

# Aztec East Ruin Landscape Project

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## **MANAGEMENT SUMMARY**

The following report is submitted to the Colorado Plateau Cooperative Ecosystems Management Units (CPCESU) and Aztec Ruins National Monument (AZRU) to satisfy the requirements of a cooperative agreement among the CPCESU, AZRU, National Park Service (NPS), and the Center for Desert Archaeology (CDA). This document reports the results of the Aztec East Ruin Landscape Project (AERLP), conducted between October 15 and November 7, 2009.

The AERLP produced an updated map of archeological features and modern infrastructure in and around the East Ruin complex at AZRU. In October 2009, NPS archeologists surveyed and documented the East Ruins, Earl Morris Ruin, and surrounding landscape, flagging a wide array of cultural resources and modern features. Subsequent mapping was conducted by Mike Brack, GIS specialist with Desert Archaeology, Inc (DCI) and CDA, who mapped the area using state of the art GPS equipment. This partnership was funded through a CPCESU grant. The project was designed to produce a highly accurate GIS base map for archeological research and related studies, baseline documentation of the cultural landscape, development of interpretive media, and park management. Paul Reed served as principal investigator for the CDA, while Gary Brown served as lead archeologist for NPS. This report outlines the work undertaken and provides descriptions of all features identified and mapped during the survey. Appendix A contains artifact data from the studied structures and features.

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## INTRODUCTION AND METHODS

Through a cooperative agreement (Task Agreement No. J738009M002) among the Colorado Plateau Cooperative Ecosystems Management Units (CPCESU), Aztec Ruins National Monument (AZRU) National Park Service (NPS), and the Center for Desert Archaeology (CDA), CDA conducted archaeological mapping and data collection in the East Ruin Complex at AZRU. Between November 2 and 7, 2009, Michael Brack, mapping director for Desert Archaeology, Inc., conducted the fieldwork at AZRU. Paul F. Reed, preservation archaeologist, served as principal investigator and supervised all fieldwork and report preparation. Gary M. Brown, chief archeologist, represented AZRU as NPS key official for this project, and supervised all fieldwork and report preparation by AZRU staff. Mike Brack, GIS specialist and archaeologist with Desert Archaeology, Inc (DCI) conducted mapping and cartographic data collection.

Prior to and concurrent with mapping fieldwork, AZRU staff conducted field investigations at several feature locales in the East Ruin Complex. The crew of NPS archeologists conducted a detailed pedestrian survey of the East Ruin complex to identify prehistoric, historic, and modern features prior to mapping. The survey crew included Gary Brown, Jeff Wharton, Lori Reed, and Joel Gamache along with some assistance from park ranger Landis Ehler.

### Mapping Methods

Mapping fieldwork was completed by Mike Brack between 2 November and 7 November 2009. Standardized instrument surveying methods and precision GPS were used for all mapping at Aztec. DRI employed sub-centimeter, L1/L2 kinematic GPS equipment utilizing real-time, local differential correction for precision ground measurements. Data collection included nearly 4,000 ground measurements documenting over 350 archaeological, natural, or modern surface features in the eastern half of AZRU. In addition to the archaeological mapping of ruins and features, DRI's work supported the AZRU inventory survey by recording 23 point-provenienced diagnostic artifacts and 42 artifact analysis units. Planimetric mapping was complemented with topographic data collection used to develop an accurate surface model of the East Ruin great kiva and 14 topographic profiles of ruins and other mound features.

DRI worked closely with AZRU staff during mapping fieldwork. Prior to mapping, AZRU staff marked features with flagging to denote their spatial extent and attribute data such as feature identifier and type. Subsequently, Brack relocated the individual features and made the appropriate ground measurements for documentation. During fieldwork, AZRU was provided draft maps and data

tables to ensure the accuracy and completeness of the mapping and associated attribute data. Modifications were made as needed, and following the completion of fieldwork, refined draft maps were further ground-truthed by AZRU staff. Final deliverables to AZRU included various graphic illustrations of the East Ruin landscape and a GIS data package of the cartography.

DRI employed rigorous, redundant surveying techniques to establish geodetic control at AZRU. An existing ½-inch rebar datum located along the western margin of the West Roomblock of the East Ruin was used as the primary control point. Coordinates for AZRU are based on two First Order Class II NGS (National Geodetic Survey) control points. NGS PID GN0388 and GN0389, located 5.8 km and 7.6 km northeast of Aztec, were observed over 90 epochs using kinematic methods, and GPS data were adjusted to the NGS NAD 83(NSRS 2007) reference frame using a Helmert's trans-formation. Residuals from the trans-formation were less than 0.005 m for the horizontal and vertical components. NGS-transformed coordinates were cross-checked against NGS OPUS (Online Positioning User Service) coordinate solution computed from multiple, long-duration static GPS observations. Average coordinates were derived from five independent OPUS solutions totaling 21 hours of static data collection and over 39,000 individual GPS observations. The OPUS derived coordinates have an overall RMS (root mean square) error of 0.01 m. The error between the NGS-transformed coordinates and the average OPUS solution are within the tolerance of the equipment and methods employed:  $\Delta X=0.0036$  m,  $\Delta Y=-0.0133$  m, and  $\Delta Z=0.008$  m. Additional AZRU monuments were observed using kinematic methods and coordinates for control points are provided in Table 1.

Coordinates were previously provided to AZRU for DAI Pt 1426 (NMLS 9625 reference pin) and DAI Pt 1428 (NCGS 1917). Horizontal coordinates for DAI Pt 1426 are comparable:  $\Delta X=0.0011$  m and  $\Delta Y=-0.007$  m. However, reported orthometric heights suggest a notable error with  $\Delta Z=-.634$  m. Earlier coordinates for this point were derived from a Rapid Static OPUS solution with less than 15 minutes of observation. The OPUS solution has an abnormally high normalized RMS at .557 m, and the occupation location suffers from notably high multipath conditions. Based on the current survey, the previously reported orthometric height is rejected. A similar but less substantial error is suggested at DAI Pt 1428. Again, horizontal coordinates are comparable:  $\Delta X=-.002$  m and  $\Delta Y=0.013$  m. Orthometric heights differ with a  $\Delta Z=0.043$  m. While the error is not particular large, it is outside of the tolerance of types of GPS equipment that were used to make the measurements and requires some explanation. The earlier coordinates are an OPUS solution computed from about 2.5 hours of static observation, and the occupation location has notably high multipath conditions. The previous OPUS solution reflects a large orthometric height peak-to-peak error at 0.128 m. In this case, it is also likely that the previous positioning reflects error introduced by the setting. Current

Table 1. Coordinates for mapped control points at AZRU.

DAI Point Number	Monument ID	Monument Type	Easting <sup>a</sup>	Northing	Orthometric Height <sup>b</sup>
1 <sup>c</sup>		1/2" rebar	232685.0394	4080873.7423	1721.1374
1425		1/2" rebar	232772.6907	4080842.3930	1718.6932
	NMLS 9625	1/2" rebar			
1426	Reference Pt	capped	232590.5314	4080895.6519	1719.6492
	USDA NPS				
1427	2N1E	Brass cap	232511.5477	4080822.8788	1720.2144
1428	UCGS1917	Brass cap	232412.6571	4080717.3143	1718.5238
1449	East Prime	1/2" rebar	232724.2288	4080879.4626	1720.1105

<sup>a</sup> UTM Zone 13 NAD83(NSRS2007) metric grid

<sup>b</sup> NAVD88(Geoid 2003) metric

<sup>c</sup> Combined scale factor=1.00021352

coordinates for both monuments are based on high-tolerance, fixed-solution kinematic observation with horizontal and vertical RMS of less than .006 m.

## Archaeological Methods

The AZRU crew systematically surveyed the entire landscape at 10 to 15 m spacing. The boundaries of all cultural features were pin flagged, along with visible wall segments associated with the roomblocks and kiva mounds. The spatial extent of all cultural features, locations of piece plotted obsidian artifacts, and the southwest corners of all analysis units were marked with color-coded flagging and labeled. Comparisons with previous East Ruin maps were made to attempt comparability with previous documentation over the past 75 years. Areas with high artifact density were identified and flagged for placement of artifact in-field analysis units. The analysis units will be used as baseline data for future monitoring of artifact density and assemblage composition. Obsidian artifacts were pin flagged, piece plotted using a handheld GPS unit, and collected for geochemical analysis and sourcing. Trash middens were identified by high-artifact density and the presence of burned bone, soil staining, and charcoal flecking. Historic features that were identified include trash dumps, excavation and stabilization debris dumps, and earthen berms. The historic features are associated with Morris' excavation and stabilization work at West and East Ruins, later stabilization work between the 1950s and 1990s, and water control and fencing undertaken by previous landowners.

The archeologists recorded prehistoric and historic features, established the artifact analysis units, and recorded artifacts. Forty-two 2-by-2- m analysis units were placed in trash middens, artifact concentrations, mounds, and roomblocks. These units were placed in areas of high artifact density to capture a representative sample of ceramic and lithic artifacts. Joel Gamache analyzed the lithic debitage and Gary Brown analyzed lithic tools within the analysis units. Lori Reed analyzed the ceramics in the field; she examined a sample of sherds with a binocular microscope for temper clarification and returned them to the in-field analysis units. Jeff Wharton recorded cultural features. Artifact and feature data were entered into Microsoft Excel spreadsheets; pivot table (cross-tab) queries of the data were generated to evaluate and describe characteristics of cultural features and artifacts. Ceramic mean dates and interquartile ranges were generated using typeable and temporally diagnostic sherds following the methodology described in Reed (2006). A confidence level designation was assigned to the ceramic dates based on the number of sherds used to produce the calculations. Dates based on less than 10 sherds are considered low confidence, 10-20 sherds are medium confidence, 21-50 sherds are high confidence, and above 50 sherds is very high confidence. In addition to diagnostic pottery, architecture and other feature characteristics, archaeological associations, archival data, and additional information were used to assign temporal assignments to individual features.



## RESULTS

### **Cartography**

Cartography at AZRU during the AERLP produced a series of maps that greatly enhance our understanding of the Aztec Community. These maps are provided in Figures 1 through 4. The maps bring together older archaeological maps produced during the last 50 years of research and the latest results of AERLP mapping and GIS data collection.

### **Archaeological Recording and Data Analysis**

This section reports on the archaeological assessment and artifact studies completed during the AERLP. Appendix A contains ceramic and lithic data tables for the features and areas at which in-field analyses were completed.

#### *East Ruin Roomblocks*

The East Ruin at Aztec consists of two adjacent roomblock mounds located roughly 150 m east of West Ruin. Earl Morris did very little excavation work in the East Ruin, but rather focused his large scale excavations on West Ruin. In 1915, when Morris and Nels Nelson scouted the area for a suitable excavation project, they passed over East Ruin dismissing West Ruin's sister site as too heavily potted and having architecture and masonry of lesser quality. After excavation of West Ruin, Morris put a small crew in East Ruin to systematically excavate deposits for comparison to the West Ruin excavations. By the end of 1927, 10 roofless rooms in the northwest corner were explored, but no field notes have survived (Lister and Lister 1990). East Ruin remained relatively undisturbed for another 30 years until Roland Richert's stabilization and excavation work in the 1950s (Richert 1964).

Several maps of the East Ruin complex have been generated, including a 1957 map by Richert and a conceptual plan map of East Ruin and Earl Morris Ruin completed in 1989 by Peter McKenna, John Stein, and colleagues. Of the two renderings, the 1989 map shows the greatest detail with the locations of kivas and conceptual locations of rooms. The current map produced by CDA is based on an intensive pedestrian survey of the East Ruin complex by Aztec Ruins staff archeologists. In contrast to the 1989 conceptual map, the 2010 AERLMP map shows exposed wall segments to illustrate existing visible architecture rather than a conceptual interpretation of rooms. The overall footprint of the roomblocks was also delimited.

**Figure 1.** Map of Aztec East Ruins Complex with feature detail and modern infrastructure.

# Aztec Ruins National Monument

Aztec, San Juan County, New Mexico

## Primary Prehistoric Features East Ruin and Earl Morris Ruin

UTM Projection Zone 13 NAD83  
(CORS96:2002)/NAVD88(2003)



### Key to Symbols

- Feature
- Linear Feature
- Mound
- Depression
- Wall Alignment
- Probable Wall Alignment
- Possible Wall Alignment

### Key to Abbreviations

- De Depression
- Ra Rock Anomaly
- Sw Swale

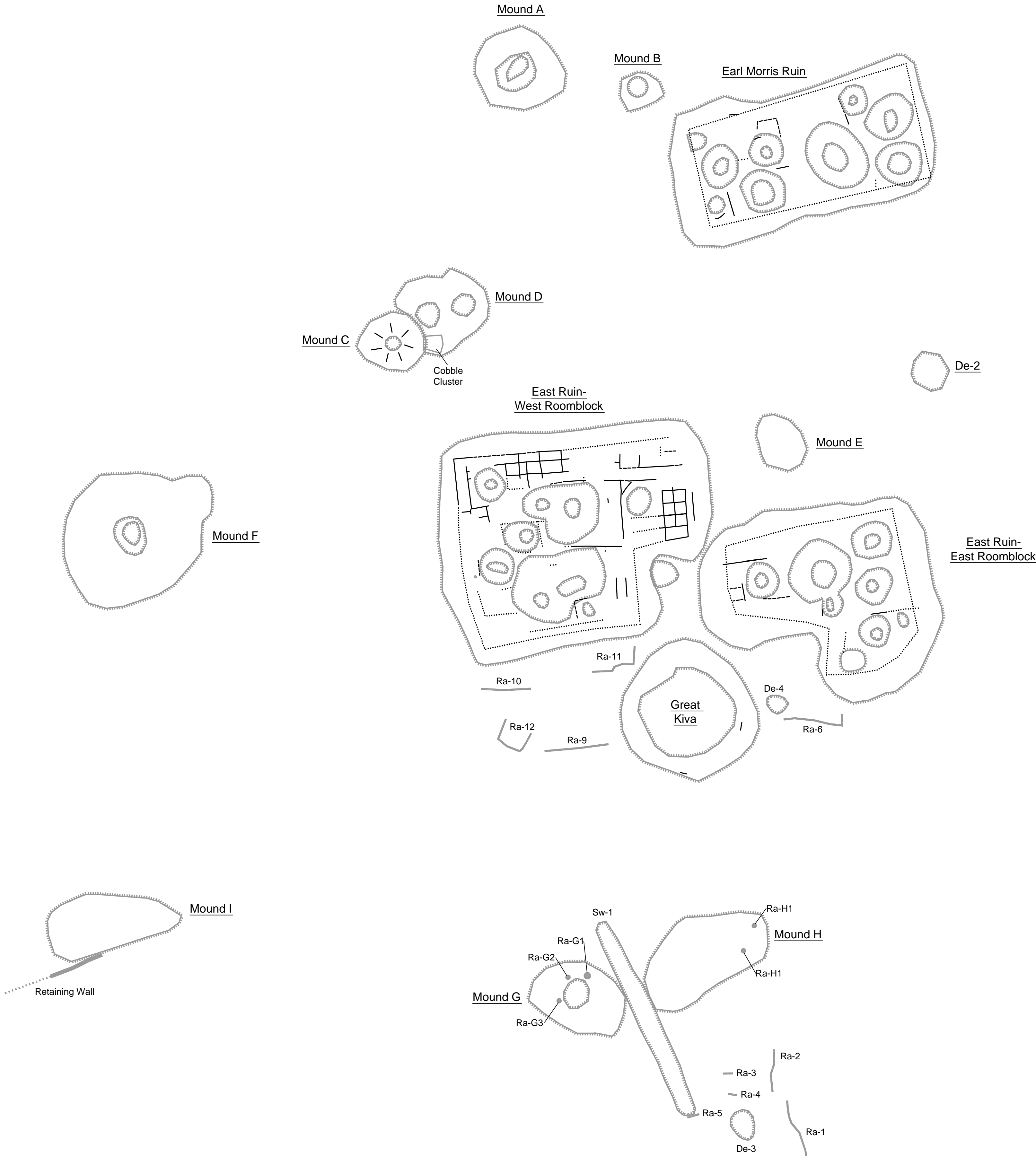
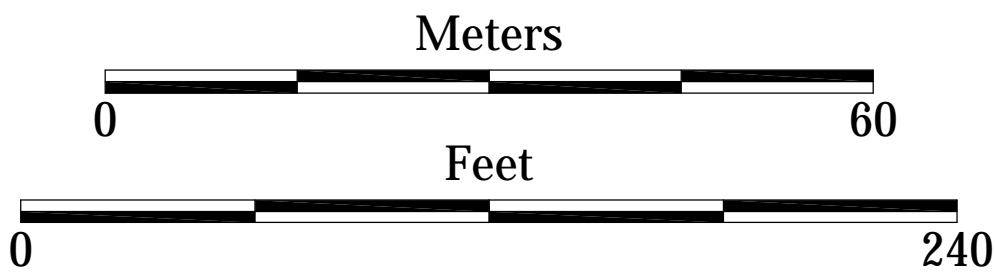
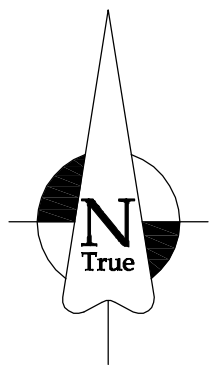
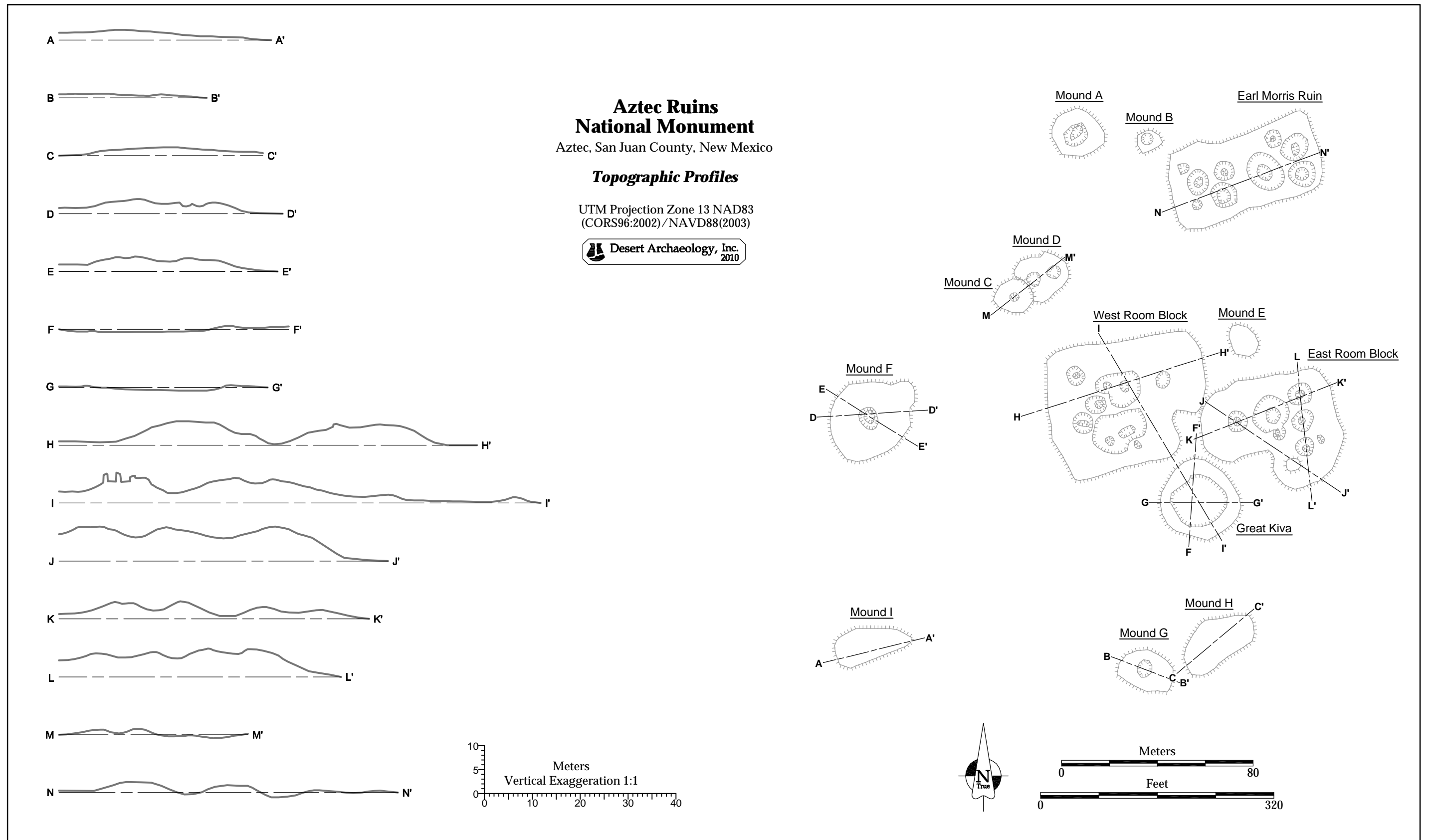
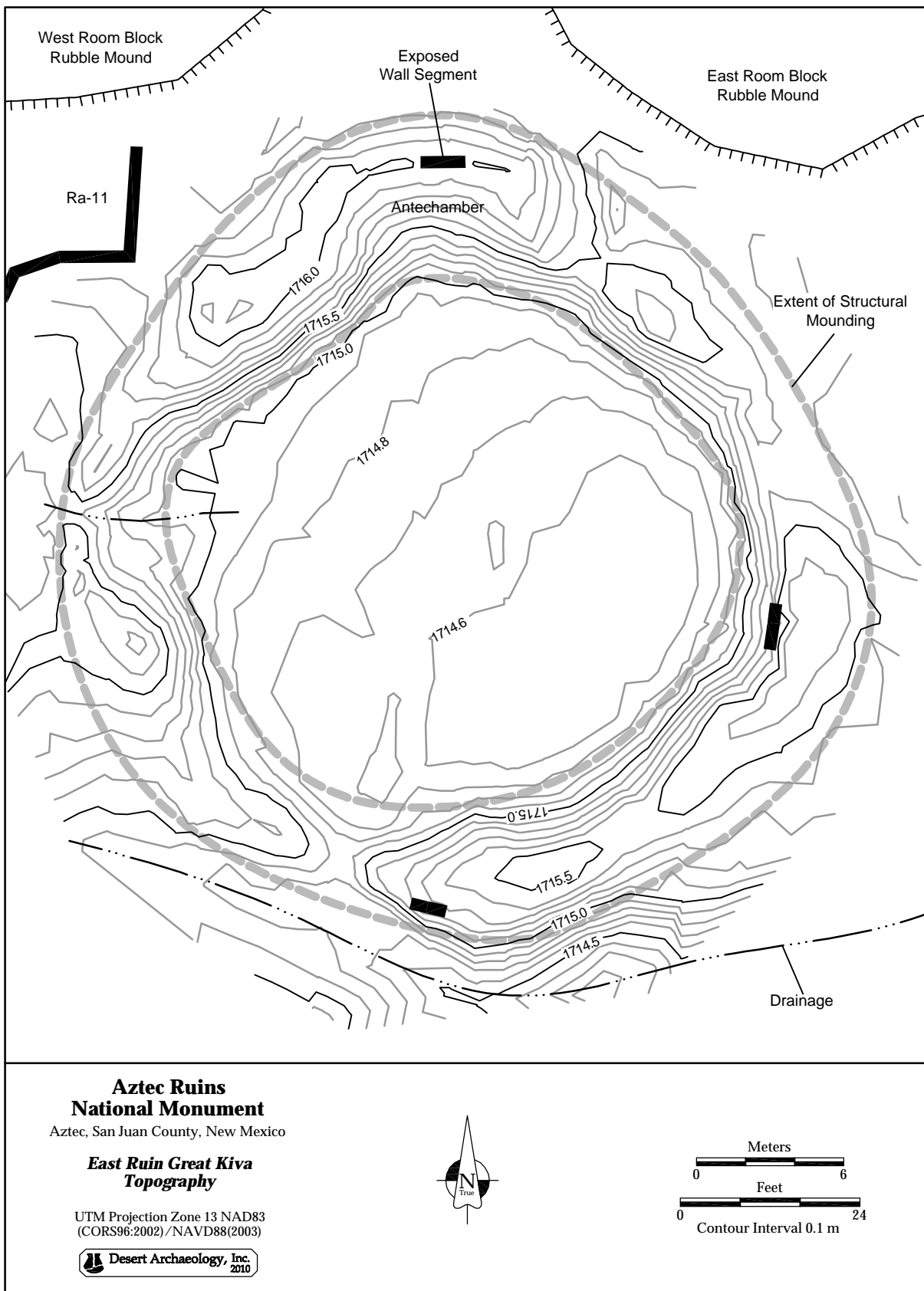


Figure 2. Map of Aztec East Ruins Complex showing detail of primary prehistoric structures and features.



**Figure 3.** Map of Aztec East Ruins Complex showing topographic profiles of primary prehistoric structures..



**Figure 4.** Map of great kiva in Aztec East Ruins Complex.

Several features identified during 1989 were not visible on the landscape with the pedestrian survey and mapping in 2010. Specifically, Kiva T shown on the 1989 map was reclassified as an arc-shaped rock alignment (RA-12) during the 2010 survey. As described in greater detail below, the rock alignment does not show evidence of a depression although it is roughly circular. Also, Kivas P and Q identified in 1989 were not relocated during the 2010 survey. The area east of the great kiva was intensively surveyed in search of depressions or circular alignments that might be associated with the two kivas, but to no avail. Some vegetation anomalies were located in this vicinity, but the 2010 survey took a more conservative approach than that implemented in the 1980s. All features mapped during 2010 are physical manifestations that can be shown on the ground.

### East Roomblock

Description: L-shaped mound with wall alignments and kiva depressions

Function: Residential

Temporal Affiliation: Late Bonito – Mesa Verde Phase

Date: A.D. 1110-1280

Size: 55-by-47 m

Height: 2.8 m

Shape: L-shaped

The East Roomblock (sometimes referred to as the East House Mound) of East Ruin is an L-shaped mound that appears to represent contiguous rooms and kivas arranged in a block that is separate from the West Roomblock. There is a slight gap between the two roomblocks that seems to be a passage from areas to the north (including the Earl Morris Ruin) and the open area with plaza and great kiva that evidently was shared by both the East and West Roomblocks. There are no indications either on-site or in archives that any excavation has taken place in the East Roomblock. The roomblock mound covers a maximum area of 55-by-47 m and stands roughly 2.8 m above the modern ground surface. From the visible outer wall segments near the top of the mound, the roomblock measures 42-by-37 m. Survey and mapping of the roomblock indicated that very few wall alignments are visible on the surface of the mound. Kiva depressions, however, are the most prominent features visible on the roomblock surface. Five kiva depressions were identified corresponding to the kivas identified on McKenna and Stein's 1989 map (Kivas K, L, M, N, and O). In addition to the kiva depressions, the high point at the southernmost extent of the East Roomblock was identified as a possible tower. It is identified as **STR-ERB-1** on the landscape map and is the highest point on the East Roomblock. The feature consists of a roughly circular mound containing a substantial amount of decomposing sandstone outlining a circular wall. It sits 0.73 m above the main part of the roomblock to the north and 3.51 m above the plaza to

the south. The main part of the mound is 8 m in diameter. Several corrugated sherds were found within the mound area.

Four analysis units (AU-39 through AU-42) were placed in areas of highest artifact density on the East Roomblock. Based on the analysis unit data, the maximum artifact density for the East Roomblock is 7 artifacts per square meter. Artifacts recorded include lithic debitage, lithic tools, and ceramics. Of the 35 ceramics recorded for the East Roomblock, only 3 were temporally diagnostic producing ceramic dates of relatively low confidence. A ceramic mean date of A.D. 1240 and an interquartile range of A.D. 1210 – 1270 were generated using the typeable ceramics from the analysis units. Based on the ceramic dating, the roomblock dates to the Mesa Verde phase (A.D. 1190-1280). Brown et al.'s (2008) discussion of tree-ring dates from East Ruin indicate the East Roomblock construction may have begun as early as the Late Bonito phase, or early A.D. 1100s, although information is limited. Construction and occupation occurred through the McElmo and Mesa Verde phases.

### West Roomblock

Description: L-Shaped mound with wall alignments and kiva depressions

Function: Residential

Temporal Affiliation: Late Bonito – Mesa Verde Phase

Date: A.D. 1110-1280

Size: 66-by-54 m

Height: 4.5 m

Shape: L-shaped

The West Roomblock (sometimes referred to as the West House Mound) of East Ruin is an L-shaped mound that appears to represent contiguous rooms and kivas arranged in a roomblock that is separate from the East Roomblock. Unlike the East Roomblock, limited excavations have occurred in the West Roomblock, including the work reported by Richert (1964). The roomblock mound covers a maximum 66-by-54 m area and stands roughly 4.5 m above the modern ground surface. From the visible outer wall segments near the top of the mound slope, the roomblock measures 55-by-44 m. Survey and mapping of the West Roomblock shows that numerous wall segments outlining rooms are visible on the surface. Similar to the East Roomblock, the kiva depressions are probably the most prominent feature of the mound. Nine kiva depressions were identified during the current survey corresponding to Kivas A, B, C, D, E, F, G, J, and S. The depression for Kiva I in the southwest corner of the roomblock was not relocated. Kiva H located in the small plaza between the West and East Roomblocks was relocated. A slab-lined feature (**RA-WRB-1**) was identified on the western side of the roomblock mound just west of Kiva E. It was classified as a rock anomaly although some oxidation present on 2 of the slabs may suggest the feature is a second-story hearth. Four upright



sandstone slabs are visible and are slumping down the mound slope. RA-WRB-1 measures 0.8-by-0.65 m and has a depth of 0.16 m.

Four analysis units (AU-35 through AU-38) were placed on the West Roomblock mound in areas of highest artifact density. Based on the analysis unit data, the maximum artifact density for the West Roomblock is 11 artifacts per square meter. Artifacts recorded in the analysis units include lithic tools, lithic debitage, and ceramics. Of the 52 ceramics recorded for the West Roomblock, only 5 were temporally diagnostic producing ceramic dates of relatively low confidence. A ceramic mean date of A.D. 1225 and an interquartile range of A.D. 1192 – 1257 were generated using the typeable ceramics from the analysis units. Based on the ceramic dating, the roomblock dates to the Mesa Verde phase (A.D. 1190-1280). Brown et al.'s (2008) discussion of tree-ring dates from East Ruin indicate the West Roomblock construction began during the early as the Late Bonito phase (early A.D. 1100s). The rooms around Kiva C have dates falling in the Late Bonito phase. Brown and colleagues (2008) think that the core section of the West Roomblock was constructed about the same time that major work at Aztec West was completed. Construction and renovation episodes continued through the McElmo and Mesa Verde phases. Tree-ring dating is based on a much larger sample of specimens than those available at the East Roomblock.

### *Earl Morris Ruin*

Description: Rectangular mound with wall alignments and kiva depressions

Function: Residential

Temporal Affiliation: McElmo – Mesa Verde Phase

Date: A.D. 1140-1280

Size: 64-by-34 m

Height: 2.8 m

Shape: Rectangular

The Earl Morris Ruin is a rectangular roomblock located 65 to 70 m north of the East Roomblock of Aztec East. It is roughly 64-by-34 m in size and stands 2.8 m above the modern ground surface. Seven kiva depressions corresponding to Stein and McKenna's 1989 map (Kivas A-G) were identified during the AERLMP project. An eighth depression in the southwest corner of the roomblock was also identified and correlates to a large rectangular room shown in the southwest corner of the Stein and McKenna map. A roughly circular depression was identified in the northwest corner, but was not mapped as a depression by Stein and McKenna in 1989.

Six analysis units were placed within the Earl Morris roomblock in areas of highest artifact density. Based on the analysis unit data, the maximum artifact density for



Earl Morris Ruin is 17 artifacts per square meter. Artifacts recorded in the analysis units include lithic tools, lithic debitage, and ceramics. Of the 121 ceramics recorded for Earl Morris Ruin only 13 were typeable producing ceramic dates of medium confidence. A ceramic mean date of A.D. 1219 and an interquartile range of A.D. 1188 – 1250 were generated using the typeable ceramics from the analysis units. Based on the ceramic dating, the roomblock dates primarily to the Mesa Verde phase (A.D. 1190-1280). Limited tree-ring dates and architectural evidence suggests that construction occurred slightly early, probably during the 12<sup>th</sup> century.

### *Feature Descriptions: Mounds*

#### Mound A (MD-A)

Description: Circular mound with central depression

Function: Tri-wall Structure

Temporal Affiliation: McElmo – Mesa Verde Phase

Date: A.D. 1140-1280

Size: 21 m diameter

Height: 1.5 – 2.35 m

Shape: Circular

Mound A is a large circular structural mound approximately 21 m in diameter at the base and 14.5 m in diameter on the top. It is located in the northwestern most corner of the East Ruin complex and is spatially associated with the Earl Morris Ruin 30 m to the east. Mound A is approximately 80 m north of the West Roomblock of East Ruin. The feature is covered with moderate to heavy vegetation growth and thick duff. Construction materials are cobbles and sandstone. An arced cobble alignment, probably an interior wall segment, is visible on the western perimeter of the interior depression of the mound. The wall segment is 2.2 m long. The circular depression in the center of the mound designated **DE-A-1**, is 9 m in diameter and 0.80 m deep. Due to the heavy vegetation and duff coverage, no associated artifacts were identified. Based on location of subsurface wall alignments during excavation of a single test unit, McKenna confirmed the designation of Mound A as a tri-wall structure (Peter McKenna and David Barde, field notes, August 10-11, 1990). Lekson's (1983) analysis of data from the Hubbard Tri-wall structure behind Aztec West Ruin suggests that this type of feature dates before A.D. 1200 and is associated with the early Pueblo III occupation of Aztec, although the Hubbard site and also tri-wall structures also appear to have been used well into the A.D. 1200s.

### Mound B (MD-B)

Description: Circular mound with central depression

Function: Bi-wall Structure

Temporal Affiliation: McElmo - Mesa Verde Phase

Date: A.D. 1140-1280

Size: 10 m diameter

Height: 0.4 m

Shape: Circular

Mound B is a moderate-sized circular structural mound approximately 10 m in diameter. It is located approximately 6 m off the northwest corner of the Earl Morris Ruin and 14 m east of Mound A. Given its proximity to the Earl Morris Ruin, Mound B is spatially associated with the Earl Morris Ruin located north of the East Ruin roomblocks. Similar to Mound A, Mound B is covered with moderate to heavy vegetation growth and thick duff. No surface artifacts were found in association. Wall segments are not visible but exposed materials suggest the structure was constructed of sandstone and cobbles. Given that Mound B is roughly half the size of Mound A, it is likely that Mound B is a bi-wall structure. The central depression designated **DE-B-1**, is 4 m in diameter and 0.4 m deep. The roughly 6 m of space between the depression and the outer mound edge probably consists of a single row of rooms encircling the central kiva depression. Mound B remains unexcavated and the lack of visibly associated artifacts precludes dating of the structure based on ceramics. Its spatial association to the Earl Morris Ruin and Mound A suggests that Mound B dates sometime during the Pueblo III time period, A.D. 1100s or 1200s.

### Mound C (MD-C)

Description: Circular mound with wall alignments and central depression

Function: Bi-wall Structure

Temporal Affiliation: McElmo - Mesa Verde Phase

Date: A.D. 1140-1280

Size: 15.5 m diameter

Height: 1.3 m

Shape: Circular

Mound C is a large circular structural mound approximately 15.5 m in diameter and 1.3 m in height. It is located approximately 20 m off the northwest corner of the East Ruin West Roomblock and adjacent to Mound D on the east. With the clearing of vegetation in the East Ruin complex, a series of 7 radial wall segments were identified on the top surface of the mound subdividing the perimeter of the depression into 7 rooms. Six of the wall segments are highly visible and the seventh

segment is somewhat more ephemeral. The wall segments are approximately 2 m long and 60-80 cm wide extending from the central depression to the outer mound edge. The exposed wall segments are of sandstone. The central kiva depression designated **DE-C-1**, is 5.5 m in diameter and 0.9 m in depth. Given the size of the mound and the exposed wall segment indicating only one row of rooms encircling the central kiva depression, Mound C is probably a bi-wall structure. One analysis unit (AU-21) was placed just outside the western edge of Mound C. Based on the analysis unit data, the maximum artifact density for the mound is 7 artifacts per square meter. Artifacts recorded in the analysis unit include lithic debitage, lithic tools, and ceramics. The presence of two Mesa Verde Black-on-white sherds and the absence of earlier ceramic types suggest that Mound C may date to the Mesa Verde phase (A.D. 1190-1280). Of the 22 ceramics, only two were temporally diagnostic producing ceramic dates of relatively low confidence (ceramic mean date A.D. 1240; interquartile range A.D. 1210-1270). Based on this scant evidence and the feature type, it is presumed that Mound C falls sometime in the Pueblo III period.

#### Mound D (MD-D)

Description: Low mound with two central depressions

Function: Dual Kiva Structure

Temporal Affiliation: Mesa Verde

Date: A.D. 1190-1280

Size: 22-by-20 m

Height: 0.5 m

Shape: Sub-rectangular

Mound D is a rather amorphous sub-rectangular mound containing two probable kiva depressions. It is located 22 m off the northwest corner of the East Ruin West Roomblock and abuts against the east to northeastern side of Mound C. Unlike Mound C, however, there are no visible wall segments that might better define the relationship between the two kiva depressions and any potential rooms. The western most depression designated **DE-D-1**, is 9 m in diameter and 0.4 m deep. Separated by approximately 5 m from the western depression, the second kiva depression (**DE-D-2**) on the east side of Mound D is 8.5 m in diameter and is 0.85 m deep. Extending into Mound D from the eastern edge of Mound C is a roughly square alignment of cobbles that suggest additional structural remains possibly connecting the two mounds. Two analysis units (AU-19 and AU-20) were placed along the southern edge of Mound D in areas of high artifact density. Based on the analysis unit data, the maximum artifact density for the mound is 3 artifacts per square meter. Artifacts recorded in the two units include lithic debitage, lithic tools, and ceramics. All of the ceramic artifacts were undiagnostic gray and white ware sherds. One Pueblo III style black-on-white sherd suggests the feature dates to the Pueblo III period, but more refined ceramic dating is not possible with the

assemblage. Limited testing during the 1980s supports the inference of late Pueblo III occupation (Peter McKenna and James Bradford, field notes, October 1987).

#### Mound E (MD-E)

Description: Low mound with abundant midden deposits

Function: Refuse disposal

Temporal Affiliation: Mesa Verde

Date: A.D. 1190-1280

Size: 14-by-10 m

Height: 0.5 m

Shape: Oval

Mound E is a large trash mound located 10 m north of the East Ruin East Roomblock and is probably a trash deposit associated with the occupation of East Ruin. It is roughly oval in shape measuring 14 m north-south by 10 m east-west. At its highest point the mound is 0.5 m above the modern ground surface. Mound E contains abundant ceramics, lithics, faunal bone, charcoal, groundstone, stained soil, and some fire-cracked rock. Two analysis units (AU-22 and AU-23) were placed within the mound. Based on the analysis unit data, the maximum artifact density for the mound is 23 artifacts per square meter. Artifacts recorded in the two units include lithic debitage, lithic and groundstone tools, and ceramics. Of the 124 ceramic artifacts recorded, 14 sherds were temporally diagnostic providing ceramic dates of medium confidence. A ceramic mean date of A.D. 1217 and an interquartile range of A.D. 1184-1249 were generated. The relative absence of Pueblo II types and the large number of Mesa Verde Black-on-white and St Johns Polychrome sherds indicate a 1200s date for Mound E. This inference is supported by previous subsurface testing which indicated ceramic dating of thick, stratified deposits in Mound E almost entirely during late Pueblo III, with scarce evidence of earlier use (Peter McKenna and James Bradford, field notes, October 1987). Also indicated by these test investigations, a diversity of faunal materials was recovered, including birds and fish (Bertram 1987).

#### Mound F (MD-F)

Description: Circular mound with wall alignments and central depression

Function: Tri-wall Structure

Temporal Affiliation: late McElmo - Mesa Verde

Date: A.D. 1150-1280

Size: 32 m in diameter

Height: 2.37 m

Shape: Circular

Mound F is a large circular mound roughly 32 m in diameter at the base, 19 m in diameter at the top, and stands 2.37 m above the modern ground surface. The mound is centrally located between East and West Ruins and is the only prominent feature situated between these two great houses. The large size of the mound and the presence of an interior kiva depression are consistent with tri-wall structures, such as the Hubbard Site just to the northwest of Aztec's West Ruin. Onstott's test excavations of Mound A in the 1950s confirmed its classification as a tri-wall structure (Vivian et al. 1956). Although the general shape is circular there is a sub-rectangular mound extension located off the northeast corner of Mound F, suggestive of an antechamber-type entrance. The central kiva depression designated **DE-F-1** is 12 m in diameter and 0.9 m deep. Historic test units on the east side of the depression, however, obscure the perimeter in that area. The excavation units placed by Onstott (Vivian et al. 1956) remain visible as irregular depressions on top of the mound surface with exposed, badly eroding masonry walls.

Five analysis units (AU-30 through AU-34) were placed on the top and sides of the mound in areas of highest artifact density. Based on the analysis unit data, the maximum artifact density for the mound is 4 artifacts per square meter. Ceramics, lithic debitage, and lithic tools were recorded. Of the 32 ceramics analyzed from the units, nine were temporally diagnostic, producing ceramic dates of relatively low confidence. A ceramic mean date of A.D. 1197 and an interquartile range of A.D. 1159-1234 were generated for Mound F. With almost equal numbers of McElmo Black-on-white to the Mesa Verde Black-on-white and St Johns Polychrome ceramics, the ceramic data suggest that Mound F dates largely to the A.D. 1200s. The lack of Pueblo II ceramic types suggests that the assemblage postdates the mid-1100s. Pueblo II types commonly comprise up to 40 percent of assemblages dating to the McElmo phase and drop significantly during the early decades of the Mesa Verde phase. Although the absence of Pueblo II types does not negate a McElmo phase designation, conservatively the ceramics indicate a Mesa Verde phase assemblage with potential for an occupation extending into the late McElmo phase.

### Mound G (MD-G)

Description: Earthen Mound

Function: Landscape feature bounding East Ruin plaza

Temporal Affiliation: Late Bonito – McElmo

Date: A.D. 1110-1190

Size: 23-by-15 m

Height: 0.34 m

Shape: Oval

Mound G is a low oval-shaped mound measuring 23 m southeast to northwest by 15 m southwest to northeast and is 0.34 meters high. It is located approximately 75 m

directly south of the East Ruin West Roomblock and appears to be one of the prominent landscape features defining the southern end of the large open plaza south of the two East Ruin roomblocks and great kiva. Unlike the structural mound features identified as tri-wall and bi-wall structures, it is unclear whether Mound G is structural given the lack of construction material and discrete wall alignments. Although linear rock alignments are not present, three circular to oval rock anomalies (RA-G-1, RA-G-2, and RA-G-3) were identified within Mound G. **RA-G-1** is an irregularly-shaped cobble concentration located on the northern edge of the mound measuring 1-by-1.6 m in size and 0.05 m high. **RA-G-2** is the largest cobble concentration located on the northwestern edge of the mound. It is roughly oval shaped and measures 2.7-by-1.9 m in size and is 0.2 m high. The third rock anomaly, **RA-G-3**, is an irregularly-shaped cobble and sandstone concentration near the southern edge of the mound and is 1.6-by-1.5 m in size and 0.1 m high. The depression in the center of the mound, designated **DE-G-1**, is approximately 5 m in diameter and 0.3 m deep. Although the depression is relatively small, it is comparable to the small kiva depressions within bi-wall structure Mounds C and B. Mound G, however, is more amorphous in shape than the bi-wall structure mounds to the north of the East Ruin roomblocks. Thus, it is possible that Mound G represents a bi-wall structure with poorly defined wall alignments visible on the surface. In contrast to Mounds C and B, however, Mound G has a significant amount of charcoal, soil staining, and burned bone suggesting that trash deposits are a component of the mound. Alternatively, Mound G may represent an earthwork landscape feature defining both the southern extent of the plaza and the western boundary of a southern Chacoan Road entry way into the plaza. The moderate amount of trash deposits visible on the surface of Mound G may represent the earthwork construction of the mound using midden material along with other soil. The rock anomaly features present in Mound G are also similar to the rock anomalies in Mound H, which bounds the eastern side of the Chacoan road swale, further suggesting that both of these mounds may represent large shrine-type features defining an entry into the East Ruin plaza. A 10 m long trench depression (**TR-G-1**) is visible in the southern portion of the mound running southeast to northwest. The trench was placed in Mound G by T. B. Onstott in the 1950s at the same interval testing was conducted in Mound F (Vivian et al. 1956; Peter McKenna personal communication May 21, 2010). The testing of Mound G is mentioned briefly and rather cryptically in a memorandum by Onstott dated August 10, 1953.

Three analysis units (AU-4, AU-5, and AU-6) were placed on Mound G in areas of highest artifact density. Based on the analysis unit data, the maximum artifact density for the mound is 11 artifacts per square meter. Lithic debitage, lithic tools, and ceramics were recorded along with notation of charcoal, soil staining, and burned bone. Of the 60 ceramics recorded in the three units, eight sherds were temporally diagnostic, producing ceramic dates of relatively low confidence. Compared to other analysis units examined, the units in Mound G yielded the

highest numbers of Pueblo II ceramic types and styles of any location in the East Ruin complex. Although the number of typeable sherds is small, the number of Pueblo II ceramics stands out compared to the general East Ruin ceramic signature. A ceramic mean date of A.D. 1138 and an interquartile range of A.D. 1105-1172 were generated, placing the mound in the Late Bonito through early McElmo phase.

### Mound H (MD-H)

Description: Earthen Mound

Function: Landscape feature bounding East Ruin plaza

Temporal Affiliation: Mesa Verde

Date: A.D. 1190-1280

Size: 33-by-17.5 m

Height: 1.65 m

Shape: Oval

Mound H is a large oval earthen mound located on the southeastern edge of the main plaza at East Ruin. It provides a prominent landscape feature bounding the east side of a Chacoan road related swale that may have served as a southern entryway into the main plaza. Mound H is significantly larger than Mound G on the opposite side of the road related swale. Dimensions of Mound H are 33 m long by 17.5 m wide and 1.65 m above the modern ground surface. The mound is situated at an angle of 220° along the long axis. Two large depressions are located on the upper surface of the mound, but do not appear to represent structural features. The first of these is 3.5-by-5.5 m and is 0.75 m deep. The second is 2-by-2.5 m and is 0.55 m deep. Based on the size and shape of the depressions, they probably represent historic pothunting or undocumented historic excavations. Similar to Mound G, there is a moderate amount of artifactual material, charcoal, burned faunal bone, and soil staining visible on the mound surface, suggesting the earthwork was at least partially constructed with midden deposits. Some cobbles are present, but do not appear to represent structural remains. Two rock anomalies, similar to those identified on Midden G, are present. **RA-H-1** is a roughly circular sandstone concentration covering a 1.2 m diameter area. **RA-H-2** is a cobble and sandstone concentration covering a 1.2-by-0.4 m area; one of the cobbles is a hafted stone axe. A 12 m long trench depression (**TR-H-1**) is visible along the southern edge of the mound running northeast to southwest. The trench was placed in Mound H by T. B. Onstott in the 1950s at the same interval testing was conducted in Mound F (Vivian et al. 1956; Peter McKenna personal communication May 21, 2010). The testing of Mound H is mentioned briefly and rather cryptically in a memorandum by Onstott dated August 10, 1953.

Three analysis units (AU-1, AU-2, and AU-3) were placed on Mound H in areas of high artifact density. Based on the analysis unit data, the maximum artifact

density for the mound is 19 artifacts per square meter. Lithic debitage, lithic tools, and ceramics were analyzed and recorded. Of the 95 ceramics analyzed in the units, seven sherds were temporally diagnostic, producing ceramic dates of relatively low confidence. A ceramic mean date of A.D. 1218 and an interquartile range of A.D. 1184-1252 were generated for Mound H. Unlike Mound G, the ceramics from Mound H lacked any evidence of Pueblo II types or styles. Rather, the ceramics indicate a Mesa Verde phase affiliation for Mound H.

### *Feature Descriptions: Rock Anomalies*

#### Rock Anomaly 1 (RA-1)

Description: Linear Rock Alignment

Function: Landscape Feature

Temporal Affiliation: Late Pueblo II – Pueblo III

Date: A.D. 1100-1280

Size: 15.2-by-1 m

Height: 0.1 m

Shape: Linear

Rock Anomaly 1 (RA-1) is a linear rock alignment located on the edge of the floodplain terrace approximately 32 m southeast of Mound H. It runs at an angle of 340° following the terrace edge. RA-1 is 15.2 m long and varies from 0.5 m to 3.2 m in width with an average width of 1 m. The rocks are one course high with a maximum height of 0.1 m. The area of maximum width (3.2 m) is at the south end. Cobbles are the primary material forming the alignment, but a few sandstone fragments are also present. Due to the absence of associated artifacts, a broad date range of Late Pueblo II through Pueblo III (A.D. 1100-1280) was assigned to the alignment.

#### Rock Anomaly 2 (RA-2)

Description: Linear Rock Alignment

Function: Landscape Feature

Temporal Affiliation: Late Pueblo II – Pueblo III

Date: A.D. 1100-1280

Size: 11-by-0.6 m

Height: 0.1 – 0.2 m

Shape: Linear

Rock Anomaly 2 (RA-2) is located approximately 4 m northwest of RA-1 and is 20 m southeast of Mound H. It is a linear rock alignment running parallel to the



floodplain terrace edge at an angle of 6°. RA-2 is 11 m long and 0.6 m wide along most its length. At its widest point RA-2 is 3.4 m across consisting of dispersed and broken sandstone. It is one course high varying between 0.1 and 0.2 m in height. Due to the absence of associated artifacts, a broad date range of Late Pueblo II through Pueblo III (A.D. 1100-1280) was assigned to the alignment.

### Rock Anomaly 3 (RA-3)

Description: Linear Rock Alignment

Function: Landscape Feature

Temporal Affiliation: Late Pueblo II – Pueblo III

Date: A.D. 1100-1280

Size: 3-by-0.6 m

Height: 0.3 – 0.4 m

Shape: Linear

Rock Anomaly (RA-3) is a short linear sandstone alignment located 9 m to the east of RA-2. It is one course high with an orientation of 270°. It is 3 m long and is 0.6 m wide along most of the length, but varies between 0.3 and 0.9 m wide in some areas. RA-3 is located in a small north-south trending drainage. No artifacts were associated with the alignment. Given its location across a small drainage, the alignment may have functioned as a water control device. Due to the absence of associated artifacts, a broad date range of Late Pueblo II through Pueblo III (A.D. 1100-1280) was assigned to the alignment.

### Rock Anomaly 4 (RA-4)

Description: Linear Rock Alignment

Function: Landscape Feature

Temporal Affiliation: Late Pueblo II – Pueblo III

Date: A.D. 1100-1280

Size: 3-by-0.4 m

Height: 0.3 – 0.4 m

Shape: Linear

Rock Anomaly 4 (RA-4) is a short linear sandstone alignment located 5 m directly south of RA-3 and along the same north-south trending drainage. It is 3 m long on the east-west alignment and 0.4 to 0.5 m wide. The sandstone fragments are one course high (0.3 – 0.4 m) with a linear orientation of 280°. No artifacts were associated with the feature. Given its location across a small drainage, the alignment may have functioned as a water control device. Due to the absence of

associated artifacts, a broad date range of Late Pueblo II through Pueblo III (A.D. 1100-1280) was assigned to the alignment.

#### Rock Anomaly 5 (RA-5)

Description: Linear Rock Alignment

Function: Landscape Feature

Temporal Affiliation: Late Pueblo II – Pueblo III

Date: A.D. 1100-1280

Size: 3-by-0.7 m

Height: 0.3 – 0.4 m

Shape: Linear

Rock Anomaly 5 (RA-5) is a short linear alignment located at the southern extent of a swale (SW-1) that is probably Chacoan road related. It is 3 m long extending across the swale at an orientation of 255° and averaging 0.7 m in width. The sandstone, cobbles, and gravel creating the alignment stand one course high (0.3 – 0.4 m). Much of the area around and to the south of RA-5 contains historic excavation and stabilization debris. Due to the absence of associated artifacts, a broad date range of Late Pueblo II through Pueblo III (A.D. 1100-1280) was assigned to the alignment.

#### Rock Anomaly 6 (RA-6)

Description: Linear Rock Alignment

Function: Landscape Feature

Temporal Affiliation: Late Pueblo II – Pueblo III

Date: A.D. 1100-1280

Size: 14-by-2 – 5.5 m

Height: 0.1 – 0.2 m

Shape: L-shaped

Rock Anomaly 6 (RA-6) is an L-shaped alignment extending 14 m east from the southern edge of DE-4 (depression) and making a sharp turn to the north (3 m) at the terrace edge. The east-west oriented segment is constructed of large brown, blocky sandstone and the shorter north-south segment consists of cobbles following the terrace edge. It varies from 2 to 5.5 m in width and is one course high (0.1 – 0.2 m). Due to the absence of associated artifacts, a broad date range of Late Pueblo II through Pueblo III (A.D. 1100-1280) was assigned to the alignment.

### Rock Anomaly 7 (RA-7)

Description: Rectangular Rock Alignment  
Function: Landscape Feature  
Temporal Affiliation: Late Pueblo II – Pueblo III  
Date: A.D. 1100-1280  
Size: 5-by-4 m  
Height: 0.1 – 0.2 m  
Shape: Rectangular

Rock Anomaly 7 (RA-7) is a rectangular concentration of sandstone measuring 5-by-4 m. It is located approximately 30 m west of the East Ruin Plaza and roughly 15 m south of Concentration 2. The sandstone pieces are reddish brown and gray. Although the size and shape is suggestive of a large hearth or roasting pit, there is no evidence that the rocks were thermally altered and the soil shows no evidence of staining. Two exhausted manos are the only artifacts associated with the feature. Due to the absence of temporally diagnostic artifacts, a broad date range of Late Pueblo II through Pueblo III (A.D. 1100-1280) was assigned to the alignment.

### Rock Anomaly 8 (RA-8)

Description: Gravel Concentration  
Function: Historic Stabilization Disposal  
Temporal Affiliation: Historic/Modern  
Date: 1945-1995  
Size: 2 m diameter  
Height: 0.1 – 0.2 m  
Shape: Circular

Rock Anomaly 8 (RA-8) is a gravel concentration located approximately 30 m west of the East Ruin Plaza on the southeast edge of Concentration 2. It is approximately 2 m in diameter and is slightly mounded. One small piece of cement was identified in the gravel, indicating that the feature is not prehistoric but rather is associated with historic disposal of stabilization materials. Until the mid-1990s a large area just to the east and southeast of Mound F was used as a stabilization staging area and is clearly visible on the 1950 aerial photo of the monument. The RA-8 gravel concentration is located roughly 35 m southeast of the staging area and is likely associated with general stabilization debris in the Mound F area. Most of the debris and materials in and around the staging area was removed in the late 1990s after this area was no longer used for stabilization storage and preparation.

### Rock Anomaly 9 (RA-9)

Description: Linear Rock Alignment

Function: Landscape Feature

Temporal Affiliation: Late Pueblo II – Pueblo III

Date: A.D. 1100 - 1280

Size: 15-by-2 m

Height: 0.1 – 0.2 m

Shape: Linear

Rock Anomaly 9 (RA-9) is a linear cobble alignment west of the great kiva in the East Ruins plaza. It begins approximately 5 m from the western edge of the great kiva and extends west for approximately 15 m. On its western end, RA-9 extends within 5 m of the eastern edge of RA-12. Compared to other rock alignments in the vicinity, RA-9 is rather ephemeral with a dispersed placement of cobbles and is obscured by vegetation. Due to the absence of associated artifacts, a broad date range of Late Pueblo II through Pueblo III (A.D. 1100-1280) was assigned to the alignment.

### Rock Anomaly 10 (RA-10)

Description: Linear Rock Alignment

Function: Landscape Feature

Temporal Affiliation: Late Pueblo II – Pueblo III

Date: A.D. 1100 - 1280

Size: 11.3-by-1.5 m

Height: 0.1 – 0.2 m

Shape: Linear

Rock Anomaly 10 (RA-10) is a linear cobble and sandstone alignment located west of the great kiva and 5-7 m south of the West Roomblock of East Ruin. It runs at a 90° orientation and is roughly comparable in its angle of orientation to RA-9 and RA-11. In addition to the linear placement of rocks, the soil is slightly mounded along the extent of the alignment. It is 11.3 m long from east to west and is 1.5 m wide along its entire length. Due to the absence of associated artifacts, a broad date range of Late Pueblo II through Pueblo III (A.D. 1100-1280) was assigned to the alignment.

### Rock Anomaly 11 (RA-11)

Description: Rectilinear Rock Alignment

Function: Landscape Feature

Temporal Affiliation: Late Pueblo II – Pueblo III

Date: A.D. 1100 - 1280  
Size: 16-by-1.9-2.0 m  
Height: 0.1 – 0.2 m  
Shape: Rectilinear

Rock Anomaly 11 (RA-11) is a rectilinear cobble alignment adjacent to the northwestern edge of the great kiva. It is 16 m long and 1.9 to 2.0 m wide. The alignment begins 2 m south of the East Ruins West Roomblock mound and extends south for 5 m, turning to the west it extends in a roughly southwest orientation for 6 meters. The final segment extends directly west for another 5 m. Between the western end of RA-11 and the eastern end of RA-10 there are dispersed cobbles suggesting that these two alignments may have connected. Due to the absence of associated artifacts, a broad date range of Late Pueblo II through Pueblo III (A.D. 1100-1280) was assigned to the alignment.

#### Rock Anomaly 12 (RA-12)

Description: Semi-circular Rock Alignment  
Function: Landscape Feature  
Temporal Affiliation: Late Pueblo II – Pueblo III  
Date: A.D. 1100 - 1280  
Size: 15-by-1.7-2.2 m  
Height: 0.3 m  
Shape: Semi-circular Arc

Rock Anomaly 12 (RA-12) is a semi-circular rock alignment forming an arc whose opening is at 10° from north. The total length of the arc alignment is 15 m and the opening on the north side is 8 m across. The width of the cobble and sandstone alignment varies between 1.7 and 2.2 m and the maximum height of the alignment is 0.3 m. RA-12 was identified as a kiva during previous surveys and documentations of East Ruin. In a 1989 concept plan map of East Ruin by John Stein, Peter McKenna, and colleagues this alignment was identified as Kiva T (see Lister and Lister 1990:159, Figure 9.4). There is, however, no depression associated with the alignment and the arc of cobbles and sandstone do not form a complete circular shape. Due to the absence of associated artifacts, a broad date range of Late Pueblo II through Pueblo III (A.D. 1100-1280) was assigned to the alignment.

#### Rock Anomaly 13 (RA-13)

Description: Rock Concentration  
Function: Possible Stabilization Debris  
Temporal Affiliation: Historic/Modern

Date: 1945-1995  
Size: 2.6-by-0.9 m  
Height: 0.1 m  
Shape: Oval

Rock Anomaly 13 (RA-13) is an oval concentration of sandstone located west of the East Ruin West Roomblock in Concentration 2. There are approximately a dozen pieces of sandstone clustered in a 2.6-by-0.9 m area. There is no evidence of soil staining and the stones do not appear thermally altered. No artifacts were associated with RA-13. It is possible the concentration is part of a larger historic disposal location for stabilization material. Until the mid-1990s a large area just to the east and southeast of Mound F was used as a stabilization staging area and is visible on the 1950 aerial photograph of the monument. The RA-13 rock concentration is located just over 25 m southeast of the staging area and is likely associated with general stabilization debris in the Mound F area. Most of the debris and materials in and around the staging area was removed in the late 1990s after this area was no longer used for stabilization storage and preparation.

#### Rock Anomaly 14 (RA-14)

Description: Rock Concentration  
Function: Unknown  
Temporal Affiliation: Late Pueblo II – Pueblo III  
Date: A.D. 1100-1280  
Size: 2-by-2 m  
Height: 0.1 m  
Shape: Rectangular

Rock Anomaly 14 (RA-14) is a small, roughly rectangular cobble concentration located 10 m north of Mound D. Given its close proximity to Mound D, the rock concentration is likely associated with the Mound C and D complex. With the exception of one piece of sandstone, all of the rocks in the concentration are large river cobbles. On the northeast side of the concentration is a sandstone metate. The heavy duff cover and vegetation growth in this area precluded further evaluation of the feature regarding soil staining and artifact associations. Three sherds, however, were located just to the southwest of RA-14. In the absence of temporally diagnostic artifacts, a broad date range of Late Pueblo II through Pueblo III (A.D. 1100-1280) was assigned to the alignment.

#### Rock Anomaly 15 (RA-15)

Description: Rock Concentration

Function: Possible Stabilization Debris  
Temporal Affiliation: Historic/Modern  
Date: 1945-1995  
Size: 6.5-by-5.5 m  
Height: 0.1 m  
Shape: Oval

Rock Anomaly 15 (RA-15) is a cobble and gravel concentration located 7 m south of Mound F. It is roughly oval shaped; measuring 6.5-by-5.5 m. Gravel is the dominant material present in the concentration. Two plain gray and one black-on-white sherd are associated with RA-15. Given the proximity of historic stabilization debris to the east, it is likely that RA-15 is associated with historic stabilization and not with the prehistoric use of Mound F. Until the mid-1990s a large area just to the east and southeast of Mound F was used as a stabilization staging area and is visible on the 1950 aerial photograph of the monument. The RA-15 concentration is located just outside the western edge of the staging area and is likely associated with general stabilization debris in the Mound F area. Most of the debris and materials in and around the staging area was removed in the late 1990s after this area was no longer used for stabilization storage and preparation.

#### *Feature Descriptions: Artifact Concentrations*

##### Concentration 1 (Con-1)

Description: Artifact Concentration  
Function: Activity Area  
Temporal Affiliation: McElmo  
Date: A.D. 1130-1190  
Size: 28-by-23 m  
Height: N/A  
Shape: Circular

Artifact Concentration 1 (Con-1) is a large concentration of ceramics and lithics associated with a possible kiva depression (**DE-5**). It is located approximately 75 m southeast of Mounds G and H and the Maintenance/Preservation Headquarters for the park is less than 20 m to the west. LA 1674 is located roughly 12 m to the south on the south side of Old Ruins Road. Given the proximity of LA 1674, it is possible that Con-1 is associated with the previously recorded, heavily disturbed, and mostly buried site. Three analysis units (AU-13 through AU-15) were placed within Con-1 in areas of high artifact density. Based on data from the analysis units, the maximum artifact density for Con-1 is 8 artifacts per square meter. Lithic tools, lithic debitage, and ceramics were recorded. Of the 29 ceramics analyzed, four were

temporally diagnostic, producing ceramic dates of relatively low confidence. The resulting ceramic mean date and range for the concentration (A.D. 1153; A.D. 1117-1189) indicates a McElmo phase association for Con-1.

### Concentration 2 (Con-2)

Description: Artifact Concentration

Function: Refuse Disposal

Temporal Affiliation: McElmo

Date: A.D. 1130-1190

Size: 40-by-18-30 m

Height: N/A

Shape: Irregular

Concentration 2 (Con-2) is a large artifact concentration located less than 10 m west of the East Ruin West Roomblock. It is irregularly shaped and measures 40 m north-south by 30 m east-west at its maximum extent. Three features are present within the concentration including a historic stabilization dump (**DU-7**) and two rock anomalies (**RA-8** and **RA-13**). All of the features are likely associated with historic dumping of stabilization materials. Lithic debitage and ceramics were recorded in the three analysis units (AU-16, AU-17, and AU-18). Based on data from the analysis units, the maximum artifact density for Con-1 is 5 artifacts per square meter. Of the 13 ceramics analyzed, only one was temporally diagnostic, a McElmo Black-on-white sherd. Although only one sherd was typeable, the ceramics in the analysis units are consistent with the overall McElmo through Mesa Verde phase occupation of East Ruin.

### *Feature Descriptions: Depressions*

#### Depression 1 (DE-1)

Description: Large circular depression with an encircling mound

Function: Great Kiva

Temporal Affiliation: Late Bonito – Mesa Verde

Date: A.D. 1110-1280

Size: 22 m diameter

Depth: 1.25 m

Shape: Circular

The great kiva (DE-1) is located in the plaza of East Ruin directly south of the East and West Roomblocks. The depression itself is 22 m in diameter and the surrounding mound including the probable antechamber on the north side is 34 m



in diameter. A few wall segments are visible on the eastern and southern portions of the structural mound. No artifacts were directly associated with the kiva depression. Given that the earliest tree-ring dates for the East Ruin roomblocks indicate Late Bonito phase construction, it is likely that the great kiva also dates from the Late Bonito through Mesa Verde phases. The central location of the great kiva in the East Ruins plaza and its location in relation to the two roomblocks suggest that it was part of the original planned layout of the East Ruin complex and probably built during the Late Bonito or Early McElmo phase construction episodes.

#### Depression 2 (DE-2)

Description: Small shallow depression

Function: Pit structure or small kiva

Temporal Affiliation: Late McElmo – Early Mesa Verde

Date: A.D. 1175-1250

Size: 9.8-by-8.8 m

Depth: 0.1 m

Shape: Circular

Depression 2 (DE-2) is a shallow and poorly defined depression located within **Trash Midden 2 (TM-2)** between Earl Morris Ruin and East Ruin East Roomblock. It is roughly 9.8-by-8.8 m in size and at its lowest point is only 0.1 m below the modern ground surface. During previous surveys and mapping of the East Ruin complex, this depression was identified as a great kiva (GK-2) (Lister and Lister 1990:159, Figure 9.4). Given the shallow and ephemeral characteristics of the depression, it is difficult to place a functional designation on the feature. Based on the typeable ceramics identified in Trash Midden 2, the depression represents a pit structure of unknown function dating from the late McElmo through Mesa Verde phases.

#### Depression 3 (DE-3)

Description: Small shallow depression with encircling rock ring

Function: Pit structure or herradura

Temporal Affiliation: Late Pueblo II – Pueblo III

Date: A.D. 1100-1280

Size: 6.8 – 7.0 m diameter

Depth: 0.1 m

Shape: Circular

Depression 3 (DE-3) is a very shallow depression and roughly circular ring of sandstone located southeast of Mounds G and H. Four rock anomalies (RA-1, RA-2,

RA-3, and RA-4) are in close proximity to the depression. The depression is roughly circular measuring 6.8-by-7 m, but is relatively shallow. It is partially defined by a noncontiguous ring of mostly tabular sandstone with some blocky rock and cobbles. The rock ring varies in width between 0.3 and 0.9 m. This feature could be a kiva depression, but given its proximity to the Chacoan road related swale and the ephemeral characteristics of the rock ring and depression, it may also be a herradura. Due to the absence of associated artifacts, a broad date range of Late Pueblo II through Pueblo III (A.D. 1100-1280) was assigned to the alignment.

#### Depression 4 (DE-4)

Description: Small depression

Function: Kiva

Temporal Affiliation: Late McElmo – Mesa Verde

Date: A.D. 1110-1280

Size: 5.4 m diameter

Depth: 0.35 m

Shape: Circular

Depression 4 (DE-4) is located 3 m east of the great kiva in the East Ruins plaza. It is 5.4 m in diameter and 0.35 m below the modern ground surface. Its location in the plaza and in close proximity to the great kiva, suggests that DE-4 is probably a small kiva associated with plaza ceremonies. DE-4 corresponds to Kiva R on the 1989 conceptual map of East Ruin by Stein, McKenna, and colleagues. Although no artifacts are associated with the kiva, its location within the plaza and proximity to the great kiva suggest it may date as early as the late McElmo phase and the earliest construction of the East Ruin.

#### Depression 5 (DE-5)

Description: Small depression with encircling low mound

Function: Kiva

Temporal Affiliation: McElmo

Date: A.D. 1130-1190

Size: 7 m diameter

Depth: 0.3 m

Shape: Circular

Depression 5 (DE-5) is a possible kiva depression located within Concentration 1 just to the east of the park Maintenance/Preservation Headquarters. The depression is well defined at 7 m in diameter and 0.3 m deep. Typical of kiva and pit structure depressions, vegetation growth within the depression is significantly

thicker and lusher than the surrounding area. Several corrugated gray ware sherds were found in association with DE-5. Based on the typeable ceramics identified in Concentration 1 analysis units, the kiva depression probably dates to the McElmo phase (A.D. 1130-1190).

### *Feature Descriptions: Trash Middens*

#### Trash Midden 1 (TM-1)

Description: Trash Midden  
Function: Secondary Refuse Disposal  
Temporal Affiliation: Mesa Verde  
Date: A.D. 1190-1280  
Size: 120-by-64 m  
Depth: N/A  
Shape: Irregular

Trash Midden 1 (TM-1) is the primary midden area for the East Ruin complex. It is located in the main plaza southeast of the great kiva. The midden encompasses Mounds G and H along with about half of Swale 1 that is probably Chacoan road related. The eastern half of Rock Anomaly 6 (RA-6) also extends into the midden area. TM-1 covers an area approximately 120-by-64 m and is mostly dispersed trash with the highest density of artifacts present in the eastern portion. Three analysis units (AU-7, AU-8, and AU-9) were placed in the eastern portion of the midden to capture areas of highest artifact density. Based on the analysis unit data, the maximum artifact density for the midden is 25 artifacts per square meter. Units AU-7 and AU-9 located along the eastern edge of midden yielded the highest number of artifacts and contained charcoal, burned bone, and some dark ashy soil. In addition to **Mounds G and H and Swale 1**, a hearth (**FH-1**) and a historic trash dump (**DU-1**) are located within the midden boundaries. Of 171 ceramics analyzed from the three analysis units, 18 sherds were temporally and typologically diagnostic, producing ceramic dates of medium confidence (ceramic mean date A.D. 1229; interquartile range A.D. 1200-1258). The assemblage indicates a late Pueblo III period date for the midden between A.D. 1190 and 1280.

#### Trash Midden 2 (TM-2)

Description: Trash Midden  
Function: Secondary Refuse Disposal  
Temporal Affiliation: Late McElmo – Early Mesa Verde  
Date: A.D. 1175-1250

Size: 22-by-14 m diameter  
Depth: N/A  
Shape: Oval

Trash Midden 2 (TM-2) is a small midden area located 36 m south of Earl Morris Ruin and 23 m north of the East Ruin East Roomblock. It is roughly oval shaped measuring 22 m east-west by 14 m north-south. A shallow, ephemeral depression (DE-2) is located within the midden area and was identified as a great kiva during previous survey and reconnaissance. The high artifact density, soil staining, burned bone, burned rock, and charcoal are good indications that this area is a midden. Three analysis units were placed within the midden and yielded lithic debitage, lithic tools, and ceramics. Based on the analysis unit data, the maximum artifact density for the midden is 18 artifacts per square meter. Of the 83 sherds examined in the analysis units, 14 were temporally and typologically diagnostic, producing ceramic dates of medium confidence (ceramic mean date A.D. 1206; interquartile range A.D. 1175-1237). Ceramic mean date and range calculations from the typeable ceramics indicate a Late McElmo to Early Mesa Verde phase date for the midden and depression.

#### *Feature Descriptions: Hearths*

##### Fire Hearth 1 (FH-1)

Description: Thermal feature  
Function: Hearth  
Temporal Affiliation: Historic  
Date: 1880-1920s  
Size: 1.8-by-0.8 m  
Depth: N/A  
Shape: Rectangular

Fire Hearth 1 (FH-1) is located within the boundaries of Trash Midden 1 and approximately 8 m south of the great kiva (DE-1). The hearth area is roughly rectangular shaped measuring 1.8-by-0.8 m. Wood fragments present in the stained and ashy soil indicate that old latillas from East Ruin were likely used in the fire. There is no formal campfire ring but a metal food can is associated. Given that this area of the monument was incorporated into the park in 1928, this hearth probably dates to the preceding years possibly during the early to mid-1920s or earlier.

##### Fire Hearth 2 (FH-2)

Description: Thermal feature

Function: Hearth  
Temporal Affiliation: Late Pueblo II – Pueblo III  
Date: A.D. 1100-1280  
Size: 0.6 m diameter  
Depth: N/A  
Shape: Circular

Fire Hearth 2 (FH-2) is a small deflated hearth with charcoal stained soil located 7 m southwest of Mound F (MD-F). Other than soil staining the feature lacks any evidence of thermally altered rock or artifacts. It is 0.6 m in diameter and is a roughly circular shape. It is presumed to be prehistoric, although a large area for disposal of historic stabilization debris is located less than 10 m to the east. A single corrugated sherd was found a few meters to the south. Due to the absence of diagnostic artifacts, a broad date range of Late Pueblo II through Pueblo III (A.D. 1100-1280) was assigned to the alignment.

*Feature Description: Swale (Chacoan Road Related)*

Swale 1 (SW-1)

Description: Linear Swale  
Function: Chacoan Road  
Temporal Affiliation: Late Pueblo II – Pueblo III  
Date: A.D. 1100-1280  
Size: 52-by-4.5 m  
Depth: N/A  
Shape: Linear

Swale 1 (SW-1) is visible along a 52 m long linear segment running between Mounds G and H. The swale is defined by a shallow trough and distinct vegetation change beginning approximately 25 m southeast of the Mound G and H complex. A rock alignment (RA-5) appears to define the southern extent of the swale. Width of the swale is fairly consistent but varies between 4.2 and 5.2 m wide. The swale is oriented along a southeast to northwest alignment at 330°. It is likely that the swale is associated with a Chacoan Road entering the East Ruin complex from the south. The location between Mounds G and H provides a prominent entryway leading into the East Ruin Plaza. Comparison with the Chacoan Road segment leading up the mesa slope to the north and into the North Ruin complex indicates the two road segments do not connect. Orientation of the North Ruin road segment is at 340° and its linear alignment is roughly 40-50 m west of the East Ruin road segment (SW-1). It is likely that SW-1 dates to the earliest construction of East Ruin during the Late Bonito phase consistent with Chacoan Road features and its

use as the southern entry way into the plaza may have continued throughout the occupation of the site.

*Feature Description: Soil Anomaly*

Soil Anomaly 1 (SA-1)

Description: Soil Anomaly

Function: Activity Area – Construction/Remodeling

Temporal Affiliation: Late Pueblo II – Pueblo III

Date: A.D. 1100-1280

Size: 2.5-by-4 m

Depth: N/A

Shape: Oval

A Soil Anomaly (SA-1) is located west of the great kiva (DE-1) and adjacent to a linear rock alignment (RA-9). It is a distinct soil anomaly and is probably a deposit of melted adobe covering a 2.5-by-4 m area. A small number of sherds and cobbles are associated with the deposit. Given its location and composition, it likely represents the remains of an activity area for processing plaster and adobe for construction.

*Feature Descriptions: Earthworks*

Earthwork 1 (EW-1)

Description: Earthen mound

Function: Water control

Temporal Affiliation: Historic/Modern

Date: 1960s

Size: 49-by-4 m

Height: 0.8

Shape: Irregular

Earthwork 1 is a curvilinear berm located 12 to 14 m north of the west roomblock of East Ruin. It is irregularly shaped beginning on the western side at a 90° orientation and extending for 25 m. At this point the earth work forks into two extensions of the mound with one section extending 20 m to the northeast and the second section extending 25 m to the east. The mound is built of compacted soil with some cobbles and gravels present. Height of the mound varies but averages 0.8 m. The earthwork is probably associated with historic water control in the area between East Ruin and Earl Morris Ruin where the Abrams barn was located.

Lister and Lister (1990:225) indicate that in 1962 “overflow of the Hubbard pond was creating an adjacent bog and threatening the East Ruin.” As a result, “remedial action by the Ruins Stabilization Unit group was carried out the following year” (Lister and Lister 1990:225). It is not clear what the remedial action entailed, but it is likely that the earthen berms (EW 1, 2, and 4) located just north of East Ruin were built during this time to contain water from the Hubbard pond.

### Earthwork 2 (EW-2)

Description: Earthen mound  
Function: Water control  
Temporal Affiliation: Historic  
Date: 1960s  
Size: 22-by-18 m  
Height: 1.5 m  
Shape: Subrectangular

Earthwork 2 is a subrectangular earthen platform located west of Earthwork 1 and approximately 20 m north of the west roomblock of East Ruin. The southeast corner of the earthen platform is connected to the northwestern edge of Earthwork 1. It is 22 m north-south by 18 m east-west and at its highest point is 1.5 m above the lowland ground surface on the north side. As mentioned in Lister and Lister (1990), the Abrams hay barn was located in this area adjacent to Earl Morris Ruin until 1933 at which time it was dismantled and moved to the northwest outside of the 1933 monument boundary. Lister and Lister (1990:225) indicate that in 1962 “overflow of the Hubbard pond was creating an adjacent bog and threatening the East Ruin.” As a result, “remedial action by the Ruins Stabilization Unit group was carried out the following year” (Lister and Lister 1990:225). It is not clear what the remedial action entailed, but it is likely that the earthen berms (EW 1, 2, and 4) located just north of East Ruin were built during this time to contain water from the Hubbard pond.

### Earthwork 3 (EW-3)

Description: Earthen berm  
Function: Fence line berm  
Temporal Affiliation: Historic  
Date: 1880-1927  
Size: 127-by-2 m  
Height: 0.1 m  
Shape: Linear

Earthwork 3 is a linear north-south running earthen berm located on the west side of the East Ruins plaza and west roomblock. The southern end of the berm intersects with the northwestern corner of Mound G and extends roughly north from that point at a 345° orientation. With a berm height of 0.1 m, the linear feature is relatively ephemeral along most of the length. At first glance the feature could be interpreted as a prehistoric landscape feature forming the western edge of the main plaza of East Ruin. The berm location, however, matches a historic fence line present on a 1930s Aztec base map and is associated with ownership of the property by the Abrams family.

#### Earthwork 4 (EW-4)

Description: Earthen berm  
Function: Water Control  
Temporal Affiliation: Historic  
Date: 1960s  
Size: 24-by-4-5 m  
Height: 0.4 m  
Shape: Linear

Earthwork 4 is a linear earthen berm extending from the northwest corner of the west roomblock of East Ruin to the southwest side of Mound C. It is 24 m long and varies between 4 and 5 m wide. The berm is 0.4 m above the modern ground surface. Given its location in relationship to historic Earthworks 1 and 2, and its lack of prehistoric artifacts, EW-4 is most likely associated with historic water control. Lister and Lister (1990:225) indicate that in 1962 “overflow of the Hubbard pond was creating an adjacent bog and threatening the East Ruin.” As a result, “remedial action by the Ruins Stabilization Unit group was carried out the following year” (Lister and Lister 1990:225). It is not clear what the remedial action entailed, but it is likely that the earthen berms (EW 1, 2, and 4) located just north of East Ruin were built during this time to contain water from the Hubbard pond.

Feature Descriptions: Historic Trash Dumps

#### Dump 1 (DU-1)

Description: Trash Dump  
Function: Trash and Excavation Backdirt Dump  
Temporal Affiliation: Historic  
Date: 1930s  
Size: 7-by-3.5 m



Height: N/A  
Shape: Elongated

DU-1 is a historic trash dump located near the northern edge of Midden 1 (TM-1) and roughly 6 m southeast of the great kiva (DE-1). The trash appears to have been dumped in a west to east trending drainage on the south side of the great kiva. In addition to old stabilization stone and probable excavation backdirt from Morris' work at West Ruin, the dump includes tin cans, galvanized buckets, glass (blue, brown, clear), floral china, a 32 oz Hypro bottle (brown), a galvanized wash tub, barbed wire, stone pipe, and sheet metal. The primary area of historic trash covers an area 7-by-3.5 m in size. Lister and Lister (1990:142) indicate that in 1935 a small crew with the Civilian Conservation Corps (CCC) spent several months cleaning up the monument area. One of their assigned tasks was to obliterate and dispose of "borrow pits, dumps, and exploration trenches and put debris from them in arroyos in the vicinity." Given that DU-1 is located in an arroyo on the eastern side of the East Ruins plaza, it is possible that this dump was created in 1935 by the CCC crew.

### Dump 2 (DU-2)

Description: Trash Dump  
Function: Stabilization Debris Dump  
Temporal Affiliation: Historic/Modern  
Date: 1960-1980  
Size: 40-by-40 m  
Height: N/A  
Shape: Irregular

DU-2 is a large historic/modern stabilization dump located a few meters south of Earl Morris Ruin extending south for approximately 40 m to the northwest corner of Midden 2. The stabilization material identified in the dump area includes sandstone fragments, cobbles, bricks, cement, cinder blocks, a galvanized bucket, and a paint can. Two metates and one mano were identified along the southeastern edge near the Midden 2 boundary. No other prehistoric artifacts were found in the dumping area. The stabilization debris is widely dispersed over the entire dumping area and does not appear to have been piled higher than a few cm above the ground surface. Based on the assortment of material in the dump, it probably dates to the period between 1960 and 1980.

### Dump 3 (DU-3)

Description: Trash Dump

Function: Asphalt Dump  
Temporal Affiliation: Historic/Modern  
Date: 1945-1995  
Size: 2.5-by-2 m  
Height: N/A  
Shape: Circular

DU-3 is a small concentration of asphalt fragments and gravel. It is a roughly circular area measuring 2.5-by-2 m in size. The material is not directly associated with stabilization debris but may be a disposal area associated with paving of trails and other areas. Until the mid-1990s a large area just to the east and southeast of Mound F was used as a stabilization staging area and is visible on the 1950 aerial photograph of the monument. DU-3 is located roughly 40 m southeast of the staging area and may be associated with general debris in the Mound F area. Most of the debris and materials in and around the staging area was removed in the late 1990s after this area was no longer used for stabilization storage and preparation.

#### Dump 4 (DU-4)

Description: Trash Dump  
Function: Bitumen Dump  
Temporal Affiliation: Historic/Modern  
Date: 1945-1995  
Size: 2.5 m diameter  
Height: N/A  
Shape: Circular

DU-4 is located roughly 2 m south of Mound F and covers a small area of 2.5 m in diameter. It is a bitumen dump associated with historic stabilization. Until the mid-1990s a large area just to the east and southeast of Mound F was used as a stabilization staging area and is visible on the 1950 aerial photograph of the monument. DU-4 is located within the old staging area and is associated with general stabilization debris in the Mound F area. Most of the debris and materials in and around the staging area was removed in the late 1990s after this area was no longer used for stabilization storage and preparation.

#### Dump 5 (DU-5)

Description: Trash Dump  
Function: Stabilization Debris Dump  
Temporal Affiliation: Historic/Modern  
Date: 1945-1995

Size: 4 m diameter  
Height: N/A  
Shape: Circular

DU-5 is a stabilization debris dump located 24 m south of Mound F. It contains gravel, sandstone fragments, concrete, and broken glass (clear and green). It is 4 m in diameter and is associated with historic stabilization of walls at West and East Ruins. Until the mid-1990s a large area just to the east and southeast of Mound F was used as a stabilization staging area and is visible on the 1950 aerial photograph of the monument. DU-5 is located roughly 10 m southwest of the staging area and is associated with general stabilization debris in the Mound F area. Most of the debris and materials in and around the staging area was removed in the late 1990s after this area was no longer used for stabilization storage and preparation.

#### Dump 6 (DU-6)

Description: Trash Dump  
Function: Stabilization Debris Dump  
Temporal Affiliation: Historic/Modern  
Date: 1945-1995  
Size: 7 m diameter  
Height: 0.2 – 0.3 m  
Shape: Circular

DU-6 is a stabilization debris dump located less than 3 m east of Mound F. It is 7 m in diameter and is mounded 0.2 to 0.3 m above the modern ground surface. It contains sandstone fragments, concrete, logs, tin cans, and other smaller debris. Similar to DU-5 it is related to historic stabilization of walls at West and East Ruins. Until the mid-1990s a large area just to the east and southeast of Mound F was used as a stabilization staging area and is visible on the 1950 aerial photograph of the monument. DU-6 is located within the old staging area and is associated with general stabilization debris in the Mound F area. Most of the debris and materials in and around the staging area was removed in the late 1990s after this area was no longer used for stabilization storage and preparation.

#### Dump 7 (DU-7)

Description: Trash Dump  
Function: Stabilization Debris Dump  
Temporal Affiliation: Historic/Modern  
Date: 1945-1995  
Size: 5-by-4.5 m

Height: 0.5 m  
Shape: Oval

DU-7 is a stabilization debris dump located on the north end of Concentration 2 approximately 15 m west of the West Roomblock of East Ruin. It is 5-by-4.5 m in size and is mounded 0.5 m above the modern ground surface. Stabilization materials present in DU-7 include sandstone, concrete, and dirt. Similar to other historic dumps in the East Ruins area, this material is related to historic stabilization of walls at West and East Ruins. Until the mid-1990s a large area just to the east and southeast of Mound F was used as a stabilization staging area and is visible on the 1950 aerial photograph of the monument. DU-7 is located less than 15 m east of the staging area and is likely associated with general stabilization debris in the Mound F area. Most of the debris and materials in and around the staging area was removed in the late 1990s after this area was no longer used for stabilization storage and preparation.

#### Dump 8 (DU-8)

Description: Trash Dump  
Function: Excavation Debris Dump  
Temporal Affiliation: Historic  
Date: 1916 – 1922  
Size: 65-by-24 m  
Height: 0.2 – 0.5 m  
Shape: Irregular

DU-8 is a historic excavation dump located off the southwest edge of Trash Midden 2 and less than 10 m southwest of Mound G. This dump area includes piles of earth mixed with cobbles, sandstone, and some cement. At least 20 individual piles were identified along with a linear dump pile 20 m long and 3 m wide. The presence of mounded earth and prehistoric artifacts such as ceramics suggests that the dump is from historic excavation probably at West Ruin. The presence of cement also suggests that some of the dumping may be related to stabilization work. Lister and Lister (1990:120) indicate that “Morris used the area slightly to the south of the ruin [East Ruin] itself as a dumping ground for some of the fill from the interior West Ruin rooms.” Given the large extent of DU-8 and the piling of earth, debris, and artifacts, it is likely that DU-8 was Morris’ dumping ground during his work at West Ruin between 1916 and 1922.

## CONCLUSIONS

The AERLP produced an updated map of archeological features and modern infrastructure in and around the East Ruin complex at AZRU. In Fall 2009, NPS archeologists surveyed and documented the East Ruins, Earl Morris Ruin, and surrounding landscape, flagging a wide array of cultural resources and modern features. Subsequent mapping was conducted by Mike Brack, GIS specialist with Desert Archaeology, Inc (DCI) and CDA, who mapped the area using state of the art GPS equipment. This partnership was funded through a CPCEU grant. The project produced a highly accurate GIS base map for archeological research and related studies, baseline documentation of the cultural landscape, development of interpretive media, and park management. The archaeological recording and in-field analysis work completed has greatly expanded the dataset for the East Ruin area and will let to an improved understanding of the ancient use of the area and an improved public interpretation of the Aztec Community overall.

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**APPENDIX A**

**CERAMIC AND LITHIC IN-FIELD ANALYSIS TABLES**

Table 1. Cross-tabulation of Ceramic Types and Vessel Forms from Earl Morris Ruin.

Tradition	Variety	Ware	Ceramic Type	Bowl	Jar	Indeterminate	Total	Percent
Chuska	Nonlocal	Gray	Corrugated gray	-	1	-	1	0.8
<i>Subtotal</i>				-	1	-	1	0.8
Cibola	Nonlocal	White	Chaco-McElmo B/w	1	-	-	1	0.8
<i>Subtotal</i>				1	-	-	1	0.8
Northern San Juan	Animas	Gray	Corrugated gray	-	66	-	66	54.5
			Indeterminate gray	-	1	-	1	0.8
		White	McElmo B/w	2	-	-	2	1.7
			Mesa Verde B/w	7	2	-	9	7.4
			Pueblo III b/w	14	3	-	17	14.0
			Painted b/w	2	-	1	3	2.5
			Slipped white	13	-	2	15	12.4
	Nonlocal	Gray	Corrugated gray	-	2	-	2	1.7
			Mesa Verde B/w	1	-	-	1	0.8
		White	Pueblo III b/w	1	1	-	2	1.7
			Slipped white	1	-	-	1	0.8
<i>Subtotal</i>				41	75	3	119	98.3
<b>Total</b>				<b>42</b>	<b>76</b>	<b>3</b>	<b>121</b>	<b>100.0</b>
<b>Percent</b>				<b>34.7</b>	<b>62.8</b>	<b>2.5</b>	<b>100.0</b>	

Table 2. Cross-tabulation of Lithic Material Type and Debitage Type from Earl Morris Ruin.

Material Origin	Material Type	Aztec Code	Primary	Secondary	Interior	Angular Debris	Total	Percent
			Decortication Flake	Decortication Flake	Core Flake			
Local	Chert (Opaque)	CH-13	-	-	1	-	1	2.9
	Limestone	LM-01	-	-	5	-	5	14.7
	Siltstone	ST-03	-	-	2	1	3	8.8
		ST-04	-	-	2	-	2	5.9
	Andesite	IG-01	3	1	4	1	9	26.5
	Basalt	IG-02	1	-	1	-	2	5.9
	Rhyolite	IG-03	1	-	-	-	1	2.9
	Porphyry	IG-10	-	-	-	1	1	2.9
	Quartzite	QZ-04	1	1	3	1	6	17.6
		QZ-05	-	-	1	-	1	2.9
		QZ-13	-	-	1	-	1	2.9
<i>Subtotal</i>			6	2	20	4	32	94.1
Nonlocal	Chert (Chaco)	CH-02	-	-	1	-	1	2.9
	Obsidian	OB-01	-	-	1	-	1	2.9
<i>Subtotal</i>			-	-	2	-	2	5.9
<b>Total</b>			<b>6</b>	<b>2</b>	<b>22</b>	<b>4</b>	<b>34</b>	<b>100.0</b>
<b>Percent</b>			<b>17.6</b>	<b>5.9</b>	<b>64.7</b>	<b>11.8</b>	<b>100.0</b>	



Table 3. Cross-tabulation of Lithic Tool Type and Material Type from Earl Morris Ruin.

Tool Class	Tool Type	Local				Nonlocal	Total	Percent
		Limestone LM-01	Sandstone SD-02	Rhyolite IG-03	Granitic IG-07	Quartzitic Sandstone QS-03		
Ground Stone	Indeterminate Metate Fragment	-	-	-	1	-	1	14.3
	One-Hand Cobble Mano	-	-	-	-	1	1	14.3
	Two-Hand Shaped Mano	-	-	-	-	1	1	14.3
	Indeterminate Mano Fragment	-	-	-	-	1	1	14.3
<i>Subtotal</i>		-	-	-	1	3	4	57.1
Retouched								
Flake Tools	Scraping Tool	-	-	1	-	-	1	14.3
	Denticulate	1	-	-	-	-	1	14.3
<i>Subtotal</i>		1	-	1	-	-	2	28.6
Unflaked								
Hammerstones	Hammerstone	-	1	-	-	-	1	14.3
<i>Subtotal</i>		-	1	-	-	-	1	14.3
<b>Total</b>		<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>7</b>	<b>100.0</b>
<b>Percent</b>		<b>14.3</b>	<b>14.3</b>	<b>14.3</b>	<b>14.3</b>	<b>42.9</b>	<b>100.0</b>	

Table 4. Cross-tabulation of Ceramic Types and Vessel Forms from East Ruin Concentration 1.

Tradition	Variety	Ware	Ceramic Type	Bowl	Jar	Total	Percent
Cibola	Nonlocal	Red	White Mountain Red Ware	-	1	1	3.4
		White	Chaco-McElmo B/w	1	-	1	3.4
			Pueblo III b/w	-	1	1	3.4
Subtotal				1	2	3	10.3
Northern San Juan	Animas	Gray	Corrugated gray	-	9	9	31.0
			Plain gray	-	2	2	6.9
		White	McElmo B/w	3	-	3	10.3
			Pueblo III b/w	2	-	2	6.9
			Painted b/w	1	1	2	6.9
			Slipped white	1	-	1	3.4
	Nonlocal	Gray	Corrugated gray	-	4	4	13.8
		White	Pueblo III b/w	1	1	2	6.9
Subtotal				8	17	25	86.2
Indeterminate	Nonlocal	Gray	Plain gray	-	1	1	3.4
Subtotal				-	1	1	3.4
Total				9	20	29	100.0
Percent				31.0	69.0	100.0	

Table 5. Cross-tabulation of Lithic Material Type and Debitage Type from East Ruin Concentration 1.

<b>Material Origin</b>	<b>Material Type</b>	<b>Aztec Code</b>	<b>Primary Decortication Flake</b>	<b>Secondary Decortication Flake</b>	<b>Interior Core Flake</b>	<b>Angular Debris</b>	<b>Total</b>	<b>Percent</b>
Local	Chert (Opaque)	CH-10	-	-	1	-	1	4.8
	Limestone	LM-01	-	1	1	-	2	9.5
	Siltstone	ST-03	-	-	1	-	1	4.8
		ST-04	-	-	1	-	1	4.8
	Basalt	IG-02	1	3	5	1	10	47.6
	Gabbro	IG-06	-	-	1	-	1	4.8
	Porphyry	IG-10	1	-	-	-	1	4.8
	Quartzite	QZ-04	2	-	1	-	3	14.3
<i>Subtotal</i>			<i>4</i>	<i>4</i>	<i>11</i>	<i>1</i>	<i>20</i>	<i>95.2</i>
Nonlocal	Mudstone	MD-01	-	-	1	-	1	4.8
<i>Subtotal</i>			<i>-</i>	<i>-</i>	<i>1</i>	<i>-</i>	<i>1</i>	<i>4.8</i>
<b>Total</b>			<b>4</b>	<b>4</b>	<b>12</b>	<b>1</b>	<b>21</b>	<b>100.0</b>
<b>Percent</b>			<b>19.0</b>	<b>19.0</b>	<b>57.1</b>	<b>4.8</b>	<b>100.0</b>	

Table 6. Cross-tabulation of Lithic Tool Type and Material Type from East Ruin Concentration 1.

<b>Tool Class</b>	<b>Tool Type</b>	<b>Local</b>	<b>Nonlocal</b>	<b>Total</b>	<b>Percent</b>
		<b>Andesite</b>	<b>Orthoquartzite</b>		
		<b>IG-01</b>	<b>OQ-02</b>		
Bifacial Tools and Manufacturing Rejects	Bifacial Knife	1	-	1	50.0
Ground Stone	One-Hand Cobble Mano	-	1	1	50.0
<b>Total</b>		<b>1</b>	<b>1</b>	<b>2</b>	<b>100.0</b>
<b>Percent</b>		<b>50.0</b>	<b>50.0</b>	<b>100.0</b>	

Table 7. Cross-tabulation of Ceramic Types and Vessel Forms from East Ruin Concentration 2.

Tradition	Variety	Ware	Ceramic Type	Bowl	Jar	Total	Percent
Chuska	Nonlocal	Gray	Corrugated gray	-	1	1	7.7
<i>Subtotal</i>				-	<i>1</i>	<i>1</i>	<i>7.7</i>
Cibola	Animas	White	Pueblo III b/w	1	-	1	7.7
<i>Subtotal</i>				<i>1</i>	-	<i>1</i>	<i>7.7</i>
Northern San Juan	Animas	Gray	Corrugated gray	-	8	8	61.5
		White	McElmo B/w	1	-	1	7.7
			Pueblo III b/w	2	-	2	15.4
<i>Subtotal</i>				<i>3</i>	<i>8</i>	<i>11</i>	<i>84.6</i>
<b>Total</b>				<b>4</b>	<b>9</b>	<b>13</b>	<b>100.0</b>
<b>Percent</b>				<b>30.8</b>	<b>69.2</b>	<b>100.0</b>	

Table 8. Cross-tabulation of Lithic Material Type and Debitage Type from East Ruin Concentration 2.

<b>Material Origin</b>	<b>Material Type</b>	<b>Aztec Code</b>	<b>Primary Decortication Flake</b>	<b>Secondary Decortication Flake</b>	<b>Interior Core Flake</b>	<b>Angular Debris</b>	<b>Indeterminate</b>	<b>Total</b>	<b>Percent</b>
Local	Chert (Fossiliferous)	CH-09	-	-	1	-	-	1	3.7
	Limestone	LM-01	-	-	1	-	1	2	7.4
	Siltstone	ST-01	-	-	1	-	-	1	3.7
		ST-03	1	-	2	1	-	4	14.8
		ST-04	-	-	-	2	-	2	7.4
		ST-09	-	1	-	-	-	1	3.7
	Andesite	IG-01	1	1	2	-	-	4	14.8
	Basalt	IG-02	-	-	2	-	-	2	7.4
	Quartzite	QZ-04	-	1	5	1	-	7	25.9
		QZ-05	-	1	-	1	-	2	7.4
<i>Subtotal</i>			2	4	14	5	1	26	96.3
Nonlocal	Orthoquartzite	OQ-02	-	-	-	1	-	1	3.7
<i>Subtotal</i>			-	-	-	1	-	1	3.7
<b>Total</b>			<b>2</b>	<b>4</b>	<b>14</b>	<b>6</b>	<b>1</b>	<b>27</b>	<b>100.0</b>
<b>Percent</b>			<b>7.4</b>	<b>14.8</b>	<b>51.9</b>	<b>22.2</b>	<b>3.7</b>	<b>100.0</b>	

Table 9. Cross-tabulation of Lithic Tool Type and Material Type from East Ruin Concentration 2.

<b>Tool Class</b>	<b>Tool Type</b>	<b>Local</b>	<b>Total</b>	<b>Percent</b>
		<b>Andesite IG-01</b>		
Used Cores	Pecking Stone	1	1	100.0
<b>Total</b>		<b>1</b>	<b>1</b>	<b>100.0</b>

Table 10. Cross-tabulation of Ceramic Types and Vessel Forms from East Ruin East Roomblock.

<b>Tradition</b>	<b>Variety</b>	<b>Ware</b>	<b>Ceramic Type</b>	<b>Bowl</b>	<b>Jar</b>	<b>Indeterminate</b>	<b>Total</b>	<b>Percent</b>
Northern San Juan	Animas	Gray	Corrugated gray	-	22	-	22	62.9
			Indeterminate gray	-	-	1	1	2.9
		White	Mesa Verde B/w	2	-	-	2	5.7
			Pueblo III b/w	3	-	1	4	11.4
			Painted b/w	1	-	-	1	2.9
			Slipped white	-	-	1	1	2.9
	Nonlocal	White	Mesa Verde B/w	1	-	-	1	2.9
			Pueblo II b/w	1	-	-	1	2.9
			Pueblo III b/w	-	1	-	1	2.9
			Slipped white	1	-	-	1	2.9
<b>Total</b>				<b>9</b>	<b>23</b>	<b>3</b>	<b>35</b>	<b>100.0</b>
<b>Percent</b>				<b>25.7</b>	<b>65.7</b>	<b>8.6</b>	<b>100.0</b>	

Table 11. Cross-tabulation of Lithic Material Type and Debitage Type from East Ruin East Roomblock.

Material Origin	Material Type	Aztec Code	Primary Decortication Flake	Secondary Decortication Flake	Interior Core Flake	Angular Debris	Indeterminate	Total	Percent
Local	Limestone	LM-01	-	-	1	-	-	1	6.3
	Siltstone	ST-03	-	1	4	-	1	6	37.5
		ST-04	-	-	1	-	-	1	6.3
	Andesite	IG-01	1	-	-	1	-	2	12.5
	Gabbro	IG-06	1	-	-	-	-	1	6.3
	Gneiss	MM-02	-	1	-	-	-	1	6.3
	Quartzite	QZ-04	1	-	1	-	-	2	12.5
		QZ-05	-	-	-	1	-	1	6.3
		QZ-12	-	1	-	-	-	1	6.3
Total			3	3	7	2	1	16	100.0
Percent			18.8	18.8	43.8	12.5	6.3	100.0	

Table 12. Cross-tabulation of Lithic Tool Type and Material Type from East Ruin East Roomblock.

Tool Class	Tool Type	Local		Total	Percent
		Andesite IG-01	Granitic IG-07		
Used Cores	Pecking Stone	1	-	1	33.3
Choppers	Cobble Chopper	1	-	1	33.3
Ground Stone	Indeterminate Mano Fragment	-	1	1	33.3
<b>Total</b>		<b>2</b>	<b>1</b>	<b>3</b>	<b>100.0</b>
<b>Percent</b>		<b>66.7</b>	<b>33.3</b>	<b>100.0</b>	

Table 13. Cross-tabulation of Ceramic Types and Vessel Forms from East Ruin West Roomblock.

Tradition	Variety	Ware	Ceramic Type	Bowl	Jar	Mug	Total	Percent
Chuska	Nonlocal	Gray	Corrugated gray	-	1	-	1	1.9
<i>Subtotal</i>				-	1	-	1	1.9
Northern San Juan	Animas	Gray	Corrugated gray	-	33	-	33	63.5
			Mesa Verde B/w	3	-	-	3	5.8
		White	Pueblo III b/w	5	1	-	6	11.5
			Slipped white	1	1	-	2	3.8
	Nonlocal	Gray	Corrugated gray	-	1	-	1	1.9
			McElmo B/w	1	-	-	1	1.9
		White	Mesa Verde B/w	1	-	-	1	1.9
			Pueblo III b/w	-	1	1	2	3.8
			Slipped white	1	1	-	2	3.8
<i>Subtotal</i>				12	38	1	51	98.1
<b>Total</b>				<b>12</b>	<b>39</b>	<b>1</b>	<b>52</b>	<b>100.0</b>
<b>Percent</b>				<b>23.1</b>	<b>75.0</b>	<b>1.9</b>	<b>100.0</b>	

Table 14. Cross-tabulation of Lithic Material Type and Debitage Type from East Ruin West Roomblock.

Material Origin	Material Type	Aztec Code	Primary	Secondary	Interior	Total	Percent
			Decortication Flake	Decortication Flake	Core Flake		
Local	Limestone	LM-01	-	-	1	1	7.1
	Siltstone	ST-01	1	1	-	2	14.3
		ST-03	-	1	-	1	7.1
	Andesite	IG-01	1	-	1	2	14.3
	Basalt	IG-02	-	-	1	1	7.1
	Granitic	IG-07	1	-	-	1	7.1
	Quartzite	QZ-01	-	1	-	1	7.1
		QZ-04	1	1	-	2	14.3
Subtotal			4	4	3	11	78.6
Nonlocal	Mudstone	MD-01	1	-	-	1	7.1
	Orthoquartzite	OQ-02	1	1	-	2	14.3
Subtotal			2	1	-	3	21.4
Total			6	5	3	14	100.0
Percent			42.9	35.7	21.4	100.0	

Table 15. Cross-tabulation of Lithic Tool Type and Material Type from East Ruin West Roomblock.

<b>Tool Class</b>	<b>Tool Type</b>	<b>Local</b>		<b>Nonlocal</b>		<b>Total</b>	<b>Percent</b>
		<b>Sandstone</b>	<b>Andesite</b>	<b>Quartzite</b>	<b>Sandstone</b>		
		<b>SD-02</b>	<b>IG-01</b>	<b>QZ-04</b>	<b>QZ-14</b>	<b>SD-06</b>	
Unretouched Cores	Bidirectional Core	-	1	-	-	-	1 20.0
Used Cores	Chopping Tool	-	-	-	1	-	1 20.0
Ground Stone	Basin Metate	1	-	-	-	-	1 20.0
Ground Stone	Indeterminate Mano Fragment	-	-	-	-	1	1 20.0
Shaped Stone	Shaped Slab	-	-	1	-	-	1 20.0
<b>Total</b>		<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>5 100.0</b>
<b>Percent</b>		<b>20.0</b>	<b>20.0</b>	<b>20.0</b>	<b>20.0</b>	<b>20.0</b>	<b>100.0</b>

Table 16. Cross-tabulation of Ceramic Types and Vessel Forms from East Ruin Midden 1.

Tradition	Variety	Ware	Ceramic Type	Bowl	Jar	Indeterminate	Total	Percent
Chuska	Nonlocal	Gray	Corrugated gray	-	1	-	1	0.6
<i>Subtotal</i>				-	1	-	1	0.6
Cibola	Animas	White	Pueblo III b/w	1	-	-	1	0.6
			Slipped white	-	1	-	1	0.6
	Nonlocal	Red	Wingate Polychrome	3	-	-	3	1.8
			White Mountain Red Ware	1	-	-	1	0.6
		White	Pueblo III b/w	-	1	-	1	0.6
<i>Subtotal</i>				5	2	-	7	4.1
Northern San Juan	Animas	Gray	Corrugated gray	-	109	-	109	63.7
			Plain gray	-	1	-	1	0.6
		White	Mesa Verde B/w	12	2	-	14	8.2
			Pueblo III b/w	14	1	2	17	9.9
	Nonlocal	White	Slipped white	4	4	5	13	7.6
			Mesa Verde B/w	1	-	-	1	0.6
			Pueblo III b/w	2	-	-	2	1.2
<i>Subtotal</i>				33	117	7	157	91.8
Indeterminate	Indeterminate	White	Slipped white	-	-	6	6	3.5
<i>Subtotal</i>				-	-	6	6	3.5
<b>Total</b>				<b>38</b>	<b>120</b>	<b>13</b>	<b>171</b>	<b>100.0</b>
<b>Percent</b>				<b>22.2</b>	<b>70.2</b>	<b>7.6</b>	<b>100.0</b>	

Table 17. Cross-tabulation of Lithic Material Type and Debitage Type from East Ruin Midden 1.

Material Origin	Material Type	Aztec Code	Primary Decortication Flake	Secondary Decortication Flake	Interior Core Flake	Bipolar Flake	Resharpening Flake	Angular Debris	Total	Percent
Local	Chert (Opaque)	CH-14	-	-	-	-	-	1	1	2.2
	Limestone	LM-01	-	1	-	1	-	-	2	4.3
	Siltstone	ST-03	1	-	-	-	-	-	1	2.2
		ST-04	-	-	1	-	-	-	1	2.2
		ST-09	-	-	1	-	-	-	1	2.2
	Sandstone	SD-09	-	-	1	-	-	-	1	2.2
	Andesite	IG-01	1	1	1	-	1	-	4	8.7
	Basalt	IG-02	2	-	4	-	-	3	9	19.6
	Porphyry	IG-10	-	1	1	-	-	2	4	8.7
	Quartzite	QZ-04	2	2	4	-	-	2	10	21.7
		QZ-05	-	-	2	1	-	-	3	6.5
<i>Subtotal</i>			6	5	15	2	1	8	37	80.4
Nonlocal	Chert (Morrison)	CH-21	-	-	1	-	-	-	1	2.2
	Silicified Wood	SW-10	1	-	-	-	-	-	1	2.2
	Orthoquartzite	OQ-01	1	-	-	-	-	-	1	2.2
		OQ-02	-	-	-	-	-	1	1	2.2
	Quartzitic Sandstone	QS-01	1	-	-	-	-	-	1	2.2
	Obsidian	OB-01	-	-	4	-	-	-	4	8.7
<i>Subtotal</i>			3	-	5	-	-	1	9	19.6
<b>Total</b>			<b>9</b>	<b>5</b>	<b>20</b>	<b>2</b>	<b>1</b>	<b>9</b>	<b>46</b>	<b>100.0</b>
<b>Percent</b>			<b>19.6</b>	<b>10.9</b>	<b>43.5</b>	<b>4.3</b>	<b>2.2</b>	<b>19.6</b>	<b>100.0</b>	

Table 18. Cross-tabulation of Lithic Tool Type and Material Type from East Ruin Midden 1.

Tool Class	Tool Type	Local		
		Basalt IG-02	Total	Percent
Retouched Cores	Chopping Tool	1	1	100.0
<b>Total</b>		<b>1</b>	<b>1</b>	<b>100.0</b>

Table 19. Cross-tabulation of Ceramic Types and Vessel Forms from East Ruin Midden 2.

Tradition	Variety	Ware	Ceramic Type	Bowl	Jar	Total	Percent
Chuska	Nonlocal	Gray	Corrugated gray	-	5	5	6.0
<i>Subtotal</i>				-	5	5	6.0
Cibola	Nonlocal	Red	Wingate Polychrome	2	-	2	2.4
		White	Chaco-McElmo B/w	-	1	1	1.2
<i>Subtotal</i>				2	1	3	3.6
Northern San Juan	Animas	Gray	Corrugated gray	-	47	47	56.6
		White	McElmo B/w	2	-	2	2.4
			Mesa Verde B/w	6	-	6	7.2
			Pueblo III b/w	8	-	8	9.6
			Slipped white	7	-	7	8.4
	Nonlocal	Gray	Corrugated gray	-	1	1	1.2
		White	McElmo B/w	1	-	1	1.2
			Mesa Verde B/w	1	1	2	2.4
			Pueblo III b/w	1	-	1	1.2
<i>Subtotal</i>				26	49	75	90.4
<b>Total</b>				<b>28</b>	<b>55</b>	<b>83</b>	<b>100.0</b>
<b>Percent</b>				<b>33.7</b>	<b>66.3</b>	<b>100.0</b>	

Table 20. Cross-tabulation of Lithic Material Type and Debitage Type from East Ruin Midden 2.

Material Origin	Material Type	Aztec Code	Primary Decortication Flake	Secondary Decortication Flake	Interior Core Flake	Bifacial Thinning Flake	Angular Debris	Total	Percent
Local	Chert (Opaque)	CH-14	-	-	1	-	-	1	2.0
	Limestone	LM-01	1	1	2	-	-	4	8.2
	Siltstone	ST-03	-	-	1	-	2	3	6.1
	Sandstone	SD-09	-	-	1	-	-	1	2.0
	Andesite	IG-01	1	-	2	-	-	3	6.1
	Basalt	IG-02	2	3	11	-	3	19	38.8
	Rhyolite	IG-03	-	-	-	-	1	1	2.0
	Gabbro	IG-06	-	1	-	-	1	2	4.1
	Porphyry	IG-10	-	-	1	-	1	2	4.1
	Gneiss	MM-02	-	-	-	-	1	1	2.0
	Quartzite	QZ-04	1	-	4	-	2	7	14.3
<i>Subtotal</i>			5	5	23	-	11	44	89.8
Nonlocal	Silicified Wood	SW-20	-	1	-	-	1	2	4.1
	Siltstone (Morrison)	ST-02	-	1	1	-	-	2	4.1
	Obsidian	OB-01	-	-	-	1	-	1	2.0
<i>Subtotal</i>			-	2	1	1	1	5	10.2
<b>Total</b>			<b>5</b>	<b>7</b>	<b>24</b>	<b>1</b>	<b>12</b>	<b>49</b>	<b>100.0</b>
<b>Percent</b>			<b>10.2</b>	<b>14.3</b>	<b>49.0</b>	<b>2.0</b>	<b>24.5</b>	<b>100.0</b>	

Table 21. Cross-tabulation of Lithic Tool Type and Material Type from East Ruin Midden 2.

Tool Class	Tool Type	Local				Nonlocal	Total	%
		Limestone LM-01	Andesite IG-01	Basalt IG-02	Quartzite QZ-12	Chert		
						(Chalcedonic) CH-32		
Chopping Tool	Chopping Tool	--	--	1	--	--	1	12.5
Multi-Functional								
Flake Tools	Cutting/Scraping Tool	1	--	--	--	--	1	12.5
Pecked Stone	Pecking Stone	--	--	1	--	--	1	12.5
Projectile Points	Arrow Point	--	--	--	--	1	1	12.5
Retouched Cores	Denticulate	--	--	--	1	--	1	12.5
	Pecking/Abrading Tool	--	--	1	--	--	1	12.5
Scraper-Planes	Flake Tool	--	1	--	--	--	1	12.5
Unretouched Cores	Bipolar Core	1	--	--	--	--	1	12.5
Total		2	1	3	1	1	8	100.0
Percent		25.0	12.5	37.5	12.5	12.5	100.0	



Table 22. Cross-tabulation of Ceramic Types and Vessel Forms from East Ruin Mound C.

<b>Tradition</b>	<b>Variety</b>	<b>Ware</b>	<b>Ceramic Type</b>	<b>Bowl</b>	<b>Jar</b>	<b>Total</b>	<b>Percent</b>
Northern San Juan	Animas	Gray	Corrugated gray	-	13	13	59.1
		White	Mesa Verde B/w	2	-	2	9.1
			Pueblo III b/w	4	-	4	18.2
			Slipped white	1	1	2	9.1
	Nonlocal	White	Slipped white	-	1	1	4.5
<b>Total</b>				<b>7</b>	<b>15</b>	<b>22</b>	<b>100.0</b>
<b>Percent</b>				<b>31.8</b>	<b>68.2</b>	<b>100.0</b>	

Table 23. Cross-tabulation of Lithic Material Type and Debitage Type from East Ruin Mound C.

<b>Material Origin</b>	<b>Material Type</b>	<b>Aztec Code</b>	<b>Primary Decortication Flake</b>	<b>Interior Core Flake</b>	<b>Total</b>	<b>Percent</b>
Local	Limestone	LM-01	-	2	2	28.6
	Siltstone	ST-03	-	1	1	14.3
	Andesite	IG-01	-	1	1	14.3
	Quartzite	QZ-04	1	2	3	42.9
<b>Total</b>			<b>1</b>	<b>6</b>	<b>7</b>	<b>100.0</b>
<b>Percent</b>			<b>14.3</b>	<b>85.7</b>	<b>100.0</b>	

Table 24. Cross-tabulation of Ceramic Types and Vessel Forms from East Ruin Mound D.

<b>Tradition</b>	<b>Variety</b>	<b>Ware</b>	<b>Ceramic Type</b>	<b>Bowl</b>	<b>Jar</b>	<b>Total</b>	<b>Percent</b>
Cibola	Nonlocal	Gray	Corrugated gray	-	1	1	8.3
<i>Subtotal</i>				-	1	1	8.3
Northern San Juan	Animas	Gray	Corrugated gray	-	8	8	66.7
		White	Pueblo III b/w	1	-	1	8.3
			Slipped white	1	-	1	8.3
	Nonlocal	White	Slipped white	1	-	1	8.3
				3	8	11	91.7
<i>Subtotal</i>				3	8	11	91.7
<b>Total</b>				<b>3</b>	<b>9</b>	<b>12</b>	<b>100.0</b>
<b>Percent</b>				<b>25.0</b>	<b>75.0</b>	<b>100.0</b>	

Table 25. Cross-tabulation of Lithic Material Type and Debitage Type from East Ruin Mound D.

<b>Material Origin</b>	<b>Material Type</b>	<b>Aztec Code</b>	<b>Primary Decortication Flake</b>	<b>Interior Core Flake</b>	<b>Bipolar Flake</b>	<b>Angular Debris</b>	<b>Total</b>	<b>Percent</b>
Local	Limestone	LM-01	1	-	-	-	1	9.1
	Siltstone	ST-03	-	1	-	1	2	18.2
		ST-04	-	1	-	-	1	9.1
	Sandstone	SD-09	-	-	-	1	1	9.1
	Andesite	IG-01	1	2	1	-	4	36.4
	Quartzite	QZ-04	1	1	-	-	2	18.2
<b>Total</b>			<b>3</b>	<b>5</b>	<b>1</b>	<b>2</b>	<b>11</b>	<b>100.0</b>
<b>Percent</b>			<b>27.3</b>	<b>45.5</b>	<b>9.1</b>	<b>18.2</b>	<b>100.0</b>	

Table 26. Cross-tabulation of Ceramic Types and Vessel Forms from East Ruin Mound E.

Tradition	Variety	Ware	Ceramic Type	Bowl	Jar	Mug	Indeterminate	Total	Percent			
Cibola	Animas	White	Pueblo III b/w	1	-	-	-	1	0.8			
	Nonlocal	Red	St. Johns Polychrome	2	-	-	-	2	1.6			
			White Mountain Red Ware	1	-	-	-	1	0.8			
		White	Pueblo III b/w	2	-	-	-	2	1.6			
			Slipped white	-	1	-	-	1	0.8			
Subtotal				6	1	-	-	7	5.6			
Mogollon	Nonlocal	Brown	Showlow Smudged	-	-	-	1	1	0.8			
Subtotal				-	-	-	1	1	0.8			
Northern San Juan	Animas	Gray	Corrugated gray	-	77	-	-	77	62.1			
			Plain gray	-	1	-	-	1	0.8			
		White	McElmo B/w	1	-	-	-	1	0.8			
			Mesa Verde B/w	7	-	-	-	7	5.6			
			Pueblo III b/w	9	1	-	1	11	8.9			
			Slipped white	5	5	-	-	10	8.1			
	Nonlocal	White	McElmo B/w	1	-	-	-	1	0.8			
			Mesa Verde B/w	1	-	1	-	2	1.6			
			Pueblo II b/w	-	1	-	-	1	0.8			
			Pueblo III b/w	2	-	-	-	2	1.6			
			Slipped white	-	3	-	-	3	2.4			
			Subtotal				26	88	1	1	116	93.5
			Total				32	89	1	2	124	100.0
Percent				25.8	71.8	0.8	1.6	100.0				

Table 27. Cross-tabulation of Lithic Material Type and Debitage Type from East Ruin Mound E.

Material Origin	Material Type	Aztec Code	Primary Decortication Flake	Secondary Decortication Flake	Interior Core Flake	Retouch Flake	Angular Debris	Total	Percent
Local	Limestone	LM-01	-	-	1	-	-	1	6.3
	Siltstone	ST-03	-	-	1	-	-	1	6.3
	Andesite	IG-01	-	1	1	-	-	2	12.5
	Gabbro	IG-06	1	1	-	-	-	2	12.5
	Porphyry	IG-10	-	-	1	-	-	1	6.3
	Quartzite	QZ-04	1	1	2	-	1	5	31.3
		QZ-05	-	1	-	-	-	1	6.3
Subtotal			2	4	6	-	1	13	81.3
Nonlocal	Chert (Narbona Pass)	CH-30	-	-	-	1	-	1	6.3
	Silicified Wood	SW-20	-	-	1	-	-	1	6.3
	Mudstone	MD-01	1	-	-	-	-	1	6.3
Subtotal			1	-	1	1	-	3	18.8
Total			3	4	7	1	1	16	100.0
Percent			18.8	25.0	43.8	6.3	6.3	100.0	

Table 28. Cross-tabulation of Lithic Tool Type and Material Type from East Ruin Mound E.

Tool Class	Tool Type	Local		Total	Percent
		Andesite IG-01	Quartzite QZ-04		
Used Cores	Pecking/Abrading Tool	1	-	1	50.0
	Hammerstone	-	1	1	50.0
<b>Total</b>		<b>1</b>	<b>1</b>	<b>2</b>	<b>100.0</b>
<b>Percent</b>		<b>50.0</b>	<b>50.0</b>	<b>100.0</b>	

Table 29. Cross-tabulation of Ceramic Types and Vessel Forms from East Ruin Mound F.

Tradition	Variety	Ware	Ceramic Type	Bowl	Jar	Total	Percent
Cibola	Nonlocal	Red	St. Johns Polychrome	1	-	1	3.1
<i>Subtotal</i>				<i>1</i>	<i>-</i>	<i>1</i>	<i>3.1</i>
Northern San Juan	Animas	Gray	Corrugated gray	-	13	13	40.6
			Plain gray	-	2	2	6.3
		White	McElmo B/w	5	-	5	15.6
			Mesa Verde B/w	3	-	3	9.4
			Pueblo III b/w	1	-	1	3.1
			Slipped white	2	1	3	9.4
	Nonlocal	Gray	Corrugated gray	-	1	1	3.1
			White	Pueblo III b/w	2	-	2
			Slipped white	-	1	1	3.1
		<i>Subtotal</i>				<i>13</i>	<i>18</i>
<b>Total</b>				<b>14</b>	<b>18</b>	<b>32</b>	<b>100.0</b>
<b>Percent</b>				<b>43.8</b>	<b>56.3</b>	<b>100.0</b>	

Table 30. Cross-tabulation of Lithic Material Type and Debitage Type from East Ruin Mound F.

Material Origin	Material Type	Aztec Code	Primary Decortication	Interior Core	Total	Percent
			Flake	Flake		
Local	Silicified Wood	SW-03	1	-	1	12.5
	Andesite	IG-01	-	2	2	25.0
	Quartzite	QZ-04	1	3	4	50.0
<i>Subtotal</i>			<i>2</i>	<i>5</i>	<i>7</i>	<i>87.5</i>
Nonlocal	Chalcedony	CAL-02	-	1	1	12.5
<i>Subtotal</i>			<i>-</i>	<i>1</i>	<i>1</i>	<i>12.5</i>
<b>Total</b>			<b>2</b>	<b>6</b>	<b>8</b>	<b>100.0</b>
<b>Percent</b>			<b>25.0</b>	<b>75.0</b>	<b>100.0</b>	

Table 31. Cross-tabulation of Lithic Tool Type and Material Type from East Ruin Mound F.

Tool Class	Tool Type	Local			Nonlocal	Total	Percent
		Limestone LM-01	Basalt IG-02	Quartzite QZ-14	Quartzitic Sandstone QS-03		
Ground Stone	Two-Hand Shaped Mano	-	-	-	1	1	20.0
Unflaked Hammerstones	Hammerstone	1	-	-	-	1	20.0
Used Cores	Pecking Stone	1	1	1	-	3	60.0
<b>Total</b>		<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>5</b>	<b>100.0</b>
<b>Percent</b>		<b>40.0</b>	<b>20.0</b>	<b>20.0</b>	<b>20.0</b>	<b>100.0</b>	

Table 32. Cross-tabulation of Ceramic Types and Vessel Forms from East Ruin Mound G.

Tradition	Variety	Ware	Ceramic Type	Bowl	Jar	Total	Percent
Chuska	Nonlocal	Gray	Corrugated gray	-	1	1	1.7
		White	Pueblo III b/w	-	1	1	1.7
				-	2	2	3.3
<i>Subtotal</i>							
Cibola	Indeterminate	Gray	Corrugated gray	-	1	1	1.7
		White	Chaco-McElmo B/w	1	-	1	1.7
	Nonlocal		Escavada B/w	-	1	1	1.7
			Pueblo III b/w	2	1	3	5.0
				3	3	6	10.0
<i>Subtotal</i>							
Northern San Juan	Animas	Gray	Pueblo II/III Corrugated	-	1	1	1.7
			Corrugated gray	-	31	31	51.7
			Plain gray	-	2	2	3.3
		White	Mancos B/w (Puerco style)	2	-	2	3.3
			McElmo B/w	2	1	3	5.0
	Nonlocal	White	Mesa Verde B/w	1	-	1	1.7
			Pueblo III b/w	3	-	3	5.0
			Slipped white	1	6	7	11.7
			Pueblo II b/w	-	1	1	1.7
			Pueblo III b/w	1	-	1	1.7
<i>Subtotal</i>				10	42	52	86.7
<b>Total</b>				<b>13</b>	<b>47</b>	<b>60</b>	<b>100.0</b>
<b>Percent</b>				<b>21.7</b>	<b>78.3</b>	<b>100.0</b>	

Table 33. Cross-tabulation of Lithic Material Type and Debitage Type from East Ruin Mound G.

<b>Material Origin</b>	<b>Material Type</b>	<b>Aztec Code</b>	<b>Primary Decortication Flake</b>	<b>Secondary Decortication Flake</b>	<b>Interior Core Flake</b>	<b>Angular Debris</b>	<b>Total</b>	<b>Percent</b>
Local	Chert (Opaque)	CH-10	-	-	1	-	1	6.7
	Limestone	LM-01	-	2	2	2	6	40.0
	Basalt	IG-02	-	-	-	1	1	6.7
	Porphyry	IG-10	1	-	1	1	3	20.0
<i>Subtotal</i>			<i>1</i>	<i>2</i>	<i>4</i>	<i>4</i>	<i>11</i>	<i>73.3</i>
Nonlocal	Chalcedony	CAL-07	-	-	1	-	1	6.7
	Chert (Narbona Pass)	CH-30	-	-	-	1	1	6.7
	Mudstone	MD-01	-	1	-	-	1	6.7
	Obsidian	OB-09	-	-	1	-	1	6.7
<i>Subtotal</i>			<i>-</i>	<i>1</i>	<i>2</i>	<i>1</i>	<i>4</i>	<i>26.7</i>
<b>Total</b>			<b>1</b>	<b>3</b>	<b>6</b>	<b>5</b>	<b>15</b>	<b>100.0</b>
<b>Percent</b>			<b>6.7</b>	<b>20.0</b>	<b>40.0</b>	<b>33.3</b>	<b>100.0</b>	

Table 34. Cross-tabulation of Lithic Tool Type and Material Type from East Ruin Mound G.

		<b>Local</b>		
		<b>Limestone</b>		
<b>Tool Class</b>	<b>Tool Type</b>	<b>LM-01</b>	<b>Total</b>	<b>Percent</b>
Unretouched Cores	Multidirectional Core	1	1	100.0
<b>Total</b>		<b>1</b>	<b>1</b>	<b>100.0</b>

Table 35. Cross-tabulation of Ceramic Types and Vessel Forms from East Ruin Mound H.

Tradition	Variety	Ware	Ceramic Type	Bowl	Jar	Mug	Indeterminate	Total	Percent
Chuska	Nonlocal	White	Slipped white	1	-	-	-	1	1.1
<i>Subtotal</i>				<i>1</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>1</i>	<i>1.1</i>
Cibola	Animas	White	Pueblo III b/w	2	-	-	-	2	2.1
			Slipped white	1	-	-	1	2	2.1
	Nonlocal	White	Slipped white	-	1	-	-	1	1.1
			<i>Subtotal</i>	<i>3</i>	<i>1</i>	<i>-</i>	<i>1</i>	<i>5</i>	<i>5.3</i>
Northern San Juan	Animas	Gray	Corrugated gray	-	48	-	-	48	50.5
			White	McElmo B/w	2	-	-	-	2
		White	Mesa Verde B/w	4	-	1	-	5	5.3
			Pueblo III b/w	13	3	1	4	21	22.1
			Slipped white	4	4	-	1	9	9.5
			Painted b/w	1	-	-	-	1	1.1
			Nonlocal	White	Pueblo III b/w	-	1	-	-
	Slipped white	1			-	-	-	1	1.1
	<i>Subtotal</i>	<i>25</i>			<i>56</i>	<i>2</i>	<i>5</i>	<i>88</i>	<i>92.6</i>
	Indeterminate	Indeterminate	White	Pueblo III b/w	-	1	-	-	1
<i>Subtotal</i>				<i>-</i>	<i>1</i>	<i>-</i>	<i>-</i>	<i>1</i>	<i>1.1</i>
<b>Total</b>				<b>29</b>	<b>58</b>	<b>2</b>	<b>6</b>	<b>95</b>	<b>100.0</b>
<b>Percent</b>				<b>30.5</b>	<b>61.1</b>	<b>2.1</b>	<b>6.3</b>	<b>100.0</b>	

Table 36. Cross-tabulation of Lithic Material Type and Debitage Type from East Ruin Mound H.

Material Origin	Material Type	Aztec Code	Primary Decortication Flake	Secondary Decortication Flake	Interior Core Flake	Retouch Flake	Angular Debris	Total	Percent
Local	Chert (Opaque)	CH-10	-	-	-	-	1	1	2.6
		CH-14	-	-	1	-	-	1	2.6
	Limestone	LM-01	1	-	-	-	-	1	2.6
	Siltstone	ST-03	-	1	2	-	-	3	7.7
	Andesite	IG-01	-	1	1	-	1	3	7.7
	Basalt	IG-02	3	1	3	-	2	9	23.1
	Rhyolite	IG-03	-	-	1	-	-	1	2.6
	Gabbro	IG-06	1	-	1	-	-	2	5.1
	Quartz	IG-09	-	-	-	-	1	1	2.6
	Gneiss	MM-02	1	-	2	-	-	3	7.7
	Slate	MM-01	-	-	1	-	-	1	2.6
	Quartzite	QZ-01	1	-	-	-	-	1	2.6
		QZ-04	-	1	-	-	2	3	7.7
		QZ-19	1	-	1	-	-	2	5.1
Subtotal			8	4	13	-	7	32	82.1
Nonlocal	Chalcedony	CAL-07	-	-	1	-	-	1	2.6
	Chert (Narbona Pass)	CH-30	-	-	-	1	-	1	2.6
	Chert (Morrison)	CH-21	-	-	-	-	1	1	2.6
	Orthoquartzite	OQ-02	-	-	1	-	-	1	2.6
	Quartzitic Sandstone	QS-03	-	-	-	-	1	1	2.6
	Obsidian	OB-01	-	-	1	1	-	2	5.1
Subtotal			-	-	3	2	2	7	17.9
Total			8	4	16	2	9	39	100.0
Percent			20.5	10.3	41.0	5.1	23.1	100.0	

Table 37. Cross-tabulation of Lithic Tool Type and Material Type from East Ruin Mound H.

<b>Tool Class</b>	<b>Tool Type</b>	<b>Local</b>			<b>Nonlocal</b>	<b>Total</b>	<b>Percent</b>
		<b>Andesite IG-01</b>	<b>Basalt IG-02</b>	<b>Gabbro IG-06</b>	<b>Quartzitic Sandstone</b>		
					<b>QS-03</b>		
Choppers	Cobble Chopper	1	-	-	-	1	20.0
Ground Stone	Indeterminate Mano Fragment	-	-	-	1	1	20.0
Unretouched Cores	Multidirectional Core	1	-	-	-	1	20.0
Used Cores	Pecking/Abrading Tool	-	-	1	-	1	20.0
	Scraping Tool	-	1	-	-	1	20.0
<b>Total</b>		<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>5</b>	<b>100.0</b>
<b>Percent</b>		<b>40.0</b>	<b>20.0</b>	<b>20.0</b>	<b>20.0</b>	<b>100.0</b>	