9, 11.10, 11.11, 11.12, 11.13, 11.14, 11.15, and 11.16, and Tables 11.5, 11.6, 11.7, 11.8, 11.9, 11.10, 11.11, 11.12, 11.13 and 11.14. Site managers are reminded that the project integration and inference forms (Figures 11.1, 11.2, and 11.3) are filled out partially in the field, and completed after initial analysis.

Figure 11.5 Dolores Archaeological Program Feature Form.

Table 11.4 Randomly Generated Numerical Units

03 91 88 64 95	47 37 22 18 70	28 52 29 94 45	38 78 38 33 07
10 04 13 50 95	66 35 76 45 69	08 99 32 04 29	28 56 96 38 09
43 53 75 82 68	80 23 71 74 07	89 68 00 46 55	24 67 86 19 32
64 30 14 72 01	31 90 56 04 10	80 10 13 33 82	95 25 51 03 53
43 85 74 21 86	77 01 19 38 39	28 38 04 92 96	63 31 14 97 13
91 82 33 97 94	47 04 67 85 63	89 32 83 94 78	04 12 31 92 87
34 01 78 78 78	35 67 43 92 12	98 24 62 97 35	09 92 42 78 93
49 10 50 07 55	39 24 25 04 72	39 58 14 40 36	54 51 84 68 65
72 47 90 27 41	75 73 29 98 08	02 38 27 72 01	44 93 28 89 78
84 28 14 56 50	28 01 67 77 53	39 49 54 18 47	19 63 48 26 81
61 58 93 54 86	59 50 02 00 60	89 76 95 48 70	75 58 60 78 53
25 31 80 19 95	87 78 94 12 12	74 90 79 07 34	31 94 62 49 21
40 11 33 73 95	51 40 69 80 99	43 02 37 01 95	07 01 37 23 06
58 42 04 35 26	15 53 92 48 45	15 58 21 67 80	95 28 66 90 21
18 07 54 58 94	09 87 54 28 69	20 61 80 76 99	80 67 15 42 87
52 75 47 31 24	93 27 67 15 21	59 61 84 49 66	37 50 21 55 70
05 25 55 35 79	08 23 99 91 74	75 54 89 57 76	42 31 41 30 93
76 03 23 55 69	28 73 83 80 92	74 66 90 07 49	17 83 26 48 55
97 05 03 15 53	32 35 05 14 91	53 65 98 93 36	36 91 20 52 92
29 03 04 30 74	84 60 29 51 31	22 76 94 46 80	68 49 23 39 87
28 12 42 96 86	63 74 51 23 13	15 74 51 15 70	20 95 31 71 49
97 46 94 12 77	90 52 43 64 59	22 17 86 37 85	20 46 66 71 30
91 75 44 07 84	38 91 61 29 49	76 10 42 05 56	34 00 15 91 33
84 59 92 97 98	57 70 75 73 92	91 75 77 69 94	43 82 76 90 89
06 49 04 22 28	94 94 01 06 68	62 07 25 89 83	10 26 30 88 32
30 66 60 22 18	89 35 57 61 17	75 16 76 90 05	42 47 97 98 65
87 22 81 57 36	08 50 62 97 59	74 25 78 55 94	75 15 44 86 64
45 13 34 92 29	32 50 29 96 98	68 20 24 47 04	39 19 17 37 40
55 71 39 86 70	57 79 46 47 95	27 10 28 34 20	26 63 09 50 09
20 39 03 82 66	30 13 86 12 50	07 52 70 20 14	43 97 24 93 70
13 40 06 82 49	32 45 94 16 27	56 19 49 30 75	50 52 09 67 84
08 90 08 77 88	73 71 71 92 87	69 95 44 59 17	80 02 65 55 98
86 75 74 79 05	16 89 09 90 47	78 24 99 37 39	97 07 60 05 25
19 86 25 47 00	18 77 72 22 18	25 41 41 31 51	54 95 48 06 15
96 28 21 15 76	59 83 72 74 29	60 01 54 03 38	39 43 59 40 21
17 46 32 67 15	71 68 00 48 53	55 72 58 77 92	99 90 76 71 56
44 88 05 52 85	95 47 25 75 51	24 60 29 83 11	63 29 35 81 10
61 91 17 81 52	96 34 13 14 73	58 39 86 16 02	38 14 39 38 33
07 76 92 28 19	58 37 38 84 66	71 34 13 27 72	93 64 39 28 55
73 06 36 36 23	29 38 88 95 07	78 55 36 27 92	89 34 32 74 01

DOLORES ARCHAEOLOGICAL PROJECT
U.S. Bureau of Reclamation

FEATURE FORM

Prepared by

Date

State | County | Site Number

Locality

General Description

Feature Type | Number

Provenience:

Grid | Datum

Area

Subarea

F.S. Numbers | Samples Type | Number | Standard

Study Unit Type | Number

Photos C R X X X X | B/W C R X X X X

Detailed Description

Shape

Plan

Profile

Dimensions Existing | Inferred

Length

Width

Depth

Construction

Original:

Materials

Fill Type

Modifications:

Excavation Observations:

External Associations

Internal Associations

Associations: External | Internal

Code | Type | Number

P, F or S

-46-

Table 11.5 Coding guidelines for the D.A.P. Feature Form (page 1 of 2)

Prepared by: Four-letter initials

Date: month (two digits) day (two digits) year (two digits)

State, County, Site Number: two digits, two letters, five digits

Locality: three digits (coding from F.S. format)

Feature Type: two digits (coding from F.S. format)

Feature Number: six digits (from the consecutive site series)

F.S. Numbers: list F.S. numbers which consist of the feature itself only

Sample Type: two digits (coding from the F.S. format)

Sample Number: four digits (list the actual sample number of each sample taken)

Sample Standard: Y = yes
N = no
(For Bulk Soil and Pollen samples use the further elaboration of this code, where Y would normally appear). Where no sample is recorded, space should be left blank

Grid: 1) The grid coordinates in meters south and meters east of the northwest corner of a 1 by 1 m square nearest the center of the feature
2) In the case where a floor locus is used, the first four spaces should be zeroes and the last two spaces should contain the locus number

Datum: six digits
The number for the datum in the consecutive site series to which the measurements for this feature have been tied

Area: one digit (coding from F.S. format)

Subarea: one digit (coding from F.S. format)

Study Unit Type: two digits (coding from F.S. format)

Study Unit Number: six digits (from the consecutive site series)

Photos: C: camera number - two digits
R: roll number - four digits
X: exposure numbers - two digits

Table 11.5 Coding guidelines for the D.A.P. Feature Form (page 2 of 2)

Plan Shape: one digit (coding on the Feature Form format)

Profile Shape: one digit (coding on the Feature Form format)

Dimensions: existing dimensions recorded in centimeters and millimeters
inferred dimensions are recorded the same as existing dimensions if the entire feature is extant
inferred dimensions are left blank if no inference is possible
inferred dimensions recorded in centimeters and millimeters

Construction Materials: list up to three, in order of prominence in construction
construction materials consist of those materials transported and placed in the feature for purposes of constructing the feature

Fill/Assemblage Type: two digits (coding from F.S. format)

Associations:

Code:		Type:
Z - not applicable		00
F - feature		Feature type (from F.S. format)
S - study Unit		Study unit type (from F.S. format)
A - activity Area		Activity Area type (from Activity format)
P - point Location		Material Identification Class
E - surface		Surface type (from F.S. (format)

Number: For features, study units, and activity areas record the appropriate number from the appropriate site series
For point locations record the actual point location number of each point location
For surfaces record the surface number from the consecutive structure or non-structural unit series

LABEL PAGE 2 WITH SITE NUMBER AND FEATURE NUMBER

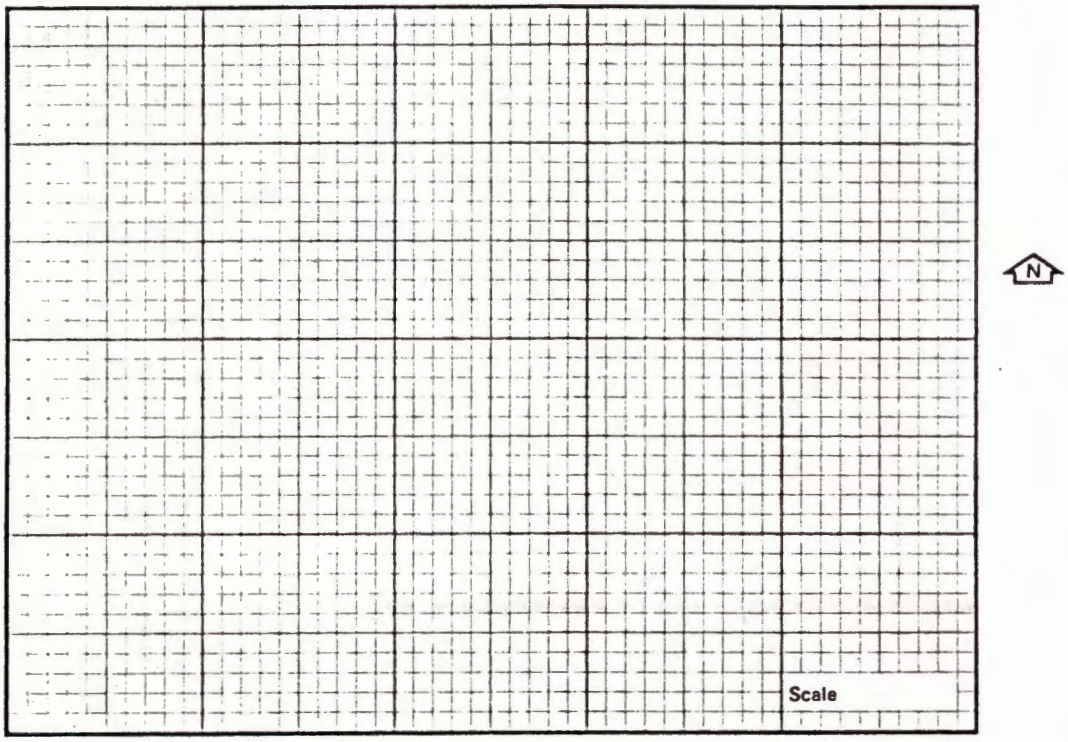
SHOW AT LEAST ONE OF THE SET OF SITE GRID COORDINATES ON THE MAP

Figure 11.6 Dolores Archaeological Program Architecture Form - Structure Description.

Additional Comments:

Key:

Plan View

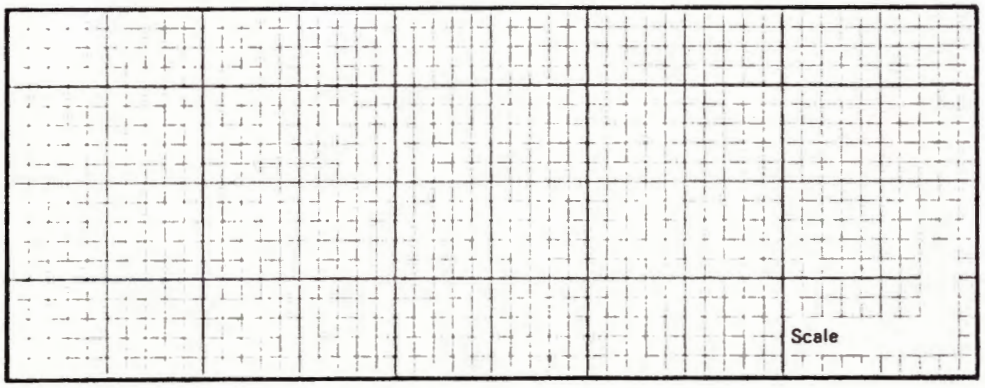


Artifacts:

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

Show Location of Cross Section on Plan

Cross Section



Interpretations:

Table 11.6 Coding guidelines for the Architecture Form - Structure Description (page 1 of 6)

Recorder: four-letter initials

Date: month (two digits) day (two digits) year (two digits)

State, County, Site Number: two digits, two letters, five digits

Locality: three digits (coding from F.S. format)

Area: one digit (coding from F.S. format)

Subarea: one digit (coding from F.S. format)

Structure Type: two digits (coding from Study Unit values on F.S. format)

Structure Number: six digits (from the consecutive site series)

Plan Shape: one digit (valued from diagrams in left margin of this form)

Dimensions: dimensions recorded in meters and centimeters
inside dimensions represent the distance along the wall between the walls adjoining it at both ends
outside dimensions represent the distance along the wall including the thickness of the walls adjoining it at each end.
in cases where only dimensions A and C exist, leave the remaining space blank
in rectangular structures A and C are the long walls
In rectangular structures C is the northernmost long wall

Height: dimensions recorded in meters and centimeters
height recorded under "measured" should be the highest point which represents the wall as a whole
in cases where only dimensions A and B exist, leave the remaining spaces blank
inferred dimensions are recorded the same as existing dimensions if the entire wall is extant
inferred dimensions are left blank if no inference is possible

Table 11.6 Coding guidelines for the Architecture Form - Structure Description (page 2 of 6)

CODING FOR STRUCTURE FORM

WALL CONSTRUCTION MATERIALS: List up to three, in order of prominence in the structure.

00: Not applicable
01: Indeterminate
02: Not present
03-09: Unassigned
10: Earth: not further specified
11: Earth: composite earth or adobe
12-18 Unassigned
19: Earth: other
20: Wood or other vegetation: not further specified
21: Wood or other vegetation: poles
22: Wood or other vegetation: reeds
23: Wood or other vegetation: thatch
24-28: Unassigned
29: Wood or vegetation: other
30: Masonry, mortared: not further specified
31: Masonry, mortared: vertical slab
32: Masonry, mortared: horizontal slab (tablet)
33: Masonry, mortared: rough sandstone
34: Masonry, mortared: cobble
35-39: Unassigned
40: Masonry, mortared: block, flaked
41: Masonry, mortared: block, ground
42: Masonry, mortared: block, ground and pecked
43: Masonry, mortared: block, other treatment
44-49: Unassigned
50: Masonry, dry laid: not further specified
51: Masonry, dry laid: unshaped
52: Masonry, dry laid: block, flaked
53: Masonry, dry laid: block, ground
54: Masonry, dry laid: block, ground and pecked
55: Masonry, dry laid: tablet
56-59: Unassigned
60: Composite masonry: vertical slab, tablet
61: Composite masonry: vertical slab, block
62: Composite masonry: tablet, block
63: Composite masonry: block, unshaped sandstone
64: Composite masonry: vertical slab, cobble
65: Composite masonry: tablet, cobble
66: Composite masonry: unshaped sandstone, cobble
67: Composite masonry: unshaped sandstone, vertical slab
68: Composite masonry: unshaped sandstone, tablet
69: Composite masonry: block, cobble
70: Excavated walls: not further specified
71: Excavated walls: no further treatment
72: Excavated walls: compacted
73: Excavated walls: plastered

Table 11.6 Coding guidelines for the Architecture Form → Structure Description (page 3 of 6)

74: Excavated walls: masonry lined, not further specified
75: Excavated walls: masonry lined, vertical slab
76: Excavated walls: masonry lined, coursed flaked block
77: Excavated walls: masonry lined, tablet
78: Excavated walls: masonry lined, cobble
79: Excavated walls: masonry lined, composite
80: Composite materials: not further specified
81: Composite materials: earth & vegetation, not further specified
82: Composite materials: jacal (earth & poles)
83: Composite materials: jacal (earth & reeds)
84-89: Unassigned
90: Composite materials: earth & masonry, not further specified
91: Composite materials: jacal & masonry, not further specified
92: Composite materials: jacal & masonry, vertical slab
93: Composite materials: jacal & masonry, unshaped sandstone
94: Composite materials: jacal & masonry, cobble
95: Composite materials: jacal & masonry, block
96-98: Unassigned
99: Other

FOUNDATION CONSTRUCTION MATERIALS: PREDOMINANT TYPE

00: Not applicable
01: Indeterminate
02: Not present
03-09: Unassigned
10: Earth: not further specified
11: Earth: composite or adobe
12: Earth: adobe block
13-19: Unassigned
20: Mineral: not further specified
21: Lignite
22-29: Unassigned
30: Wood: not further specified
31-39: Unassigned
40: Trash: not further specified
41-49: Unassigned
50: Sand: not further specified
51-59: Unassigned
60: Clay: not further specified
61-69: Unassigned
70: Stone: not further specified
71: Stone: cobbles
72: Stone: sandstone rubble
73: Stone: gravel
74-99: Unassigned

NUMBER OF COURSES IN EACH WALL: 01-99

Table 11.6 Coding guidelines for the Architecture Form : Structure Description (page 4 of 6)

CONSTRUCTION TYPE: List up to two, in order of prominence in the structure.

00: Not applicable
01: Indeterminate
02: Not present
03-09: Unassigned
10: Earth: not further specified
11: Earth: adobe turtle back construction
12-19: Earth, unassigned
20: Jacal: not further specified
21: Jacal, vertical poles or reeds
22-29: Jacal, unassigned
30: Wood: not further specified
31-39: Wood, unassigned
40: Masonry: not further specified
41: Masonry: simple construction
42: Masonry: simple, single, unflagged
43: Masonry: simple, single, biflagged
45-49: Masonry: simple, unassigned

50: Masonry: compound, not further specified
51: Masonry: compound, without core, two veneer, unflagged
52: Masonry: compound, w/o core, two veneer, flagged
53: Masonry: compound, w/o core, two veneer, biflagged
54: Masonry: compound, w/o core, other
55: Masonry: compound, w/o core, tied, unflagged
56: Masonry: compound, w/o core, tied, flagged
57: Masonry: compound, w/o core, tied, biflagged
58-59: Unassigned
60: Masonry: compound, core present, unflagged
61: Masonry: compound, core present, flagged
62: Masonry: compound, core present, biflagged
63-69: Unassigned
70: Composite materials: not further specified
71: Composite materials: earth and masonry, base course(s) of vertical slabs
72: Composite materials: earth and masonry, base course(s) of sandstone (unshaped)
73: Composite materials: earth and masonry, base of cobbles
74-76: Unassigned
77: Composite materials: jacal and masonry, base of vertical slabs
78: Composite materials: jacal and masonry, base course(s) of sandstone blocks, unshaped
79: Composite materials: jacal and masonry, base course(s) of cobbles
80-82: Unassigned
83: Composite materials: base course(s) of unshaped sandstone blocks, upper construction unspecified
84: Composite materials: base course(s) of vertical slabs, upper construction unspecified
85: Composite materials: base courses of cobbles

Table 11.6 Coding guidelines for the Architecture Form - Structure Description (page 5 of 6)

86: Composite materials: base courses of blocks
87: Composite materials: base courses of tablet
88-98: Unassigned
99: Other

CORE MATERIALS: Predominant Type

0: Not present
1: Earth
2: Clay
3: Rubble
4: Gravel
5: Vegetation
6: Earth and rubble
7: Earth and vegetation
8: Vegetation and other rubble
9: Other

COURSING:

0: Not applicable
1: Indeterminate
2: No horizontal coursing
3: Horizontal coursing, no cross joints
4: Horizontal coursing, cross joints

MORTAR: Indicate Type

0: Not applicable
1: Indeterminate
2: Mud
3: Clay
4: Chinking, flake
5: Chinking, sherds
6: Chinking, vegetal
7: Chinking, composite
8: Unassigned
9: Other

EXTERIOR TREATMENT: (What is on walls inside the structure.)

0: Not applicable
1: Indeterminate
2: Plaster
3: Paint
4: Wash
5-8: Unassigned
9: Other (specify)

Table 11.6 Coding guidelines for the Architecture Form - Structure Description (page 6 of 6)

CORNERS: CONSTRUCTION TYPE

0: Not applicable
1: Indeterminate
2: Abutted
3: Bonded (finger jointed)
4: Unjoined
5: Abutted and bonded
6-8: Unassigned
9: Other

ROOF: BASIC PATTERN

0: Not applicable
1: Indeterminate
2: Wall-supported
3: Four-post
4: Six-post
5: Eight-post
6: More than eight-post
7: Four-pilaster
8: Six-pilaster
9: Other

ROOF MATERIALS: For each roof.

00: Not applicable
01: Indeterminate
02: Wood: not further specified
03-09: Unassigned
10: Bark: not further specified
11-14: Unassigned
15: Reeds: not further specified
16-19: Unassigned
20: Mud: not further specified
21-29: Unassigned
30: Composite: not further specified
31: Composite: wood and bark
32: Composite: wood and reeds
33: Composite: wood and mud
34: Composite: wood, bark, and reeds
35: Composite: wood. bark, reeds, and mud
36: Composite: wood, bark, and mud
37: Composite: wood, reeds, and mud
38: Composite: bark, reeds, and mud
39-99: Unassigned

MINOR REMODELING: Y (yes) or N (no) (Specify)

NOTE: description should contain information on block orientation, spalls, description of sandstone, etc.

Figure 11.7 Dolores Archaeological Program
Surface Description - Form 1.

DOLORES ARCHAEOLOGICAL PROJECT
U.S. Bureau of Reclamation

ARCHITECTURE FORM

STRUCTURE DESCRIPTION

Recorder

Date

State | County | Site

Locality

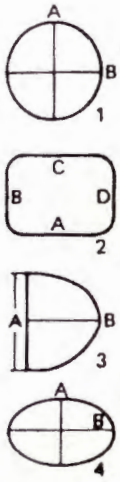
Area

Subarea

N

Provenience Label

Structure Type | Number



Description

Plan Shape

Dimensions: Inside | Outside

A

B

C

D

Walls

Height: Measured | Inferred

A

B

C

D

Materials

Materials

Foundations

Construction

A B C D

No. of Courses

~~Const. Type~~

TYPE

Mortar

Exterior Treatment

Features (list)

CORE

COURSING

1 2 3 4

Corners

Roof (include beam pattern)

Basic Pattern

Materials

Minor Remodeling

Y or N

Surface — Type | Number

Internal Associations (describe)

Features — Type | Number

Activity Areas — Type | Number

Articulations Among Features and Activity Areas

Figure 11.8 Dolores Archaeological Program
Surface Description - Form 2.

DOLORES ARCHAEOLOGICAL PROJECT
U.S. Bureau of Reclamation

SURFACE DESCRIPTION

FORM 1

Recorder

Date

State | County | Site

Locality

Area

Sub-area

Provenience

Associated Structure | Type | Number

Surface

N

1 2

2 1

1 2

1 2

Surface Description

Size

Edges

Construction

Relationship of Floor to Walls

Minor Remodeling

Dimensions 1 .

2 .

Bounded?

Total Area .

Materials

Primary Foundation

Sub-base

Surface

Thickness .

Coping

Depth from | Measured | Inferred

Top of Wall . .

Top of Roof .

Remodeling

Samples Taken

	Type	Number
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		

Photographs Taken

Color

C R X

B/W

C R X

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DOLORES ARCHAEOLOGICAL PROJECT
U. S. Bureau of Reclamation

SURFACE DESCRIPTION
FORM 2

Recorder

Date

State

County

Site

Type

Surface

Number

FLOOR ARTIFACTS
(describe)

Material I.D.

P.L. Number

aDle 11.7 Coding guidelines for the Surface Description - Form 1 and Surface Description - Form 2 (page 1 of 3)

Surface Description - Form 1 - Page 1

Recorder: Four-letter initials

Date: month (two digits) day (two digits) year (two digits)

State, County, Site Number: two digits, two letters, five digits

Locality: three digits (coding from F.S. format)

Area: one digit (coding from the F.S. format)

Subarea: one digit (coding from the F.S. format)

Associated Structure Type: study unit type (coding from F.S. format) two digits

Associated Structure Number: six digits (from consecutive site series)

Surface Type: two digits (coding from F.S. format)

Surface Number: six digits (from consecutive study unit series)

Dimensions: dimensions recorded in meters and decameters (refer to diagrams in left margin of this form)

Bounded: one digit
number of sides on which the surface has structural boundary

Total Area: size recorded in square meters with one decimal place

Primary Foundation: two digits (coding from Structure Description format - Foundation Materials)
construction materials consist of those materials placed below the surface for purposes of foundation construction

Subbase: two digits (coding from the Structure Description format - Foundation Materials)
construction materials consist of those materials placed below the primary foundation for purposes of construction

Surface: two digits (coding from Structure Description format - foundation Materials)
construction materials consist of those materials constituting the surface itself

Table 11.7 Coding guidelines for the Surface Description - Form 1 and Surface Description - Form 2 (page 2 of 3)

Thickness: Dimension recorded in centimeters and millimeters.

Coping: Joining base of walls and this surface
One letter: Y = yes
N = no

Depth from Top of Wall: Dimensions recorded in meters and tenths of meters
Inferred dimensions are left blank if no depth can be inferred

Depth from Top of Roof: Dimensions recorded in meters and tenths of meters
Inferred dimension is left blank if no depth can can be inferred

(In both of the above variables, dimensions are recorded as zeroes if no walls are present.)

Remodelling: One digit (coding on Surface Description format)

Samples Taken-Type: Two digits (coding from F.S. format)

Samples Taken-Number: Four digits (list the actual number of each sample taken)

Photographs Taken: C: Camera Number - two digits
R: Roll Number - four digits
X: Exposure Number - two digits

Surface Description Form 1 - Page 2

Surface Type: Two digits (coding from F.S. format)

Surface Number: Six digits (from consecutive study unit series)

Feature Type: Two digits (coding from F.S. format)

Feature Number: Six digits (from consecutive site series)

Activity Area Type: Two digits (coding from Activity Loci format)

Activity Area Number: Six digits (from consecutive site series)

Table 11.7 Coding guidelines for the Surface Description - Form 1 and Surface Description - Form 2 (page 3 of 3)

Surface Description Form 2 - Page 1

Recorder: Four-letter initials

Date: Month (two digits) Day (two digits) Year (two digits)

State, County, Site Number: Two digits, two letters, five digits

Surface Type: Two digits (coding from F.S. format)

Surface Number: Six digits (from consecutive study unit series)

Material Identification Class: Two digits (coding from F.S. format)

P.L. Number: Four digits (list the actual number of each point location

Surface Description Form 2 - Page 2

Prepared By: Four-letter initials

Figure 11.9 Dolores Archaeological Program
Composite Surface Profile Form.

SURFACE FORM 2 - Page 2

PLAN MAP
Show Cross-Section
Location and Label
End Points

Key:

Scale:

PROFILE

Scale:

-63-

Prepared by

Table 11.8 Coding guidelines for composite surface profile form

Prepared by: Four-letter initials

Date: Month (two digits) Day (two digits) Year (two digits)

State, County, Site: Two digits, two letters, five digits

Associated Structure Type: Two digits (coding from F.S. format - Study Unit Type values)
Study unit type for which this is the composite surface profile

Associated Structure Number: Six digits (from consecutive site series)
Study unit number for which this is the composite surface profile

Number of Surfaces Shown: Two digits

Figure 11.10 Dolores Archaeological Program Burial Form.

DOLORES ARCHAEOLOGICAL PROJECT
U.S. Bureau of Reclamation

Prepared by

Date

COMPOSITE SURFACE PROFILE

State County Site

Associated Structure Type Number

Sketch each surface profile. Indicate horizontal and vertical scale. If vertical exaggeration is used, indicate percent positive or negative. Label cross-section end points. Label all surfaces and subunits.

Key:

Scale:

Vertical exaggeration _____ %

Compass Orientation _____ °
(L to R)

Number of Surfaces Shown

DOLORES ARCHAEOLOGICAL PROJECT
U.S. Bureau of Reclamation

BURIAL FORM

Recorder

Date

Sector

Locality

State

County

Site Number

Burial Number

Feature Type Number

PROVENIENCE LABEL

Study Unit Type Number

Surface

F.S. Numbers

Subdatum

PHYSICAL DATA (Grave)

Description:

Grave Type

Disturbance

MATRIX Hue Value Chroma

F/A Position

F/A Type

Surf. Type

DIMENSIONS (cm) Length

Width

Height

Depth (cm)

PHYSICAL DATA (skeleton)

Description:

Articulation

Flexure Position

Arm

Head

Abnormalities

Deposition

Tentative Species I.D.

Condition

Compass Orientation (long axis)

Inclination

DIMENSIONS (cm) Length

Width

Height

CULTURAL CONTEXT AND INFERENCE

Description:

Burial Type

Stratigraphic Context/Origin

Status

DIRECT (internal) ASSOCIATIONS
Include Grave Goods

Description	Code	Type	Number

-71-

BURIAL FORM Page 2

	State	County	Number
Site			

Burial Number

CULTURAL CONTEXT (continued)

EXTERNAL ASSOCIATIONS

	Code	Type	Number
	F		
	F		
	F		
	F		
	F		
	F		
	U		
	H		
	C		

DATES

Evidentiary

Evidence

Inferential

Basis

SAMPLES

Photographs

Roll Index	Exp. No.

Special Specimens

Sample Type	Number	Standard

NOTES/INSTRUCTIONS:

Table 11.9 Coding guidelines for the D.A.P. burial form (page 1 of 6)

I. Heading (recorder, site number, date, sector, locality, burial number, feature number). Use standard D.A.P. codes, leave burial number blank (to be filled in by physical anthropologist).

II. Provenience Label. Use codes from appropriate field provenience forms.

III. Physical Data (Grave).

A. 0 - Not applicable
1 - Indeterminate
2 - Pit (pit excavated for burial)
3 - Modified feature
4 - Unmodified feature
5 - Cultural surface
6 - Other surface
7 - Ceramic vessel
8 - Cave or crack

B. Disturbance
0 - Not applicable
1 - Indeterminate
2 - Rodent
3 - Erosion
4 - Machinery
5 - Vandal (historic)
6 - Prehistoric cultural agency
7-8 - Unassigned
9 - Other

C. Matrix, Munsell Color. Values from Munsell chart.

D. Surface type. From F.S. format.

E. F/A position and type. From F.S. format.

F. Dimensions. Dimensions in cm and tenths of cm.

G. Depth of grave. Distance from subdatum to bottom of grave (in cm and tenths of cm.

Table 11.9 Coding guidelines for the D.A.P. burial form (page 2 of 6)

IV. Physical Data (Skeleton).

A. Articulation
- 1 - Indeterminate
- 2 - Articulated
- 3 - Semi-articulated
- 4 - Disarticulated
- 5 - Bundle
- 6-8 - Unassigned
- 9 - Other

B. Position of Skeleton (Flexure)
- 0 - Not applicable
- 1 - Indeterminate
- 2 - Extended
- 3 - Semi-flexed
- 4 - Flexed
- 5-8 - Unassigned
- 9 - Other

C. Position, arm (code for human only)
- 0 - Not applicable (animal)
- 1 - Indeterminate
- 2 - Along side
- 3 - Crossed on pelvis
- 4 - Folded on chest
- 5 - Hands to face
- 6 - Around legs
- 7-8 - Unassigned
- 9 - Other

D. Position, head (code for animal and human)
- 0 - Not applicable
- 1 - Indeterminate
- 2 - Lateral (on side)
- 3 - Anterior
- 4 - Caudal
- 5 - Cranial
- 6-8 - Unassigned
- 9 - Other

E. Abnormalities
- 00 - Not applicable
- 01 - Indeterminate
- 02-09 Unassigned
- 10 - In situ weapon: arrow point
- 11 - In situ weapon: spear point
- 12-18 - Unassigned
- 19 - In situ weapon: other
- 20 - Stains: hematite
- 21-28 - Unassigned
- 29 - Stains: other

Table 11.9 Coding guidelines for the D.A.P. burial form (page 4 of 6)

H. Condition of skeleton, continued
5 - Excellent (few or no friable bones, no PVA)
6-8 - Unassigned
9 - Other

I. Compass Orientation (long axis). In degrees.

J. Inclination (vertical axis). In degrees. (Vertical w/head at bottom = 180°; horizontal = 90°; vertical w/head at top = 0°.)

K. Dimensions. In cm and tenths of cm.

V. Cultural Context and Inference.

A. Burial Type
00 - Not applicable
01 - Indeterminate
02-09 - Unassigned
10 - Fragmentary: not further specified
11 - Fragmentary: primary inhumation
12 - Fragmentary: secondary inhumation
13-17 - Unassigned
18 - Fragmentary: cremation
19 - Fragmentary: other
20 - Single: not further specified
21 - Single: primary inhumation
22 - Single: secondary inhumation
23-27 - Unassigned
28 - Single: cremation
29 - Single: other
30 - Double: not further specified
31 - Double: primary inhumation
32 - Double: secondary inhumation
33-37 - Unassigned
38 - Double: cremation
39 - Double: other
40 - Multiple (articulated): not further specified
41 - Multiple: primary inhumation
42 - Multiple: secondary inhumation
43-47 - Unassigned
48 - Multiple: cremation
49 - Multiple: other
50 - Mass (disarticulated): not further specified
51 - Mass: primary inhumation
52 - Mass: secondary inhumation
53-57 - Unassigned
58 - Mass: cremation
59 - Mass: other
60-98 - Unassigned
99 - Other

Table 11.9 Coding guidelines for the D.A.P. burial form (page 5 of 6)

B. Status. From Social Correlates Coding (Architectural Inference Form).

C. Stratigraphic Context/Origin.
00 - Not applicable
01 - Indeterminate
02-09 - Unassigned
10 - During first occupation (element): not further specified
11 - First occupation: on surface
12 - First occupation: above surface
13 - First occupation: subsurface
14-18 - Unassigned
19 - First occupation: other
20 - Subsequent occupation (element): not further specified
21 - Subsequent occupation: on surface
22 - Subsequent occupation: above surface
23 - Subsequent occupation: subsurface
24-28 - Unassigned
29 - Subsequent occupation: other
30 - Intrusive (post-abandonment): not further specified
31-38 - Unassigned
39 - Intrusive: other
40-89 - Unassigned
90 - Not cultural: not further specified
91 - Not cultural: animal in burrow
92 - Not cultural: animal, accidental
93 - Not cultural: human, accidental
94-98 - Unassigned
99 - Other

D. Direct (internal) Associations, including grave goods, Code. (Record actual PL #s as opposed to number of PLs.)
P - Point location
F - Feature

E. Direct (internal) Associations, type and number. From P.L. Log or Feature Form.

F. External Associations, Code
F - Feature
A - Activity
U - Use area
H - Household cluster
C - Community cluster

Table 11.9 Coding guidelines for the D.A.P. burial form (page 6 of 6)

G. External Associations, type and number. From Feature Form Coding, Activity Areas Coding Form.

H. Dates. Evidentiary and inferential. Five-place B.P. date (from 1950) when burial was interred.

VI. Samples.

A. Photo. Roll index and sample number. From photo catalogue.

B. Sample type and number. From sample logs.

VII. Notes/Instructions. Special notes or instructions for lab or physical anthropologist.

VIII. Burial Sketch Plan View and Cross-Section. Per D.A.P. standard procedures.

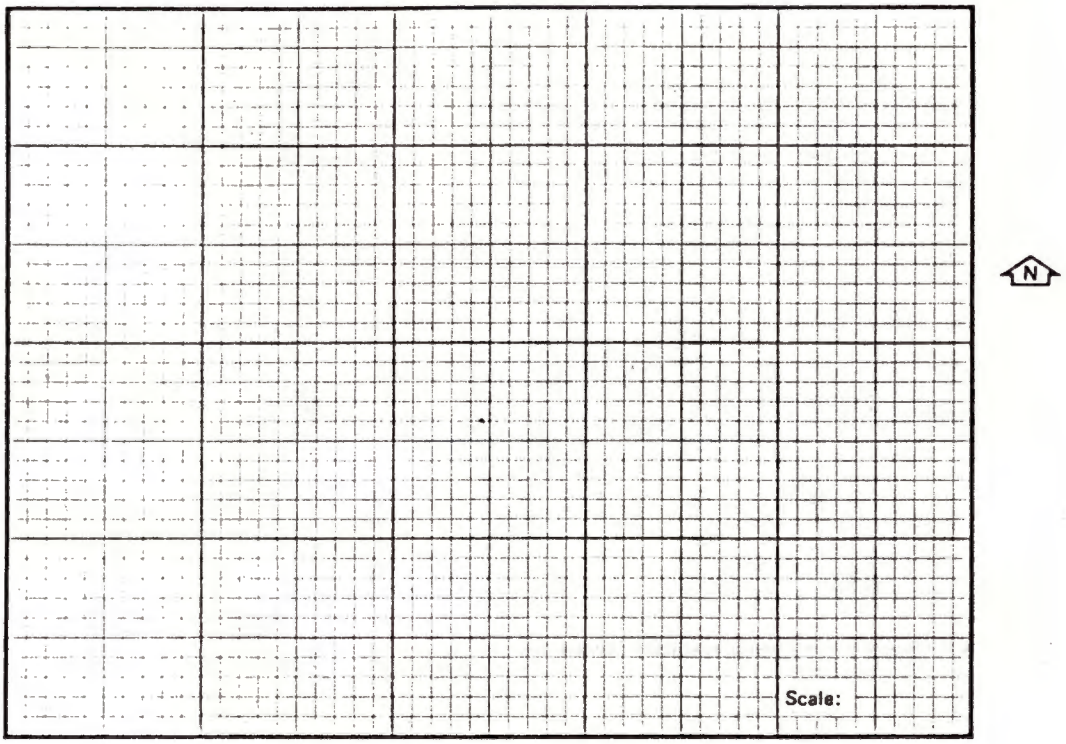
IX. Comments or Additional Observations. Include summary statement and additional inferences.

Figure 11.11 Dolores Archaeological Program
Site Stratigraphy Description Form.

	State	County	Number
Site			

Burial No.

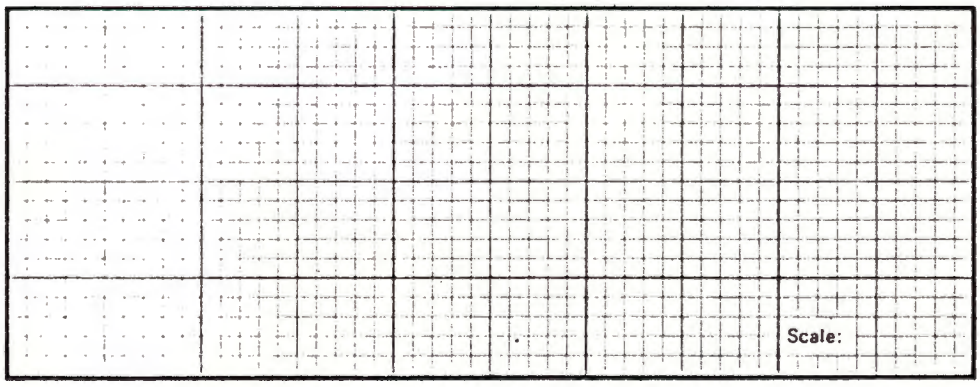
Burial Sketch Plan View



N

Indicate on Plan View the Location of Cross Section

Burial Sketch Cross Section



Comments or Additional Observations _____

Dolores Archaeological Project
U.S. Bureau of Reclamation

SITE STRATIGRAPHY DESCRIPTION

SITE NAME _____

SITE NUMBER

LOCALITY

AREA

SUBAREA

FS NUMBERS

PHOTOS

STUDY UNITS

FEATURES

RECORDER

DATE

CHECKED BY

SUBDIVISION HIERARCHY

DESCRIPTION NUMBER

PAGES

UNIT	DEPTH	COLOR	TEXTURE	STRUCTURE	CONSISTENCE	BOUND	OTHER INFORMATION
-81-							

Table 11.10 Coding guidelines for D.A.P. site stratigraphy description form.

Site Number: State (two digits) County (two letters) Site (five digits)

Locality: Three digits (coding from the F.S. format)

Area: One digit (from consecutive site series)

Subarea: One digit (from consecutive site series)

F.S. Numbers: Six digits
List F.S. numbers for all excavation units identified in the accompanying map of the profile

Photos: Roll I.D. Number - Four digits (from consecutive project series)
Exposure Number - Two digits (from consecutive roll series)

Study Units: Type - Two digits (coding from F.S. format)
Number - Six digits (from consecutive site series)

Features: Type - Two digits (coding from F.S. format)
Number - Six digits (from consecutive site series)

Recorder: Four-letter initials

Date: Month (two digits) Day (two digits) Year (two digits)

Checked by: Four-letter initials
Checking by a member of the Geology Crew

Subdivision Hierarchy: One digit (coding from F.S. format)

Description Number: Four digits (from consecutive project series)

Pages: Two digits
Number of pages in this complete stratigraphic description

(Remainder of form is filled out according to the Geology Stratigraphic Description Manual, Appendix 1 of the Field Manual.)

Figure 11.12 Dolores Archeological Program Continuation Sheet. (Note: no coding guideline is included for this form because of its simplicity.)

SITE
AREA SUBAREA

DOLORES ARCHAEOLOGICAL PROJECT
U.S. Bureau of Reclamation

SITE STRATIGRAPHY CONTINUATION

DESC NUMBER
PAGE

DESIG	DIMEN	COLOR	TEXTURE	BOUND	OTHER					

Figure 11.13 Dolores Archaeological Program
Field Provenience Description Form.

DOLORES ARCHAEOLOGICAL PROJECT
U.S. Bureau of Reclamation

CONTINUATION SHEET:

Page _____ of _____

Recorder _____ FORM

Date

State County Site

-85-

DOLORES ARCHAEOLOGICAL PROJECT
University of Colorado
U.S. Bureau of Reclamation
FIELD PROVENIENCE DESCRIPTION

Site Name

Site Number

Locality 0

Prepared by

Date Assigned

Date Closed

GENERAL PROVENIENCE

F.S. Number

Area

Subarea

STUDY UNIT

IDENTITY

Type

Number

Subdivision Hierarchy

LOCATION

Horizontal (Grid) | Vertical Level

CONTEXT

Surface Type

Fill/Assemblage Position

Fill/Assemblage Type

FEATURE

IDENTITY

Type

Number

Subdivision Hierarchy

LOCATION

Horizontal (Grid) | Vertical Level

CONTEXT

Fill/Assemblage Type

EXCAVATION NOTES

Mode of Collection

Number of Point Locations

Special Specimens: Type Total No.

F.S. BAG TALLY

Date	Ceramics	Flaked Lithics	Non-Flaked Lithics	Human Bone	Non-Human Bone	Vegetal	Other Inorganic	Other Organic	Other (Specify)
TOTAL									

87

Table 11.11 Coding guidelines for the D.A.P. field provenience description form (page 2 of 10)

Study Unit Type	BAG CODE
00 Not applicable	
01 General Site	GEN
02-09 Unassigned	
10 Surface structure: indeterminate	SURSTR
11 Surface structure: room, masonry walls	SURSTR
12 Surface structure: room, nonmasonry walls	SURSTR
13 Surface structure: tower	SURSTR
14-18 Unassigned	
19 Surface structure: other	SURSTR
20 Pitstructure: indeterminate	PITSTR
21 Pitstructure: pithouse, main chamber	PITSTR
22 Pitstructure: kiva	PITSTR
23 Pitstructure: great kiva	PITSTR
24 Pitstructure: pithouse, antechamber	PITSTR
25-28 Unassigned	
29 Pitstructure: other	PITSTR
30 Miscellaneous structure: indeterminate	MISSTR
31 Miscellaneous structure: soil/water control	MISSTR
32 Miscellaneous structure: retaining wall	MISSTR
33 Miscellaneous structure: defensive	MISSTR
34-38 Unassigned	
39 Miscellaneous structure: other	MISSTR
40 Nonstructural unit: indeterminate	NONSTR
41 Nonstructural unit: occupation/use area	NONSTR
42 Nonstructural unit: midden or trash deposit	NONSTR
43 Nonstructural unit: courtyard	NONSTR
44 Nonstructural unit: plaza	NONSTR
45 Nonstructural unit: natural entity	NONSTR
46 Nonstructural unit: open-air	NONSTR
47-48 Unassigned	
49 Nonstructural Unit: other	NONSTR
50 Excavation unit: indeterminate	EUNIT
51 Excavation unit: trench	EUNIT
52 Excavation unit: pit	EUNIT
53 Excavation unit: natural	EUNIT
54-58 Unassigned	
59 Excavation unit: other	EUNIT
60 Recent disturbance area: indeterminate	RDA
61 Recent disturbance area: looters' spoil dirt	RDA
62 Recent disturbance area: animal activity	RDA
63 Recent disturbance area: plant activity	RDA
64 Recent disturbance area: geological activity	RDA
65 Recent disturbance area: mechanized activity	RDA
66-68 Unassigned	
69 Recent disturbance area: other	RDA
70 Rock art: not further specified	
71 Rock art: prehistoric petroglyph	
72 Rock art: prehistoric pictograph	
73 Rock art: historic	

Table 11.11 Coding guidelines for the D.A.P. field provenience description form (page 3 of 10)

74-79 Unassigned		
80 Transect:	1 meter wide	TRANSECT
81-89 Unassigned		
90 Grid square:	10 by 10	10 by 10
91 Grid square:	1 by 1 m	1 by 1
92 Grid square:	2 by 2 m	2 by 2
93 Grid square:	3 by 3 m	3 by 3
94-99 Grid square:	4-9 m, respectively	

Study Unit Number

Sequence Number - if Study Unit is 01-89: 000001-999999

Grid Square Designation - if Study Unit is 90-99:

First three digits are grid coordinate south in meters
Second three digits are grid coordinate east in meters

Study Unit Subdivision Hierarchy:

1 - Horizontal Primary
2 - Vertical Primary

Horizontal Location:

0000 - Not applicable
0001 - Whole Study Unit
1001-1999 - First digit indicates "locus"
Second through fourth digits indicate number 001-999
2001-2999 - First digit indicates "segment"
Second through fourth digits indicate number 001-999
3001-3009 - First digit indicates "half"
Fourth digit indicates position within Study Unit:
01 North
02 Northeast
03 East
04 Southeast
05 South
06 Southwest
07 West
08 Northwest

Table 11.11 Coding guidelines for the D.A.P. field provenience description form (page 4 of 10)

4001-4009 - First digit indicates "strip"
Fourth digit indicates position within Study Unit, as above
5001-5009 - First digit indicates "quadrant"
Fourth digit indicates position within Study Unit, as above

6000-6999 - First digit indicates "grid square" (tied to site datum)
Second through fourth digits, Upper Line:
Grid coordinates south in meters
First through third digits, Lower Line:
Grid coordinates east in meters
7000-7999 - As above, but indicates "grid square" tied to a local datum, described in field notes.

Vertical Location

First Digit:	0 Not applicable
	1 Stratum
	2 Level
	3 Surface
	4-8 Unassigned
	9 Full cut
Second and Third Digits:	00 Not applicable
	01-99 Sequence number

Stratum Subdivision

0 Not applicable
1-9 Sequence number of a zone within a stratum

Surface Type

00 Not applicable
01 Indeterminate
02 Floor type: indeterminate
03 Floor: prepared
04 Floor: use-compacted
05 Other structural surface
06 Occupation surface
07 Stratigraphic disconformity
08 Stratigraphic alteration
09 Modern ground surface
10 Prehistoric ground surface (noncultural)
11 Cultural-natural contact
12 Plow zone - undisturbed contact
13-98 Unassigned
99 Other surface

Table 11.11 Coding guidelines for the D.A.P. field provenience description form (page 5 of 10)

Fill/Assemblage Position

00 Not applicable
01 Indeterminate
02-19 Unassigned
10 Structure fill: not further specified
11 Structure fill: above roof fall
12 Structure fill: roof fall
13 Structure fill: below roof fall
14 Structure fill: wall fall
15 Structure fill: wall and roof fall
16 Structure fill: 10-5 cm above a surface
17 Structure fill: upper
18 Structure fill: lower
19 Structure fill: other
20 Fill outside structure: not further specified
21 Assigned
22 Fill outside structure: 10-5 cm above a surface
23 Fill outside structure: wall fall
24 Fill outside structure: below Surface 1
25 Fill outside structure: below Surface 2
26 Fill outside structure: below Surface 3
27 Fill outside structure: below Surface 4
28 Fill outside structure: foundation
29 Fill outside structure: other
30 Surface contact (5 cm down to and including surface) prehistoric
31 Surface contact (5 cm down to and including surface) post-occupational or post-abandonment
32-38 Unassigned
39 Surface contact: other
40 Fill inside and outside of structure: wall fall
41 Fill inside and outside of structure: not further specified
42-49 Unassigned
50 Structure fill: below Surface 1
51 Structure fill: below Surface 2
52 Structure fill: below Surface 3
53 Structure fill: below Surface 4
54 Structure fill: 20-10 cm above a surface
55-59 Unassigned
60 Structure fill: foundation
61-69 Unassigned
70 Nonstratigraphic: not further specified
71 Nonstratigraphic: construction
72-74 Unassigned
75 Non-stratigraphic: stratigraphic column, monoliths
76-79 Unassigned
80 Fill outside structure: 20-10 cm above a surface
81 Fill outside structure: upper
82 Fill outside structure: lower
83-98 Unassigned
99 Other fill

Table 11.11 Coding guidelines for the D.A.P. field provenience description form (page 6 of 10)

Fill/Assemblage Type
00 Not applicable
01 Indeterminate
02-09 Unassigned
10 Cultural deposit: not further specified (in original context)
11 Cultural deposit: indeterminate
12 Cultural deposit: primary refuse
13 Cultural deposit: secondary refuse
14 Cultural deposit: de facto refuse
15 Cultural deposit: mixed refuse
16 Cultural deposit: primary refuse, ash
17 Cultural deposit: ash and refuse
18 Cultural deposit: material in use association
19 Cultural deposit: other
20 Post-abandonment deposit: not further specified (w. cult. mat.)
21 Post-abandonment deposit: looters' spoil
22 Post-abandonment deposit: collapsed structural unit
23 Post-abandonment deposit: rodent
24 Post-abandonment deposit: wind/water deposit
25 Post-abandonment deposit: mechanized activity
26-28 Unassigned
29 Post-abandonment deposit: other
30 Noncultural deposit: not further specified
31 Assigned
32-39 Unassigned
40 Cultural deposit: construction, not further specified
41 Cultural deposit: construction, refuse fill
42 Cultural deposit: construction, clean fill
43 Cultural deposit: construction, secondary use
44 Cultural deposit: construction, mixed fill
45 Cultural deposit: construction, redeposited native earth
46-48 Unassigned
49 Cultural deposit: construction, other
50 Cultural deposit: feature remodelling
51 Cultural deposit: secondary refuse, ash
52 Cultural deposit: ritual abandonment
53-69 Unassigned
70 Mixed deposit: not further specified
71 Mixed deposit: post-abandonment and cultural, refuse
72 Mixed deposit: post-abandonment and cultural, de facto refuse
73 Mixed deposit: noncultural, post-abandonment, and cultural, de facto refuse
74 Unassigned
75 Mixed deposit: post-occupational and cultural refuse
76 Mixed deposit: post-occupational and cultural de facto refuse
77-78 Unassigned
79 Mixed deposit: other
80 Post-occupational deposit: not further specified
81 Post-occupational deposit: collapsed structural unit
82 Post-occupational deposit: wind/water
83-98 Unassigned
99 Other deposit

Table 11.11 Coding guidelines for the D.A.P. field provenience description form (page 7 of 10)

Feature Type

00 Not applicable
01 Cultural feature: indeterminate
02 Noncultural feature
03-09 Unassigned
10 Pit feature: not further specified w/o burning
11 Pit feature: small floor cist (storage pit)
12 Pit feature: hearth
13 Pit feature: fireplace
14 Pit feature: ash pit
15 Pit feature: warming pit
16 Pit feature: sipapu
17 Pit feature: large floor cist (storage pit)
18 Pit feature: pot rest
19 Pit feature: loom anchor
20 Pit feature: posthole with or without post
21 Pit feature: ladder hole
22 Pit feature: floor vault
23 Pit feature: borrow area
24 Pit feature: slab-lined, not further specified
25 Pit feature: collecting basin
26 Pit feature: not further specified with burning
27-28 Unassigned
29 Pit feature: other
30 Surface feature: deflector
31 Surface feature: deflector mold
32 Surface feature: partition: not further specified
33 Surface feature: partition, wingwall
34 Surface feature: bin: not further specified
35 Surface feature: metate bin
36 Surface feature: storage bin
37 Surface feature: altar
38 Surface feature: kiln
39 Surface feature: oven
40 Wall feature: bench
41 Wall feature: niche
42 Wall feature: pilaster
43 Wall feature: stringer shelf
44 Wall feature: doorway
45 Wall feature: aperture
46 Wall feature: loop hole
47 Wall feature: entry
48 Wall feature: cist
49 Wall feature: support
50 Wall feature: passage
51 Wall feature: ventilation system
52 Wall feature: southern recess
53 Wall feature: tunnel or crawlway
54 Wall feature: shaft

Table 11.11 Coding guidelines for the D.A.P. field provenience description form (page 8 of 10)

55-58 Unassigned
59 Wall feature: other
60 Artifact feature: not further specified
61 Artifact feature: netherstone in situ with or without rest
62 Artifact feature: ceramic concentration
63 Artifact feature: lithic concentration
64 Artifact feature: bone concentration
65 Artifact feature: post
66 Artifact feature: vegetal concentration
67 Artifact feature: mixed concentration
68 Unassigned
69 Artifact feature: other concentration
70 Human burial: not further specified
71 Human burial: secondary inhumation
72 Human burial: primary inhumation
73 Human burial: cremation
74 Human burial: mass
75 Human burial: other
76 Animal burial: not further specified
77 Animal burial: dog
78 Animal burial: turkey
79 Animal burial: other
80 Surface feature: netherstone rest
81 Surface feature: step
82 Surface feature: burned area
83 Surface feature: wall
84-87 Unassigned
88 Surface feature: not further specified
89 Surface feature: other
90 Bedrock feature: not further specified
91 Bedrock feature: abrading grooves
92 Bedrock feature: hand-and-toe holds
93 Bedrock feature: mortar
94-97 Unassigned
98 Bedrock feature: other

Feature Sequence Number: 000001-999999

Feature Subdivision Hierarchy:

1- Horizontal primary, subdivided by vertical
2- Vertical primary, subdivided by horizontal

Horizontal Location:

Same coding as for Study Unit/Horizontal Location

Vertical Location:

Same coding as for Study Unit/Vertical Location

Table 11.11 Coding guidelines for the D.A.P. field provenience description form (page 9 of 10)

Stratum Subdivision

Same coding as for Study Unit/Stratum Subdivision

Fill/Assemblage Type

Same coding as for Study Unit/Fill-Assemblage Type

Mode of Collection	BAG CODE
00 Not applicable	
01 Not screened: nonintensive surface pickup	
02 Not screened: intensive surface pickup	INT
03 Not screened: heavy equipment excavation	MAX
04 Not screened: shovel excavation	SH
05 Not screened: trowel excavation	TR
06 Not screened: shovel and trowel excavation	TRSH
07 Not screened: other excavation methods, mixed	
08 Not screened: other excavation method	
09 Screened: dry, less than 1/16 in	
10 Screened: dry, 1/16 in	1/16
11 Screened: dry, 1/8 in	1/8
12 Screened: dry, 1/4 in	1/4
13 Screened: dry, 3/8 in	3/8
14 Screened: dry, 1/2 in	1/2
15 Screened: dry, 5/8 in	5/8
16 Screened: dry, 3/4 in	3/4
19 Screened: wet, less than 1/16 in	
20 Screened: wet, 1/16 in	
21 Screened: wet, 1/8 in	
22 Screened: wet, 1/4 in	
23 Screened: wet, 3/8 in	
24 Flotation	
25 Multiple screen sizes	MULT
26-96 Unassigned	
97 Site opening mode	OPEN
98 Indeterminate	
99 Other collection mode	

Number of Point Locations:

000-999

Table 11.11 Coding guidelines for the D.A.P. field provenience description form (page 10 of 10)

Special Specimens: First two digits: code for specimen type
Last four digits: number of specimens of that type

00	Not applicable	
01	Archaeomagnetic samples	AM
02	Radiocarbon samples	CF
03	Dendrochronological samples	DD
04	Material source samples	MS
05	Pollen cores	PC
06	Pollen samples	PN
07	Stratigraphic columns	SC
08	Sediment samples	SS
09	Bulk soil samples	BS
10-11	Assigned	
12	Botanical specimens	BT
13	Latex peels	LP
14	Plaster positive	PT
15	Monolith	ML
16	Soil peel	SP
17	Ethnobotanical sample	EB
18	Film	FM
19-99	Unassigned	

Figure 11.14 Dolores Archaeological Program Photographic Catalog.

Table 11.11 Coding guidelines for the D.A.P. field provenience description form (page 1 of 10)

Unassigned Block (10 Spaces)

Double Provenience (one Space)

Site Name (Verbal Entry) (on one out of every fifty forms)

Prepared By (Initials)

Date F.S. Assigned: Month, Day, Year

Date F.S. Closed: Month, Day, Year

Site Number: State: 05 - Colorado
County: MT - Montezuma
DL - Dolores

Sequence Number: 00001-99999

Locality:
000 - Indeterminate
001 - Willow Draw
002 - Salter Canyon
003 - Hoppe Point
004 - Yellowjacket Crest
005 - Windy Ruin
006 - Grass Mesa
007 - Trimble Point
008 - Beaver Point
009 - Cline Crest
010 - Sagehen Flats
011 - Periman
012 - House Creek
013 - May Canyon
014 - Dolores
015 - Escalante
016 - Reservoir
017-999 - Unassigned

F.S. Number: 000001-999999

Area:
0 - Not applicable
1-8 - Sequence Numbers
9 - Portion of site outside of numbered areas

Subarea:
0 - Not applicable
1-8 - Sequence numbers
9 - Portion of area outside numbered subareas

Table 11.12 Coding guidelines for D.A.P. Photographic Catalogue Form (page 1 of 9)

Date started: Month, day, year.
Date finished: Month, day, year.
Camera: 01-99
Roll Index: 0000-9999
Field or Studio:
- 0: Laboratory
- 1: Field - excavation, prehistoric
- 2: Field - excavation, historic
- 3: Field - survey, prehistoric
- 4: Field - survey, historic
- 5: Unassigned
- 6: Environmental studies - flora
- 7: Environmental studies - fauna
- 8: Environmental studies - geology
- 9: Other

Number of exposures: 00-99
Page: 1-9
A-Z

Film Type:
- 00: K Plus-X
- 01: K Verichrome Pan
- 02: K High Speed IR in D-76
- 03: K Lith Ortho Type 3
- 04: I FP4 - standard
- 05: I HP5
- 06: K H Contrast Copy in D-19
- 07: K-Recording 2475 mDK50
- 08: P. 3000 Speed TY 107 interneg.
- 09: P. Positive/Negative TY52
- 10: K-Tri-X Pan in HC 110
- 11: E.F.G. Release Positive - 5302 in Dektol
- 12: H+W VTE Pan
- 13: H+W VTE Ultra
- 14-19: Unassigned
- 20: K Vericol II Pro Ty S
- 21: K Kodacolor II
- 22: Kodachrome 25 interneg
- 23: Kodachrome 64 interneg
- 24: Ektachrome IR interneg
- 25: E Color Neg. 5247
- 26: Ektachrome 200 Professional DLT interneg
- 27: Ektachrome 50 Tungsten Professional interneg
- 28: Kodachrome II Pro TY A interneg
- 29: Polacolor II ineg
- 30: Vericolor 2 - slide film
- 31: E Color ineg. 5271
- 32-33: Unassigned
- 34: K Kodacolor 400
- 35: Unassigned
- 36: K Ektachrome 64
- 37-97: Unassigned
- 98: Indeterminate
- 99: Other

Table 11.12 Coding guidelines for D.A.P. Photographic Catalogue Form (page 2 of 9)

Film Speed: 000-999

Date: 01-31 (day)

Exposure Number: 01-99

Edge Number: 00-99

Photo By: (Initials)

Orientation: Direction - N, NE, E, SE, S, SW, W, NW
Orientation: Angle

Site: Sequence Number 00000-99999

CODE

A Activity area
B Area
C Subarea
D FS number
E Surface
F Feature
G Catalogue item number
H Household cluster
I Unassigned
J Special specimen
K Locus
L Locality
M Subgrid
N Natural history
O Unassigned
P Point location
Q Miscellaneous
R Unassigned
S Study unit
T Unassigned
U Use area
V Vertical provenience
W Historic images
X General site
Y Unassigned
Z Not applicable
1 1 by 1 m
2 2 by 2 m
3 3 by 3 m
4 4 by 4 m
5 5 by 5 m
6 6 by 6 m
7 7 by 7 m
8 8 by 8 m
9 Bipod coordinates

Table 11.12 Coding guidelines for D.A.P. Photographic Catalogue Form (page 3 of 9)

CODE	TYPE	NUMBER
A	01-99 coding from Activity Loci)	0001-9999 (from consecutive site series)
B	00	0001-0009 (from consecutive site series)
C	00	0001-0009 (from consecutive site series)
D	000001-999999 (from consecutive site series)	
E	01-99 (from FS form format-Surface Type)	0001-9999 (from consecutive site series)
F	01-99 (from FS form format-Feature Type)	0001-9999 (from consecutive site series)
G	01-99 (from Feature format-Material Identification class)	0001-9999 (from consecutive FS-Material Class series)
H	01	0001-9999 (from consecutive site series)
J	01-99 (from FS form format-Special Specimen type)	0001-9999 (from consecutive site-sample series)
K	01-99 (Datum)	0001-9999 (from consecutive study unit series)
K*	01-99	when K is used as "Code" value, the first digit can be: 0: whole locus 1: Transect A 2: Transect B 3: Transect C 4: Transect D 5: North 1/2 6: East 1/2 7: South 1/2 8: West 1/2 9: other part

Table 11.12 Coding guidelines for D.A.P. Photographic Catalogue Form (page 4 of 9)

CODE	TYPE	NUMBER
L	01-99 (from FS form format-Sector)	0001-0099 (from FS form format-Locality)
M	000-000/999-999 (meters S, meters E)	
N	00 Not applicable	0000
	01 Indeterminate	0000
	02-19 Unassigned	
	20 Vegetation: not further specified	0000
	21-29 Unassigned	
	30 Botanical study: not further specified	0000
	31 Botanical study: ants	0001-9999 Hill #
	32 Botanical study: garden	0000 n.f.s.
		0011 tobacco
		0012 devil's claw
		0013 cotton
		0020 squash-n.f.s.
		0021 squash #1
		0022 squash #2
		0021 squash #3
		0024 squash #4
		0025 squash #5
		0026 squash #6
		0027 squash #7
		0028 squash #8
		0029 squash #9
		0030 squash #10
		0031 squash #11
		0032 squash #12
		0033-0039 unasind.
	33 Botanical Study: corn	
	34-39 Unassigned	

CODE	TYPE	NUMBER
N	40 Landforms	0000 not applicable
		0010 alluvial: n.f.s.
		0101 alluvial: floodplain
		0102 alluvial: meander
		0103 alluvial: oxbow
		0104 alluvial: point bar
		0105 alluvial: terrace
		0106 alluvial: fan
		0200 high angle slope: n.f.s.
		0201 high angle slope: canyon wall
		0203 high angle slope: mud flow
		0204 high angle slope: fault scarp
		0205 high angle slope: landslide
		0206 high angle slope: slump
		0207 high angle slope: talus slope

Table 11.12 Coding guidelines for D.A.P. Photographic Catalogue Form (page 5 of 9)

CODE	TYPE	NUMBER
	40 Landforms (cont.)	
		0300 Water: n.f.s.
		0301 Water: marsh
		0302 Water: seep
		0303 Water: spring
		0304 Water: river
		0305 Water: creek
		0400 Prominence: n.f.s.
		0401 Prominence: hill
		0402 Prominence: hillock
		0403 Prominence: mountain
		0404 Prominence: ridge
		0500 Cut: n.f.s.
		0501 Cut: arroyo
		0502 Cut: canyon
		0503 Cut: valley
		0600 Undercut: n.f.s.
		0601 Undercut: alcove
		0602 Undercut: cave
		0700 Vertical slope: n.f.s.
		0701 Vertical slope: cliff
		0702 Vertical slope: ledge
		0800 Dip slope: n.f.s.
		0900 Pediment: n.f.s.
	41 Formation-Member	First two digits - Formation Last two digits - Member (from Formations and Members format)
	42-49 Unassigned	
	50 Material source	0001-9999
	51-59 Unassigned	
	60 Faunal study: n.f.s.	0000
	61 Faunal study: Class/Order	First two digits - Class Last two digits - Order (from Faunal format)
	62 Faunal study; Family/Genus-Species	First two digits - Family Last two digits - Genus-Species
	63-98 Unassigned	
	99 Other	

Table 11.12 Coding guidelines for D.A.P. Photographic Catalogue Form (page 6 of 9)

CODE	TYPE	NUMBER
P	01-99 (from FS format-Material Identification Class)	0001-9999 (from consecutive study unit series)
Q	00 Not applicable	0000
	01 Headquarters	0000
	02-19 Unassigned	
	20 Map	1000 topographic
		2000 settlement distribution
		3000 sites
		4000 vegetation
		5000 soils
		6000 streams
		7000 project features
		8000 D.A.P. study area
	21-29 Unassigned	
	30 Figure	0000
	31 Group	0000
	32 Landscape	0000
	33 Aerial photograph oblique	0000
	34 Aerial photograph vertical	0000
	35-39 Unassigned	
	40 Chart	1000 lithics
	41 Graph	0000
	42 Printout	0000
	43 Painting/drawing	
	44 Diagram	
	45 Book	0001 Sears 1902 Catalogue
		0002 Book of Color
	46 Page	0001 8999 Page #
		9000 cover
		9001 title page
	47-49 Unassigned	
	50 Laboratory work	1000 ceramics
	51 Office work	0000
	52 Meetings	0000
	53 Presentations	0000
	54 Conferences	0000
	55 Transportation	0000
	56 Construction	0000
	57 Fieldwork	0000
	58 Tours	0000
	59 Other work	0000
	60 Portraits	Initials
	61 Social activities	0000
	62 Experimental arch.	0100 ceramics
	63-79 Unassigned	
	80 Magnetometer work	0000
	81-99 Unassigned	

Table 11.12 Coding guidelines for D.A.P. Photographic Catalogue Form (page 7 of 9)

CODE	TYPE	NUMBER
S	01-99 (from FS format)	0001-9999 (from consecutive study unit type series)
U	00	0001-9999 (from consecutive site series)

CODE	TYPE	NUMBER
V	00 Not applicable	
	01-09 Unassigned	
	10 Structure Wall A	0000
	11 Structure Wall B	0000
	12 Structure Wall C	0000
	13 Structure Wall D	0000
	14-18 Unassigned	
	19 Structure wall: indeterminate	
	20 Unassigned	
	21 Structure Corner 1	0000
	22 Structure Corner 2	0000
	23 Structure Corner 3	0000
	24 Structure Corner 4	0000
	25-39 Unassigned	
	40 Stratigraphic profile: indeterminate	0000-9999
	41 Stratigraphic profile: north wall	0000-9999
	42 Stratigraphic profile: northeast wall	0000-9999
	43 Stratigraphic profile: east wall	0000-9999
	44 Stratigraphic profile: southeast wall	0000-9999
	45 Stratigraphic profile: south wall	0000-9999
	46 Stratigraphic profile: southwest wall	0000-9999
	47 Stratigraphic profile: west wall	0000-9999
	48 Stratigraphic profile: northwest wall	0000-9999
	49-99 Unassigned	

CODE	TYPE	NUMBER
X	First digit -Compass Direction (from FS format Horizontal Subdivision) Second digit -Use (from Photo format - Use)	First two digits - Camera Station 01-99 Third digit - Area (from consecutive site series) 0-9 Fourth digit - Subarea (from consecutive site series) 0-9
Z	00	0000

Table 11.12 Coding guidelines for D.A.P. Photographic Catalogue Form (page 8 of 9)

TYPE-NUMBER

1-9 000/000-999/999
meters S/meters E

Band
- 0: No filter
- 1: Skylight
- 2: Unassigned
- 3: Ultraviolet
- 4: Blue
- 5: Green
- 6: Red
- 7: Near infrared
- 8: Infrared
- 9: Other (full infrared)

Use:
- 0: Film identification
- 1: Pre-excavation
- 2: Technical
- 3: Publicity
- 4: Weekly progress
- 5: Excavation strategy
- 6: Formal exposure
- 7: Natural aspects
- 8: Work techniques
- 9: Other

Quality:
- 0: No image, roll, I.D., wasted frame
- 1: Loss due to camera work; duplicate; special treatment required
- 2: Minimal research potential
- 3: Possible research potential
- 4: Laboratory or camera error
- 5: Technical; quality sufficient; for research and presentation
- 6: Sufficient information for presentation
- 7: Good communicative effect
- 8: Excellent communicative effect
- 9: Museum quality

Table 11.12 Coding guidelines for D.A.P. Photographic Catalogue Form (page 9 of 9)

TIME PERIOD CODES (used with "map" value under "Q" in last two digits of "number"):

00: Not applicable
01: Indeterminate
02-09: Unassigned
10: Paleoindian: not further specified
11-14: Unassigned
15: Archaic: not further specified
16-19: Unassigned
20: Basketmaker I: not further specified
21-24: Unassigned
25: Basketmaker II: not further specified
26-29: Unassigned
30: Basketmaker III: not further specified
31-49: Unassigned
50: Pueblo I: not further specified
51-54: Unassigned
55: Pueblo II: not further specified
56-59: Unassigned
60: Pueblo III: not further specified
61-64: Unassigned
65: Pueblo IV: not further specified
66-69: Unassigned
70: Pueblo V: not further specified
71-99: Unassigned

Figure 11.15 Dolores Archaeological Program Point Location Catalog.

Date Started | Date Finished

Camera | Field or Studio

Roll Index | No. of Exposures

DOLORES ARCHAEOLOGICAL PROJECT
U.S. Bureau of Reclamation
PHOTOGRAPHIC CATALOG

Page

Film Type

Film Speed

Date	Exp. No.	Edge No.	Photo by	Orientation	Site State 05 County MT	IMAGE CONTENT										Band	Use	Quality
						LARGE PHOTO UNIT			SUBUNIT			ITEM						
						Code	Type	Number	Code	Type	Number	Code	Mat. I.D.	Number				
				N														
				N														
				N														
				N														
				N														
				N														
				N														
				N														
				N														
				N														
				N														
				N														

Table 11.13 Coding guidelines for D.A.P. point location catalog

Registrar: Four-letter initials

Code, Type, Number (Study Unit):

One letter	Two digits	Six digits
S = Study Unit	(from F.S. format)	(from consecutive series)
F = Feature		

State, County, Number: Two digits, two letters, five digits

Vertical Subdivision: Three digits (from F.S. format) One digit (from F.S. format)

P.L. Number: Four digits (from consecutive study unit or features series

F.S. Number: Six digits
(In the case where a P.L. is located in more than one F.S., list the F.S. in which the larger portion of the point location lies)

P.L. Type: Three digits (from the Point Location Catalogue format)

Date: Month (two digits) Day (two digits) Year (two digits)

Comments: Note the following, where applicable: 1) associated samples
2) locus

(Include any additional comments which may be appropriate)

POINT LOCATION CATALOGUE CODING FORMAT
(Material Identification Classes)

00: Not Applicable
01: Ceramics
02: Nonhuman Bone
03: Flaked Lithics
04: Nonflaked Lithics
05: Shell
06: Vegetal
07: Human Bone
08: Other Inorganic
09: Other Organic
10: Synthetics
11: Other
12: Glass
13: Metal
14: Indeterminate
15-99 Unassigned

Figure 11.16 Dolores Archaeological Program Field Catalogue for Samples.

Registrar

Dolores Archaeological Project
U.S. Bureau of Reclamation

State | Co | Number

Code | Type | Number | Cultural/ Study Unit

POINT LOCATION CATALOG

Vertical Subdivision

P.L. Number	F.S. Number	P.L. Type	Date	Comments

Table 11.14 Coding guidelines for the D.A.P field catalogue for samples

Registrar: Four-letter initials

Type of Sample Recorded: Two digits (coding from F.S. format)

State, County, Number: Two digits, two letters, five digits

Sample Number: Four digits (from consecutive site series for the individual sample type)

F.S. Number: Six digits

Association: One letter
P = Point Location
F = Feature
Six digits (from appropriate consecutive site series)
(Point location or feature with which the sample is associated - sample may be associated with multiple point locations or multiple features, in which case use a separate line for each point location or feature)

Date: Month (two digits) Day (two digits) Year (two digits)

Taken by: Four-letter initials

Comments: Note the following, where applicable:
1) surface
2) study unit
3) procesing code
4) sample code
5) locus

(Include any additional comments which may be appropriate.)

SECTION 4

SAMPLING TECHNIQUES

by Nancy J. Hewitt

Dendrochronology

One of the primary dating methods to be employed by the D.A.P. is dendrochronological analysis. Tree-ring dating provides an exact year date and hence is more accurate than other methods; in addition, by employing this method, information can be obtained on remodeling of prehistoric structures, re-use of construction timber, prehistoric climate, and wood species identification. The Laboratory of Tree-Ring Research, University of Arizona, has excellent calibration sequences for juniper, pinon pine, ponderosa pine and Douglas fir in the project area. Both unburnt wood and charcoal are suitable for dendrochronological analysis. A collected specimen can be characterized as structural (formerly part of a structure) or nonstructural (usually firewood). Collection procedures associated with these two types of remains are discussed below.

Structural Remains

Specimens should be collected from all structural wood. If, for example, an entire roof is encountered, take a specimen from each individual log. However, if the logs are long, do not collect the entire log; a specimen 15 cm in length is ample. Of primary concern is the preservation and collection of the entire diameter of a log since the outer rings are essential for a cutting date.

Although a photograph of an entire fallen roof would be useful, this requires that the beams and other material will be exposed for long

periods until the entire structure is excavated, possibly resulting in erosion and other damage to potential specimens. A map will provide the same data and will allow the specimens to be removed shortly after exposure. Only specimens from fallen roofs, floors, and other living surfaces need to be mapped. Sample numbers should be noted on the map.

Nonstructural Remains

Dendrochronological specimens found in fill should be recorded for depth below datum and provenience according to stratum, feature, or other unit of excavation. Even though the relationship of specimens recovered from fill proveniences to the structure is conjectural, it is necessary to collect all specimens found in such contexts. Such specimens may have been cleared from a previously burned structure or may represent spent firewood; they can provide valuable clues to the use history of the site. Selective sampling should also be applied to specimens recovered from firepits and other features.

Exposing the Sample

During excavation, once a potential dendrochronological sample has been identified, it must be prepared for removal. This process should consist of isolating the sample by means of small hand tools such as trowels and ice picks. The sample should be pedestalled, and then the block containing the sample cut from the matrix (usually the block can be cut and pried off with 2 to 3 trowels). Care must be taken so that the outer rings are not damaged; if necessary, a protective layer of matrix should be left intact around the specimen during the exposure process. This matrix layer should be trimmed before treating the specimen.

If the specimen is greater than 15 cm long and should be sectioned, then the specimen should be divided with a sharp saw after being

pedestalled. Again, care must be taken so that none of the outer rings are damaged during the cleaving process. Portions of the remainder of the beam can be saved as radiocarbon and botanical samples, and the rest discarded.

Depending on the characteristics of the soil matrix surrounding the specimen, special treatments may be necessary in the recovery process. If the soil is saturated with ground moisture, it will be necessary to leave a thick layer of earth around the sample (1+ cm) until it dries out (caution: do not leave a sample in the sun to dry out as this will result in cracking and fracturing). If the sample is in a dry matrix and is in a deteriorating state, it may be necessary to wrap the specimen with string and/or treat it with the paraffin-gasoline solution in situ.

Treating the Sample

Once a specimen has been removed, these steps should be followed to assure proper preservation:

1. Carefully wrap the sample with wide string, starting around it lengthwise so as not to crush the rings, and then around the perimeter. Wrap it firmly but not tightly; a good rule of thumb is to wrap with a strand of string every one quarter inch, although crumbly specimens may require a tighter wrap. In order to gain proficiency in wrapping, have crew members practice with pieces of wood, campfire charcoal, etc. Tie off the string with a bow (a knot may be difficult to untie and fumbling might result in damage to the specimen).

2. Attach a tag to the specimen which includes site number, provenience and sample number (see "Recording the Sample," below).

3. Soak the specimen in a solution of paraffin-gasoline until all bubbles are gone (usually one hour). There is no set ratio of ingredients

for this preserving solution, but two blocks of paraffin to one quart of gasoline is a satisfactory proportion; what is essential is that the solution is maintained close to saturation. In the case of a very fragile sample it is desirable to treat the specimen with the solution in situ. This may be accomplished with a brush (being careful of the outer rings) or by pouring the mixture over the specimen. The crew leader must periodically check the solution to insure it remains saturated.

4. After soaking, allow the specimen to dry and harden before wrapping in cotton, as the cotton may stick. The sample can be placed on a screen in the shade of a bush or tree; do not place samples in the sun to dry.

5. Wrap the specimen in one thickness of cotton and secure with a string wrapping. Make sure the identification tag sticks out of the cotton wrapping. There is a general tendency to wrap the sample in many layers of cotton, a practice which is wasteful and expensive.

The specimens are treated with care in the project laboratory and in transit to the Laboratory of Tree-Ring Research. The major risk of damage is in transporting the specimens from the field to the lab. The tree-ring specimens should be placed in a secure area in the transporting vehicle and care should be taken not to place heavy objects on top of them.

Recording the Sample

A dendrochronological sample number is assigned to each specimen. These numbers 1-N, are consecutive throughout a single site. A log of these numbers will be maintained by the site chief, using the D.A.P. Field Catalog for Samples Form (Figure 11.16).

For each tree-ring sample taken, a radiocarbon sample from the same specimen should usually be collected as a control. In case of an

inordinate amount of tree-ring samples, take a C-14 sample for every fifth tree-ring sample. In all probability the C-14 sample will not be processed, but at least it will be available for cross-checking or for future analysis.

A botanical sample should also be taken from each tree-ring specimen if it is large enough. Although the species of each sample is identified by the Laboratory of Tree-Ring Research, additional botanical samples are needed for special analyses and collections.

Be sure to record and cross-reference all three kinds of samples.

Information to be recorded in the sample catalog includes the date, the sample number, a description of the specimen and its association with cultural features and other dendrochronological samples, and the vertical and horizontal location of the specimen. The crew leader must insure that the description of the specimen includes a judgment as to functional context (primary beam, secondary beam, discarded firewood, etc.) and the structural association with adjacent samples (if present). The crew leader should also keep notes on these data and the overall patterns and associations of samples in the site notebook.

Archaeomagnetic Samples

> Archaeomagnetic dating is based on the known fact that the direction and intensity of the earth's magnetic field vary over the years. Clay and clay soils contain magnetic minerals, and when the clay is heated to a certain temperature, these minerals will assume the direction and a proportional intensity of the magnetic field which surrounds them. They will retain this direction and intensity after they are cooled. By measuring these quantities the age of the sample can be detemined if the changes in the earth's magnetic field at that location are known. (Michels [1]:130).

Archaeomagnetic dating is one of the primary dating methods to be employed by the D.A.P. and forms a valuable complement to dendrochronology

Dendrochronological dates are often from structural remains and hence tend to date the year of construction of an architectural feature; archaeomagnetic dates are often collected from domestic hearths or from the remnants of general conflagrations; therefore this method often dates the last use or abandonment of a feature. By evaluating results of the two dating methods, it may be possible to estimate the duration of use of a room or pitstructure.

The archaeomagnetic sequence for the Mesa Verde Region is well-documented. A plus or minus factor of 10 to 20 years may be expected for the project area if the sample is a good one.

Selecting Samples

A special crew has been trained to take archaeomagnetic samples and they should be notified when material for a sample is available. Therefore, it is the crew chief's responsibility to know the various kinds of features which are suitable for this dating technique. The following is a list of features and their ratings prepared by the Archaeological Research Laboratory in England (Michels [1]:135):

Good: structures containing a substantial floor or well-baked clay.
Average: kilns and ovens having an intact circumference of solid wall, not less than a foot in height; well-built clay hearths.
Poor: unsubstantial hearths, kilns with incomplete walls, patches of burning.
Very Poor: stone structure, poorly fired tile, and brick ovens.

This list is very general and does not include specific features that might be encountered in the project area. Such features include firehearths and pits, ovens, portions of burnt pitstructures (e.g., walls, floors, plaster, etc.), burnt surface structures (e.g., wall plaster,

floors, jacal), burnt cists, and kilns.

In situ provenience is of prime importance to archaeomagnetic analysis since the process requires precise measurements of both declination and inclination. Samples must be taken from parts of a burned structure that have not shifted from their prehistorical positions. Or, if the structure has collapsed or been otherwise altered, the clay particles must still be in a liquid state after the movement.

Preparing Samples

When the crew chief has determined that a feature is suitable for archaeomagnetic dating the following preparations must be made:

1. Excavate one-half of the feature. (This refers to features, not structures.) Excavation procedures require that one-half of the feature be excavated initially to expose a profile. Under normal conditions, archaeomagnetic samples can be taken from the excavated half. However, as a safeguard, the unexcavated half should be left intact in case there is some disturbance to the excavated half making it unsuitable.

2. Photograph the feature. Since extraction of archaeomagnetic samples is very destructive, it is necessary to photograph features prior to sampling.

3. Protect the features. Once a feature has been excavated, profiled and photographed, the excavated half should be backfilled until the archaeomagnetic sample can be taken. This is best accomplished by placing a sheet of plastic over the feature, then refilling it with backdirt. The plastic will keep the soil from drying out and will facilitate re-excavation when samples are to be taken. In the case of structural walls, cover with plastic; floors can be covered with plastic then covered with dirt.

4. Notify the archaeomagnetic crew. This crew is usually busy since taking samples is a time-consuming activity. Therefore it may be quite some time before they are available, so notify them as soon as a suitable feature has been uncovered.

5. Record the sample. When the sample is taken the archaeomagnetic crew will give each sample a number which will be recorded in their log. In addition, the site supervisor should record the sample number and its provenience in the site notes.

The actual recovery of the sample and transport to the laboratory is the responsibility of the Special Studies crew. Specific procedures employed are set forth by Hathaway in Section 11 of this manual regarding procedures employed in the recovery of archaeomagnetic samples.

Radiocarbon Samples

The radiocarbon isotope of carbon, Carbon-14, is formed continuously in the atmosphere by the action on atmospheric nitrogen of neutrons produced by cosmic rays. The C-14 combines with oxygen to form radioactive CO_2. This mixes rapidly within the troposphere, biosphere and the oceans, and all living things attain a known equilibrium concentration. When death occurs the exchange of atoms (breathing, food intake, photosynthesis is no longer maintained and the C-14 atoms decay at a rate such that their concentration is reduced to one-half of its initial value in about 5600 years, to a quarter in about 11,200 years and so on. Therefore by measuring the residual activity, the time elapsed since death can be calculated. The practical range of C-14 detection is from 200 years to 35,000 years before present (B.P.) in most laboratories.

The rate of radioactive production is balanced by the rate of radioactive decay and an equilibrium concentration has been maintained for many thousands of years. Although some variations, man-made and natural, have been observed, they do not affect the validity of the method, but only limit its applications (Polach and Golson [2]:3).

Since dendrochronological and archaeomagnetic dating are more accurate and less subject to contamination, specimens for radiocarbon dating will be collected only when materials for the former methods are not available or are dubious specimens, and as a control for tree-ring samples. Radiocarbon analysis is therefore considered as a secondary dating method for the Dolores Archaeological Program.

There are many ways in which C-14 samples can become contaminated both in the field and in the laboratory; it is the site manager's responsibility to eliminate any possible sources of contamination in the field. The following is just a partial list of possible sources of contamination: excessive handling of samples (body oils are detrimental to samples), intrusion of foreign materials such as windblown organic matter, tobacco, cigarette ash, grease and oil from tools, packaging and labeling materials, alcohol, formaldehyde, human hair, cosmetics, insect repellent, brush fibers, soap, modern root penetration, etc. Only through careful and methodical collection can contamination be minimized.

Notes should be taken for each sample indicating location, whether the sample was recovered in situ or in a disturbed context, and possible sources of contamination; in general all details relevant to the nature of the sample's environment should be noted. If the laboratory personnel are aware of the conditions they can pre-treat the samples so as to minimize contamination.

Amount of Sample to be Collected

Although radiocarbon dating is being refined so that even very small samples can be used for dating, it is desirable to collect as much material for each sample as possible. However, it may be difficult to estimate weight in the field, especially if the sample is wet or has dirt

clinging to it. A good rule of thumb for charcoal is to collect at least a teacup full.

Charcoal and wood are the best materials for C-14 dating; bone and antler usually yield dates younger than their true age and there is much controversy about these materials. This is mainly due to their extreme porosity and low carbon content. It is unlikely that bone would be used for dating unless no other material or method is available.

Treating the Sample

Samples should be removed carefully and promptly to avoid contamination. After isolating the sample with small hand tools, transfer it with a clean trowel to a sheet of aluminum foil. Wrap the sample securely in the foil, then place it in an artifact bag. Do not use plastic bags.

Sample Numbers

Radiocarbon samples will be assigned sample numbers. These numbers, 1-N, are consecutive throughout a single site. A log of these samples and their numbers will be maintained by the site chief using the D.A.P. Field Catalog for Samples (Figure 11.16).

When to Take Samples

A C-14 sample should be taken with each dendrochronological sample except when there is an inordinate amount of the latter. In this case a C-14 sample should be taken for every fifth tree-ring sample. Be sure to cross-reference the samples in both sample logs.

Fire hearths, firepits, and roasting ovens are prime sources of charcoal and wood specimens. When chunks are available take the largest and as many as possible. If only small flakes remain it is best to take a bulk soil sample to be screened or floated in the lab. Be sure to specify this on the artifact bag.

Registrar

Type of Sample Recorded

Dolores Archaeological Project
U.S. Bureau of Reclamation

FIELD CATALOG:
SAMPLES

Site — State — Co — Number

Sample Number	F. S. Number	Association		Date	Taken By	Comments (Note Study Unit)
		P or F	Number			

Where and How to Take Samples

A general rule of thumb is that the dimensions of the stratigraphic columns will be 25 by 25 cm, and will extend from modern ground surface to below the lowest occupational level. Because of weight and bulk considerations, columns greater than 120 cm in length will be divided into smaller units. Some smaller stratigraphic units may also be collected, such as a column comprising the fill 10 cm above and 10 cm below a distinctive living surface.

After the general layout of the site has been established (all pitstructures, rooms, etc., have been identified) the crew chief and the botanist should designate 2 to 3 possible stratigraphic control columns in areas thought to contain deep fill (i.e., rooms, middens, etc.). In a large site more columns may be necessary.

Sample Numbers

Each stratigraphic control column will be assigned a sample number to be recorded on the D.A.P. Field Catalog for Samples. These numbers, 1-N, are sequential throughout a single site.

Individual Bulk Soil and Pollen Samples

It will not always be expedient or possible to collect stratigraphic control columns, due to time involved in removing columns and the possibility of a poorly placed column (e.g., situated on a concealed feature). An alternative method is to collect pollen and bulk soil samples from designated fill. These samples should be taken from each natural stratigraphic layer or from 20 cm intervals if natural stratigraphy is lacking. Areas selected for the collection of such samples will again be a joint determination of the site chief and the project botanist. These samples will be assigned bulk soil and pollen

sample numbers, but should be recorded as an alternative to a stratigraphic column. Be sure to record depth for each sample. Again, use the D.A.P. Field Catalog for Samples Form for recording purposes.

Botanical Sampling

Plant remains encountered in archaeological contexts range from microscopic pollen grains and phytoliths to small seeds and plant fragments, and to large items such as corn cobs, yucca fruit, and structural wood. The remains may be recovered as charred, partially burned, or unburned specimens, although most items will be burned or partially burned because of the better preservative characteristics of charcoal. For collection purposes botanical remains can be conveniently divided into microfossil and macrofossil types.

Normally macrofossils can be collected in the same manner as other artifacts and are bagged separately and given the label "vegetal." However, there are many situations where this procedure is neither possible or expedient. If, for example, the excavator uncovers an extensive layer of corn kernels, it would not be economical to try to recover every kernel by hand; nor would it be feasible to try and pick small seeds out of a firepit, a very time-consuming process. In fact, many small plant remains are unnoticed by field personnel. In order to recover these kinds of data it is necessary to take bulk soil samples for flotation. Microfossils such as pollen and phytoliths are collected primarily through pollen samples. Although both kinds of samples are soil samples they are subjected to different extractive processes. Pollen samples are chemically treated to extract pollen and phytoliths, a process which destroys all other plant remains. Flotation is a water separation

technique that extracts small seeds and plant parts as well as lithic debitage, ceramic fragments, fish scales, and small bones. Therefore, both types of samples are necessary since they provide complementary information. Recovery of these samples is discussed below.

Flotation Samples. The primary purpose for collecting flotation samples is to isolate botanical remains that might otherwise be missed. However, many other items (such as gastropods, microflakes, small ornaments, rodent bones, and fish scales) are also recoverable through the flotation process.

When to take a Sample. A bulk soil sample will be taken from every provenience category (F.S.) to assure that even areas that appear to be sterile will be sampled. Especially important are features such as firepits, postholes, trash pits, living surfaces, and storage bins. As most of these features are small, the entire fill can often be collected for flotation. In the case of larger features (e.g., trash pits or large cists) a representative sample of the fill should be taken, preferably from depositional strata within the feature. Additional samples should be taken from any F.S. when the character of the fill indicates the possible presence of plant materials, minute lithic debris, heavy charcoal, etc.

In order to fully investigate activity areas on floors and other living surfaces, a bulk soil sample should be collected from each 1 m square of roof fall or fill directly above the floor. Also a sample should be taken from the living surface itself (i.e., collect divided earth from the surface matrix); again use the 1 m squares as provenience control.

Metates recovered in situ should be removed with the dirt matrix left in the trough. They should be placed in doubled plastic trash bags,

wrapped with string, and should have a tag attached to the bag containing all provenience information. Earth matrices preserved within ceramic vessels (usually jars and ollas, but perhaps bowls as well) should be left undisturbed and transported intact in the vessel to the laboratory. Care must be taken that the matrix survives the trip to the laboratory without damage. The opening of the vessel should be covered with a layer of cotton and the artifact should be placed in a plastic bag and wrapped with string. The matrices will undergo flotation and/or pollen wash in the laboratory.

Burials (both animal and human) require the collection of bulk soil samples utilizing a specific sampling technique. Bulk soil procedures associated with burials are discussed in detail in the section dealing with excavation procedures.

How to take a Sample. With a clean trowel loosen approximately 1 L of dirt (one half bagful) and place it in a doubled paper artifact bag. Care should be taken to exclude foreign matter such as roots, rocks, etc. Do not pack the dirt by pressure; do not finely scrape the dirt with a trowel: the idea is to fragment the sample as little as possible. However, large clods of dirt are best broken up in the field while fresh, as they become unmanageable in the laboratory when dry.

Sample Numbers. Each bulk soil sample will be assigned a unique specimen number. These numbers 1-N, are sequential throughout a single site. If more than one bag is collected from a feature, even on consecutive days, use the same sample number for each bag. The site chief is responsible for maintaining a log of bulk soil sample numbers using the D.A.P. Field Catalog for Samples Form.

Pollen Samples

Microscopic pollen grains and phytoliths are usually well-preserved in cultural contexts and can provide economic and environmental data which will be important to the analysis of prehistoric activities.

When to Take a Sample. Samples should be taken from all living surfaces, certain features such as firepits, cists, storage bins, burials, sipapus, ash layers, etc., and areas immediately surrounding these features. A sample should be taken from each meter square on a floor or other occupation surface. Likely spots for taking samples are under rocks or stone tools that are still in situ. If a metate is found in place on a cultural surface, samples should be taken from the area in front of the trough. Samples should also be taken from different types of fill layers, plaster, mud coping, and wall mortar. Special samples to be taken from burials are discussed under the section dealing with excavation procedures.

Of course, it may sometimes be impossible to take every sample that is desired and some judgment should be made if there is apparent insect or rodent activity or other disturbance.

How to take a Sample. The site manager and site assistant are ultimately responsible for taking pollen samples to their particular sites, although this responsibility may be delegated to a competent crew member. To avoid contamination, samples should be taken as soon as a feature or surface is uncovered. However, this is not always possible, especially when excavating a large surface; in these instances, leave a small block of earth intact where the sample is to be taken. Then, when time allows, remove the soil with a clean sterile trowel or flattened spoon, digging out enough dirt to half fill a sterile pack bag. Be sure

to dig down into the surface at least one centimeter since pollen is often ground into the matrices of floors and other surfaces. Using the sterile tool, immediately put the dirt in a sterile pack bag and seal the top. Place this bag in a sandwich bag and twist tie the top. The sample should then be put in an artifact bag.

Be sure to use sterile tools at all times; this can be accomplished by boiling or by using isopropyl alcohol in the field. Avoid taking samples in the wind or when obvious sources of contamination are present.

Sample Numbers. Each pollen sample will be assigned a sample number. These numbers, 1-N, will be consecutive for a single site. The site manager will be responsible for maintaining a log of pollen samples. Additionally, notes should be taken which record relationships and association of the samples to other features. If, for example, samples are taken from around a metate, this should be explained in detail.

SECTION 5

MAPPING PROCEDURES

by Gary A. Brown, Allen E. Kane, and Steven Dominquez

Introduction

This section sets forth guidelines concerning the mechanics, methodology, and standards used in mapping procedures. The D.A.P. mapping program is viewed as an important, integral portion of the field operations and is necessary in the reporting phase as well. It is therefore critical to establish standard mapping conventions to be used by project personnel, both to maintain quality control and to permit valid comparisons of data. This section is organized according to three major topics: field mapping procedures, final drafting procedures and standard mapping symbols.

Field Mapping Procedures

All maps constructed in the field must first be referenced to the overall grid system of the site and contain the following information: site number, provenience, map title, date, scale, directional arrow, preparer, and a map explanation, if needed; this information is vital to the drafting section and must be included.

To date, problems have existed with the employment of scales other than one inch equaling a particular unit of measurement (common practice is one inch equaling one meter); this is primarily due to the varied paper types used in the first field season. By standardizing the paper type to 10x10 lines to the inch, this problem should be eliminated. Standard mapping symbols have been designed that can be applied to all project

drafting activities (see later topic). Though these symbols apply primarily to the preparation of final maps, familiarizing yourself with conventions and using them in the field will benefit all concerned parties.

All maps should be made with the aid of a transit or alidade, except in the cases of soil profiles and small maps (fire hearths, cists, etc.) which exist on feature forms. This rule will aid in the quality of maps drawn in the field.

Four different types of maps are in most cases necessary for adequate recording of archaeological sites. These map types are as follows:

1. General Topographic Map of Site: A site topographic map will be made as soon as the grid system has been established. This map will eventually include the following: interval contour lines, drainages, prominent vegetation, limits of excavated areas and outlines of architectural units and features. In the case of large sites it may be necessary to construct several areal topographic maps rather than a single site map because of scale difficulties. Standard contour intervals adopted by the project are .25 m (for "flat sites"), .5 m and 1 m.

2. Plan Views of Major Architectural Features: These should include detailed maps of all pitstructures, rooms and use areas. The map recorder should focus on construction variations, floor features, and point locations. Whenever possible, structural profiles should be included with this map. Plan maps should usually be started during the excavation of a feature and completed after the structure is completed. Rules for preparing a plan drawing are listed in Table 11.15.

Table 11.15 Rules for preparing plan maps

1. Establish overall dimensions and choose scale (ordinarily 1" = 1m).

2. Establish datum plane and lay out coordinates from which measurements will be taken.

3. Establish logical sequence for taking measurements.

4. Materials should be indicated by symbol insofar as possible. Verbal notation should be used to indicate materials for which no standard symbol has been adopted.

5. Dimensions should be shown by scale insofar as possible. Keep dimension notation to a minimum.

6. If a vertical section is to be drawn, show its cutting plane on the plan and indicate with an adjacent arrow the direction of view to be shown on the section drawing.

7. Information to be included on the plan should include north arrow (magnetic north unless otherwise specified); scale; title of drawing (i.e., "plan view of Feature G"); date; name or initials of recorder; and cluster, quad, site, and feature designations.

8. Archaeological features to be shown on plan should include outline of walls; doorway openings; wall niches; any observable floor features; beam locations; boulders or shelter wall used as part of room wall; ventilator openings; locations of inscriptions, pictographs, or petroglyphs on shelter wall, in or associated with structure; shelter wall at floor level if determinable and at cutting plane level; drip line of shelter if within area of drawing; drainages and vegetation clusters within area of drawing; etc.

9. Show locations of test pits, looters' pits, etc., in addition to archaeological features.

3. Profiles - The two types of profiles, structural and soil, are discussed separately below.

a. Soil profiles - These profiles are intended to display the types and mechanics of soil deposition at the site, especially post-abandonment deposition in architectural features. Thus every pitstructure and use surface should be excavated with profiling in mind. Ideally a pitstructure or use area should be bisected and profiled from use surface to

modern ground surface as soon as the profiling face has been prepared. Soil profiles are essential for site interpretation!

b. Structural profiles - These are intended to illustrate the form and spatial relationships of cultural features.

A minimum of two stuctural profiles will be recorded for each pitstructure or room. Major features encompassed in floors should be included in these structural profiles, to illustrate these features (e.g., sipapu, cists, etc.); if necessary, profile lines can be bent to include these features. Structural profiles should be constructed after an architectural feature has been excavated.

When recording a stratigraphically complex site, profiles will be constructed that illustrate how temporally distinct features are spatially articulated.

4. Feature Maps - Every feature form should be accompanied by at least a plan view of that feature. In cases of hearths, cists, wingwalls, etc., a profile will also be taken.

5. Miscellaneous Maps - These include maps that are necessary only in certain situations. If the opportunity arises, the following maps should be constructed: roof fall patterns, details of architectural masonry, isometric drawings of cultural phenomena of special interest, area plans within sites, burial sketches, and, if applicable, magnetometer maps.

Every site will be issued map tubes to keep maps clean and protected.

Final Mapping Procedures

Upon the closure of a site, all maps will be stored in the government

map bin, according to site number, and if necessary, by area number.

To expedite research goals, four generalized maps of the project area need to be completed during the first year. These maps include: (1) southwest Colorado map with Four Corners inlay; (2) Dolores Program area map; (3) locality maps; and (4) site location map. These maps will be constructed once, then recopied every year with the sites added for that year's field season. All four maps will be placed on file and are available for reference.

In producing maps for publication, these guidelines will be followed:

1. Paper type will be Herculene, 10 by 10 lines to the inch (non-reproducible lines).

2. Final maps will be prepared in ink.

3. In most cases maps from the field will be too large to ink immediately. Basin Reproduction (Durango, Colorado) has the facilities to reduce field maps to publication size (8-1/2 by 11 inches).

4. Map borders and heading placements will be according to Figure 11.17.

5. Lettering, numbering and symbols will be done with the aid of a LeRoy lettering set. A Rapid-O-Graph pen will be used to blacken all necessary areas (e.g., postholes). Chartpak will be used for symbols.

Maps will then be finalized.

The following is a review of steps:

1. Field maps will be reduced to publication size.
2. Site manager and assistant will review map and present to the drafting section a final draft.
3. A draftsman will ink the map, including all chartpak symbols and lettering.
4. The field director will give a final review of the finished product.

Figure 11.17 Standard D.A.P. Map Borders and Heading Placements.

In general, C-14 samples should be taken wherever they are available, especially if tree-ring or archaeomagnetic samples have not been recovered. In short, C-14 samples should be collected under the assumption that the primary dating methods will not be available.

Stratigraphic Control Samples

Stratigraphic control samples are collected by two methods; stratigraphic control columns or individual pollen and bulk soil samples. The method to be utilized will be at the discretion of the site supervisor and the project botanist.

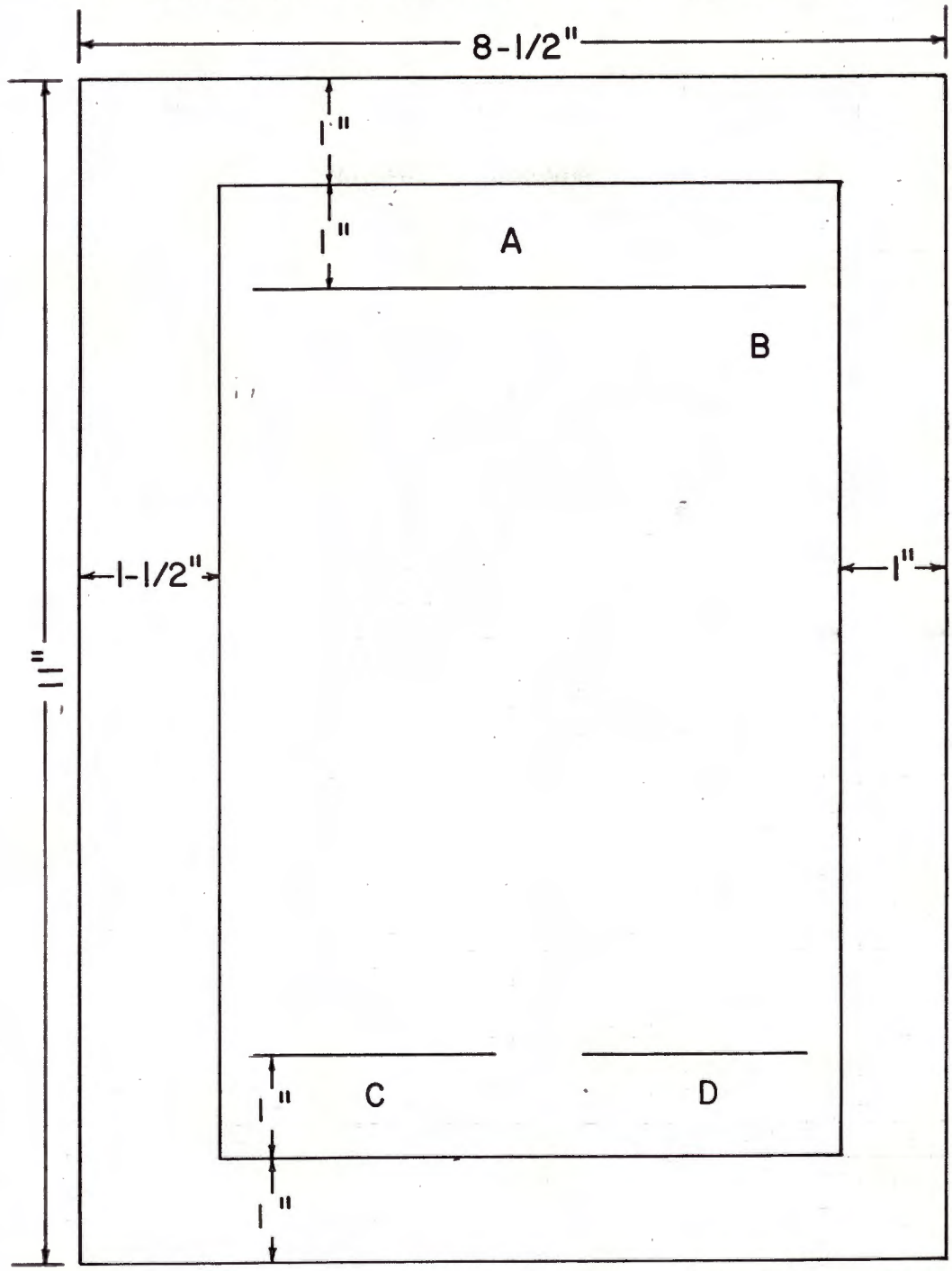
Stratigraphic Control Columns

Traditionally pollen and flotation sampling of archaeomagnetic sites is done by collecting individual samples. This method runs the possible risk of direct contamination because of the imperfect conditions for collection in the field. Another problem encountered while taking samples in the field is the sometimes unavoidable breakage of plant parts and fine impressions.

The purpose of stratigraphic control columns is to allow a portion of the archaeological strata to be removed intact and returned to the laboratory for analysis under finely controlled conditions. These samples will be examined for microstratigraphy of both occupational and post-occupational features, and possibly the identification of varve formation. Pollen samples can be taken with absolutely no modern contamination and can be used as controls for samples taken in the field. The samples will also be used to investigate aspects of soil deposition and to test various techniques of microfossil recovery.

DOLORES ARCHAEOLOGICAL PROJECT

MAP BORDERS, HEADING AND LEGEND PLACEMENT



EXPLANATION	
TITLE	A
NORTH ARROW	B
SCALE	C
EXPLANATION	D

Map Symbols

Standard symbols to be used during the Program are necessary in maintaining quality control in the production of maps. These symbols primarily concern final maps, but their use in the field is important.

1. Flaked lithic
2. Nonflaked lithic
3. Ceramic
4. Nonhuman bone
5. Human bone
6. Other artifact

7. Directional arrow

8. Sandstone
9. Coping
10. Postholes
11. Features — Drawn
12. Masonry — Drawn
13. Stains
14. Large artifacts — Drawn
15. Gravel
16. Loess
17. Alluvial
18. Pebble
19. Sand
20. Cave breccia

21. Ash

22. Roof fall

23. Plow zone

24. Looters pit

25. Melt zone

26. Clay

27. Sterile

28. Trash

29. Rodent hole

30. Burned corn

31. Marsh

32. Dash

33. Stratigraphic profiles
    Modern ground surface mgs
    Prehistoric ground surface pgs

34. Bedrock

35. Adobe Fill

36. Rock other than sandstone

37. Excavated zones
    Level 1
    Level 2
    Level 3
    Level 4

38. Scale 0 .5 1 2 meters

39. Patches

SECTION 6

SPECIAL EXCAVATION PROCEDURES

by Joel M. Brisbin

Within each site after preliminary operations have identified cultural remains, specialized excavation techniques will be adopted depending on the type of cultural unit identified; type of units are (1) rooms and room block areas; (2) open use areas, including courtyards, plazas and other occupational surfaces; (3) pitstructures; (4) midden areas; and (5) other (small) features. Separate discussions concerning excavation techniques to be used in investigating these types are presented below.

Rooms

Rooms can be divided into two sub-types: (1) rooms with masonry walls; and (2) rooms or storerooms of the wattle-and-daub type, sometimes containing basal upright slabs.

Masonry Rooms

When the top of a masonry wall in encountered, the wall will be traced until as much of the room as possible is horizontally defined. Once this is accomplished the orientation and grid lattice lines overlying the room will be recorded in field notes and discarded as provenience units. The room will then be assigned a sequential number and be treated as a separate study unit.

The outline of the room will be accurately mapped (usually on a continuation sheet); the outline map will be duplicated (three or four copies) to provide blank forms to record different use surfaces and their point locations.

After constructing outline maps the room will be divided in half (north- south) and a 1 m wide test trench will be run along this mid-line. The arbitrary levels in the test trench will be of 20 cm increments. If no use surface is encountered, continue down in 20 cm levels, until a use surface or prepared floor is encountered.

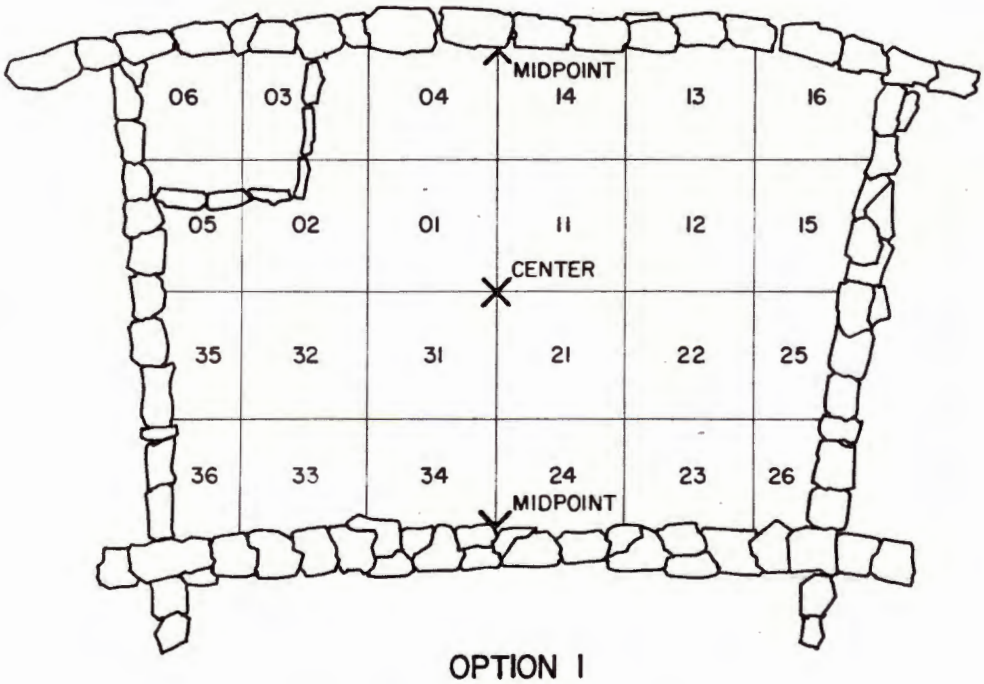
All use surfaces and the roof fill above them (if present) are to be divided into 1 m square excavation units. These units are independent of the sitewide grid system and their purpose is for tighter provenience control of use surface artifacts. To construct the grid system, plot the center of the room and use it as a starting point; in this manner, the room will be sectioned according to quadrants. To assign proveniences to the grid units, either use a numbering system or establish a subdatum at the northwest corner of the northwest square. If a numbering system is used, employ a two digit system: all numbers in the NW quadrant start with 0, in the NE quadrant with 1; in the SE quadrant with two; and in the SW quadrant with three (Figure 11.18). This system cannot be employed with very large structures.

When a use surface is encountered in the initial test trench, the trench will be divided into the 1 m excavation units as described above. The half of room (either west or east) that the test trench lies in will now be brought down to the top of the roof fall, or 10 cm above the surface that you have encountered. Once this is accomplished, the 1 m excavation units will be extended on across the room half. If roof fall is present then the surface will be exposed in two levels (roof fall and floor). If not, the surface will be exposed in one level (floor fill). While the surface is being exposed, any point location (artifact) that is encountered will be collected and a tag will be put in its place. This

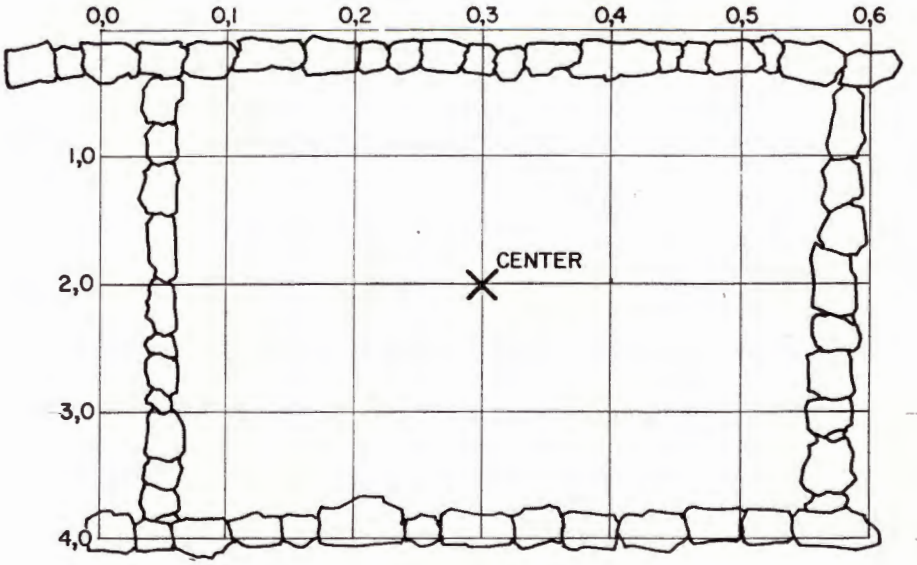
Figure 11.18 Methods of constructing an internal provenience system for a room.

D.A.P. FIELD MANUAL

CONSTRUCTING PROVENIENCES FOR A ROOM



OPTION 1



OPTION 2

tag will be inscribed with the point location number and a generic term for the artifact. These point locations will be entered on the room surface map in its exact excavation unit provenience and on the Point Location Catalog Form prepared for the surface being investigated. In order to obtain vertical provenience, a subdatum should be set up at the northwest corner of the room. The elevational difference between this subdatum and the primary site datum should be computed and entered into the daily site log. It should also be entered on the room map(s). Next a permanent line level should be set up and a soil profile drawn of the face so far exposed in the remaining half of the room. After this is accomplished, the string (but not its anchors) should be removed and the remaining half of the room taken down to the roof fall or floor level of the use surface already exposed. The one unit grids can now be laid over this half and the excavation procedure repeated. It is a standard procedure once a use surface or prepared floor is encountered that the stratigraphic profile will be recorded on the stratigraphic form, photographed and mapped before the surface in either room is cleared. This will prevent the surface that has been exposed from being damaged by the activity involved in bringing the other half down.

Both halves will be taken down in 20 cm levels just like the test trench. If the test trench has revealed good stratigraphic lines of deposition these natural lenses should be used instead of the arbitrary levels. Whether arbitrary or natural levels are used, each one will have its own F.S. number, as will each separate 1 m grid unit.

After the whole use surface is cleared and point locations mapped, and samples taken and their numbers plotted in (e.g., "DD 1," "PN 2," etc.) the vertical placement of the surface within the room should be

ascertained and entered on the map and in the notes. This should be done by simply stringing a line level from the base of the subdatum and measuring all four corners and the center of the surface.

After this is accomplished, continue the test trench downward until sterile soil is reached or another use surface is encountered. If other surfaces are encountered, repeat the above technique. Also re-establish the soil profile line and continue the profile down untill the room is completed. There are different types of soil samplings that will be utilized depending upon whether rooms, courtyards, pithouses, etc. are being excavated. These are all described in the Section 6.

Nonmasonry Rooms

Rooms constructed by the wattle-and-daub tecnhique present their own set of problems. The main one is the definition of outline and use surface.

This type of room, being of flimsy construction, lends itself to being plowed under by modern farming methods; if the overburden is shallow enough, the units and their use surfaces can and will be totally destroyed. This can happen even if the rooms were once outlined by upright slabs along the bases of the walls.

Two methods will be employed on these rooms. First, the excavation will commence using the 2 m site grid. Each of these grids can be divided in half. The western half of each grid can be taken down as a test trench in 25 cm levels until a use surface is encountered. If this use surface is followed to the north and slopes up abruptly, it indicates a room. If this is established, the southern extent should be located in the same manner. The subdatum can now be established and the soil profile drawn. Now the overburden should be stripped from above (10 cm above surface or

down to roof fall) the rest of the 2 m grid, and the edges of the room followed. The other adjoining grids, if done in a like manner, will define the room or rooms.

Once the room or rooms are defined and are taken down to roof fall or 10 cm above the floor if no roof fall is present, the 1 m excavation units as already described under masonry rooms can be established for finer control.

Indicators for room perimeters are the abrupt upsloping mentioned, post holes in line, or slab stubs in situ.

The second method is employing the 2 m grid system all the way and designating rooms after the area has been stripped and indicators and features can be observed overall. This method is not preferred because the 1 m control units established in each room are lost. If you are excavating a small site this method will probably have to be employed. Larger sites should have more easily definable rooms and the first method should be employed.

Nonstructural Units

Courtyards, plazas and other nonstructural archaeological units are often difficult to define as far as limits are concerned. For this reason maintaining the original site grid system over these areas is the recommended approach.

The area between roomblock and pitstructure will be considered a formalized use area and will be excavated as a structure. A 1 m north-south test trench will be excavated from the pitstructure to the roomblock (25 cm arbitrary levels). A soil profile will be drawn of this test trench. Once a surface is located the remaining area can be mechanically

stripped down to 10 cm of this surface. The area will then be laid out in 1 m grid squares and excavated as if it were a floor in a pithouse or room.

If time becomes a factor, this area will have to be randomly sampled, with emphasis on the areas directly fronting the rooms.

If subsurface features are located in the activity surface they will be outlined and/or marked but not excavated. They will later be investigated after the whole activity surface has been stripped. Point locations on this surface or any use surface will be collected and their locations of origin will be marked with tags (tags will give provenience, point location, number and artifact type). These point locations will be entered on the Point Location Catalog Form and also on a sketch map of that particular grid unit.

When the time comes for final mapping, any displaced tags will be re-established and all point locations and features plotted on the map. Bins, postholes, hearths, and subfloor cists will receive separate F.S. numbers. If the features are large enough they should be bisected and profiled (especially hearths). Refer to the Section 4 for a discussion of amounts and types of samples to be taken.

Pitstructures (Kivas or Pithouses)

Once a pitstructure has been identified through excavation of random squares or magnetometer testing and defined through surface stripping, intensive investigation of the structure will begin.

The first exploratory step is to run a north-south test trench across the pitstructure,. This trench will be placed east or west of center (to avoid the hearth area), and will be taken down in arbitrary 20 cm levels.

Once roof fall is encountered the north-south walls will also be exposed. At this point define the top of the roof fall and limit the excavation to this level. Construct a partial north-south profile and make sure the anchors for the profile are permanent as the level can be re-established at a later time and the profile finished down to the floor.

The bulk of the pitstructure fill (that above roof fall) will then be removed; the method is dependent on the nature of the post-occupational fill: if there are no culturally deposited strata above the roof fall, the fill will be quickly removed with a backhoe and/or hand tools; if cultural levels are present (that is, the pitstructure was used as a refuse dump or other activity area after abandonment) a quarter or half of the structural fill will be removed in a controlled method using the natural strata as controls.

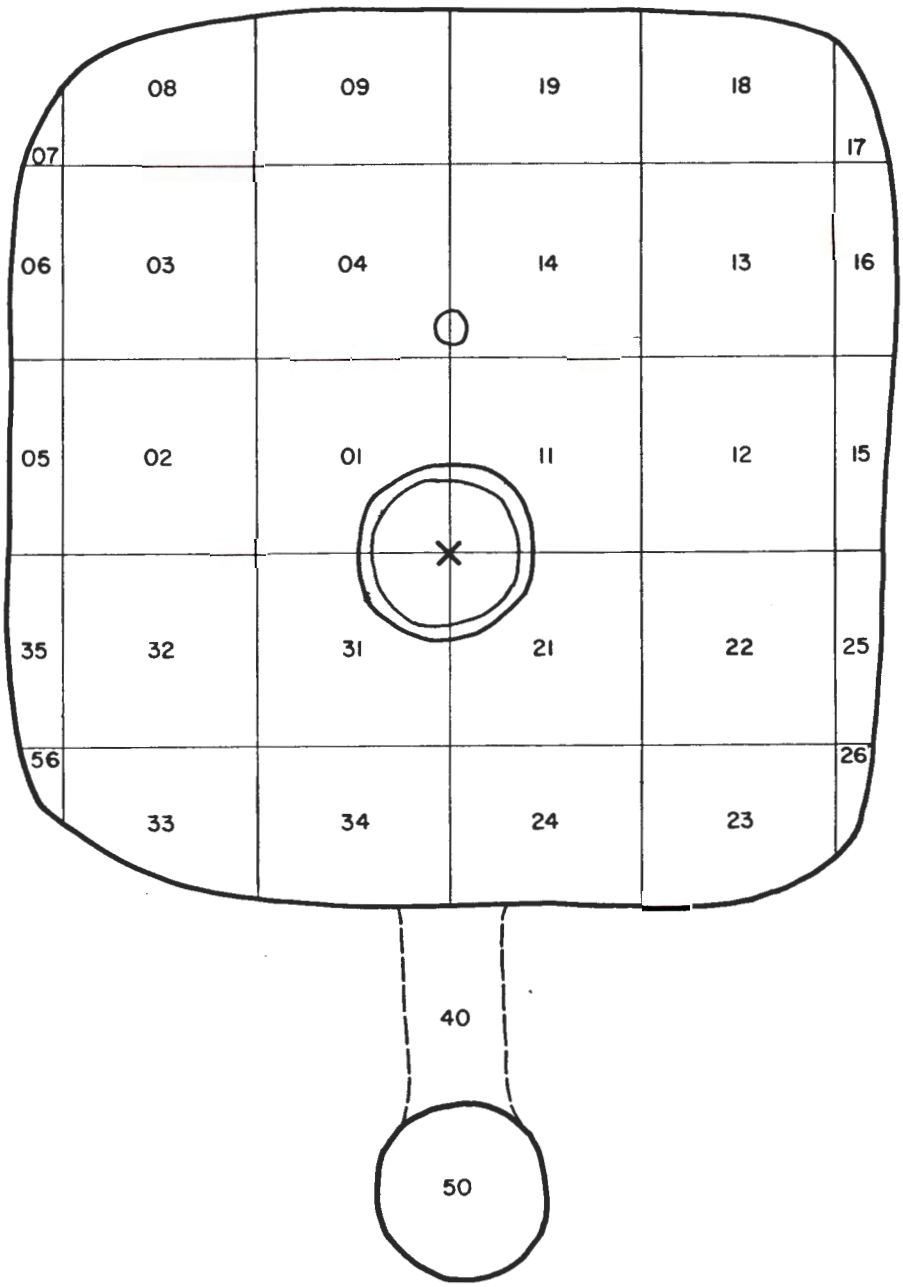
When the structure has been cleared to roof level, a test should be conducted to determine the location of the hearth. This should be a 1 m square centered over the estimated location of the hearth. The center of the hearth will serve as the datum for establishing the 1 m grid units over the floor and roof fall of the pitstructure. If the pitstructure incorporates a bench it will also be excavated in 1 m units. The standard schemes for constructing provenience units for pitstructure surfaces are illustrated in Figures 11.19A through 11.19E.

When documenting point locations within a pitstructure the numbers will be consecutive for the whole floor area. If the structure contains a bench, these point locations willl have their own system of consecutive numbers (i.e., if the structure is equipped with a bench there will be two series of consecutive point location numbers for the pitstructure. Both

Figures 11.19A through 11.19E Systems of constructing provenience systems for pitstructures.

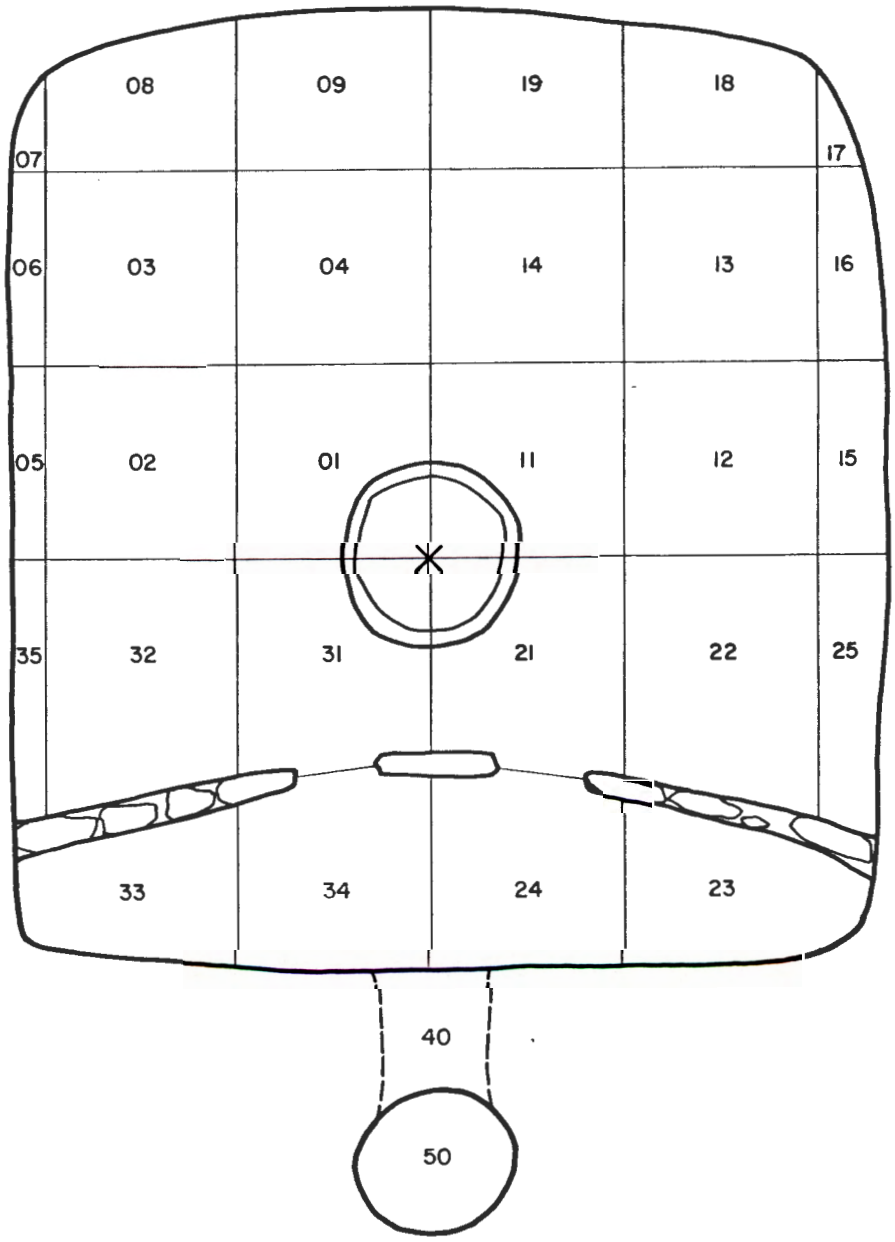
D.A.P. FIELD MANUAL

A. CONSTRUCTING PROVENIENCES FOR A PITHOUSE WITHOUT BENCH, ANTECHAMBER, OR SOUTH ROOM



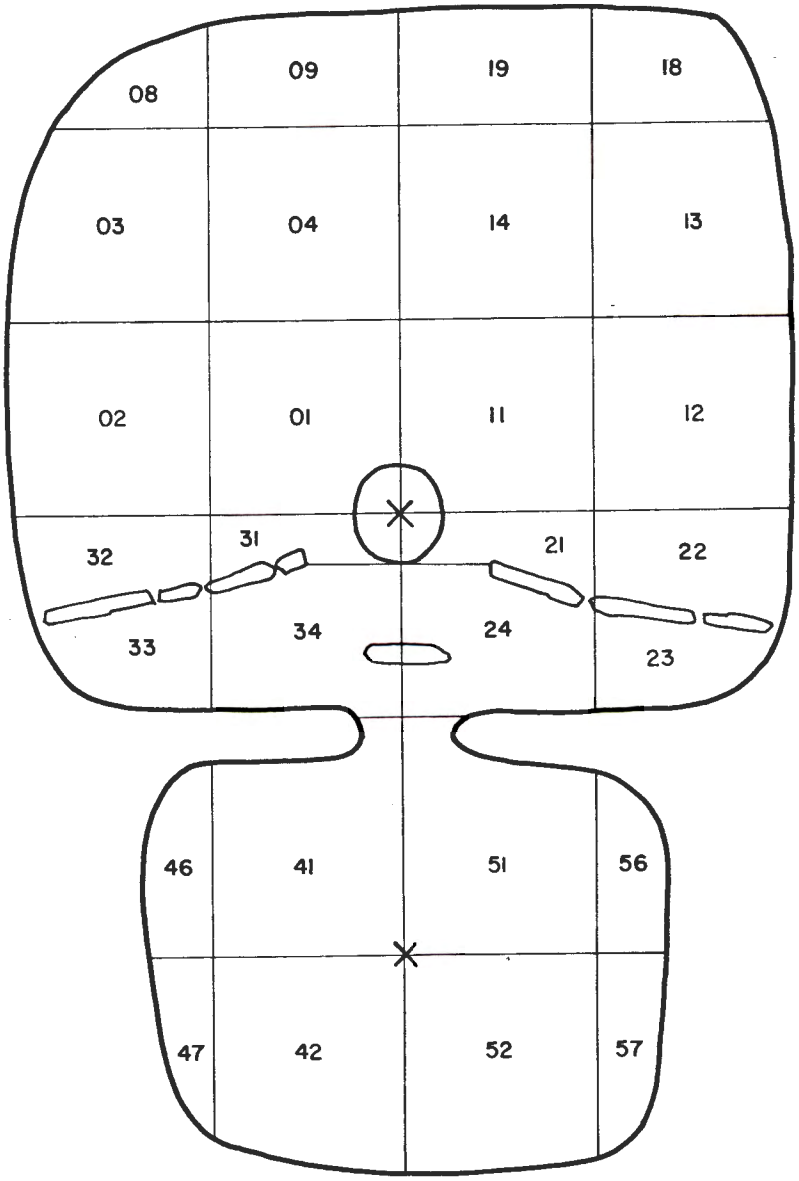
D.A.P. FIELD MANUAL

B. CONSTRUCTING PROVENIENCES FOR A PITHOUSE WITH SOUTH ROOM



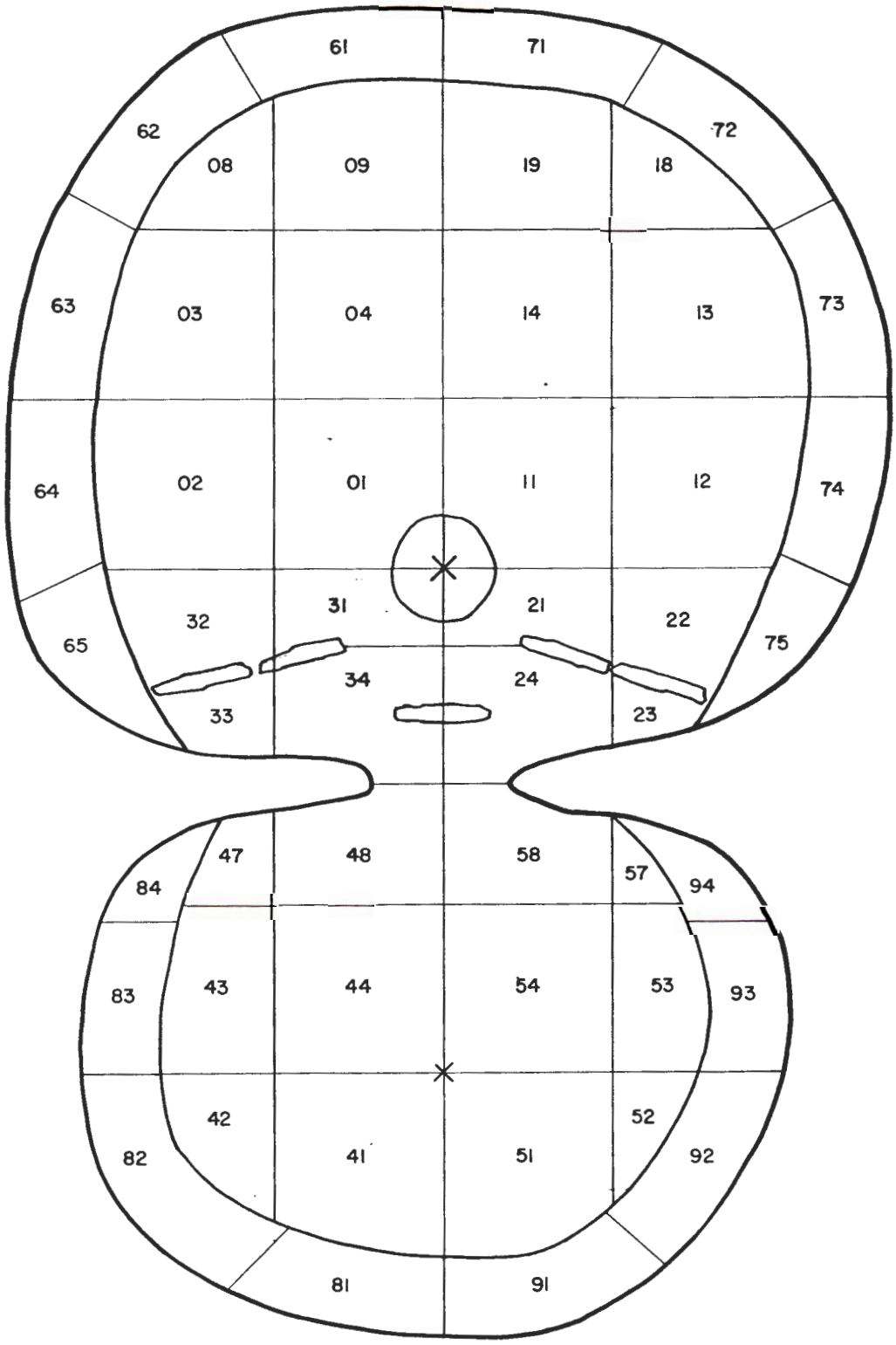
D.A.P. FIELD MANUAL

C. CONSTRUCTING PROVENIENCES FOR A PITHOUSE WITH ANTECHAMBER (2 PITSTRUCTURES)



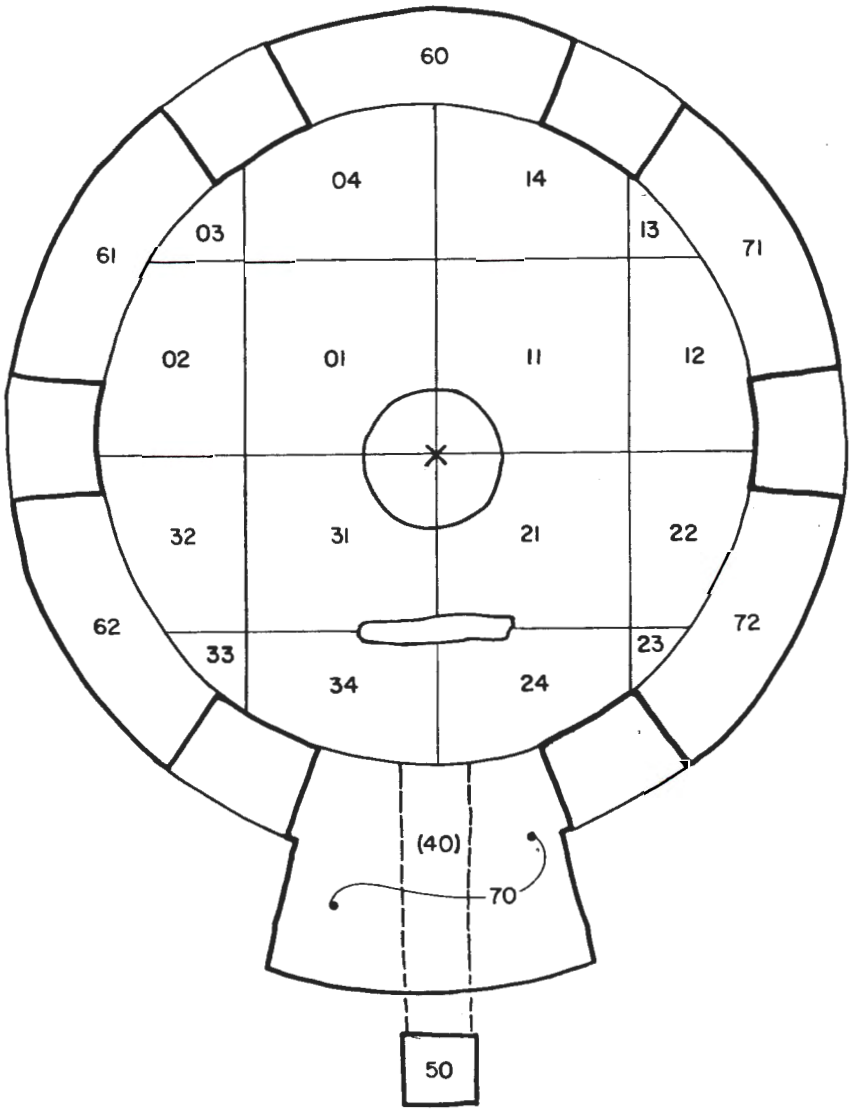
D.A.P. FIELD MANUAL

D. CONSTRUCTING PROVENIENCES FOR A PITHOUSE WITH ANTECHAMBER AND/OR BENCH (2 PITSTRUCTURES)



D.A.P. FIELD MANUAL

E. CONSTRUCTING PROVENIENCES FOR A KIVA WITH BENCH, PILASTERS, AND SOUTHERN RECESS



set of point locations will be recorded on the Point Location Catalog Form).

The south end (the area south of the wingwall, if present) and the ventilator system will be considered separate excavation units. The south end should be divided into four units, two on either side of the north-south center line. The vertical portion of the ventilator system should be excavated in 20 cm arbitrary levels and the horizontal portion as one continuous provenience (F.S.) unit.

Twenty percent of all floor fill contained in a pitstructure should be screened. A random take can be used to select the sample. If it is determined from the sample that valuable information is being recovered then the sample proportion should be increased.

Midden Areas

First, define the limits of the midden area. Then excavate a north-south (magnetic) test trench through the center of the midden using 20 cm arbitrary levels. This excavation is used to determine the nature of the deposits. If possible, the trench should be oriented along one side of a site grid line for ease in control and map location. As in all other areas, a subdatum should be established and the elevation difference from the primary datum computed and noted in the field notes. If the deposits are limited to shallow sheet trash, the midden will be excavated in 2 m grids using a stratified random design (excavate 30-40 percent of the midden area). If no definable strata can be identified in the exploratory trench, the random squares can be excavated as one unit.

If the site exhibits temporal complexity, then the midden may contain deep stratified deposits. Therefore, if identifiable strata are encount-

u in the exploratory trench, the following excavation procedures will be used:

1. Once the initial trench is completed, construct a north-south profile to define the different strata and lenses. If the trash is now seen to have definable stratigraphy as well as depth, continue the excavation in stratigraphic, not arbitrary, levels.

2. Bisect the initial exploratory trench and begin a similar trench running east-west, until the midden extremes are reached.

3. Four quadrants have been defined by the two exploratory trenches. Select two of these quads diagonally opposed to one another, and excavate them to sterile soil using natural strata and 2 by 2 m grids as controls; this procedure will result in a 50 percent sample of the midden area. Caution should be exercised to insure any activity areas or use surfaces are recognized and recorded. Under certain circumstances, it may be justifiable to do a total excavation. This is an on-site decision to be made by the crew manager and the locality supervisor.

Burials

One of the prime concerns when dealing with a burial is the stratigraphic context of the interment. The best method for this determination is to define the upper limits of the burial pit. This is often very difficult to do, sometimes impossible. Burials that are placed in the trash deposit are often interred in a shallow pit scooped out of the loose trash and filled with the same trash, leaving no sign of a pit outline. If, however, the pit was dug into well stratified trash, the horizontal lines of stratigraphy will have been abruptly truncated. The

trash fill that served to cover the body will be homogenous as opposed to the stratified lines on either side of the pit. If this phenomena can be detected, the surface of origin can be fairly well defined; this definition may be critical for the burial to have a defined temporal relationship in regards to the rest of the site.

Not all the problems that might arise while clearing a burial can be discussed here; the individual excavator's sense and ingenuity must be relied upon to cope with special cases.

If a burial pit can be defined, the burial should be excavated, retaining the outline of the pit. If not, one of the most satisfactory excavation methods is to block the burial out as soon as the position and extent are determined. In other words, leave the burial imbedded in its matrix on a pedestal while the surrounding dirt is cleared away and a preliminary excavation level is established. The height of the pedestal will be variable, but 35 cm is about the minimum. This method not only results in a convenient working height, but also prevents loose dirt from falling back onto the burial.

Burials should generally be exposed from the top downward. Since it is inefficient to be continually sweeping loose dirt over previously cleaned areas, it is advisable to expose the central areas first, especially the cavities of the rib cage, abdomen, and pelvis. Once these are cleaned, the extremities can be cleared. Arms and leg bones should be exposed from upper to lower, the hands and feet last, because of the numerous small bones.

Particular care should be taken in areas around wrists, waist, chest, and neck where nonperishable items (jewelry) are often found. The area around the skull, in front of the chest, and around the hips are also

common areas in which grave goods are found.

In the areas mentioned above, as well as the rib cage, bulk soil and pollen samples are to be taken. Take these samples, especially the pollen, as soon as you uncover one of the above mentioned areas. This will give a cleaner sample, uncontaminated by the modern pollen rain. If vessels are present and intact, do not remove the matrix from the vessel. The vessel itself will be the container for the bulk soil and pollen from around and under the sherds.

Badly preserved bone is difficult to expose and collect. Special care in brushing away the matrix must be taken, and if necessary, a polyvinyl acetate solution can be applied to the bone. If the bones are in a bad state of preservation, contact the staff conservator for the actual removal from the ground.

A sketch of the burial is necessary to augment photography. Anyone can sketch a burial, for patience and practice can compensate for lack of formal training. Anatomically correct sketches are preferable to stick figures. Sit down in a position with a good view of the burial and draw each bone exactly as it appears from that position, attempting to reproduce perspective by relative size. Deep shading and hatching tend to obscure the drawing. All artifacts are sketched in and labeled, either by key numbers or by listing in the margin. An arrow designating magnetic north must be present. A gridded sheet for the purpose of drawing the burial is attached to the burial form.

If the bones are in good condition, they can be removed one at a time and wrapped in newspaper. The skull, long bones and ribs will be wrapped separately. The bones from each hand or foot are to be placed in their own separate bag and labeled "left" or "right" (e.g., L hand, R hand).

Pollen samples from a burial cannot help much unless a scatter sample is taken from the area outside the burial pit or if no pit is present, 50 cm from the burial. In this manner both sets of samples can be compared to determine if there are any appreciable differences. The burial should be recorded on the D.A.P. Burial Form (Figure 11.10, Table 11.9).

SECTION 7

ADMINISTRATION

by Nancy J. Hewitt and Allen E. Kane

The basic philosophy that should be maintained by each site supervisor and his crew is that every archaological site is an outdoor laboratory and should be treated as such.

Contamination

Part of the respect for the site means that contamination should be avoided at all times. In order to do this, certain rules must be strictly followed. These rules include: No smoking, no tobacco chewing, and no eating on the site. It is the site supervisors' responsibility to see that contamination is avoided by establishing a "break spot" where the above activities can take place. In addition, there will be no consumption of alcoholic beverages on or off the site during working hours.

Safety

The site supervisor is responsible for the safety of his crew and should insure that safe excavation conditions exist at all times. Safe conditions include:

1. Proper access in and out of deep structures and test pits
2. Spacing of crew members so they do not endanger each other
3. Keeping equipment in proper working condition
4. Staying off of prehistoric structural remains, e.g., walls
5. Watching for snakes and insects
6. Awareness of allergies or special conditions that crew members may have

It is also the supervisor's responsibility to see that each crew member is properly attired to avoid injury and sunburn. Proper gear includes the following:

1. Long pants
2. Shirt (which may be removed as long as one does not incur sunburn
3. Above-the-ankle sturdy leather boots without Vibram soles (or otherwise-textured soles)
4. Hat
5. Suntan lotion and insect repellent

The site supervisors should apprise each crew member of the proper safety procedures involving summoning medical aid, and of other emergency procedures.

Sanitation

Sanitation can be a major problem on projects of this scale. Proper toilet facilities will be the responsibility of the site supervisors. There should be one portable toilet provided for each crew. The supervisors must also make sure to provide a full container of water each day. From this container each crew member will fill his individual canteen. To avoid sanitation problems and spread of disease, there will not be any communal water bags, or canteens.

Trash on the site must be disposed of properly, not only for sanitation reasons, but also because several of the sites will alternately be open to public inspection. It is the supervisors' responsibility to make sure the site is kept clean at all times by establishing a daily trash patrol and keeping a trash container at the site. Periodically

arrangements will be made to transport accumulated trash to the Dolores landfill facilities.

Security

Sites with easy access can present potential security problems. Therefore, all tools and equipment must be locked up every day at quitting time. Locks and chains will be supplied for this purpose. Further, all artifacts will be taken to the laboratory daily. If artifacts in situ are to be photographed, have this done as soon as possible so the artifact is not left in the field. If this is impossible, sufficiently cover the artifact with plastic, soil, etc.

Working Hours

The site supervisor is responsible for keeping track of hours worked by his employees. This responsibility starts with making sure each individual arrives at the assembly area on time. Departure from the assembly area will be between 7:45 and 8:00 AM. Breaks may be arranged in one of two ways. The first alternative is to have a 30 minute lunch break, with a 15 minute break each morning and each afternoon. Or the lunch break may be 45 minutes long, with one 15 minute break in the afternoon.

Site clean up should begin between 4:30 and 4:40. Clean up includes:

1. Trash patrol
2. Artifact bag inventory
3. Cleaning (if necessary) and storing and locking up of all tools
4. Covering of special exposed features and artifacts
5. Removal of loose dirt from areas of excavation

All crews will leave the site at 5:00 PM to return to the assembly points.

Visitors

Quite often there will be visitors to the sites which will include a myriad of people: reporters, television camera persons, curious passersby, interested local people, jealous pothunters, and a few people who are lost on their way to somewhere else. By all means be congenial and helpful; don't ignore them. Answer their questions, give them tours, volunteer information. Remember, public taxes are helping to support this project and a good public image is imperative. Even if a visit means you have to stop work for a short time, be courteous and helpful.

Most important, be cognizant of visitor safety. We are responsible for them, too, so to avoid accidents keep them away from any areas that are potentially dangerous.

Supplies

Certain expendable supplies such as cotton, string, marking pens, paraffin, artifact bags, forms, etc., will be depleted and will need to be restocked. Don't wait until these supplies are gone to request more. Try to estimate the rate of use of supplies so they may be ordered in advance. Future needs are to be channeled through the locality chief.

Chain of Command

To assure that the fieldwork progresses smoothly it is necessary to know channels of communication and the proper chain of command. Not only supply requests, but all comments, complaints, suggestions and general information should be transmited through the following chain of command:

crew --> site chief --> locality chief --> field director.

SECTION 8

FIELD RECOVERY OF CERAMIC ARTIFACTS

by William A. Lucius

Ceramic remnants, with the exception of lithic materials in some types of sites, normally compose the primary bulk of returnable artifacts in local Anasazi archaeological sites. However, the general nature of ceramics in archaeological contexts precludes any special handling requirements; the artifacts are normally in a fragmentary condition and as such, are not amenable to studies which require special field procedures. That is, given normal excavation procedures and post-excavation handling precautions the data which are desired for ceramic analysis are not normaly altered in an adverse fashion. However, there are some special cases where field procedures should be amended to preserve the possibility of additional data from ceramic items.

In most cases special handling of ceramics in the field excavation process concerns whole or partial vessels or nonvessel forms (figurines, for example). The most important data which can be gained by such handling concerns pollen bearing surfaces or contents of ceramic vessels (it should be noted that the item need not have been whole to have been used for storage of economically used foodstuffs). Therefore, in most cases encountered by the archaeologist which have the probability for pollen extraction (grave lots which could contain meal or pollen, storage vessels which occur on use surfaces, and vessels which have been incorporated into the structure of a site), contamination of the ceramics should be minimized by a frugality of handling and by the sealing of the item, preferably in plastic, until the item can be examined by the

appropriate specialist. It is entirely probable that items such as figurines and other "ceremonial" ceramic items will yield pollen results which can be used to interpret the actual use of those items in the lifestyle of the Anasazi.

Less common yet important special handling procedures are required for the following four classes of ceramic items:

1. A plethora of data concerning resource utilization of clay sources, pigments, and other technological information can be obtained by the recovery of unfired ceramic vessels or sherds in archaeological context. The field worker needs to be cognizant of the possibility of recovering unfired ceramics, especially when dealing with relatively dry deposits. In order to alert the laboratory personnel of the existence of nonwashable sherds in the collections such items should be flagged before transport to the laboratory.

2. Similar technological data can be extracted from clay masses (potential raw material for ceramic manufacture) which are occasionally found in archaeological contexts. The recognition of such items in the deposits must be made by the field personnel. In those cases where such a mass has been accidentally fired, the archaeologist should treat the item as he would any archaeomagnetic sample, as it has the potential for use as a dating device. The remainder of the mass should be returned for ceramic analysis.

3. The site manager and excavation crew members must also be aware of the possibility of recovering ceramic artifacts treated with nonpermanent pigments. Such items must be recognized when recovered and identified as such on the artifact bags so that they can be given special treatment by the laboratory staff. In the local area, the most common

example of nonpermanent pigments is the fugitive red wash applied to some Basketmaker III period vessels.

4. In special cases, such as in the excavation of firing kilns or in burned contexts, the ceramics or portions thereof can again be used for archaeomagnetic dating and should not be disturbed until the appropriate specialists are called in. Additionally, the placement of ceramics and kiln furniture in a kiln excavation requires careful documentation and should not be attempted without the appropriate specialists.

SECTION 9

LITHIC ARTIFACT RECOVERY

by Roger Moore

Lithic artifacts make up one of the largest classes of cultural material encountered in prehistoric site excavation. The proper recovery and analysis of these artifacts will supply critical information for field and lab reports concerning all the problem domains, especially those dealing with temporal and functional interpretatons.

While stone may seem indestructible, artifacts made from it still require reasonable care in handling to prevent breakage and damage to worked and/or utilized edges. Adhering to the following list of do's and don'ts will insure minimum damage to stone artifacts and thereby maximize the information that can be gleaned from them.

Bagging

When you are ready to bag lithic artifacts from an individual provenience, separate them into flaked and nonflaked bags according to the following definitions:

Flaked Lithics: those items that have been primarily manufactured by percussion or pressure flaking, with no subsequent manufacturing abrasion except for edge scrubbing as part of platform preparation or haft edge dulling. This would include flaked cores that are used as hammerstones, or axes or hoes that are subsequently abraded from use without specific production by grinding. It would not include items that have primary flaking to shape the core, then deliberate pecking and/or grinding to shape the piece (as on a grooved maul) (Knudson [3]:24).

A list of all D.A.P. flaked tool categories appears in Table 11.16. In addition to the items on this list, also include all collected debitage in the flaked lithic bag. We define debitage as "unused flakes, chunks, fragments of those raw materials used in lithic manufacture." The recovery and collection of all debitage regardless of size, is as important as the collection of all recognizable tools; therefore all debitage should be bagged. Analysis of the debitage will help determine stages of flake manufacture at particular locations in a site, and supplies us with information regarding the range of raw materials employed by the prehistoric inhabitants of the site. After washing, about 20 percent of all collected materials classified as debitage turns out actually to be tools fragments.

Nonflaked Lithics: those items that have been primarily manufactured by abrasion (pecking, grinding), with or without some initial flaking of the core. This also includes those items that have been selected for their natural shape and used without further manufacturing, e.g., river cobble hammerstones (and unshaped manos). It also includes "miscellaneous" items such as paint materials, curated fossils, incised or specially shaped building stones, and ornamental stones (Knudson [3]:24).

A list of all D.A.P. nonflaked tool items can be found in Table 11.17. When in doubt whether a stone is an artifact or not, collect it, and send it to the laboratory for a final determination.

These procedures should be followed in bagging:

1. Do not bag a lot of small items with large heavy items. Mixed bagging will result in broken artifacts and artifacts with "bag retouch" on their edges.

Table 11.16 Items Classified as Flaked Lithic artifacts (page 1 of 2)

01: Tool too fragmentary to determine form
02: Used but apparently unworked flake
03: Core, not used for other purposes
04: Used core, apparently not deliberately shaped, thinned or edged as a tool (e.g., used as a hammerstone, chopper, mano, etc.)
05: Thick uniface, with minimal edging; scraper plane
06: Thick biface, shaped but with minimal edging; chopper or hand axe, hoe

07: Denticulate, usually a "retouched" serrated flake
08: Beak, usually a "retouched" flake, triangular form, very strong, probably a more massive piece, i.e., core
09: Notch, usually a "retouched" concave-edged flake
10: Thick side-worked uniface (including "retouched" flakes), without accessory form(s)
11: Thick end-worked uniface (including "retouched" flakes), without accessory forms(s)
12: Thick end-and-side worked uniface (including "retouched" flakes), without accessory form(s)
13: Thin side-worked uniface (including "retouched" flakes), without accessory form(s)
14: Thin end-worked uniface (including "retouched" flakes), without accessory form(s)
15: Thin end-and-side worked uniface (including "retouched" flakes), without accessory form(s) 16: Thin biface without obvious haft element; "knife"
17: Thin biface with haft element; "knife"
18: Crescent, either unifacial or bifacial
19: Drill, side notched (usually reworked projectile point)
20: Drill, expanded base
21: Drill, other
22: Burin, not on an otherwise worked form
23: Burin, on worked unifacial form
24: Burin, on worked bifacial form
25: Graver, not on an otherwise worked form
26: Graver, on thick unifacially worked form
27: Graver, on thin unifacially worked form
28: Graver, on bifacially worked form
29: Projectile point, triangular without basal notch
30: Projectile point, triangular with basal notch
31: Projectile point, stemmed without basal notch
32: Projectile point, stemmed with basal notch
33: Projectile point, lanceolate without basal notch
34: Projectile point, lanceolate with basal notch

Table 11.16 Items Classified as Flaked Lithic artifacts (page 2 of 2)

35: Projectile point, deeply corner notched with strong stem
36: Projectile point, corner notched with expanding stem
37: Projectile point, corner notched with basal notch
38: Projectile point, side notched with short stem, no basal notch
39: Projectile point, side notched with long stem, no basal notch
40: Projectile point, side notched with short stem, with basal notch

Note: "Accessory form(s)" as used here have to be technological rather than use alteration. A utilized, nonretouched edge does not constitute an accessory form.

Table 11.17 Items Classified as Nonflaked Lithic Artifacts (Page 1 of 2)

01: Anvil/nutting stone
02: Unworked hammerstone
03: Worked hammerstone (not a maul)
04: Polishing stone
05: Composite polishing/pecking stone
06: Lightning stone
07: Unspecialized pounding stone (serves as pestle)
08: Composite chopping/polishing stone
09: Shaped stone slab
10: Unshaped grinding handstone (mano)
11: Shaped grinding handstone (mano) with triangular cross-section
12: Shaped grinding handstone (mano) with cross-section other than triangular
13: Ungrooved abrading stone
14: Grooved abrading stone
15: Loomblock
16: Grinding netherstone, unspecialized
17: Grinding netherstone, shaped slab metate (without accessory surface)
18: Grinding netherstone, shaped slab metate with secondary grinding surface
19: Grinding netherstone, shaped trough metate <u>without</u> accessory surface, indeterminate as to whether trough ends are open
20: Grinding netherstone, shaped trough metate <u>without</u> accessory surface, both ends of trough closed
21: Grinding netherstone, shaped trough metate <u>without</u> accessory surface, only one end of trough open
22: Grinding netherstone, shaped trough metate <u>without</u> accessory surface, both ends of trough open
23: Grinding netherstone, shaped trough metate <u>with</u> accessory grinding surface, indeterminate as to whether trough ends are open
24: Grinding netherstone, shaped trough metate <u>with</u> accessory grinding surface, both ends of trough closed
25: Grinding netherstone, shaped trough metate <u>with</u> accessory grinding surface, only one end of trough open
26: Grinding netherstone, shaped trough metate <u>with</u> accessory grinding surface, both ends of trough open
47: Grinding netherstone, too fragmentary to determine type
27: Shaped mortar/bowl
28: Shaped pestle
29: Pallet without raised border
30: Pallet with raised border
31: Maul, neither grooved nor notched

Table 11.17 Items Classified as Nonflaked Lithic Artifacts (Page 2 of 2)

32:	Maul, notched
33:	Maul, grooved
34:	Axe, neither grooved nor notched
35:	Axe, notched
36:	Axe, grooved
37:	Tchamahias
38:	Button
39:	Toggle
40:	Bead
41:	Pendant blank
42:	Pendant
43:	Necklace segment, not a bead
44:	Bracelet
45:	Effigy
46:	Perforated disk
49:	Ornament indeterminate

2. If there are a lot of small items to bag from an individual provenience, try to separate them as much as possible; artifacts can be separated by putting them into several small bags within the larger F.S. bag. Within the small bags artifacts can be separated by laying the bag on its side, spreading artifacts out on the exposed surface and then rolling the bag up. Remember, the less damage the artifacts sustain en-route to the lab, the more useful they will be for analytical and interpretive purposes.

3. When special items are encountered (projectile points, ornaments, blades, other breakables) wrap them up separately or secure them in a vial to protect them.

4. If there are point locations in a provenience unit make sure to put the P.L. numbers on the bag and also on the activity surface map.

Organic Material on Artifacts

Occasionally lithic artifacts with adhesions (organic materials and stains or pigments) on their surfaces are encountered. If this adhering material or stain is the result of cultural use, collect the artifact using the following procedures:

1. Touch the artifact as little as possible, and preferably, in areas not covered with the adhering material.

2. Bag the artifact in such a way that the adhering material will most likely remain on the tool during transport to the lab. You may find it necessary to put the artifact in a box with cotton padding.

3. Mark the bag "DO NOT WASH."

4. Charcoal on artifacts that is the direct result of burning is not considered a "culturally significant" adherent.

Building Stone

When clearing the rubble from a room in a roomblock, make a separate stack of building stone for each room cleaned out. This will enable the Reductive Task Specialist to examine the stone and thereby aid in determining architectural styles for sections of wall that are no longer standing. If several rooms are being cleared, each stack should be labeled with the room number. If possible a photograph should be taken of the wall rubble in situ before removal, and one taken of the rubble stack after clearing. Make an appointment with the Reductive Task Specialist to examine the material for interpretation and possible collection.

Lithic Activity Areas

When excavating an occupation surface activity areas may be defined on the basis of artifact clusters and features. Some of these will be loci of activities such as house construction, lithic tool manufacture, butchering, bone tool manufacture, plant food processing, ceremonial activities, ceramic manufacture, etc. The following is a list of some lithic activity area types along with general descriptions. If these or similar clusterings of artifacts and features are encountered, they should be recorded on the D.A.P. Activities Recording Form (Figure 11.1, Table 11.1).

1. Wall construction - sandstone spalls, puddled adobe, mauls, anvil stones; usually located near or at the base of walls, at or below the level of the lowest occupation floor (and similar level on outside of walls).

2. Flake manufacturing station - anvil stone(s), flake scatter, hammerstone(s), (possibly) maul(s), cores; in area about .5 to 1.5 m in diameter.

3. Flaked tool manufacturing station - may consist of a waste flake scatter, discarded tools (de facto refuse) used in the manufacturing process, such as hammerstones and bone or antler billets and bifaces and/or unifaces in various stages of production (some broken). These areas usually range from .5 to 2 m in diameter.

4. Axe or metate manufacturing station. May consist of hammerstone(s), maul(s), axes or metates (some broken and/or in various stages of production); abrading grooves in bedrock.

The context of lithic artifacts on an occupation surface, whether they are recorded as features or activity areas, or merely point locations, are vital in reconstructing prehistoric life ways and other archaeological interpretations. Be clear and concise when describing lithic artifacts (for example, when filling out tags, when recording provenience units, and when composing daily notes). All lithic features or activity areas should be mapped and photographed. The Reductive Task Specialist or an assistant will visit each site being excavated approximately once a week to aid the field crews in identifying and interpreting lithic artifacts, features and activity areas.

SECTION 10

RECOVERING OTHER ARTIFACTS

by Steven D. Emslie and Roger Moore

In addition to ceramics and lithics, there are several other artifact classes that require special handling in the field. Generally, these classes can be characterized as "organic artifacts" and include the following code categoreis:

02 - Nonhuman bone. The category includes all bone tools and ornaments as well as scrap bone and bone from animal burials. Bone is first sent to the Faunal Task Specialist for identification, and then, if worked, to the Reductive Task Specialist.

05 - Shell. The category includes all shell tools and ornaments. Shell is first sent to a specialist for identification and then to the Reductive Task Specialist.

06 - Vegetal. The category includes all wood or fiber tools, baskets, mats, cordage, ornaments, vegetal construction materials and firewood, and remains of cultivated or collected plants. These artifacts are first sent to the Botanical Task Specialist for identification and then to the Additive (basketry, cordage, etc.) or Reductive (wood tools and ornaments) Task Specialists.

09 - Other organic materials. The category includes all antler, leather, feather, etc., materials. The artifacts are first sent to a specialist for identification and then to the Additive or Reductive Task Specialist.

Guidelines for field processing these artifact classes are as follows:

1. Include the proper bag label (for the category "spec. inst.",

indicate "worked shell," "worked bone," "vegetal," etc.

2. Clusters of organic artifacts, or organic artifacts clustered with features and/or lithic and ceramic artifacts should be recorded as a feature or activity area.

3. Bone recovered from excavation will be processed as follows: Bone is bagged separately from other artifacts; small, fragile bones or fragments should be secured in vials with a scrap of paper including the Field Specimen number, and placed in the bone bag.

In proveniences where a large amount of bone is being recovered, the fill should be processed through 1/4" or 1/2" screen and bulk soil samples may be collected at the discretion of the site manager.

Whole or partial animal skeletons encountered during excavation should be exposed, photographed and recorded in situ (in other words, treated as human skeletons). A D.A.P. Burial Form (Figure 11.10, Table 11.9) should be filled out for each skeleton or partial skeleton encountered; a partial skeleton is defined as having at least one-half the elements present. Articulated elements not defined as a partial burial should be placed in a vial or small sack with the Field Specimen number and noted as articulated when found.

4. Matting, basketry or cordage may involve very difficult recovery processes. Isolate as much of the artifact as possible using small tools such as dental picks, wooden billets and brushes; it may be necessary to leave an earth matrix surrounding the item. Engage a laboratory preservation expert to examine the specimen in situ to determine whether it needs treatment with a preservative before transport to the laboratory. Record the artifact before removing it from its excavation context. If the artifact cannot be removed without damage, pedestal the item and

remove it and the matrix intact to the labortory.

5. Do not allow fragile organic artifacts to remain exposed to the elements for long periods of time. Attempt to isolate, record and remove such items during a one day period; if this cannot be done, cover the artifact with a tarp when it is not being worked on.

SECTION 11

FIELD PROCEDURES FOR ARCHAEOMAGNETIC SAMPLING

by J. Holly Hathaway

Introduction

This manual has been prepared to implement and augment the field training sessions which all novice archaeomagnetic personnel are required to attend, as well as to outline standard D.A.P. archaeomagnetic sampling techniques. It is intended to reduce the inherent inaccuracies involved in such a program by clearly setting forth the processes of sample collection.

It is not the author's intent to discuss the fundamentals of archaeomagnetic dating in this manual; however, if such understanding is desired, consult Eighmy [4].

Archaeomagnetic Procedures

Step I: Evaluation of the sample area.

Prior to extraction of an archaeological sample, it is important to evaluate the test area to determine the possibility of collecting a sample with characteristics sufficient for dating.

The most important factor in this determination is the nature of the area to be sampled. It is not possible to date burned areas which are not in situ. In situ burns include fire hearths, kilns, burned cists, floors, walls, and roof fall. Unacceptable samples include ceramics, slumped walls, or other features whch have not retained their original firing position.

An excess of organic material, of either prehistoric or recent origin, will preclude accurate dates and such materials should be avoided or removed before sample extraction. If the organic deposit cannot be avoided or removed, the chances of securing a good collection is greatly reduced.

The test area must be large enough to obtain the minimum requirement of specimens (8). An area approximately three inches square is necessary to collect one specimen. In vertical sample areas (i.e., pitstructure walls) specimens may be collected below previously recovered specimens.

Fire hardened areas which are red-orange in color are optimum for archaeomagnetic purposes and are usually easily discerned from the surrounding soils. Areas which exhibit a grey-black color are usually adequate for archaeomagnetic purposes, but are generally difficult to distinguish from previously deposited ash or charcoal (which is not desirable).

Any features with characteristics corresponding to these qualifications are potential archaeomagnetic samples and generally will be collected for dating.

Step 2: Preparation of sample area.

Certain processes are necessary to prepare the feature for sample collection. Because these may entail destruction of surrounding areas, final photographs of the feature should be taken before any preparatory procedures are initiated.

Some features, such as walls or slab-lined hearths, need to be physically altered to obtain a reliable sample. This will require the removal of obstructive materials around or in the area to be sampled.

During mid- and late summer, soils in the project area become particularly hard and difficult to work after excavation. To produce a more pliable soil amenable to sample, it is sometimes necessary to saturate the feature with water. The procedure involves soaking the feature and allowing it to stand overnight with a plastic covering; this will permit moisture to filter throughout the soil matrix of the features.

It is important to determine which part of the feature is most desirable to collect for an archaeomagnetic sample at this stage, and direct all of the preparatory work toward this area(s). Once this determination has been made it is necessary to develop a strategy for specimen placement at the feature. This will allow for a greater preservation of the feature area while conserving the most prefered areas for dating.

Step 3: Completion of Data Forms

Data forms should be filled out just prior to sample extraction. The following guidelines will be employed when completing the form:

1. Site number. Use the standard eight figure Smithsonian site number obtained from the site manager.

2. The site location heading requires two specifications: distance from Cortez, Colorado via State Highway 145, and the latitude and longitude of the site.

3. Feature identification and decription are obtained from the site supervisor. All information regarding provenience should be included as well as a short description of the site. If there is not a field specimen (F.S.) number applicable to the area being sampled, an F.S. number should be assigned (this is attained from the site notebook with the permission

and knowledge of the site manager).

4. The sample quality and firing intensity are recorded by the archaeomagnetic field technician; this will include an accurate description of the following items: firing quality (including clay color, organic and gravel content), grain size, clay content, cracking and disturbance, consolidation, relative quality compared to other samples at the site, areas sampled, location of the feature (built on fill, prepared surface, etc.). If there is any question whether the feature has slumped or moved subsequent to firing, this should be briefly outlined.

5. The archaeological guess date is obtained from the site manager based on architectural and artifactual evidence; a plus or minus factor of 25-50 years should be included.

6. Sample readings are recorded when declinations are measured for each specimen. Comments may include the stability of the specimen and cube, or any other characteristic which would obscure accurate results.

7. In the portion of the form labelled "sketch," first indicate (with a plan drawing) the location of the feature to be sampled within the overall spatial layout of the site. Also make a large-scale plan drawing of the feature itself showing the location of the individual extracted specimens.

In addition to this form, all samples are recorded using the D.A.P. Provenience Description Form. One completed F.S. form remains with the site manager to be incorporated into the site records and a second duplicated form or copy is placed in the archaeomagnetic notebook. A compendium of such forms serves as an inventory for all samples taken at each site.

Step 4: Sample Extraction

After filling out the necessary forms, the field technician can begin the actual preparation and removal of the sample specimens. The technician must insure that needed tools and materials are present and in serviceable condition. Table 11.18 lists the items to be included in the Archaeomagnetic Field Kit; the kit should be checked and maintained by the technician on a regular basis. The specific steps employed in preparing and removing individual specimens are detailed below.

1. Cutting the specimen. Each collected specimen should be no larger than 1 by 1 by 1.5 cm high to allow ample space for plastering and leveling. It is necessry to cut down a large enough area around each specimen for placement of the mold. The total area for each specimen is approximtely 7 by 7 by 2 cm high. Ample space should be left between specimens to allow manuevering of a Brunton compass. The pedestal should be carved so that it roughly corresponds to the earth's plane prior to the placement of the mold; this will produce a base easily manipulated for the final leveling. Once the pedestal is carved, extra care must be taken to avoid bumping or jolting the specimen. Any slight movement will negate the recorded orientations and lead to unreliable dates.

It was found during the initial year of field operations that the greatest efficiency is obtained by carving four specimens at a time, pouring the plaster molds and letting these dry while four more specimens are carved.

2. Preparation and placement of the mold. After the specimens are carved, the molds must be prepared to place over the pedestals.

The molds consist of aluminum cubes which are 4 by 4 by 2.6 cm; at each corner are two screws. The removal of two adjacent corners dis-

Table 11.18 Contents of the D.A.P. archaeomagnetic sampling field kit

Instruments

- Cross-test level
- Brunton compass
- Four-eight aluminum cubes

Utensils

- Screwdriver
- Spatula
- Trowel
- Paint brush
- Toothbrush
- Root cutters
- Sponge
- Extra screws
- Rubber bowls (2)
- Pocket Knife
- Hacksaw blades
- Dental picks
- Ceramic implements
- Permanent ink markers
- Pencil
- Clipboard

Materials

- Modeling clay
- Plaster - Hydra-cal white
- Three-in-one Oil
- Data forms
- Archaeomagnetic Notebook
- Plastic Sheeting
- Water - (1) 5-gal container, (1) 1-gal container

mantles the cube, producing two L-shaped pieces. Each cube is numbered on one end (this is the cube number) and each corner is numbered consecutively around the cube. The mold is constructed of a non-magnetic material so as not to distort Brunton compass readings.

The field preparation of these cubes involves lightly oiling the interior and placing a 1/4" thick "snake" of modeling clay around the bottom edge. The oil allows the plaster to release from the mold when dry, and the clay ring provides a cushion to assist in leveling the cube.

The aluminum cube should be centered over the pedestal taking care not to bump or dislodge the in situ specimen. The "top" of the cube is considered to be the end which is numbered (the clay snake will be placed on the oposite end). Corner Number 1 should always be placed at the southeast corner of the pedestal, which will be marked to indicate the in situ orienation of the specimen, and the point at which the declination was recorded.

3. Cube leveling - First insure that no dust or dry plaster remains on the leveling surface. Basically, the cube may be leveled from any corner; however, because of slight irregularities resulting from the manufacturing process, some corners may not fit exactly, causing inaccuracies during the leveling process. To compensate for uneven corners the cubes are examined and the most regular corner selected as the sole leveling criterion. Consult the archaeomagnetic field notebook for the cube number and corresponding corner number.

4. Prepare and pour plaster - The consistency of the plaster should be similar to heavy cream. The plaster should be poured to completely encompass the pedestal and slightly top the cube.

5. Readings from the Brunton compass - While the plaster is drying, compass readings are taken. Position the Brunton compass so that the side closest to the leveling bubble is flush against the east side of the cube. Then level the compass and record the declination. Readings should be accurate to 1/2°, as an error of 1° would result in a shift in the specimen date of 10 years. These readings are then recorded on the data sheet beside the specimen number.

6. Cleaning and labeling - Once the declination is recorded and the plaster is partially dry, the cube can be removed from the feature. The top of the cube should be scraped smooth and the east side marked with an arrow pointing north. The site number is incised at the top (N), with the sample number in the middle of the cube, and the specimen number on the lower left-hand corner. The bottom of the cube is cleaned and recessed 1/8". This end of the cube is now poured with plaster and scraped smooth when partially dry.

7. Dismantle molds - The cubes can be dismantled when the plaster is completely dry (wait about 20-30 minutes). Adjacent corners of the cube are unscrewed. It may be necessary to tap the cube to loosen the plaster from it.

8. Clean molds and assemble - Clean molds and screws with water and a toothbrush, and assemble molds for reuse.

Step 5: Storage

To store the completed sample, place all individual specimens (12) in a rectangular shape side by side within a small sturdy bag. Fold the bag around the sample, then place in another, larger bag. The outside bag should be marked with site number and provenience, sample number, number

of specimens collected, and the date collected. The samples eventually will be sent to the Laboratory of Public Archaeology, Colorado State University, Fort Collins, Colorado, for analysis.

SECTION 12

GLOSSARY OF RELEVANT TERMS

by Nancy J. Hewitt

Activity area - a physical locus where a single, main or identifiable activity was performed. Activity areas can be defined minimally by a single feature (hearth, metate bin) or artifact cluster (hammerstone and debitage). One or more activity areas can be combined to form a use area; isolated activity areas may represent limited activity sites.

Adobe - unburned clay used for construction purposes; unburnt sun-dried brick.

Artifact - any object manufactured, modified or transported by man to a new context.

Artifact scatter - physical extent of prehistoric cultural debris, usually used to define the limits of a site.

Assemblage - all the different artifacts found together on one layer, stratum or occupational surface regardless of the materials from which they are made.

Briquette - block of compressed charcoal.

Cist - pit used for storage, often found beneath structural floors.

Coping - covering on top of a wall; finishing.

Datum - arbitrary starting point for a grid system (for our purposes the datum will be established at the northwest corner of the site for the horizontal grid; datums for vertical measurements will be established at the highest point of the site).

Daub - clay smeared on to some rigid structure, usually of interwoven twigs (wattle) to exclude draughts and give a smooth finish. Rarely preserved unless accidentally baked.

Duff - the partly decayed vegetable matter on a forest floor. Often used to refer to the plow zone or the first layer of loose, often windblown, dirt.

Feature - any nonportable cultural phenomenon excepting pitstructures and rooms. This includes fire pits, cists, sipapus, ramps, tunnels, doorways, posts, pilasters, niches, benches, storage bins, deflectors, pot rests, etc.

Field house - a seasonal site which functioned as a base away from the habitation where tasks associated with horticulture or agriculture were performed. Normally they consist of small houses (usually one living roo and several storage rooms) of jacal construction (or masonry and jacal) and outlying features; no pitstructures are present.

Fire-hardened - hardened or solidified due to fire.

Fireplace - fire pit that is stone lined.

Firepit - any pit where fires were made, including hearths and fireplaces.

Fire-reddened - pertaining to reddening of surface, wall, structure, clay adobe, etc., due to fire.

Hamlet - small habitation containing 1 to 3 household clusters; contains permanent domestic architecture.

Hardpan - cemented or compacted layer in soils.

Hearth - fire pit that is not stone lined.

Household cluster - the space and features normally used by a household; usually consists of the house, surrounding use areas and outlying activit areas, such as storage pits, burials, middens and other features that can be reliably associated with the same household.

In situ - in its original (prehistoric) place.

Jacal - wattle and daub construction.

Laminations - thin layers of sediments.

Lense - a term used in stratigraphic interpretation to mean a thin line o deposit usually of minor significance relative to the major layers.

Level - an arbitrary or unnatural stratum.

Limits of excavation - physical extent of excavated units at a given site.

Loess - windblown glacial sand.

Midden - a deposit of occupational debris, rubbish or other by-products o human activity.

Native soil - sterile indigenous soil.

Niche - a recess in a wall.

Pedestal - to excavate a feature or artifact in such a way that it appears to be resting on a pedestal.

Plaster - a pasty composition used to coat walls, ceilings, floors, etc. Usually of a clay mixture.

Point location - an artifact or other phenomenon that is located and recorded at its in situ point in space. Most commonly, artifacts found on occupational surfaces.

Profile - noun: a drawing or sketch of a stratified deposit in section.
verb: to section a feature, structure or fill, leaving a profile.

Provenience - place of origin, place where found or produced.

Puddled adobe - adobe clay made into a puddle by adding water, then trampled and spread out over a surface, as in a puddled adobe floor.

Sediment - mineral or organic particles deposited through some geologic process (in an archaeological site, human activity is a geologic process).

Soil - the product of a complex set of bio-physical weathering processes characterized by a vertical sequence of horizons which have formed within a sediment or sequence of sediments.

Sterile soil - soil devoid of cultural debris.

Stratified random sample - sampling technique which divides a site into several disjointed parts (named strata) and draws a sample from each stratum independently from the sampling in the other strata.

Stripping - removal of a soil layer, usually refers to removal of the plow zone or duff layer.

Superposition - the deposition of one stratum on another.

Surface - usually an occupation surface such as a floor, plaza, or work area. Surface of the ground from which a surface collection of artifacts is taken should be considered present ground surface.

Surface of origin - surface or level from which a feature or structure originates.

Unit hamlet - habitation site consisting of one household cluster.

Use area - a more or less bounded, regularly used working, storage or living space. Often composed of several features and/or activity areas.

APPENDIX 1

STATIGRAPHIC DESCRIPTION MANUAL

by

Frank C. Leonhardy

Introduction

This manual presents standardized procedures and terminology to be used in the description of physical stratigraphy of archaeological sites within the Dolores Archaeological Program area. The object is to aid in accuracy and in comparability of data.

The descriptive system used is that of the U.S.D.A. Soil Conservation Service, with some minor changes made in format and terminology. The advantages of this system are the following: (1) it is based on field techniques and data and is not dependent on laboratory analysis; (2) it incorporates more information than other systems, and is readily adaptable to archaeological situations; (3) it is empirical, semi-quantitative, and replicable.

The Attributes of Dirt

Dirt, whether considered as sediment or soil, has a number of physical and chemical characteristics. Some are primary, or inherited, being a function of the characteristics of the original rock source or the depositional process. Others are secondary, or acquired, a function of change which took place after deposition. A limited number of these chacteristics are always described; others are described if necessary or convenient. Each unit is described in terms of its attributes of color, texture, structure, consistence, and inclusions. The transition between units is described in terms of the boundary between them.

The normal range of variation within each attribute type is divided into classes designated by an appropriate term. Each term, with some few exceptions, has a numeric designation which is to be used in the appropriate place in the site stratigraphy form. The attributes of

consistence have not been coded; consistence is used to help determine texture, so the information is largely redundant. Two texture classes, clay and silty clay, are so seldom encountered in this area they were not coded.

Many physical properties of dirt vary with moisture content. Moist colors are darker (lower value) than dry colors; structures are far more easily discernible in a dry soil than in a moist soil, and consistence properties vary dramatically bewteen the wet and dry states. Sometimes distinctions which are readily apparent in one moisture state disappear with a change in moisture content. For an accurate description the dirt being described should be observed at different moisture states.

Color

The color code is composed of three digits which are described below. For color description use the Munsell notation to the whole chip. Colors are normally recorded in both the dry and moist states. The color recorded on the form is assumed to be the dry color. If the colors are mixed or mottled record the dominant color and note variation in the remarks column.

The Munsell Soil Color Book contains instructions for making color determinations. Treat the books with care; they cost approximately $45 each.

Hue (Digit 1)

Use the Munsell hue notation coded as follows:

Ø - Neutral
1 - 10R
2 - 2.5YR
3 - 5YR
4 - 7.5YR
5 - 10YR
6 - 2.5Y
7 - 5Y

Value (Digit 2)

Use the Munsell value notation in the vertical column of the color chart, except 2.5. Record 2.5 as 2. It will be understood that 2 will read 2.5 for 10R, 2.5YR, 5YR, and 5Y hues.

Chroma (Digit 3)

Use the Munsell chroma notation in the horizontal column of the color chart.

Examples of Color Codes

Dark brown (7.5YR 3/4)	recorded	4 3 4
Black (N 2/0)	recorded	Ø 2 Ø
Reddish black (10R 2.5/1)	recorded	1 2 1

Texture

Texture refers to the proportions of clay, silt and sand in a sample. Texture class names are applied to a range of relative percentages between the three separates. Precise texture determinations require laboratory analysis but the texture class can be closely determined by judgment. Consistence determinations allow one to estimate the relative proportions of sand, silt, and clay in a sample after a bit of practice and instruction. Texture classes are coded as follows:

Ø - Sand
1 - Loamy sand
2 - Sandy loam
3 - Loam
4 - Silt loam
5 - Silt
6 - Sandy clay loam
7 - Clay loam
8 - Silty clay loam
9 - Sandy clay

Particles larger than 2 mm are coded in the inclusions section. Comparative size charts for the different separates and the U.S.D.A. texture triangle are attached to this appendix.

Structure

This code consists of three digits, which are described below. Structure (or lack of structure) can be either sedimentary or pedogenic. Pedogenic structure is more commonly encountered in archaeological stratigraphy and so takes precedence in recording. If encountered, sedimentary features should be recorded in narrative descriptions or

entered in the remarks column. Structure is described according to grade, size and form.

Grade (digit 1)

Ø - Structureless: no observable aggregation or no orderly arrangement of natural lines of weakness

1 - Weak: poorly formed, indistinct peds; not observable in place; may be broken out with difficulty

2 - Moderate: well-formed, distinct peds; moderately durable and evident but still may not be distinct in undisturbed soil

3 - Strong: durable peds quite evident in undisturbed soil; adhere weakly to one another; withstand displacement; become separated when soil is disturbed

Size (digit 2)

Ø - No size class (structureless)
1 - Very fine or very thin
2 - Fine or thin
3 - Medium
4 - Coarse or thick
5 - Very coarse or thick

Definitions of size classes and comparative scales are attached to this appendix.

Form or Type (Digit 3)

Descriptions of the different structural forms are included as attachments to this appendix. Lack of structure is also significant and is recorded. The form classes are coded as follows:

Ø - Massive*	2 - Platy	4 - Subangular blocky
1 - Single grain*	3 - Angular	5 - Prismatic
		6 - Granular

*Note: both massive and single grain are structureless. Although redundant, the codes for structureless grade and no size class are entered onto the strat form for purposes of computer data comparability.

Consistence

Consistence is measured in the dry, moist, and wet states. Either dry and wet or moist and wet determinations can be made. All three need not be made. The characteristics of texture are reflected by consistence. As a rule of thumb, the greater the degree of consistence property the higher the percentage of clay and the less the degree of consistence property the higher the percentage of sand. High silt contents create disparate properties. Dirt with high silt content might be very hard when dry but only slightly sticky when wet whereas dirt with high clay content would be very hard when dry and very sticky when wet.

Consistence characteristics are not coded on the form; they should be recorded in narrative descriptions. Temporarily, at least, enter the abbreviation for consistence in the remarks column of the form as a check on texture class determination.

Dry Consistence

dlo - loose, noncoherent

dso - soft; weakly coherent, easily crushed to powder or single grain

dsh - slightly hard; easily broken between thumb and forefinger

dh - hard; can be broken in the hands without difficulty but difficult to break between thumb and forefinger

dvh - very hard; can be broken in hands with difficulty

deh - extremely hard; cannot be broken in hands

Moist Consistence

mlo - loose; noncoherent

mvfr - very friable; crushes under gentle pressure

mfr - friable; crushes easily under gentle to moderate pressure between thumb and forefinger

mfi - firm; crushes under moderate pressure between thumb and forefinger but resistance is distinctly noticeable

mvfi - very firm; crushes under strong pressure, barely crushable between thumb and forefinger

mefi - extremely firm; crushes under very stong pressure; cannot be crushed between thumb and forefinger

Wet Consistence

Stickiness is measured by pressing wet (not saturated) soil between the thumb and forefinger.

wso - nonsticky; practically no adherence when pressure released

wss - slightly sticky; after pressure released soil adheres to both thumb and finger but comes off one rather cleanly; does not appreciably stretch

ws - sticky; after pressure soil adheres to both thumb and finger and tends to stretch somewhat before pulling apart from either digit

wvs - very sticky; after pressure, soil adheres strongly to both digits and is markedly stretched when they are separated

Plasticity is measured by rolling wet (not saturated) soil into a wire about 2 mm thick and then bending it. Another technique is to roll the wet soil between the thumb and forefinger to form a rod or thin sheet.

wpo - nonplastic; no wire is formable; soil mass breaks

wsp - slightly plastic; wire forms but soil mass easily deforms

wp - plastic; wire forms and bends without breaking; soil mass requires moderate pressure before deforming

wvp - very plastic; wire forms, does not break; much pressure required to deform soil mass

Inclusions

The inclusions category (four digits) is an open listing. The first two digits are for natural inclusions, those which are in the matrix as a result of depositonal process or some post-occupational phenomenon. The second two digits are for cultural inclusions, those things which are in the matrix as a result of human occupation.

If no inclusions are recorded enter zeros. Relative amounts are expressed as few (less than 10 percent of surface area), common (10 to 50 percent of surface area) or abundant (more than 50 percent of surface area area).

Cultural Inclusions

01 - Few charcoal
02 - Common charcoal
03 - Abundant charcoal
04 - Few trash, midden
05 - Common trash, midden
06 - Abundant trash, midden

Natural Inclusions

01 - Few fine gravel
02 - Common fine gravel
03 - Abundant fine gravel
04 - Few medium gravel
05 - Common medium gravel
06 - Abundant medium gravel
07 - Few coarse gravel
08 - Common coarse gravel
09 - Abundant coarse gravel
10 - Few cobbles
11 - Common cobbles
12 - Abundant cobbles
13 - Few stones
14 - Common stones
15 - Abundant stones
16 - Few mixed gravel
17 - Common mixed gravel
18 - Abundant mixed gravel
19 - Few roots
20 - Common roots
21 - Abundant roots
22 - Few rodent holes (krotovina)
23 - Common rodent holes (krotovina)
24 - Abundant rodent holes (krotovina)

Boundaries

A boundary is the zone of transition between two units. Boundaries usually coincide with the lines archaeologists draw on the walls of excavations. Boundaries are decribed in terms of distinctness, the distance in vertical change, and topography, the horizontal appearance.

Distinctness (Digit 1)

1 - very abrupt	less than 1 mm
2 - abrupt	1 mm to 1 cm
3 - sharp	1 cm to 2.5 cm
4 - clear	2.5 cm to 7.5 cm
5 - gradual	7.5 cm to 12.5
6 - diffuse	greater than 12.5 cm

Topography (Digit 2)

1 - smooth	nearly a plane
2 - wavy	pockets with width greater than depth
3 - irregular	pockets with depth greater than width
4 - broken	discontinuous

ATTACHMENTS

1. Size classes for soil particles. Do not record numbers.

	SILT		SAND					GRAVEL			COB-	
CLAY	fi.	co.	v.fi.	fi.	med.	co.	v.co.	fi.	med.	co.	BLES	STONES
.002			.05				2			76		250mm

2. Size scales for structures.

Granular and crumb structures (diameter):
- Very fine - <1 mm
- Fine - 1-2 mm
- Medium - 2-5 mm
- Coarse - 5-10 mm
- Very coarse - >10 mm

Prismatic and columnar structures (diameter):
- Very fine - <10 mm
- Fine - 10-20 mm
- Medium - 20-50 mm
- Coarse - 50-100 mm

Platy structures:
- Very thin - <1 mm
- Thin - 1-2 mm thick
- Medium - 2-5 mm thick
- Thick - 5-10 mm thick
- Very thick - >10 mm thick

Angular and subangular blocky structures (diameter):
- Very fine - <5 mm
- Fine - 5-10 mm
- Medium - 10-20 mm
- Coarse - 20-50 mm

3. Size classes of soil structure according to shape* classes.

Size Classes	Shape of Structure: Platy	Prismatic and Columnar	Blocky	Granular
Very fine	<1 mm	<10 mm	<5 mm	<1mm
Fine	1-2 mm	10-20 mm	5-10 mm	1-2 mm
Medium	2-5 mm	20-50 mm	10-20 mm	2-5 mm
Coarse	5-10 mm	50-100 mm	20-50 mm	5-10 mm
Very coarse**	>10mm	>100mm	>50mm	>10mm

* Limits apply to the following dimensions: Platy - the thickness of plates, usually in the vertical dimension; prismatic and columnar - the horizontal dimensions; blocky and granular - the largest of nearly equal dimensions.

** If peds are more than twice the minimum size of the very coarse class, the range of sizes should be specified.

4. Notes on soil structures.

An individual natural unit is called a ped. Peds are distinguished from: (1) clods caused by surface layer disturbance, such as plowing, that molds the soil into transient bodies that slake with repeated wetting and drying; (2) soil fragments formed when the soil cracks or is broken through the soil matrix and which are thought to be bounded by ephemeral planes that do not persist through periods of wetting and do not reappear in the same place on drying; and (3) concretions or nodules caused by local concentrations of substances that bind grains of soil together into discrete units within a soil matrix. Most peds described in soils are of macroscopic size, though those of microscopic size are important elements of some soils.

The persistent surfaces of peds can be distinguished from the fracture surfaces of soil fragments by smoothness, coatings, relationships of primary grains to the surface, and the absence of shapes and grooving characteristics of slickenslides. Identification of peds requires careful examination of the surfaces of units when they are removed, including examination with a hand lens.

Some soils have simple structure, each structural unit being an entity without component smaller peds that persist through successive wetting and drying cycles. Others have compound structure, in which large peds are composed of smaller peds separated by persistent planes of weakness. Special conventions are used to describe compound structures.

Field descriptions of soil structure record: (1) the shape or geometric configuration of the peds; (2) the size; and (3) the durability of the peds. Field terminology for soil structure consists of separate sets of terms designating each of the three attributes, shape, size, and strength, which by combination form the names for structure. Soils that lack structure are defined first to avoid confusion with soils that do exhibit the attributes of structure.

Structureless

Single grained - the structureless soil separates when disturbed into individual primary particles with such coatings as adhere directly to them. The primary particles act as independent units, except for coherence due to surface-tension forces when very moist or wet (but not saturated). Sandy soils are commonly single grained.

Massive - the structureless soil separates when disturbed into bodies or clusters of primary particles. The bodies may be strongly coherent, as for structureless clays; or they may be crushed easily into smaller clusters.

The terms "massive" and "single grained" are used alone, never as modifiers of the word "structure." As they describe a structureless condition, by definition, to use terms such as "structureless single grained" is redundant.

Shape Classes - the following terms describe the shapes and related arrangement of peds:

Platy - the peds are flat or plate-like. They have primary particles arranged around a plane, generally oriented horizontally and usually overlapping. A special form, lenticular platy structure, is recognized for plates that are thickest in the middle and thin toward the edges.

Prismatic - in prismatic structure the primary particles are arranged around a vertical line, and the individual prisms are bounded by relatively flat vertical faces. Peds are distinctly longer in the vertical dimension than in the horizontal dimension and the faces are typically casts or molds of adjoining peds. Vertices are angular or subrounded; tops of the prisms are essentially flat.

Columnar - columnar peds are prismlike; the particles rearranged around a vertical line. Columns, like prisms, are bounded by relatively flat, well-defined vertical surfaces. The tops of columns, in contrast to prismatic peds, are distinctly rounded.

Blocky - blocky peds are block-like or polyhedral, with particles arranged around a point. The peds are bounded by flat or slightly rounded surfaces, which are casts of the molds formed by the faces of surrounding peds. Blocky peds are nearly equidimensional but grade to prisms which are longer in the vertical dimension and to plates which are longer in the horizontal dimensions. The structure is described as angular blocky if the faces intersect at relatively sharp angles or as subangular blocky if the faces are a mixture of rounded and plane faces with vertices of their intersections mostly rounded.

Granular - granular peds approximate spheroids or polyhedra that have particles arranged around a point, as they are in blocks but granules are bounded by curved or very irregular faces that are not accommodated to those of adjoining peds. A face of a granule is not the mirror image of the adjacent face of another granule.

USDA TEXTURE TRIANGLE

SHOWING COMPOSITION OF TEXTURE CLASSES

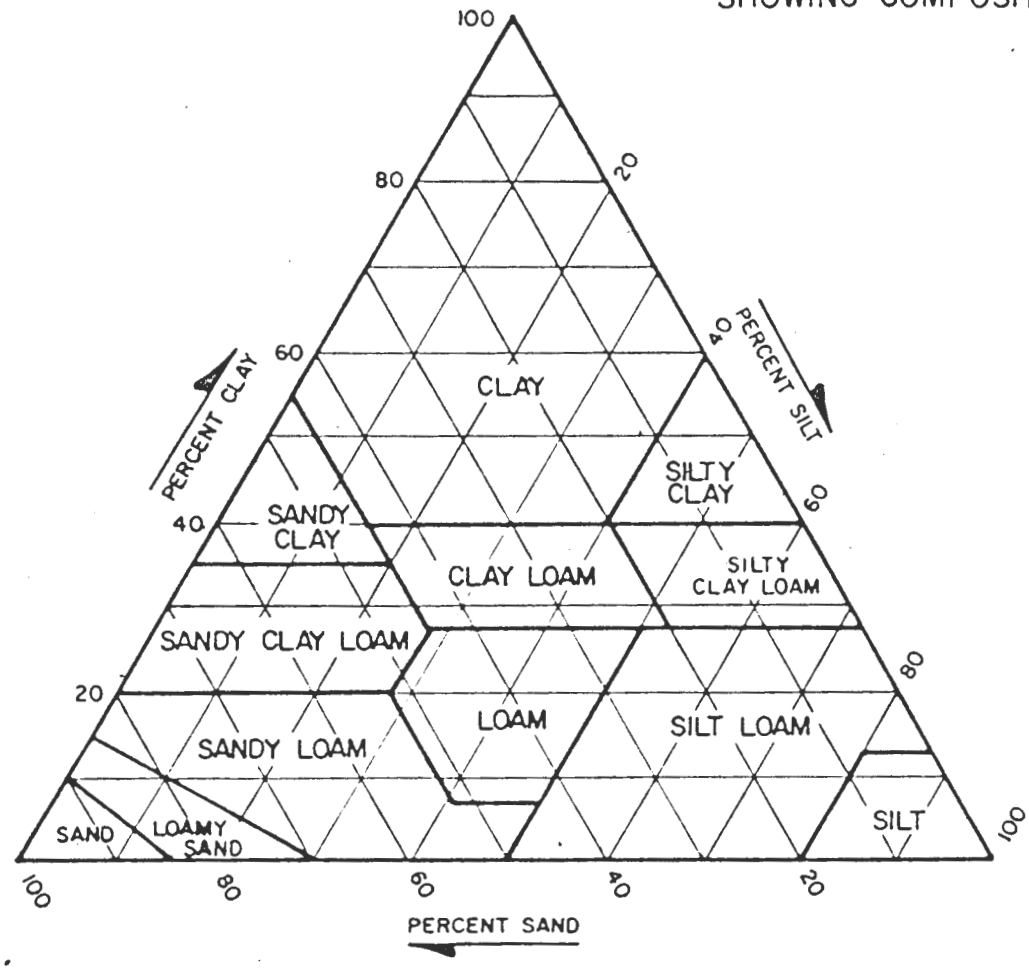


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Table 11.2 Coding Guidelines for D.A.P. Architecture Form - Integration and Inference (page 1 of 7)

(In order to complete this form you will also need the coding format for the Field Provenience Description Form, the Temporal Assignment Coding Format, and Activity Loci Coding Format, and the Social Correlates Coding Format.)

Recorder: Four-letter initials

Date: Month (two digits) Day (two digits) Year (two digits)

State, County, Site: Two digits, two letters, five digits

Structure Type: Coding from the Study Unit Type values on F.S. format - two digits

Structure Number: From the consecutive site series of Study Unit Numbers - two digits

EXTERNAL ASSOCIATIONS:

H = Household Cluster	Type: coding from F.S. Format for Locality Two digits	Number: from consecutive Locality Series Six digits
U = Use Area	Type: coding from Use Area format Two digits	Number: from consecutive site series Six digits

Site Ref: One digit
Taken from adjacent, contemporaneous sites coded on the accompanying Household Cluster Form - if there is no Household Cluster Form which includes this architectural unit, assign site reference numbers in the longhand space on this form
For use areas and study units which are within the same site as this architectural unit, Site Ref = 0

Dates: Evidentiary: Four digits
Years BP (present = AD 1950)

Inferential: Four digits
Years BP (present = AD 1950)

techniques, the results of temporal analysis of program sites can be used to verify the existing archaeomagnetic calibration curve.

Archaeomagnetic dating is a technique which enables archaeologists to independently assess temporal estimates of burned prehistoric contexts. The standard error associated with archaeomagnetic dates is usually about ± 40 years in the southwestern U.S. (Eighmy et al. [1:514]), with error estimates ranging from ± 20 to ± 60 years depending on the associated reliability of the sample. The reliability of the data is dependent on a number of factors, including the number of collected specimens per sample, technical accuracy when collecting specimens, and the degree of uncertainty in the point of particle orientation or the secular variation curve. (This last is the plotted path which traces the fluctuation of the geomagnetic pole over the northern polar area. There are sections of this path which double back on or cross over previous geomagnetic plottings, making it difficult to make an exact determination of dates within these ambiguous areas.)

Training and Initiation

To begin the D.A.P. archaeomagnetic sampling program, field-training sessions directed by Dr. J.L. Eighmy of Colorado State University, Fort Collins, were held on 2, 3, and 4 September 1978. These sessions were attended by four D.A.P. staff members; each person received from 8 to 20 hours of intensive training. A fifth staff member was later added to the archaeomagnetic program and was given training in methods by the Special Studies Crew leader after the initiation of the program.

These training sessions consisted of procedural rehearsals in collecting samples from various prehistoric in situ features,

participatory discussions on topics relating to the removal of samples, and a presentation of the basic theory behind archaeomagnetic dating (this last topic included how and why fire-hardened features can be dated and the basic procedures involved in laboratory analysis). The archaeomagnetic-sampling-program personnel were also required to become familiar with a procedural text, "Archaeomagnetic Sampling--A Procedural Primer" (Rodgers [2]). The methods presented in this text were adopted for the extraction of D.A.P. samples.

On 25 September 1978, the D.A.P. Special Studies Crew was organized, with archaeomagnetic sampling as one of their primary tasks. Archaeomagnetic samples were collected at a total of six prehistoric sites in the program area, all of which had been excavated by D.A.P. field crews during the summer and fall. Archaeomagnetic sampling field operations were conducted on 29 days between 2 September and 16 November, by crews consisting of one to two technicians. A total of 37 samples was collected during this time span. All archaeomagnetic samples were evaluated, extracted, processed, and transported (with adequate supporting information) to the Colorado State University Laboratory. Crew members were K. Bauman, J. Keidon, and L. Maness.

METHODOLOGY

Archaeomagnetic dating is classified as a chronometric technique and is used to date the most recent period of firing in hearths, in structural remains, etc. According to Michels [3:130]:

> Archaeomagnetic dating is based on the known fact that the direction and intensity of the earth's magnetic field vary over the years. Clay and clay soils contain magnetic minerals, and when the clay is heated to a certain temperature, these minerals will assume the direction and a proportional intensity of the magnetic field which surrounds them. They will retain this direction and intensity after they are cooled. By measuring these quantities, the age of the sample can be determined if the changes in the earth's magnetic field at that location are known.

Clay or clay soils in archaeological context acquire a weak permanent magnetism when heated to a dull-red heat and allowed to cool (Michels [3]). This heating is commonly the result of domestic cooking or firing in a hearth or oven or, less commonly, of a conflagration in a room or pitstructure. As the temperature in the clay is raised, the magnetic particles with ferromagnetic behavior (such as magnetite and hematite) found naturally in some soils are aligned by the earth's magnetic field; on cooling, the particles remain fixed in that orientation. The saturation magnetization is dependent on the Curie temperature of the ferromagnetic minerals present, the temperature attained during firing, and the homogeniety of heating throughout the matrix. The remanent magnetization acquired can be altered in several ways. Viscious remanent magnetization (VRM) is the tendency of 'soft' magnetic particles to follow weak ambient fields and is related to time. Chemical remanent magnetization (CRM) occurs as small ferromagnetic minerals grow to an appropriate size or as one magnetic mineral is altered to another (i.e., oxidation of magnetite to hematite). Isothermal remanent magnetization (IRM) occurs in

the presence of a strong magnetic field (such as lightening) and can induce a magnetization (parallel to the field lines of external field) on the ferromagnetic minerals. These three sources can often be detected and the affects removed by various laboratory treatments. Finally, physical displacement of the magnetized matrix will irreparably alter the remanent direction of the prehistoric orientation.

It is possible to obtain a chronometric date for an archaeomagnetic sample only if the secular variation curve has been established for the region in question. The position of the geomagnetic north pole is known to vary temporally according to fluctuations in the main field of the earth and to regional disturbances. If the path of the pole as it oscillates through time has been mapped, usually by cross-dating with another established dating technique such as dendrochronology, then it is possible to apply archaeomagnetic dating in that area.

DuBois has pioneered the effort to establish a secular variation curve for the American Southwest (Watanabe and DuBois [4], Weaver [5], DuBois [6]). For this calibration, he has collected archaeomagnetic samples from many prehistoric sites and analyzed them using cross-dating from C-14 and dendrochronological analyses of beams and other structural wood recovered from the same sites. Researchers Eighmy, Steinberg, and Butler [1] and Wolfman [7] have recently reported arhcaeomagnetic results from New Mexico, Arizona, and Arkansas verifying the latter portion of the Southwest curve (A.D. 1000-1500).

A different technique of archaeomagnetic dating is palaeointensity (Michels [3:142]). This method currently is in an experimental stage, although it may have future bearing on dating in southwestern archaeology (J. Eighmy, personal communication). Palaeointensity dating is

rarchmagtially valuable in that it can be applied to disturbed ceramic items, such as pottery vessels and figurines, in prehistoric contexts. This is possible because unlike directional archaeomagnetic dating, which requires determination of in situ particle orientation, archaeomagnetic intensity dating requires knowledge only of the intensity of the magnetic field at the time of firing (Michels [3]). Palaeointensity analysis has different capabilities and limitations and different sources of error; research and development of this technique has lagged significantly behind directional archaeomagnetism, and it is not yet usable as a dating technique in the southwest.