

ENVIRONMENTAL ASSESSMENT

CO-SJFO-02-015 EA

**Lowry Pueblo National Historic Landmark
Kiva B Shelter Construction
and
Interpretive Sign Installation**

**Bureau of Land Management
Canyons of the Ancients National Monument**

**T38N, R19W, Section 2
New Mexico Principal Meridian
Montezuma County, Colorado**

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**Bureau of Land Management
Canyons of the Ancients National Monument**

Summary Description of Proposed Action

The proposed action involves: 1) the removal of the existing roof over Kiva B at Lowry Pueblo, 2) the construction of a new, low visual impact, sloped, metal shelter over the kiva and adjoining rooms; and 3) the installation of nine interpretive signs.

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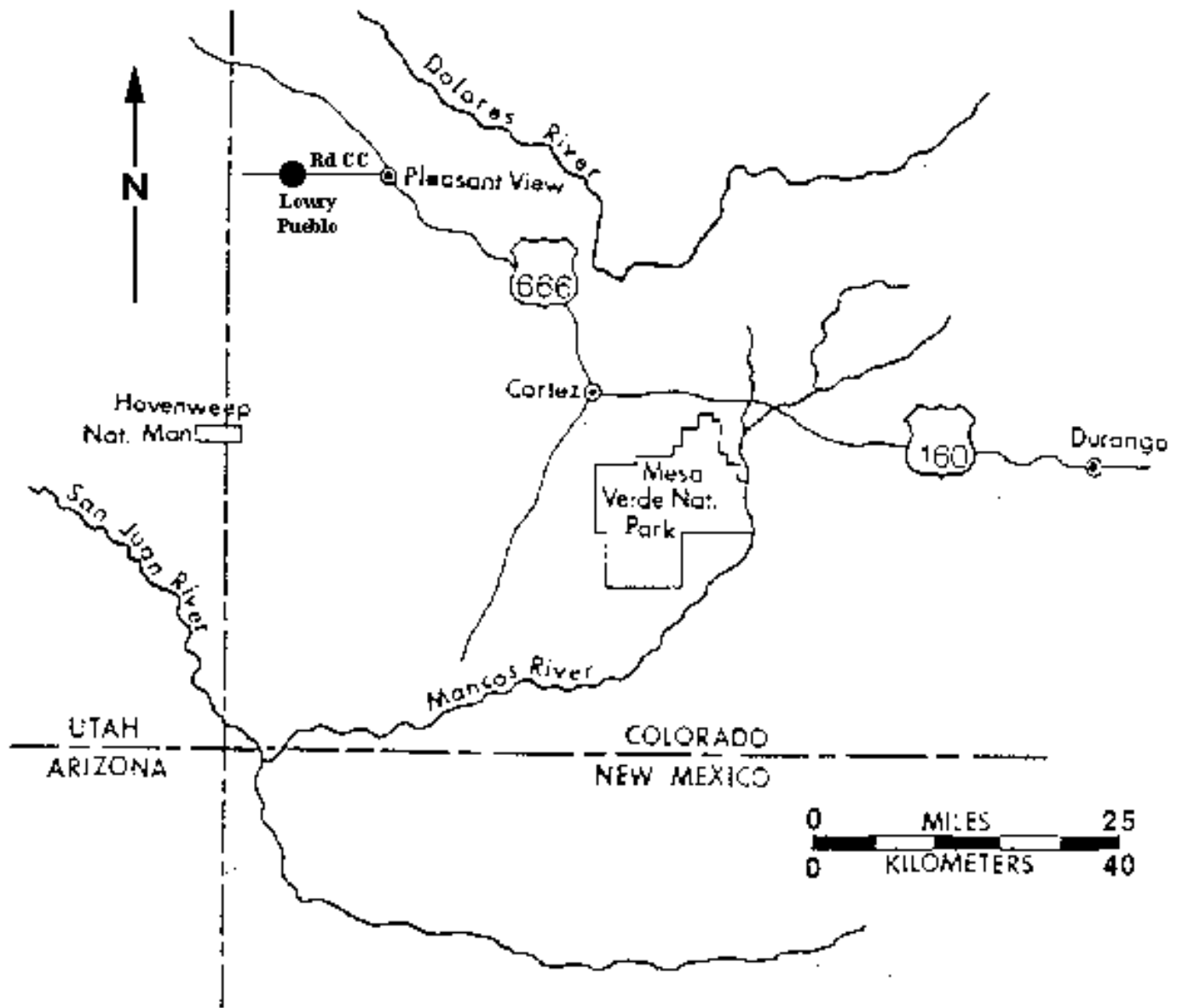


Figure 1. Map showing the location of Lowry Pueblo in relation to the Four Corners area. Taken from Zeller (2000)

I. INTRODUCTION, PURPOSE, AND NEED

Introduction

Lowry Pueblo is a 12th century Ancestral Pueblo village that is administered by the Bureau of Land Management (BLM) in Canyons of the Ancients National Monument. Located in southwestern Colorado (see Figure 1, p.5), the pueblo contains 39 rooms and 7 kivas, as well as a Great Kiva, and is part of a much larger community of villages occupied in the 11th, 12th and 13th centuries. Much is known about the archaeology of Lowry Pueblo due to excavations by the Field Museum of Natural History led by Paul S. Martin in the 1930s. Lowry Pueblo and the BLM portions of the Lowry-Pigge/Lowry Great House Complex (an 80 acre tract) were designated as the Lowry Ruin National Historic Landmark in 1967. This designation automatically placed Lowry Pueblo on the National Register of Historic Places. Lowry Pueblo is a cultural heritage attraction, and receives about 15,000 visitors annually.

Purpose and Need

Lowry Pueblo was designated as a National Historic Landmark (NHL) on October 17, 1967. In the 1970s, the BLM began to actively manage Lowry Pueblo and encourage public visitation. In 1974, the Bureau of Land Management (BLM) contracted with the University of Colorado to re-excavate, stabilize, and interpret Kivas A and B (hereafter called Kiva B) in order to provide the public with an opportunity to view the painted murals on the benches of these kivas. In order to accommodate viewing of Kiva B, an entrance was created, a gate was constructed in the southern recess to allow visitors to view the kiva but not enter it, and a modern roof was constructed (White and Breternitz 1976). The roof was replaced in 1982 because the original roof had become structurally unsound (Bryant 1983).

The 1982 roof is no longer meeting the needs for preservation, interpretation, and public safety at the site. The roof surface has developed leaks and the drainage system is no longer functioning. In addition, the roof was not integrated into the masonry of the adjoining rooms. As a result, gaps are occurring at the contact of the masonry and the roof. The design of the current roof also causes the area of Kiva B to be shaded and poorly ventilated. Deterioration of the roof is causing water damage to the interior of Kiva B and the masonry walls adjoining it, and it is becoming a safety concern for visitors who walk on it to obtain a view of the site and the surrounding landscape. Short-term fixes for the problems with the existing roof are in place, but a long-term protection solution is critical to preserving any remaining, intact prehistoric masonry and undisturbed cultural and archaeological materials, to maintaining visitor access and safety, and to treating this important place with respect.

Updated and redesigned on-site interpretation is needed to educate increasing numbers of visitors to Lowry Pueblo. Topics would include new research findings, visualization of Kiva B when the painted mural was excavated, and improved educational messages.

Anticipating the need to find a long-term solution to the protection of the kiva and for improved interpretation at the site, the BLM applied for and received a grant from the Colorado Historical Society, State Historical Fund. Major funding has also been provided by the BLM.

II. RESOURCES AND CRITICAL ELEMENTS OF THE HUMAN ENVIRONMENT

The identification of issues for this Environmental Assessment (EA) was accomplished by considering resources and critical elements of the human environment that could be affected by implementation of the proposed action or the alternatives. The following is a description of the resources and critical elements identified, their presence or absence in the area of the proposed action and alternatives, and the potential for these resources and critical elements to be affected.

Resources and Critical Elements Potentially Affected

Resources and critical elements that could be affected by the Proposed Action or the alternatives include Cultural Resources, Native American Religious Concerns, Threatened and Endangered Species, and Recreation. They are described briefly below and are brought forward for further analysis in Section III of this document.

- **Cultural Resources:** Lowry Pueblo is an NHL, and is listed on the National Register of Historic Places. The proposed action and alternatives could result in impacts to Lowry Pueblo. These impacts could include damage to standing architecture and intact cultural materials by either direct or indirect construction activities and/or inclement weather, and visual changes that could affect the integrity of the site. The BLM is responsible for assessing the effects of the proposed action and the alternatives on the site pursuant to Section 106 of the National Historic Preservation Act, and the regulations implementing the act (36 CFR 800).
- **Native American Religious Concerns:** Twenty-four Native American tribes have expressed and interest in being consulted on the management of cultural resources within the Monument. Many claim cultural affiliation to the Monument and Ancestral Puebloan sites such as Lowry. Native American heritage and religious values could potentially be affected by the proposed action and alternatives.
- **Recreation:** Construction would temporarily close Lowry to public visitation. Structural damage or inappropriate design and/or engineering could decrease Lowry's attractiveness as a popular recreation location. It would also limit the value of any educational messages about respect and preservation of cultural sites.
- **Threatened and Endangered Species:** The BLM is required to conduct consultations under Section 7 of the Endangered Species Act. Potential effects to species identified in the monument proclamation must also be addressed.

Resources and Critical Elements Present but Not Affected

The following issues, resources, and critical elements are present in the project area, but would not be affected by the Proposed Action or alternatives for the reasons stated below.

Vegetation: Because the proposed action and alternative would take place entirely within existing disturbed areas, no vegetation would be impacted.

Area of Critical Environmental Concern: The Anasazi Cultural Multiple Use Area of Critical Environmental Concern was designated in 1985 to specifically manage and protect the special and unique cultural values of this area. However, the management objectives prescribed were superseded by Monument designation.

Environmental Justice: On February 11, 1994, the President issued Executive Order No. 12898 on environmental justice as it affects minority and low-income populations. The purpose of the order is to identify and address, as appropriate, disproportionately high and adverse human health and environmental effects of programs, policies, or activities on minority or low-income populations. In the general area of Lowry Pueblo, minority populations including Native Americans, Hispanics, and some Caucasians occur. The proposed action would not disrupt any of these identified communities. No disproportionate negative impact to these communities is anticipated.

Minerals: The 80 acre site is withdrawn from mineral entry.

Wildlife and Fisheries: Although deer are seen frequently in the area of Lowry Pueblo, activities are localized at the Pueblo itself and would have no impact. Disturbance already occurs in the area in the form of visitation and recreation. The proposed activity would have negligible or no impact to deer.

There are no fisheries resources within the vicinity of Lowry Pueblo and no water depletions associated with the activity.

Resources and Critical Elements Not Present and Not Addressed Further

BLM resource specialists have determined that the following resources and critical elements of the human environment are not present in the area addressed in the Proposed Action or alternatives:

Water Quality (drinking/ground)

Riparian Zones

Paleontology

Farmlands (prime or unique)

Floodplains

Hazardous/Solid wastes

Wetlands

Wilderness

Wild and Scenic Rivers

III. CONFORMANCE WITH BLM PLANS AND THE MONUMENT PRESIDENTIAL PROCLAMATION AND INTERIM GUIDANCE

The proposed action and alternatives are subject to review relative to decisions in the San Juan/ San Miguel Planning Area Resource Management Plan (RMP) and Final Environmental Impact Statement, approved September 5, 1985.

Specifically, the plan states on page 2-45:

“Lowry Pueblo is important in terms of its past contributions to the area’s prehistory as well as its potential for public interpretation. Originally excavated in the 1930s by Paul S. Martin (one of the Southwest’s foremost archaeologists), it has been reopened and stabilized by BLM and is currently a popular developed recreation site, protected by administrative withdrawal.”

Lowry Pueblo is listed in the RMP as a site requiring cultural management. The proposed action and Alternative B are consistent with this direction.

The Monument was created by Presidential Proclamation on June 9, 2000. The proposed action and Alternative B are in conformance with the Presidential Proclamations direction to protect objects of scientific and historic interest.

The BLM National Interim Management Guidelines for all National Monuments are applicable to the Monument. In addition, the BLM State of Colorado has prepared Interim Guidelines for Management of the Monument. The interim guidelines provide direction that supplements the 1985 San Juan/San Miguel Resource Management Plan and the 1986 Anasazi Area of Critical Environmental Concern (ACEC) Management Plan. The proposed action and Alternative B are consistent with the Interim Management Guidelines.

The ACEC Management Plan (EA# CO-030-SJ-86-086), which covers the area now included within the Monument, serves as an intermediate step between the San Juan/San Miguel RMP and other site specific management plans. The proposed action at Lowry Pueblo is consistent with the ACEC’s interim management goals outlined for the site.

A Preservation Plan has been prepared for Lowry Pueblo (Zeller 2000). This preservation plan includes general background information, preservation objectives, methods and materials, and a general assessment of the preservation requirements and interpretive developments for the site. A maintenance plan and recommendations are also provided. The proposed action is in conformance with this preservation plan.

Site stabilization activities, which would be completed concurrent with the proposed action, were previously analyzed in EA CO-SJFO-01-41. The Finding of No Significant Impact and Decision Record for this EA was signed on April 26, 2001.

IV. PROPOSED ACTIONS AND ALTERNATIVES

Alternative A. Proposed Action

The proposed action involves 1) removal of all components of the modern roof installed in 1982, with the exception of the concrete supports, 2) stabilization of the upper portions of the masonry walls enclosing Kiva B, 3) construction of a low visual impact shelter over Kiva B and the adjoining/adjacent rooms, and 4) the installation of interpretive signing at the site. These activities are described in more detail below. It is anticipated that the proposed action would take eight weeks to complete, and would take place during May and June of 2003.

1) All existing modern roofing materials would be removed and/or utilized. These materials include the vertical metal posts, horizontal I-beams, dimensional lumber, and roof covering materials. The materials would be carefully removed and hauled away from the site area. A crane would be used as needed in the removal of the roofing materials. A temporary covering would be placed over the kiva to protect it while the existing roofing materials were being removed.

2) Once the existing roofing is removed, and before the new shelter is constructed, stabilization of the existing masonry walls surrounding the kiva would need to be completed. Stabilization activities would be conducted by a firm qualified in structural stabilization of prehistoric masonry structures according to the Preservation Plan (Zeller 2000).

Stabilization activities would involve reconstruction and capping of the south walls of Rooms 7 and 17, and the west walls of Rooms 31, 32, and 33. The height and angle of the wall tops of these rooms, as well as the wall tops on the southern perimeter walls, would be determined based on the architectural design of the new shelter. As has previously been mentioned, these stabilization activities have already been analyzed and will not be discussed further in this document.

3) Under the proposed action, a sloped, freestanding metal shelter would then be constructed over Kiva B and the adjoining rooms. The roof would completely cover Kiva B and the southern recess, Rooms 3, 4, 5, 26, and 27, and the interstitial space between Kiva B and the west walls of Rooms 32 and 33. The roof would partially cover rooms 6, 7, 9, 17, 28, 29, 31, 32, and 33 and Kiva H.

An image of Lowry Pueblo with the shelter is shown in Figure 2 (page 13), and a floating perspective view of the shelter is shown in Figure 3 (page 14). The shelter would be constructed with metal beams, purlins, flashing, decking, and fascia. The fascia would be perforated metal to provide additional light and air under the shelter. The shelter would be supported with metal columns set on concrete support pads. The ceiling would be constructed of 1" by 6" cedar tongue and groove. Skylights would be installed to provide light for viewing the kiva and the entrance to it. The shelter roof deck would be a tan color. The beams, purlins, and flashing would be painted to match the roof deck color. The flashing would be painted a dark brown for contrast. The tongue and groove cedar on the ceiling would be coated with a clear preservative. There would be no public access to the top of the new shelter.

Construction of the new shelter would require six column supports. Five of the six existing support locations would be used, and one new support would be constructed in Room 26. The new support is needed in order to allow for more even weight distribution for the shelter. The new support would replace the existing support. Because the new shelter would be heavier than the existing roof, the existing supports would need to be widened. However, they would not need to be any deeper. Due to the fragile nature of the areas where the new concrete pads would be formed and placed, all concrete would be placed via an overhead boom.

The roof would be sloped so that rainwater and snowmelt would be drained off the west side beyond the west walls of the pueblo. The water would run off the roof and into a drainage system located beyond the roof edge. The drainage system would be designed to a 100-year storm capacity. No ground disturbance would be required for installation of this system. Filter fabric, 40 mil PVC plastic, and crushed rock would be placed on the existing ground surface between the outer wall of the pueblo and the interpretive trail and beyond the trail. The water would percolate through the crushed rock and be evaporated. The adjacent walls of the pueblo would be protected from moisture leakage and rain splash back by the installation of the 40-mil plastic underneath the crushed rock. No erosion of areas beyond the drainage system is anticipated.

The shelter would have a lightning protection system. Installation of this system is mandatory for public safety. The system would involve the installation of nine 24-inch long, 3/8-inch diameter lightning antennas or "air terminals" that would be spaced evenly around the edges and across the center of the top of the roof. Two 12-gauge grounding wires would be run from the roof down two of the roof support columns. These wires would be attached to two 10-foot long grounding rods that would be pounded into the ground next to the columns. The two columns to be used for the grounding wires and rods would most likely be those located in Room 3, to the west of the kiva, where there is no public access.

Access to the site during construction would be provided on County Road CC, the graveled entrance road leading to the pueblo, and on an existing two-track road that is located to the south and east of the site. All vehicles used during the construction would be restricted to the existing roads, the graveled parking lot, and to previously disturbed and leveled areas around the pueblo.

4) Seven Novalloy (etched metal) interpretive signs would be installed along the existing interpretive trail, one sign would be installed on the west wall of the southern recess in the Kiva B viewing area, and an information kiosk would be installed along the trail near the existing parking lot. The sign locations are shown on Figure 4, p.15. The locations of these signs are described in more detail as follows.

Sign 1- Kiosk at Trailhead: This sign would be placed at the beginning of the interpretive trail on the west edge of the parking lot.

Sign 2- Northeast Corner: This sign would be located just outside of the edge of the roomblock near Kiva F.

Sign 3- Plaza Area: This sign would be located on the east side of the pueblo.

Sign 4- Adjacent to Trail- Outside Kiva B: This sign would be installed adjacent to the trail near what Martin called Room 36.

Sign 5- Southern Recess of Kiva B: This sign would be placed on the stabilized west wall of the southern

recess of Kiva B.

Sign 6- Southeast Corner Outside Room #1: This sign would be located between the interpretive trail and the exterior wall.

Sign 7- Southwest Corner Outside Room 28: This sign would be located near Room 28 and the area indicated as Refuse Mound on Martin's site map.

Sign 8- Exterior of Great Kiva, West Side: This sign would be located in a previously excavated area, but not within a room, on the west side of the great kiva outside the kiva walls.

Sign 9- Exterior of Great Kiva, Southeast Side: This sign would be located in a previously excavated area, but not within a room, on the southeast side of the Great Kiva outside of the kiva walls.

Installation of the interpretive trail signs will involve placement of seven single, 3-inch diameter signposts into the ground at a minimum depth of 18 inches. Installation of the information kiosk will involve placement of two 4-inch square posts to a minimum depth of 24 inches. All of the signposts will be set in concrete in order to provide stability and to deter theft. Installation of the sign in the Kiva B viewing area would involve suspending a sign from fixtures present on the west wall of the southern recess where there is an existing sign, or from the ceiling of the new roof after construction is complete.



FIGURE 2: Lowry Pueblo with proposed shelter structure.



FIGURE 3:
Floating perspective view of proposed Lowry shelter

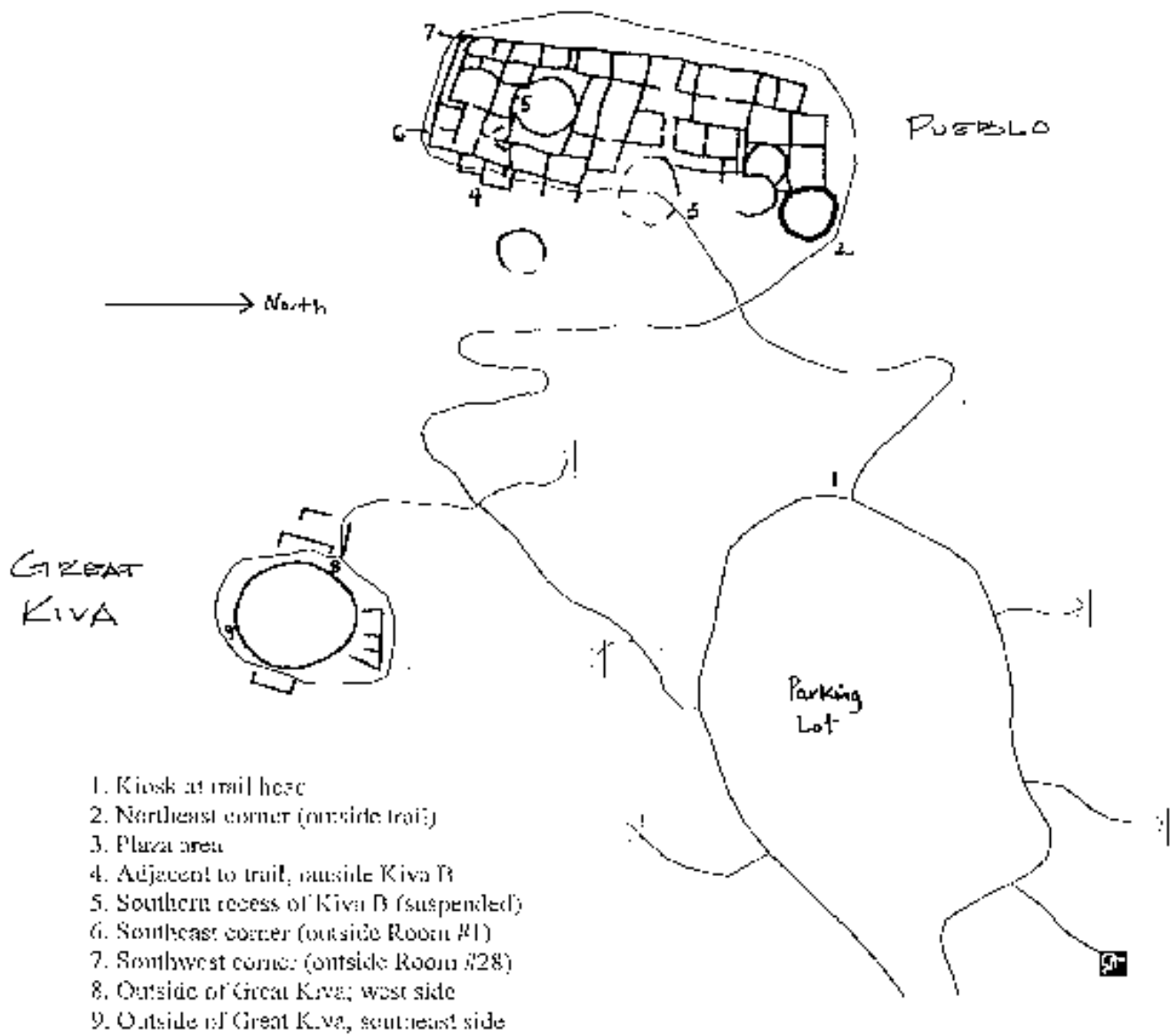


Figure 4. Location of proposed interpretive signs.

Alternative B --Remove Existing Roof, Backfill , and Install Interpretive Signs

This alternative involves the removal of all modern materials, with the exception of the concrete supports, that comprise the roof over Kiva B and adjoining rooms, including the vertical metal posts, horizontal I-beams, dimensional lumber, and roof decking. Kiva B and the interiors of Rooms 3, 27, and the interstitial space to the east of Kiva B would be backfilled, leaving only the upper courses of walls exposed for interpretation. Prior to backfilling, the enclosing walls would need to be dismantled and reconstructed. Exposed wall tops would be capped. Backfill sediment would be drainage contoured.

All modern roofing materials would be removed as described for the Proposed Action above. The existing concrete supports would be left in place however. Stabilization and backfilling would be conducted by a firm qualified in structural stabilization of prehistoric masonry structures according to the Preservation Plan (Zeller 2000).

Installation of the interpretive signing would be conducted as described for the Proposed Action above.

Alternative C --No Action

This alternative would result in no action being taken at the site. The existing roof covering Kiva B and adjoining rooms would remain in place. Public safety concerns and enhanced interpretive opportunities would not be addressed. No updated interpretive signs would be installed.

Alternatives Considered but Eliminated from Further Analysis

Repair or replace modern roof and stabilize enclosing walls

This alternative would involve the repair or replacement of the dimensional lumber, decking, and drainage on the modern roof. The metal vertical supports and horizontal I beams would remain, and the dimensional lumber comprising the joists and roof decking would be repaired or replaced as necessary. The new roof would be constructed in concert with the repair of the masonry enclosing walls enabling a watertight seal at the roof/masonry contact. A new drainage system would be installed. All structural fabric of the kiva and adjacent structures would receive preservation maintenance as necessary and appropriate.

This alternative was not considered further because the watertight interface between the existing roof and the masonry walls failed in the previous roof installation, repair or replacement of the existing drainage system would involve additional subsurface disturbance at the site, and the existing roof design encourages visitors to climb on the fragile masonry walls to access the roof top and view the structure and surrounding landscape.

Remove Kiva B Roof only

Under this alternative, all modern materials that comprise the roof over Kiva B and adjoining rooms would be removed, including the vertical metal posts, horizontal I-beams, dimensional lumber, and roof decking.

The masonry comprising the enclosing walls, the fill in the rooms, and the interior of Kiva B would be left open to the elements, and would need to be repaired, replaced, and regularly maintained.

This alternative was not selected because Kiva B and the adjoining rooms would be subject to deterioration. These areas would need costly repair, replacement, and ongoing long-term maintenance. The remaining prehistoric masonry in Kiva B would be permanently lost through decay and eventual replacement.

Viewing platform

Construction of an accessible ramp and viewing platform on the north and west sides of Lowry Pueblo, in addition to the shelter construction and sign installation, was considered but eliminated. The ramp and viewing platform would have created a large visual intrusion to the site, and would have necessitated additional archaeological excavations for the ramp and platform footings.

Comparison of Alternatives

The proposed action would involve removal of the existing roof over Kiva B and the adjoining rooms, construction of a modern, low visual impact shelter over Kiva B and the adjoining/adjacent rooms, and the installation of nine interpretive signs along the existing interpretive trail. Alternative B would involve the removal of the existing roof over Kiva B and the adjoining rooms, backfilling of Kiva B, Rooms 3 and 27, and the interstitial space to the east of the kiva, leaving only the walls tops exposed for interpretation, and the installation of nine interpretive signs along the existing interpretive trail. The no action alternative would result in no action being taken at the site.

V. AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION MEASURES

Setting

The following discussion of the setting for Lowry Pueblo is excerpted directly from text in the Preservation Plan prepared by Zeller (2000).

Lowry Pueblo (5MT1566) lies in Montezuma County, Colorado 14.5 kilometers (9 miles) west of the town of Pleasant View. Access is via Montezuma County Road CC. The site is in the SW 1/4 of the NW 1/4 of the NW 1/4 of Section 2, Township 38 North, Range 19 West, New Mexico Principal Meridian.

The surrounding terrain is designated as the "Great Sage Plain" of the Canyon Lands section of the Southern Colorado Plateau Physiographic Province (Fenneman 1931). More specifically, the area is geologically located atop a gently rolling, dissected plateau at the southeastern margin of the Paradox Fold Belt, north of the Blanding Basin and west of the Four Corners Platform (Baars 1983).

Lowry Pueblo is situated atop a low rise on the southwestern edge of the plateau, dissected to the northwest and southeast by the headward fingers of Cow Canyon. The nearest permanent water appears to be a spring

located within the Cow Canyon headwaters 1,265 meters (4,150 feet) to the southeast. The site lies at an approximate elevation of 2,054 meters (6,740 feet).

Ecologically, the site is located within the upper limits of the Upper Sonoran Zone. Flora in this life zone is typified by a pinon-juniper overstory with desert shrub understory. A number of grasses, sedges, forbs, and shrubs are found locally. Blue grama, western wheatgrass, Indian ricegrass, side oats grama, ephedra, saltbush, rabbit brush, big sagebrush, prickly pear, Rocky Mountain bee plant, and greasewood have been noted.

Animal species within the area are congruous with the major life zone. Mammals include mule deer, mountain lion, rabbit, skunk, bats, raccoon, coyote, and black bear. A large number of birds, rodents, reptiles, and some amphibians may also be found.

The local climate is semiarid continental with low relative humidity. The summers are mild with warm to hot days and cool nights. The winters are moderate with the potential for sustained subfreezing temperatures from November through March. Annual precipitation averages 30.6 cm (12 inches).

Affected Resources and Critical Elements Brought Forward for Analysis

Cultural Resources

Affected Environment

Site Description: Lowry Pueblo contains 39 known ground floor room, 7 kivas, a Great Kiva, and a possible tower. Based on tree ring dates obtained from the site, the pueblo was constructed and occupied between A.D. 1089 and A.D. 1170. An earlier Basketmaker component may also be present. Architecture, masonry styles, and material remains at Lowry Pueblo indicate that at least during the early period of occupation, the site was affiliated with the Chacoan branch of Ancestral Puebloans. The site is considered to be a “Chacoan Outlier”.

Previous Work and Management History: A detailed discussion of the previous research, preservation activities, and interpretive developments at Lowry Pueblo can be found in the Preservation Plan for the site (Zeller 2000). The following discussion of previous work includes only those investigations and preservation activities relevant to the proposed shelter construction and interpretive sign installation.

Lowry Pueblo was excavated in the early 1930s by Paul Martin, and a report of the excavations was prepared in 1936 (Martin 1936). The report does not provide information on the excavation activities that took place within each individual room of the site. However, it does provide a general description of the excavation methods used for the rooms (Martin 1936:23-24). The report indicates that the rooms were excavated to floor level and then a trench was dug through the floor to “virgin” soil, and that all artifacts were recovered from the fill and floor surface of the rooms. Although not all rooms at the site were investigated, Kiva A and Rooms 3, 26, and 27 were excavated, presumably to floor level. According to White and Breternitz (1976), Martin did not excavate the north side of Kiva B. He left a balk between the

third and sixth pilasters of the kiva. The unnumbered space east of Kiva B also appears to have been excavated at that time. Martin's report also mentions that wherever possible, the rooms were backfilled at the end of the season.

In 1936, Ben Williford conducted stabilization at several areas on the site (White and Breternitz 1976). Two areas of Kiva B were protected and reconstructed, and Kiva B and some of the rooms at the site were backfilled. For the next 30 years, no stabilization or preservation activities were conducted at the site.

In 1966, the BLM contracted with the University of Colorado to perform major stabilization at the site. During this project, above ground walls were stabilized, the Great Kiva walls were rebuilt, and several rooms on the south side of the pueblo were excavated. Lowry Pueblo was designated as a NHL on October 17, 1967. Shortly thereafter, it was minimally developed for public visitation.

In 1974, the BLM again contracted with the University of Colorado to conduct stabilization maintenance and to re-excavate and develop Kivas A and B in order to provide the public with an opportunity to view the painted murals on the benches of these kivas (White and Breternitz 1976). In order to accommodate viewing of the kivas, they were excavated, an entrance was created in Room 27, a gate was constructed in the southern recess to allow visitors to view the kiva but not enter it, and a modern roof was constructed (White and Breternitz 1976). The roof was constructed of wood beams and plywood, and covered with tarpaper and dirt. It was supported primarily on the reconstructed masonry walls surrounding the kiva. A plastic skylight was installed in order to provide light to the interior of the kiva.

The 1974 roof over Kiva B was replaced in 1982. A new roof was constructed over Kiva B and surrounding rooms, and all excavated exposed rooms at the site were protected by the installation of a moisture runoff control system. These activities are described in a report entitled Lowry Ruin Kiva "B" Roof Replacement and Site Drainage Installation. This document includes two separate reports, the Roof Replacement and Site Drainage report prepared by Berkley Bryant (1983) and the Summary of Archaeological Monitoring and Excavation by Nickens and Associates (1983).

The new roof constructed in 1982 was designed to rest on concrete pads and support posts rather than on the aboriginal and stabilized walls as in the previous roof design. The new design necessitated the excavation of test units for six concrete support pads. These holes were excavated by archaeologists in the event that previously undisturbed cultural deposits were encountered. Excavations and monitoring by archaeologists were also necessary for the installation of the drains. The report prepared by Nickens and Associates (1983) describes the results of the excavations for the roof support pads and the drain construction.

In 1993-1994, the BLM contracted with the Division of Conservation Archaeology to conduct emergency stabilization and preservation activities at the site. These activities included structural stabilization of deteriorated walls and the adjustment of fill levels within the roomblock (Zeller 1995). The project included removing and adding backfill to various rooms in the pueblo, as well as placing backfill around the perimeter walls of the pueblo.

In 1999, the existing recreational facilities at the site were upgraded. The upgrades included installation of a universal design double vault toilet, six picnic sites, minor parking lot expansion entrance road maintenance,

and installation of an accessible trail to and around the roomblock and great kiva.

Structural stabilization activities were conducted at the site during the spring of 2001 (Zeller 2001). The primary focus of this project was to stabilize the perimeter walls surrounding Kiva B. These walls had started to lean outward, causing gaps to occur between the existing roof and the walls and allowing moisture to seep in through the gaps. The walls were at risk of continuing outward movement and eventual collapse.

Background to the Proposed Action: A Preservation Plan was prepared for the site in 2000 (Zeller 2000). This preservation plan includes general background information, preservation objectives, methods and materials, and a general assessment of the preservation requirements and interpretive developments for the site. A maintenance plan and recommendations are also provided. The plan also included the development of a variety of alternatives to address the deterioration of the roof over Kiva B.

In August 2000, BLM archaeologists, the Colorado State Archaeologist, archaeological consultants, and BLM engineers met at Lowry Pueblo to discuss the existing conditions and alternatives to site preservation. Problems of wall movement, differential moisture penetration, maintenance, access, and health and safety issues were discussed.

On September 21, 2000, a charette was conducted at the Anasazi Heritage Center. The purpose of the charette was to bring together a group of engineers, BLM archaeologists, and archaeological consultants to discuss options for replacement of the existing roof over Kiva B and the adjoining rooms. Many of the design and construction ideas resulting from this charette are incorporated into the proposed action in this environmental assessment.

In August of 2002, soil testing was conducted in Room 26 and at the location of two of the existing roof supports. Soil testing was needed in these areas to obtain soil stability data necessary for the design of the proposed shelter. In order to insure that these areas of the site would not be affected by the soil testing, limited archaeological excavations were conducted in Room 26, and archaeological monitoring was conducted during excavation of the soil around the two roof supports (Cater 2002).

The proposed new concrete support in Room 26 and the existing supports, are located in areas that are thought to have been previously disturbed by archaeological excavations and/or in areas of backfill. This determination was made based on information from reports and records from previous excavation and stabilization projects, and on the result of the soil testing and limited excavations conducted in August of 2002. Therefore, it is very unlikely that in situ cultural deposits exist at these support locations.

Information on the conditions at the proposed sign locations is as follows.

Sign 1- According to Martin's report (1936), no excavations took place in this area of the site. Previous auger tests conducted in the vicinity of the parking lot indicate that subsurface cultural deposits may exist at 15 cm below present ground surface and extend to at least 20 cm. At the kiosk location, there is already an existing wooden post of unknown function.

Sign 2- Northeast Corner: Martin's (1936) excavation map shows excavation just to the outside of Kiva F wall. Surface disturbance from logistical activities during Martin's excavations and the bulldozing along the

east wall of the roomblock (Lancaster 1967) are very likely to have already affected this area.

Sign 3- Plaza Area: Martin's excavation map shows trenching in the plaza and evidence of partial walls identified as Kiva G nearby. Some shallow disturbance at this location is highly likely. Bulldozing along the east wall of the pueblo may also have affected this area.

Sign 4- Adjacent to Trail- Outside Kiva B: Today, there is no surface evidence of Rooms 34, 35, 36, or 37. These rooms were likely excavated to the floors by Martin (1936). Bulldozing along the east wall of the pueblo may also have affected this area.

Sign 5- Southern Recess of Kiva B: It would replace an existing sign already located there, or would be suspended from the ceiling of the new shelter

Sign 6- Southeast Corner Outside Room #1: This area was disturbed during the original excavations by Martin and was backfilled in 1993 (Zeller 1995).

Sign 7- Southwest Corner Outside Room 28: The sign would be installed in an unnumbered interstitial room excavated by Martin. This room received substantial backfill in 1994 (Zeller 1995).

Sign 8- Exterior of Great Kiva, West Side: This sign would be located in a previously excavated area, but not within a room, on the west side of the great kiva outside the kiva walls.

Sign 9- Exterior of Great Kiva, Southeast Side: This sign would be located in a previously excavated area, but not within a room, on the southeast side of the Great Kiva outside of the kiva walls.

Alternative A Proposed Action

Direct and Indirect Impacts: Potential effects to the site as a result of construction of the new shelter include 1) use of motorized vehicles within close proximity to the pueblo; 2) damage to the interior of the kiva and the walls and rooms surrounding it caused by precipitation and/or construction activities (roof demolition, welding, painting); 3) effects to possible intact cultural deposits during exposure and widening of the existing concrete supports, construction of the new support location in Room 26; and installation of the grounding rods for the lightning system; 4) visual intrusion on the site caused by shelter structure; and 5) water runoff from the shelter roof.

The primary effect to the site from sign installation activities could be disturbance to intact cultural deposits and/or features when the holes are dug for the sign posts.

Cumulative Impacts: No cumulative impacts have been identified for the proposed action.

Mitigation: In order to mitigate any potential impacts from the use of vehicles around the pueblo, only those vehicles necessary for actual construction activities will be allowed to park and operate near the pueblo. All other vehicles will be parked in the existing graveled parking lot. Vehicles would not be allowed to operate around the pueblo during wet ground conditions unless measures could be put in place to prevent damage to

subsurface deposits.

Kiva B and the surrounding rooms would be protected from damage caused by precipitation and construction activities through implementation of the Kiva Protection Plan.

As has previously been mentioned, it is very unlikely that insitu cultural deposits exist at the locations of the existing and proposed concrete supports. Therefore, no excavations are considered to be necessary for these areas in order to mitigate potential impacts. However, archaeological monitoring of the installation of the concrete supports would be conducted as per an approved monitoring program. An archaeologist would be present to monitor all ground disturbing activities conducted in these areas, and specific protective actions would be implemented in the unlikely event that intact cultural deposits are discovered. Installation of the lightning protection grounding rods into the ground next to the columns and posts in Room 3 are also not expected to impact intact cultural deposits for the same reasons described above. An archaeologist would also monitor this activity.

The proposed shelter would be designed according to the Secretary of Interior's Standards and Guidelines for Historic Preservation Projects in order to insure that it will not introduce a visual element that would affect the integrity of the site, and would not change the physical features of the pueblo as it currently exists. The shelter is free standing and will not require modifications to the existing form or masonry walls of the pueblo. Potential visual intrusions caused by the shelter structure would be mitigated through design features such as consistent use of colors, use of compatible materials, and covering or minimizing the appearance of the structural members such as the support columns, purlins, and beams.

Prior to installation of the posts for the interpretive signs, archaeological excavations would be conducted at each of the post locations. Excavations would be done in order to mitigate potential impacts to cultural deposits or features that may be present at those post locations. The excavations would be conducted according to an approved Plan of Work.

In order to minimize the amount of potential disturbance during construction, activities such as welding and painting would be done to the greatest extent possible away from the kiva area.

Monitoring: Archaeological monitoring would be required during construction of the supports as per an approved archaeological monitoring plan. In addition, the BLM, Monument archaeologist would be present to monitor all other construction activities as determined necessary and appropriate.

Alternative B, Removal of Existing Roof, Backfill and Install Interpretive Signs

Direct and Indirect Impacts: Direct impacts to the site as a result of this alternative would be; 1) use of motorized vehicles within close proximity to the pueblo during removal of the roof; and 2) damage to the interior of the kiva and the walls and rooms surrounding it caused by precipitation and/or construction during removal of the roof.

Direct impacts to the site from sign installation activities could be disturbance to intact cultural deposits and/or features when the holes are dug for the sign posts.

Cumulative Impacts: No cumulative impacts have been identified for this alternative.

Mitigation: In order to mitigate any potential impacts from the use of vehicles around the pueblo, only those vehicles necessary for removal of the roof would be allowed to park and operate near the pueblo. All other vehicles will be parked in the existing graveled parking lot. Vehicles would not be allow to operate around the pueblo during wet ground conditions unless measures could be put in place to prevent damage to subsurface deposits.

Kiva B and the surrounding rooms would be protected from damage caused by removal of the roofing materials, and precipitation during the time the roof is removed and the features are backfilled, through implementation of the Kiva Protection Plan.

Prior to installation of the posts for the interpretive signs, archaeological excavations would be conducted at each of the post locations. Excavations would be done in order to mitigate potential impacts to cultural deposits or features that may be present at those post locations. The excavations would be conducted according to an approved Plan of Work.

Monitoring: The BLM, Monument archaeologist would be present to monitor the removal of the roof as determined necessary and appropriate.

Alternative C- No Action

Direct and Indirect Impacts: Kiva B and the walls of the adjoining rooms would continue to deteriorate because precipitation and water leakage from the existing roof would not be eliminated. Interpretation of the site would not be enhanced if the signs are not installed.

Cumulative Impacts: The remaining prehistoric masonry in Kiva B would eventually decay and need to be completely replaced.

Mitigation: No mitigation measures would be implemented.

Monitoring: No monitoring would be implemented.

Threatened, Endangered, and Sensitive Species

Affected Environment

There are no threatened or endangered species known to occur in the vicinity of the Lowry Pueblo or within a mile of the site. Sensitive species may be found within the pinion-juniper woodlands and sagebrush around the pueblo. These include the longnose leopard lizard, spotted bat, Allen's big-eared bat, fringed myotis, big free-tailed bat, Yuma myotis, and ferruginous hawk. None of these species have been documented in the immediate area but habitat attributes indicate they may be present.

Alternative A, Proposed Action

Direct and Indirect Impacts: Within the Monument, bald eagles are occasionally seen during the winter months foraging in larger drainages such as Yellowjacket and McElmo Creek. They are unlikely to be in the Monument, or in the vicinity of the Pueblo during the time this construction activity is proposed to occur. Since the construction is so localized within the Pueblo, there would be no direct or indirect impacts to the bald eagle.

The ferruginous hawk is a winter resident and unlikely to be in the area at the time of construction.

All of the sensitive bat species frequently (and sometimes always) utilize crevices for roosting and are known to forage in juniper-juniper and/or sagebrush. They are unlikely to be using the Pueblo itself for roosting due to the consistent visitation and subsequent disturbance at the site. There is no evidence of bat use in the Pueblo. Construction activities are localized and should have no impact on bats using the surrounding habitats.

Longnose leopard lizards are found in flat or gently sloping shrublands with a large percentage of open ground (Hammerson 1999). They have been found along the Dolores River in areas with sandy-rocky soils and scattered sagebrush, junipers, and skunk brush, and in Montezuma County

on mesa tops above canyons (Hammerson 1999). These habitats can be found within the vicinity of the Lowry Pueblo but not directly adjacent to it. Where the construction activity is proposed to occur does not provide the habitat attributes described above. It is unlikely there are leopard lizards in or near the Pueblo. There would be no direct or indirect impacts to this lizard because the construction is localized in and immediately surrounding the Pueblo where lizards are unlikely to occur. None of these species would be impacted by the sign installation described in this alternative. There is little activity associated with this installation and there would be no direct or indirect impacts.

Cumulative Impacts: Since the Lowry Pueblo and the associated visitation have occurred on this site for many years and the proposed construction activities are localized to the pueblo itself, there are no anticipated

cumulative impacts. There would be no additional ground disturbance. The site improvements could result in increased visitation, which may disturb lizards found in the adjacent pinyon-juniper and sagebrush habitats. Longnose leopard lizards sometimes exhibit unwary behavior of humans, which makes them vulnerable to exploitation (Hammerson 1999). There would be no additional impacts to the other sensitive species identified above.

Mitigation: No mitigation measure would be required.

Monitoring: No monitoring would be required.

Alternative B- Removal of Existing Roof, Backfill, Install Interpretive Signs

Direct and Indirect Impacts: Direct and indirect impacts would be the same as those described above for Alternative A. There would be no change in the species potentially impacted by this project. The activities, which are localized at the Pueblo with some potential disturbance to surrounding areas, are essentially the same from the perspective of impacts to wildlife.

Cumulative Impacts: Cumulative impacts would be the same as those described above for Alternative A.

Mitigation: No mitigation would be required.

Monitoring: No monitoring would be required.

Alternative C- No Action

Direct and Indirect Impacts: Under this alternative there would be no change in the existing condition. Although there are impacts previously identified to Lowry Pueblo itself, there would be no impacts to the species identified above. There would be no direct or indirect impacts.

Cumulative Impacts: Under this alternative, there would be no cumulative impacts to threatened, endangered, or sensitive species since no action would occur at the site.

Mitigation: No mitigation measures would be required.

Monitoring: No monitoring would be required.

Native American Religious Concerns

Native Americans are being consulted through the request for comments on this environmental assessment. Comments and suggestions will be considered by the decision-making official prior to preparation of the Finding of No Significant Impact and Signing of the Decision Record. A list of the Native American tribes/nations/pueblos being consulted is provided in the Consultation, Coordination, and Public Participation section of this document.

Recreation

Affected Environment

Lowry Pueblo is a popular day-use recreation area offering visitors picnic sites, bathroom facilities, and a trail designed for the physically disabled. As one of the most visited day-use sites within Monument, Lowry is also the most developed site. During the late 1990s, recreation facilities were upgraded to meet both accessibility standards and increases in visitation. An expanded parking area, six picnic sites, potable water, a trail for the physically disabled, and bathroom facilities were provided during this improvement project. A small storage facility was added in 2001 to accommodate maintenance supplies.

Typically, access to the site is available to visitors throughout the year, with most visitation occurring during the spring, summer, and fall months. Although the access road into Lowry is not maintained during winter months, a mild season often means visitors can access the site.

Most recently, visitation to Lowry increased during the summers of 2000 and 2002 while Mesa Verde National Park was closed due to wild land fires.

Alternative A, Proposed Action

Direct and Indirect Impacts: Implementation of the Proposed Action would limit visitor access primarily during the construction phase of the project. Since the project is estimated to take approximately eight weeks until completion (possibly beginning in May 2003), visitors would not be able to access Lowry. The use of heavy equipment and construction vehicles in the area create health and safety concerns providing for unsafe visitation by the public. However, the temporary closure of Lowry is warranted in order to meet the objectives of the proposed action.

Cumulative Impacts: None.

Mitigation: During implementation of the proposed action, the access road into Lowry would be temporarily closed (using temporary barriers and proper signing) at the intersection of CR CC and the Lowry Access Road. In addition, temporary signing would also be installed at the intersection of CR CC and Highway 666 indicating that Lowry Pueblo would be closed due to construction.

Prior to the start of the project, the public would also be notified of Lowry's closure by posting a notice in the community newspapers.

Monitoring: No monitoring needs were identified.

Alternative B, Removal of Existing Roof, Backfill, and Install Interpretive Signs

Direct and Indirect Impacts: The direct and indirect impacts would be the same as those described for the proposed action.

Cumulative Impacts:

Mitigation: Mitigation measures would be the same as those described for the proposed action.

Monitoring: No monitoring needs were identified.

Alternative C- No Action

Direct and Indirect Impacts: The No Action Alternative would continue to allow uninterrupted visitation during 2003.

Cumulative Impacts: No cumulative impacts were identified.

Mitigation: No mitigation measures were identified.

Monitoring: No monitoring needs were identified.

VI. CONSULTATION, COORDINATION, AND PUBLIC PARTICIPATION

Persons, Groups, and Agencies Consulted

Individuals and agencies listed below have been consulted in the preparation of this Environmental Assessment.

Laura Kochanski, Supervisory Archaeologist, BLM Monument
 Victoria Atkins, Interpretation and Education Staff Lead, BLM Monument
 Penny Wu, Recreation Specialist, Forest Service/BLM
 Kathy Nickell, Wildlife Biologist, BLM
 Steve Kandell, Planner, Monument
 LouAnn Jacobson, Monument Manager, Monument
 Chris Zeller, Principal Investigator, Petrographics
 James Green, Colorado Historical Society, Office of Archaeology and Historic Preservation
 Susan Collins, Colorado Historical Society, State Archaeologist
 James Stratis, Colorado Historical Society, State Historic Fund

Native American Tribes Being Consulted Through Review of this Environmental Assessment

The Northern Ute Tribe
 The Ute Mountain Ute Tribe
 The Southern Ute Tribe
 The Navajo Nation
 The Hopi Tribe
 The Jicarilla Apache Tribe
 The Pueblos of Acoma, Cochiti, Isleta, Jemez, Laguna, Nambe, Picuris, Pojoaque, Santa Ana, Santo Domingo, Sandia, San Juan, San Ildefonso, Santa Clara, Taos, Zia, and Zuni

VII. LIST OF PREPARERS

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 Penny Wu, Recreation Specialist, Forest Service/Bureau of Land Management
 Kathy Nickell, Wildlife Biologist, Bureau of Land Management

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FINDING OF NO SIGNIFICANT IMPACT

Lowry Pueblo National Historic Landmark Kiva B Shelter Construction and Interpretive Sign Installation,
Bureau of Land Management, Canyons of the Ancients National Monument

CO-SJFO-02-015 EA

FONSI: Based on the analysis of potential environmental impacts contained in the attached environmental assessment, I have determined that the action will not have a significant effect on the human environment and an environmental impact statement is not required.

Monument Manager

Date